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HOW (OR WHETHER?) TO INTEGRATE RESEARCH INTO CLASSROOM TEACHING FOR ALL STUDENTS AND ALL HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

The chapter starts by posing a range of questions re teaching/research relations and, in particular, asks whether such is only for selected students in elite/wealthy institutions. The issues are complex and before considering the evidence some of this complexity is discussed—for our answers to the chapter's central questions depend in part on how we 'define' 'undergraduate research' or 'linking teaching and research.' The arguments, including research evidence that undergraduate research should be for selected students, are then presented, including a major review of the research which concludes that the 'common belief that teaching and research are inextricably intertwined is an enduring myth.' Then such questioning views are countered by arguments and evidence from recent research that suggests more positive relations between teaching and research. Other factors are considered including the view that universities should develop all students' understanding of the 'supercomplexity' of the world being continually reshaped by research. In conclusion I present my current attempts to answer the questions posed in the introduction--in particular, outlining ways and the extent to which research-based learning can be extended to all students (and staff) in higher education.

Schreyer National Conference; Innovations in Undergraduate Research and Honors Education: Join the national dialogue on honors education and learn about--integrating Teaching and Research (and) Models of Undergraduate Research. (Brochure announcing the 2001 Schreyer Conference).

We must conclude that the common belief that research and teaching are inextricably intertwined is an enduring myth. At best, research and teaching are very loosely coupled.. The strongest policy claim that derives from this meta-analysis is that universities need to set as a mission goal the improvement of the nexus between research and teaching... The aim is to increase the circumstances in which teaching and research have occasion to meet, and to provide rewards not only for better teaching or for better research but for demonstrations of the integration of teaching and research. Hattie, J. and Marsh, H. W. (1996, pp 529-533) (emphasis added).

INTRODUCTION AND CENTRAL QUESTIONS

Is student research and research-based student learning for *all* students at *all* higher education institutions or are such just for elite students (and elite staff) in selected institutions? This is the central question or rather questions addressed in this paper. For are student research and research-based learning one and the same thing, and can one have research-based learning

when most/many of the staff are not actively or centrally involved in research? The following quotations seemingly demonstrate ‘two’ contrasting positions on these issues.

The American scholar, Burton Clark (1997, 242), has argued that “research activity can and does serve as an important mode of teaching and a valuable means of learning.” He further argues that “*Student involvement in research is an efficacious way to educate throughout the education system the great mass of students, as well as the elite performers*, for the inquiring society into which we are rapidly moving” (emphasis added).

Yet, here are extracts from selected anonymous web sites for US Honors Programs, which clearly see student research as a distinctive and selective characteristic of Honors programs:

- “Learning community composed of talented and highly motivated students;”
- “Honors contract, independent study, thesis;”
- “40,000 dollar annual research grants to undergraduates;”
- “You will be admitted if you have a 3.5 G.P.A. of twelve or more academic units...You have to maintain a 3.5 G.P.A. to stay in the College;”
- “Increased faculty to student interaction through research opportunities.”

Clearly, these institutions see such research-based activities as being for highly selected students--and these institutions are all Carnegie I research universities and/or rich private institutions. Implicitly, such modes of learning and such programs are not, thus, for the broad mass of students on most or all US campuses.

AN INTERNATIONAL PERSPECTIVE

Clearly, these issues are central to many of the discussions on US higher education. But these are not just ‘parochial’ US concerns. In many state systems--particularly in the ‘first world’ economies of the European Union and Australasia--one can see individual academics and institutional and national policy makers seeking to grasp their complexity. They are certainly central to current discussions in my institution (in US terms, effectively a ‘comprehensive’ university) as we seek to formulate ‘deliverable’ and ‘relevant courses.’ Our stated institutional commitment is as follows:

The University is committed to enhancing the links between research activity and teaching in order to ensure that students and staff benefit from learning and teaching in a research environment. (Oxford Brookes University [UK] Learning and Teaching Strategy (January 2000) <http://www.brookes.ac.uk/brookes/LTS.html>.)

That description suggests such ‘research- based’ education is for all students (and all staff?). But, at present we are still grappling with how to deliver such a brave commitment. Anyway, perhaps statements such as this are just ‘mission speak,’ dreamed up by the University marketing department and certainly not deliverable. Would such a strategy be deliverable for all students and all staff in all institutions in your state?

