

Do Research Obligations of Tenure-Tracked Faculty Negatively Affect the Quality of Undergraduate Education?

Overview

The purpose of this question scan was to examine whether faculty at research universities are functioning adequately in their roles as teachers and researchers. An examination of articles on the relationship between tenure-tracked faculty and undergraduate students may present information as to whether students at research universities are provided adequate access to professors and a quality education.

The initial search, utilizing applicable search terms in three major databases, generated 270 potentially relevant articles written between 1985 and 2005. A subsequent examination of article abstracts reduced the number to 170. The majority of research appears to emanate from the United States, which may owe either to that country's greater recognition of the issue, or simply its capacity to generate research.

Observations

Quantitative: 43 Articles- These articles use statistical evidence to support the claims made. Experimental, quasi-experimental, and large-scale descriptive studies such as surveys and questionnaires comprise this research approach. Ramsden and Moses (1992) and Sullivan (1996) use surveys to determine research university faculty's attitudes towards their dual role, and find that faculty believe themselves dutifully engaged in their simultaneous roles as educators and researchers. Olsen and Simmons' (1996) *The Research Versus Teaching Debate: Untangling the Relationships* indicates that faculty with strong research profiles do not avoid teaching low-level undergraduate courses or rely on less stringent teaching methods. Kuh and Hu's (2001) *Learning Productivity at Research Universities* indicates that the education provided undergraduate students at research universities is not substandard. However, this finding does not ensure that professors are providing students with adequate attention outside of the classroom. Milem, Berger, Day's (2000) *Faculty Time Allocation: a Study of Change over Twenty Years* finds that student advising and informal interaction with faculty have decreased over the past 20 years.

Other relevant observations include:

- some academic disciplines, particularly the humanities, are more inclined to emphasize and integrate research into teaching, e.g. Colbeck (1998) *Merging in a Seamless Blend: How Faculty Integrate Teaching and Research*;
- institutions and governments can influence and determine final levels of research and education quality, e.g. Del Rey (2001) *Teaching Versus Research: A Model of State University Competition*;
- undergraduate students recognize the value of research; in fact, participation in an undergraduate research program in which students assist professors with research may increase both retention rates and the likelihood that students will pursue graduate or professional studies, e.g. Hathaway, Nagda and Gregerman

(2002) *The Relationship of Undergraduate Research Participation to Graduate and Professional Education Pursuit: an Empirical Study.*

Qualitative: 64 Articles- Included under this heading are descriptive case studies, narratives and interviews published in academic journals. A number of case studies and interviews indicate that the reward system at research universities favours research and publication over teaching, e.g. Fellman (1995) *On the Fetishism of Publications and the Secrets Thereof*. While some institutions have attempted to reemphasize undergraduate teaching, there have perhaps not been corresponding changes to the established tenure and reward systems, e.g. Wolverton (1998) *Treading the Tenure-track Tightrope: Finding Balance between Research Excellence and Quality Teaching*. A number of articles suggest that universities cannot expect major productivity gains in research or teaching without formally redefining faculty roles, e.g. Olsen (1994) *Institutional and Technical Constraints on Faculty Gross Productivity in American Doctoral Universities*.

Other relevant observations:

- a number of institutions have established programs which merge research with undergraduate study, e.g. Eddins *et al.* (1997) *Searching for a Prominent Role of Research in Undergraduate Education: Project Interface*;
- new faculty are often unprepared for and overwhelmed by the time required for teaching and often resent it as a result, e.g. Luce and Murray (1998) *New Faculty's Perceptions of the Academic Work Life*;
- the motivational patterns of professors regarding their involvement in teaching is often related to their status within the department, e.g. Serow, Brawner and Demery (1999) *Instructional Reform at Research Universities: Studying Faculty Motivation*;
- a number of articles dispute the perception that too much priority is given to research over teaching, and emphasize that conventional wisdom is damaging the quality of research being done, e.g. Maddux (1994) *Resisting the National Trend to Devalue Educational Research and Publication*.

Editorials: 24 Articles- These are position or opinion papers advocating for certain principles or practices. Of concern to most authors is the maintenance of a healthy balance between research and teaching; some insist the research-teaching bond is essential to productive learning, e.g. Brew and Boud (1995) *Teaching and Research: Establishing the Vital Link with Learning*. However, others attempt to illustrate that the two are mutually incompatible, e.g. Barnett (1992) *Teaching and Research are Inescapably Incompatible*. Other themes include institutional changes to mend the imbalance when discovered, and governments' role in ensuring that students receive a quality education at research-oriented post secondary institutions.

Review: 9 Articles- Included under this heading are articles that review literature focused on the teacher/researcher nexus. The most relevant review may be Kane,

Sandretto and Heath's (2002) *Telling Half the Story: a Critical Review of Research on the Teaching Beliefs and Practices of University Academics*. They question the validity of research that "examines only what university teachers say about their practice and does not directly observe what they do." Also relevant are Hattie and Marsh (1996) and Neumann (1996).

Reports: 30 Articles- These are relevant articles found in trade or academic journals that do not necessarily include new research. Notable themes in addition to many of those already mentioned include:

- the attempts of institutions to change curriculum and focus are often met by resistance from faculty, e.g. Grassmuck (1990) *Some Research Universities Contemplate Sweeping Changes, Ranging from Management and Tenure to Teaching Methods*;
- the increasing relevance and role of computer applications in the relationship between students and teachers, e.g. Young (1997) *Rethinking the Role of the Professor in an Age of High-tech Tools*.

Final Observations

- Faculty at research universities generally accept the need to provide quality instruction while pursuing their research agendas. Most believe that they are capable of fulfilling both roles. However, much of the non-quantitative data suggests that faculty beliefs may be inconsistent with their lived realities.
- Institutions appear to have realized that there is, at least in perception if not fact, too much emphasis placed on research, which may be detrimental to undergraduate students' educational needs. In some instances there have been attempts to rectify this situation.
- Reward and recognition of faculty at research universities continues to depend mostly on research and publication thus providing far greater incentives for faculty to prioritize research that brings prestige and recognition to the institution.
- Involving undergraduate students in valid research seems to be the method most often utilized to improve the learning experience for students at research driven institutions.

Summary

There appear to be contradictions between the quantitative data and the information reported in other articles. The majority of quantitative data derives from large scale surveys and questionnaires given to faculty and students. Possibly there is a divergence between these espoused beliefs and actual practice that has not been investigated sufficiently to draw definitive conclusions. Discretion should be used when analyzing conclusions.

There appear to be many challenges facing those who question whether the 'marriage' of instruction and research is out of balance. Evidence that government and universities in the United States have recognized the potential problem and made attempts to resolve this issue exists; however, institutional change is a long-term, laborious process. Finally, while there is little evidence to indicate that research universities short-change undergraduate students educationally, there is also little evidence indicating that student well being is the focal point of current institutional practice.

Feasibility

Based on the material reviewed, there is little evidence that a systematic review of the literature would provide sufficient new information to make it a worthwhile endeavour.

Appendix A: Included References

References - Canada

Seven Principles for Good Practice in Undergraduate Education. (1988). *University Affairs*, 29(9), 3.

Downey & James. (2003). The Heart of Our Enterprise [Undergraduate education]. *University Affairs*, 44(10), 28.

Furrow, D., & Taylor, C. (1996). Research at Two Small Canadian Universities: The Views of Faculty. *Canadian Journal of Higher Education*, 26(1), 57-73.
Faculty at two small Canadian universities were surveyed concerning their research activities and preferences, views of themselves as researchers, and factors they felt constrained or facilitated research activities. Respondents were highly committed to research. Teaching and nonteaching commitments, availability of graduate students, limitations of library holdings were problems; personal motivation and institutional research offices were positive factors.