UNPACKING SOME OF THE COMPLEXITY

The questions raised above are immensely important, for they raise central issues as to what are, and what should be, the educative roles of universities. They also ask hard questions as

to what can be effectively delivered in our respective institutions, given current levels of funding and how universities and national systems organize research and teaching. Related to this, as we investigate what others have written and researched, we will find many studies and much complexity (Hattie and Marsh, 1996 and Jenkins, 2000). As has been implicitly indicated above, some of the complexity can be better seen if we distinguish, somewhat crudely, between certain types of programs/forms of student learning that promote ‘*integrating teaching and research (and) models of undergraduate research.*’ Such might include (undergraduate) students,

- Learning how knowledge (in their discipline) is constructed and reconstructed through research, and is often tentative and contested;
- Being taught and assessed in ways that support them in understanding the nature of knowledge and research questions in their discipline or inter-disciplines;
- Being taught—including in year one—by staff who are currently carrying out high-level research;
- Being taught—including in year one—by staff who are currently aware of (and contributing to?) the scholarship on their discipline and/or on the pedagogy of their disciplines;
 - Where the form of learning parallels the research process in that discipline;
 - Where the curriculum equips students with the techniques to carry out research;
 - Where students are supported through the formal and informal college curriculum to transfer the research knowledges and skills they have gained to the worlds of life and employment beyond college.
 - Where (significant) elements of the curriculum involve (selected) students carrying out research projects—supported by (selected) staff;
 - Where the institutional and/or department culture is one that integrates inquiry by staff and students.

We also need to consider at what ‘level’ the integration between (staff) research and student learning is achieved. Such issues of level include:

- Whether we are considering undergraduate or postgraduate courses (and, at postgraduate level, we need to distinguish between taught Masters ... to Post-Doctorates). In this chapter, my main focus is at the undergraduate level, as that is the area where the issues are most complex and under debate;
- At undergraduate level, are we mainly focusing on advanced level courses or is our focus inclusive to all ‘levels?’
- Does the integration occur at the level of the individual academic, each of whom is active in both research and integrating that into their teaching? Or, does the focus of integration occur from the staff perspective in the course team or department (or even at the international level of the disciplinary community)? From the student perspective, does integration occur in each module or program or is the integration over the whole degree?

THE ARGUMENTS FOR SELECTIVITY

There are strong reasons why such student research/research-based learning is for the few. Such reasons include: a) the evidence from research that students don’t seem to benefit from staff research; b) the evidence that, in most political systems, money for research in universities is highly concentrated; and c) the rise of mass higher education systems.

The Evidence from Research

While many academics profess the value to student learning from staff (involvement in) research, the evidence from research is more questioning. Thus, many studies have analyzed the relation/the correlations between staff research productivity and student ratings of individual staff as instructors. Terenzini and Pascarella (1994, p. 30) concluded from these studies: "That good teachers are good researchers is a myth and that, at best, the association between ratings of undergraduate instruction and scholarly productivity is a small and positive one, with correlations in the .10 to .16 range." In a meta-analysis of these studies of university academics, Hattie and Marsh (1996, p. 529) considered 58 research articles contributing 498 correlations and found that the overall correlation was 0.06. "Based on this review we concluded that the common belief that teaching and research were inextricably intertwined is an enduring myth. At best teaching and research are very loosely coupled" (Hattie and Marsh, 1996, p. 529) (emphasis added).

Astin (1993) and Astin and Chang (1995), in a study of 200 US four-year undergraduate colleges, using sophisticated measures of student development, concluded that "a college whose faculty is research-orientated increases student dissatisfaction and impacts negatively on most measures of cognitive and affective development." Astin (1993, p. 363). The few institutions in this study that scored high on both "teaching" and "research" were a few rich, private colleges.

It was on the basis of these and related studies that one policy-orientated review of research concluded that "there is little functional interaction between undergraduate teaching and discovery research." (Ontario Council on University Affairs, 1994, p. 18). In the UK, where current national policies on research and teaching are being reviewed, Bahram Beckhradnia, Director of Policy for the Higher Education Funding Council for England (1998), has argued that "I have not seen any convincing evidence for a causal relationship between teaching and research." Such research and such policy analyses of the research evidence on teaching/research relationships seem to justify national and institutional policies for de-coupling of teaching and (staff) research.