Gilbert, S. (1995). Quality Education: Does Class Size Matter? *CSSHE Professional File*, (14)

This paper reviews the research on the effects of class size on educational quality in higher education, and discusses the characteristics of the students and kinds of course organization that facilitate effective large-class teaching. It notes that while early research found that class size mattered, newer studies have shown that factors other than class size are more important to educational quality. Studies of teaching effectiveness have found that course organization and instructor practices are more important than class size in producing positive student outcomes. The paper states that instructor competency, concern for students, energy level, speaking ability, organization, and clarity are the factors that help students learn in large classes. It also argues that student involvement and personal contact between the professor and the students make a significant difference in learning outcomes, and that this can be encouraged through brainstorming sessions, asking questions and encouraging dialogue, dividing the class into smaller task-oriented groups, facilitating problem solving and critical thinking skills by starting class with a puzzle or problem, and class debates, simulations, and role playing.

Hum, Derek. (2000). The Relative Returns from Research and Teaching: a Market Perspective. *EAF Journal*, 15(1), 23.

The empirical evidence accumulated over the past twenty-five years suggests there is no necessary link between effective undergraduate teaching and research. The definition of teaching refers to instruction of undergraduates, typically measured by student ratings of instruction, the best validated of the practical measures. Research is taken to be "discovery" research; that is, "pure," "basic" or "scientific" research--the kind typically published in peer-reviewed journals. With this "narrow" definition of research and this "imperfect" measure of teaching effectiveness, a thorough

survey of the serious empirical attempts to investigate the relationship between teaching and research concludes that discovery research and undergraduate teaching are independent or mildly conflicting. In the report's words: "the case for university faculty maintaining a major involvement in discovery research in order to support their undergraduate teaching activities has not been made" (Ontario Council on University Affairs, 1994b, p. 13). Further, "the belief that good teachers are good researchers is one of the... myths in higher education" (p. 18). The obvious shortcoming of the statement that no relationship exists between teaching and research lies in the very definitions chosen. However, the most thorough and recent review of the literature studying the relationship between research and teaching, employing a meta-analysis of 58 studies and with due regard to the kind of evidence necessary to assess the various types of relationship, demonstrated that "the relationship is zero" (Hattie & Marsh, 1996). Consider what might happen if both firms now merge with a common wage structure as well as a common job description and identical task allotments (because of unionization?) to all individuals in the newly-merged firm. The effect of these "restraints" on the new firm is probably intuitive. For the new firm, the problem is to design an incentive-compatible system, in which account must be taken of the "different dimensions of the worker's task portfolio" (Holmstrom & Milgrom, 1994, p. 972). In particular, the problem will involve identifying tasks which are either "complementary" in productivity (meaning doing the one helps you to do the other more productively) or "substitutable" in effort (meaning doing the one precludes your doing something else).(3) The design can be quite complex, depending on whether the residual reward from the market valuation belongs to the firm or the individual (the issue of property rights), and even whether measurement of output and performance is costly, or possible. The list of factors goes on, but considers just the last complication. If teaching undergraduates provides little or no gain to research productivity, professors will not allocate much effort or time toward improving their teaching evaluations if the financial reward structure, as noted above ([Katz], 1973), does not pay for "excellence" in teaching. Thus, if the university-firm wishes to encourage more effort devoted to teaching, the wage structure must be tilted in favor of the teaching component. But if measuring teaching performance is impossible or extremely difficult, this might have to be accomplished by reducing the reward to research instead, because teaching undergraduates and conducting research are substitute activities in effort (input), and, as we have seen, teaching and research are independent in terms of productivity. On the other hand, if teaching (say, of graduate students) is complementary with research in productivity (output), as also noted above (Katz, 1973), and teaching effectiveness is equally difficult to measure, then the optimal wage structure must be accomplished by increasing the reward for research achievement. The question of the "ideal" incentive structure can be exceedingly complex for a university-firm providing numerous functions and serving different publics. In this parable, we have tied-suppliers rather than the more familiar tied-sales phenomenon, and the conditions for profitable "bundling" may not be satisfied.(4) As Holmstrom and Milgrom (1994) note, "one should not try to explain any one particular attribute of the employment relationship without reference

to substitute and complement attributes" because the key is "to evaluate them not in isolation, but as part of a coherent incentive system" (p. 989-90).

Kreber, Carolin. (2000). Integrating Teaching with Other Aspects of Professorial Work: a Comparison of Experienced and Inexperienced Faculty's Role Conceptualization. *The Canadian Journal of Higher Education*, 30(3), 79.

Studies also shed some light on how faculty themselves see the relationship between research and teaching. After interviewing twelve professors holding an administrative position as head of their department at a British university, [Rowland] (1996) concludes "All those interviewed expressed a view that active involvement in the research process directly improved the quality of teaching" (p. 13). It seems worth noting that all twelve participants in Rowland's research had extensive experience as members of the professoriate and had reached the highest professorial rank. A recent U.S. study by Li-Ping Tang and Chamberlain (1997) also raises some interesting questions regarding the role of experience in faculty's perceptions of the relationships between research and teaching. These authors compared administrators' and faculty's attitudes towards teaching and research and report that administrators believe that research and teaching are mutually supportive. Faculty, on the other hand, believes that research interferes with teaching, and that they should be required to do either teaching or research, but not both. Interestingly, the sample of faculty consisted of 232 professors at different career stages, with 142 of these being at the rank of assistant and associate professor. Unfortunately, the survey results were not broken down by length of service or professorial rank, so it is unknown whether more experienced faculty might have shared a view of teaching and research that is similar to that of administration. However, the results of Li-Ping Tang and Chamberlain's (1997) and Rowland's (1998) studies indicate a need to further investigate the role of experience in how faculty perceive the relationships between teaching and research. This article reports on a study which investigated whether there are differences between experienced and inexperienced faculty in the extent to which they integrate their various professorial roles. These professorial roles were defined as teaching, research, plus service activities. My main purpose was to explore whether work-related experience may play a role in the development of an increasingly integrated view of professorial work. Experienced faculty was found to integrate the various roles associated with professorial work more strongly than inexperienced faculty. Furthermore, when all activities associated with the teaching role were considered as a single variable, experienced faculty was found to integrate the teaching function more strongly with research and service activities than did their inexperienced peers. The two groups of faculty agreed the most on how they conceptualized the research activities while there was much more disagreement in relation to the other activities listed in the grid. Research was cited earlier that investigated faculty's perceptions of the relationship between teaching and research (Rowland, 1996; Li-Ping Tang & Chamberlain, 1997). In this context, I asked the question as to whether it might be that experienced faculty integrates the two important professorial roles more strongly than inexperienced faculty. The results of this study provide some first evidence to support this hypothesis. However, to what extent are these results attributable to work experience rather than to a sampling

effect? The experienced group, after all, was purposively selected including only professors who demonstrated competence and interest in teaching, research, and presumably service work.

Owen, Michael. (1992). Research at Small Canadian Universities. *The Canadian Journal of Higher Education*, 22(2), 1.

Page, Stewart & Alexitch, Louise. (1997). Faculty Members' Attitudes and Perceptions About the Quality of University Education. *Canadian Journal of Education*, 22(1), 82.