The Pressures for Research Selectivity

In many, perhaps all, political systems, practice and policy are for research being concentrated in selected staff, in selected departments, in selected institutions. In the USA, post-WW2 saw the growth of research concentration, perhaps, paradoxically, just as the HE system was being expanded to accommodate more students (Boyer, 1990). Such research expansion and concentration was fuelled by federal and state governments, who saw research as central to national security and prestige, and to economic growth in the new 'knowledge economy.' While much of this research is now outside universities, governments intervene directly and indirectly to focus research in those HE institutions, departments, and research areas which are likely to produce 'higher returns.' Thus, a recent Australian review of government funding of research argues for high selectivity and competition to better ensure world-class research and researchers. Any discussion of how to ensure links to undergraduate teaching and learning is conspicuous by its absence (Commonwealth of Australia, 1999). Likewise, in the UK, a recent major review of university research has concluded that "Despite the evidence of a synergistic relationship between teaching and research, we make no recommendation about this: it would be wrong to allow teaching issues to influence the allocation of funds for research." HEFCE, (2000, para 175, p. 26). Such selectivity is clearly the result of government and corporate policies. But, certainly

in the UK and, no doubt, elsewhere, many academics, too, see research, particularly in the sciences, as needing to be concentrated. The few voices who argue for research allocations' being equitably allocated to all academics and/or in part, shaped by the needs of supporting undergraduate courses, are few and not very powerful. Thus, if we look at how research support and funding is allocated in our institutions, I doubt that the support of undergraduate student learning is central to the decisions and allocations of research policy or practice. It is, of course, this pressure for research selectivity and the high rewards for institutions and individuals for 'performance' in research that has fuelled the primacy for research in the faculty reward system and for its frequent, effective, de-coupling from undergraduate student learning. In the USA, this has been brought to national attention by such studies as the Boyer Commission (1998, p. 1), with its trenchant opening statement that as "The research universities have often failed, and continue to fail, their undergraduate populations, thousands of students graduate without seeing the world-famous professors or tasting genuine research."

The Rise of Mass Higher Education Systems

The rise of mass higher education systems has called into question those cultural perceptions of higher education as characterized by a close interdependence of staff research and undergraduate student learning. Thus, in the UK in 1963, a major review of higher education argued that university staff should both teach and carry out research on the grounds that "the element of partnership between teacher and taught in a common pursuit of knowledge and understanding, present to some extent in all education, should become the dominant element as the pupil matures. It is of the utmost importance that the ablest, who are capable of going forward to original work, should be infected at their first entry to higher education with a sense of the potential of their studies." (Committee on Higher Education Higher Education, 1963, para 555).

But, at that time, only a small elite went into UK higher education—some 3% of c. 18-year-olds, and most of these would enter HE with a strong academic high school background. They would also benefit from small university classes. That same 1963 'Robbins' Report stated that lecture classes averaged twenty-seven students, seminars, four, and laboratory/practical classes, eight. American readers, whose perceptions of UK higher education are shaped by watching reruns of Inspector Morse and its selective scenes of Oxford University, need to realize that such are nostalgic, perhaps reactionary, fictions. The reality is that UK higher education is now characterized by attempting to educate some 40% of any age cohort in higher education. And, this is occurring as governments are reluctant to increase taxes to pay for such public services. The consequences include large class sizes and overworked staff with available money for research and scholarship being selectively concentrated. In that context (as in the USA with its honors programs in wealthier institutions), undergraduate students' being 'infected' by (staff) research is selectively rationed. Students receiving such research-based learning and/or contact with staff who are active in research will be concentrated in those departments which are successful in obtaining that research funding (though, as in the USA, such staff may have little time or inclination for undergraduate teaching). Research-based learning will be also concentrated in the final year of undergraduate courses. Here, the cultural emphasis on research-based learning, classically argued in the 1963 Robbins Report, still persists. Thus, most UK institutions, including my own, have graduation requirements involving students' completing an independent thesis. This 'dissertation' requirement is similar to the US honors thesis but clearly aimed at the majority of students in all or most institutions. However, some, perhaps many, staff

question whether such a requirement is practical, given student numbers and varied abilities. In my institution and elsewhere, staff comment that advising students doing such independent/research-based inquiries takes much time. In reality, many students don't get that time, which is probably, in practice, mainly for the able students, as staff consider time with them well spent. This issue is made more critical in the sciences, where students need access to scarce research equipment. Some staff ask whether such research-based learning is appropriate for all students. Studies by colleagues at Brookes have indicated that some students are much more motivated than others in doing research and knowing about staff involvement in research. (Breen and Lindsay, 1999). Clearly, these are the sorts of students to whom the US honors programs cater.

Some staff at Brookes (including, at times, myself), ask whether most students in entry-level courses wouldn't gain more from course requirements introducing them to the nature of research in their discipline and for graduating synoptic capstone requirements similar to those on some US campuses. Such capstone requirements could better ensure all students graduate with an understanding of research, without being necessarily able to do it. Should such be restricted to the able motivated few?

The Development of Professional Disciplines

Universities have long trained people for jobs/roles outside academia. Universities such as Oxford and Harvard trained people for the clergy, government, and law. But now, professional courses for the law, health care, business, and information technology are dominant on many campuses. Knowing about professional practice and having some ability to do such practice may be far more appropriate to (highly able) students (and for staff) in such disciplines than research-based inquiries.

You may now want to go back and re-read the early section 'unpacking the complexity' and further consider which connections between (staff) research and student learning are appropriate to which contexts and then read on!

THE ARGUMENTS FOR INCLUSIVITY

There are contrary pressures and arguments of inclusivity—for research-based learning (or, perhaps, certain aspects of 'it') for all/most students in all higher education institutions. Such arguments include a) recent research evidence on teaching /research relations; b) the research evidence as to the effectiveness of active 'constructivist' learning; c) the needs of the new 'knowledge' economy and life-long learning; d) political/cultural arguments as to the nature and role of universities.

Recent Research Evidence on Teaching/Research Relations

As outlined above, previous, largely quantitative/correlative, research has demonstrated that "at best, teaching and research are very loosely coupled" (Hattie and Marsh, 1996, p. 529). More recent research has moved away from correlative studies and, using more qualitative methodologies, have pointed to potentially closer, more positive connections between (staff) research and student learning.

Brew and Boud (1995, 272) called for "more fine-grained studies," focused on how academics experience teaching and research. They hypothesised that "*if there is a link between the two it operates through that which teaching and research have in common; both are*

concerned with the act of learning" (p. 261). They suggest, "*teaching and research are correlated when they are co-related*" (ibid.) and in conclusion suggest that one way to achieve this is to "*exploit further the link between teaching and research in the design of courses.*" (p. 272). (Emphasis added.)

Neumann (1994) in a large Australian research-oriented institution, interviewed some 28 students in a range of disciplines and from first-year undergraduate to doctoral students, on their experiences of teaching and learning. Her conclusions were that there were tangible benefits to students of staff research, mainly through students' perceiving that their courses were up-to-date and that staff demonstrated interest in what they were studying. Also, staff research interests gave students "the opportunity to see their teachers as real people and to be able to glimpse what they do, how and why" (Neumann, 1994, p. 335). In a related study at Oxford Brookes, we used focus groups across a range of undergraduate courses to examine student perceptions of research and staff research and its impact on their learning (Jenkins et al. 1998). Our findings were that students considered the principal role of the university and academics was to teach them and teach them effectively. That was a bottom line requirement and it clearly reinforces the views of Neumann's respondents. Yet, students did perceive clear benefits to them of staff involvement in research. These were what many of us would hope for in particular up-to-date knowledge, enthusiasm, and academic credibility of the lecturer, the department, and their degree. We have now extended this study to taught postgraduate courses, where the students' perceptions of (staff) research are even more positive (Lindsay, Breen and Jenkins, in submission). In related research, Brew has considered how staff perceptions of research may shape the possible connections. Brew (1999, p. 299), argues that "the relationships between teaching and research are dynamic and context driven." The contexts include whether university researchers see research as an objective product or as a process of inquiry and whether teaching is seen as transmission of what is known or an exploration of what is not known by students. "If researchers recognize the ways in which their activities parallel those of students and take steps to involve students in research-like activities, research can inform practice in facilitating learning." (ibid., p. 298).