Professors can greatly influence the academic and personal development of students in post - secondary institutions (Pascarella, 1984; Theophilides, Terenzini, & Lorang, 1984). For example, Theophilides, Terenzini, and Lorang (1984) found that students who sought contact with professors outside the classroom, to discuss both course - related and other matters, viewed a liberal education more positively than did those students whose contact with faculty members consisted of informal socializing. However, some recent studies (e.g., Crespo & Acevedo, 1991; Siegfried & Raymond, 1985) have noted that professors may hold values inconsistent with a providing a liberal education to students. Moreover, Remigio and Page (1991) found that students perceived faculty members as having values primarily oriented around financial and career goals. The importance of attending university to improve literacy skills was rated significantly higher by professors in the Arts and Humanities ($M = 4.62$, $SD = 0.65$) than by professors in the Social Sciences ($M = 3.36$, $SD = 1.25$); $F(2,45) = 5.23$, $p < .01$. In addition, respondents' teaching experience was positively correlated with the importance of attending university to learn critical thinking skills, $r = .31$, $p < .05$, but was negatively correlated with the importance of attending university to make new friends, $r = -.39$, $p < .01$. As a reason for choosing an area of study, the importance of the quality of teaching in courses was rated more highly by professors in the Arts and Humanities ($M = 4.07$, $SD = 0.76$) than by professors in the Sciences ($M = 2.80$, $SD = 1.32$); $F(2,45) = 4.84$, $p < .05$. Lastly, respondents' teaching experience was negatively correlated with the importance they placed on choosing an area of study because it offered many career options, $r = -.30$, $p < .05$.

Shapiro, Stan. (1998). Let's Get Real About Teaching. *University Affairs*, 39(6), 25.

Taylor, K. L. (1993). The Role of Scholarship in University Teaching. *Canadian Journal of Higher Education*, 23(3), 64-79.

It is argued that scholarship is the primary teaching resource for college faculty: the content, structure, and process knowledge inherent in scholarship can contribute to effective teaching and learning when explicitly taught to students by the scholar-teacher. Instruction may be designed to approximate the ideal of apprenticeship.

Tom, Allison. (1997). The Deliberate Relationship: a Frame for Talking About Faculty-student relationships. *Alberta Journal of Educational Research*, 43(1), 3.

Wright, Alan, W., O'Neil, & Carol, M. (1994). Perspectives on Improving Teaching in Canadian Universities. *The Canadian Journal of Higher Education*, 24(3), 26.

References - USA

A Survey of Traditional and Distance Learning Higher Education Members. (2001). *Ed at a Distance*, 15(7)

Discusses the results of a survey of public colleges and universities with NEA (National Education Association) members to determine distance learning practices. Highlights include the growth of distance learning courses; similarities and differences between distance learning and traditional faculty; distance learning technology; course development; student characteristics; and faculty attitudes.

Why is research the rule? The impact of incentive systems on faculty behavior. (2000). *Change*, 32(2), 53-56.

Tenure has become a focus for criticism about how the academy operates. It is a rallying cry for those who want to restructure colleges and universities, especially those who want to change the incentives they think lead faculty to prefer research over teaching. Critics complain that tenure is little more than a guarantee of lifetime employment, one that weakens, rather than strengthens, quality by allowing faculty to determine the amount of time they devote to the various activities that make up their jobs. Detractors assert that this freedom leads to the primacy of research in faculty activity and a concomitant lack of attention to teaching and service. The results of a survey on how incentive and reward systems influence faculty thought and behavior are presented and discussed.

Adams, J. (2003). Assessing Faculty Performance for Merit: An Academic Accomplishment Index. *Journalism and Mass Communication Educator*, 58(3), 240-250.

This paper outlines a quantitative procedure developed for assessing the scholarly, teaching, and service accomplishments of faculty members being reviewed for promotion and tenure. This Academic Assessment Index (AAI) is based on the responses of 109 university and college administrators (chairpersons, department heads, and deans) in a national survey. Based on the Law of Comparative Judgment, the AAI was developed from a statistical analysis of these responses. The results may provide an important perspective on the difficult issue of how faculty career advancement portfolios including teaching, scholarly works, and service activities are judged by senior colleagues and administrators.

Amey, M. J. (1999). Faculty Culture and College Life: Reshaping Incentives Toward Student Outcomes. *New Directions for Higher Education*, 27(1), 59-69.

Faculty incentives are skewed away from the collegiate ideal, particularly at research universities. It is not inevitable that research-oriented faculty divorce themselves from students and campus life, but active participation requires changes in faculty

culture, evaluation/reward structures, and types of conversation in which faculty engage on campus, to refocus on creating a supportive learning and development culture.

Atwood, C. H., Taylor, J. W., & Hutchings, P. A. (2000). Why are Chemists and Other Scientists Afraid of the Peer Review of Teaching? *Journal of Chemical Education*, 77(2), 239-243.

The American Association for Higher Education's project "From Idea to Prototype: The Peer Review of Teaching" is discussed. This project began in 1994 with the broad-based goal of creating new roles for faculty in improving and ensuring the quality of teaching and learning. Participants in the project report that techniques developed by the project have changed their teaching and raised their awareness of student learning styles. These techniques have also been used effectively in promotion, tenure, and merit decisions. However, the widespread adoption of these techniques has not been forthcoming, largely due to fear of peer review of teaching. The following topics are discussed: how the project began, its present status, the issue of fear, the arguments for peer collaboration and review, a brief review of the results and impact of peer review of teaching, and future plans for the project.

Bakker, G. (1995). Using 'Pedagogical-impact Statements' to Make Teaching and Research Symbiotic Activities. *The Chronicle of Higher Education*, 41, B3.

The writer recommends that every request for research funds should include a description of the impact that the research is likely to have on teaching. Such pedagogical-impact statements would ensure that teaching and research complement and reinforce one another.

Barnett, B. (1992). Teaching and Research are Inescapably Incompatible. *The Chronicle of Higher Education*, 38, A40.

Barnett, R. (1992). Linking Teaching and Research: a Critical Inquiry. *The Journal of Higher Education (Columbus, Ohio)*, 63, 619-636.

Bass, S. A., & Silverstein, N. M. (1996). Action Research: a Practical Model to Link Teaching, Research, and Community Service. *Metropolitan Universities: An International Forum*, 7(3), 85-94.

Action research, in which the college teacher leads students in design and implementation of a study responsive to specific community needs, is proposed as one way of linking faculty imperatives of teaching, research, and public service. The approach allows faculty to gather and analyze data for publication while meeting instructional requirements, and students are challenged by participation in research.

Bassis, M. S. (1986). The Quality of Undergraduate Education: Toward an Agenda for Inquiry and Action. *Teaching Sociology*, 14(1), 1-11.

Explores current concerns about the quality of undergraduate education and examines three strategies for improving its quality: (1) providing more opportunities for faculty development, (2) modifying the culture of universities to encourage

greater commitment to teaching, and (3) changing the norms of academic disciplines to enhance the status of teaching.

- Bauer, K. W., & Bennett, J. S. (2003). Alumni Perceptions Used to Assess Undergraduate Research Experience. *Journal of Higher Education, 74*(2), 210-230. On a survey of 986 alumni from a research-extensive university, respondents with undergraduate research experience, when compared to those with no research experience, reported greater enhancement of important cognitive and personal skills as well as higher satisfaction with their undergraduate education. They were also more likely to pursue graduate degrees.
- Baum, R., & Worthy, W. (1990). TEACHING VS. RESEARCH: Tide Begins to Turn toward Teaching. *Chemical and Engineering News, 68*(16), 4. Summarizes two cases emphasizing teaching in major research universities: (1) an address by the president of Stanford University and (2) efforts of the Alliance for Undergraduate Education.
- Beidler, P. G. E. (1986). "A Privilege, Not an Obligation": Research, Scholarship, and the Needs of Students. The ten finalists for the Council for Advancement and Support of Education's annual Professor of the Year award discuss their obligation as professors to do research, get grants, and publish in addition to teaching students.
- Bieber, J. P., & Others. (1992). Through the Years: Faculty and Their Changing Institution. *Change, 24*(4), 28-35. Interviews with over 50 faculty members at the University of Michigan identified changing attitudes about their professional lives and the institution. Attitudes of successful academics, promotion-delayed faculty, and administrators are summarized. Common themes included an increased emphasis on research productivity and a more competitive college environment.
- Bjornsen, C. A. (2000). Undergraduate Student Perceptions of the Impact of Faculty Activities on Education. *Teaching of Psychology, 27*(3), 205-208. Psychology and nonpsychology undergraduate students (n = 212) provided their perceptions of the impact of professors' out-of-class responsibilities on student education. Students perceived professor activities directly related to instruction and 1-to-1 contact as most important to the quality of education and placed substantially less value on research and service activities. Results of factor analysis suggested an alternate model of student perceptions. Resolving the discrepancies between the 2 models--as well as the needs of students, faculty, and administrators--involves bridging the perceived gap between the importance of teaching, research, and service.
- Blackburn, R. T., Lawrence, J. H., & Bieber, J. P. (1991). Faculty at Work: Focus on Teaching. *Research in Higher Education, 32*, 363-383.