So the research evidence is now pointing again to the complexity of teaching/research relations, but also clearly indicating the potential benefits in a range of institutional types of students learning about research and through research-based processes. Research by Colbeck in the USA has shown that the extent to which staff can link teaching and research is shaped by "university, departmental and disciplinary contexts" (1998, p. 649). Thus, she shows how staff in a low-prestige institution were, in certain respects, better able to link teaching and research than in a Carnegie 1 institution. For at 'Cosmopolitan University' (a fictional name! –but a real institution), faculty evaluation for 'research' included the writing of textbooks and creative works in popular media. In the Carnegie 1 institution, such work would not 'count'. So, perhaps in some respects, it may be easier to link teaching and research outside the 'research elite'? Certainly, the research evidence is now clearly pointing to the (potential) value of (staff) research to student learning.

The Research and Policy Evidence on the Importance of Constructivist/Active Learning

Much current research on student learning clearly points to the importance of courses that actively engage students through processes of inquiry, to 'construct' knowledge in relation to the knowledge developed through research. Paradoxically, while Boyer's (1990) work is rightly seen as a criticism of universities' emphasis on discovery research, his work can also be seen as a

strong argument for encouraging, even requiring, a close linkage between (staff) research and undergraduate student learning. In *College* (Boyer, 1987), Boyer criticized the dominant passive lecture-based student experience, the separation of undergraduate education from inquiry or research process-based teaching, and the lack of connections between research-orientated staff and (undergraduate) student learning. Indeed, much of the thrust of the powerful reform movement that stems from Boyer's and his colleagues' work is to bring a 'research as student' inquiry guided by (research-based) staff into the US undergraduate curriculum (Carnegie Foundation, 1998). <http://notes.cc.sunysb.edu/Pres/boyer.nsf/>).

Elton (2001), as well, having reviewed the research evidence on teaching/research relations, has similarly argued that there can be a "positive nexus between research and teaching ...under particular conditions." These he sees less in terms of the outcomes (e.g., published papers of staff) than of the extent to which students learn through some form of student-centered or enquiry-based approach, e.g., problem-based learning.

The Needs of the New 'Knowledge' Economy and Lifelong Learning and, relatedly, Political/Cultural Arguments on the Nature and Role of Universities

As discussed above, there are evident pressures from governments, from students and from parents for universities to focus on professional and business skills and downplay academic research. Yet, aspects of the new 'knowledge economy' are seen as requiring individuals with creativity and ability to create and find and synthesize new knowledge. However, in the view of a recent Demos report "our educational structures are lagging behind ... the dominant educational paradigm still focuses on *what* students know, rather than *how* they use that knowledge." (Seltzer and Bentley, 1999, p. 9). If this is accepted, then students' understanding of the research process and ability to do research may be a vital 'key skill' and thus should be central to the curriculum for all/most students.

There are also related and, at times, 'complementary' arguments by those who see Universities as needing to counter the 'new vocationalism' of higher education. Barnett (2000, 63) sees universities as needing to support students (and through them as graduates, society at large) to cope with the 'supercomplexity' of societies that are continually undergoing changes developed through the advance of knowledge. "In that context the issue is whether lecturers adopt teaching approaches that are likely to foster student experiences that mirror the lecturers' experiences as researchers." Again, this is pushing us to see such aspects of research as for all students and all (higher education) institutions.

TENTATIVE CONCLUSIONS AND WAYS FORWARD FOR INDIVIDUALS AND INSTITUTIONS

Such then, is the complexity that individuals and institutions have to confront in delivering on teaching/research relations. My own position on these issues is not fixed. Indeed, over the last five or so years, it has moved from a strong questioning of the value of (staff) research to undergraduates to advocacy of coupling teaching and research (Jenkins, 2000). The 2001 Schreyer Conference gave powerful testimonies of innovative programs that were achieving such connections and certainly shifted my thinking to further advocate their strengthening. So, in conclusion, here are my current answers to some of the questions I posed at the beginning of this chapter:

- We should start from the research evidence which cautions us as to the complexities and difficulties we face--and certainly shows us that if we want to connect student learning and (staff) research, then it has to be purposefully created and this requires actions by staff, institutions and national systems (Jenkins et al. in preparation).
- All higher education institutions and all degree programs should educate all students to understand how knowledge is constructed through research and to understand the research process. Knowledge should be presented as tentative, uncertain and of utter fascination.
- All higher education institutions and all degree programs should educate all students through processes of active 'constructivist' learning, which attempt to parallel the research processes in the disciplines students (and staff) are studying.
- All higher education institutions should support (and require) all academic staff to be scholars/aware of current research developments in their discipline and in the teaching of their discipline (Healey, 2000).
- The above 'requirements' re scholarly activity and support for all staff have major implications for institutions' research policies. These need to give far greater emphasis to supporting the scholarly activity of all staff--not just focusing on high-level research for the few. Such will require a broadening of what 'counts' as 'research' and/or a greater valuing of 'scholarship.' It also requires national systems to ensure that universities are funded for such broad-based but high-level scholarship.
- Such practices and policies can be (in part) achieved outside the research and wealthy elite. Indeed, to give a US example, an institution such as Alverno, Milwaukee may be far more able to support aspects of research-based learning than aspiring research-based institutions such as Oxford Brookes or research-elite institutions such as Penn State or Madison et al.! For Alverno's strong focus on undergraduate learning, an assessment focus on supporting learning, on staff scholarship and research being directed to develop student learning, offers a clear institutional commitment to students' understanding of scholarship (and research?) (Mentowski and Associates, 2000).
- However, singling out Alverno as an indication of what can be achieved outside the research and private elite does indicate that achieving inquiry-based learning requires long term and collective action across an institution. Sadly, such is unusual. It also requires higher education to stand up for the ethical values of the academy--for learning for its own sake--and to question political and student pressures for learning subsumed to the needs of the corporate economy.
- While a focus on students constructing their learning, guided by scholarly staff, does achieve aspects of research-based learning, it falls short of what most of us would see as key aspects of research-based learning--students actually engaging in doing research and students learning directly about the research process. Yet, in the USA there are strong examples outside the research elite of institutions (such as those supported by the Council for Undergraduate Research <http://www.cur.org/>) that have developed programs for selected undergraduate students to do research with selected staff (Hakim, 2000). An Australian study of teaching/research relations in three institutions at very different levels of the academic hierarchy demonstrated "ways in which it is possible to work to strengthen the connections between teaching and research, and highlight that it is valid and important for universities to address the nexus through measures consistent with their mission, goals and objectives. Since universities differ, it is appropriate that the means also differ" (Zubrick et al. in press).

- Aspects of the globalization of higher education enable me to envisage students (and teaching scholars) being able to engage with high-level scholarship and gaining some understanding of the research process through high-quality learning materials (quality textbooks and computer software etc.). They even could have selective mediated access to high-level researchers. But such would require universities and national funders of research to value such materials and pedagogic support. That is not the case in the UK (or elsewhere?) where research funding effectively only values high-level discovery research. Nor do I put trust in the corporate software, publishing/media sectors to produce such support.
- Yet can scholarly teachers who are not currently (or recently) involved to an extent in research effectively aid (or coach) students to understand or do research--even if they have access to such high-quality materials? On this, the research evidence is silent. On prima facie grounds and, from personal experience, I doubt it. Such is certainly the conventional wisdom of academics. (The best sports players don't necessarily make the best coaches: but effective sports/educational coaching surely can only be done by those with a first-hand and current involvement in the game/the research process.)
- Such research-based learning is certainly what the research-based universities claim they (can) achieve. However, when such institutions and their academics proclaim the value of research, they should start from the research evidence, which we have seen questions this positive relationship for students. Certainly, such research-intensive universities have to recognize the research and policy evidence of the potential negative consequences for students of staff involvement with research.
- Yet, the research universities/the comprehensive institutions with research active staff do potentially have something particular to offer students. Potentially they can organize staff/the overall curriculum so that all students can have some exposure to (if not direct contact with) research-active staff. Indeed, to be questioning of the focus of the Schreyer 2001 conference: perhaps even in the context of research universities, its focus was, *for me*, too concerned with the selective education of the few and not the broad education of the 'many' students at those elite institutions.
- Yet, that critical remark misses what for me was the learning from one of the most intellectually exciting and 'useful' conferences I have ever attended. As is clear from the case studies in this volume, research-intensive institutions/Honors programs offer academically gifted/motivated students particular--and deserved--opportunities for a close understanding of the research process and for carrying out such research. I think the challenge for such institutions is not only to ensure the quality of these programs (and in some cases, ensure they don't fade away when external funding ceases), but also to consider how aspects of these programs can become what *all* students on these campuses experience. The challenge for us outside the research elite is to see what we can take from these innovative programs and adapt to the realities of our funding and to the needs of our students. I am still pondering how to do this. But, I am now determined it should happen.

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