Boice, R. (1991). New Faculty as Teachers. *Journal of Higher Education*, 62(2), 150-173.

Repeated interviews (n=207) at two large universities suggest that new faculty teach defensively, emphasizing content over student involvement, rarely seek or receive collegial help, and resent teaching as an activity that undermines scholarship. The successful minority quickly sought help and found a workload balance.

Bonzi, S. (1992). Senior Faculty Perceptions of Research Productivity. *Proceedings of the ASIS Annual Meeting*, 29

This report, part of an ongoing study of research productivity among senior faculty members at Syracuse University, focuses on the results of a survey that examined perceptions of what productivity is, how important publication is to their advancement, and what the aids and deterrents to research productivity are.

Braxton, J. M. (1996). Contrasting Perspectives on the Relationship between Teaching and Research. *New Directions for Institutional Research*, (90), 5-14.

Three perspectives on the link between college faculty research and teaching effectiveness (null, conflict, and complementarity) are discussed, and empirical support for each is examined. Both null and complementarity perspectives receive modest affirmation, whereas the conflict perspective garners little support.

Braxton, J. M. (1995). Disciplines with an Affinity for the Improvement of Undergraduate Education. *New Directions for Teaching and Learning*, (64), 59-64.

Empirical research on aspects of teaching role performance in which disciplinary differences have been observed (teaching goals, teaching practices, course examination questions, and the relationship between teaching and research) is summarized, and implications for faculty and development, academic affairs administration, and improvement of undergraduate education are examined.

Braxton, J. M., & Berger, J. B. (1996). Public Trust, Research Activity, and the Ideal of Service to Students as Clients of Teaching. *New Directions for Institutional Research*, (90), 79-91.

A summary of articles on the relationship between faculty research and college teaching finds that faculty scholarship does not adversely affect teaching norms, teacher effectiveness, student cognitive development, or currency of course content. However, research activity affects two teaching dimensions detrimentally: rigor of course examinations and prompt feedback to students. Implications for administrators, institutional researchers, and scholars are considered.

Braxton, J. M., Eimers, M. T., & Bayer, A. E. (1996). The Implications of Teaching Norms for the Improvement of Undergraduate Education. *The Journal of Higher Education (Columbus, Ohio)*, 67, 603-625.

A study examined the role that norms play in supporting or inhibiting teaching improvement measures. Participants were 253 tenured, full-time faculty in biology, history, mathematics, and psychology who held academic appointments at Research I Universities and Comprehensive Universities and Colleges II, as classified by the

Carnegie Classification of Institutions. Participants were asked to report their opinion on the specific behaviors they might apply to a faculty member teaching a lower division college course of about 40 enrolled students, regardless of whether the participants taught such a course themselves. The results show that normative support was not particularly strong for many of the teaching improvement recommendations that have been advocated by national consortia and individual scholars. Furthermore, the results suggest that faculty teaching norms, defined as appropriate or inappropriate behavior within a specific undergraduate teaching context, sometimes differ according to a faculty member's discipline and institutional affiliation.

Bray, N. J., & Others. (1996). Research Activity and the Support of Undergraduate Education. *New Directions for Institutional Research*, (90), 23-29.

A study examined the relationship between faculty research productivity and the importance faculty attach to the undergraduate education goal of knowledge breadth and to faculty accessibility to students. Differences between "hard" and "soft" disciplines were also assessed. Results indicate that there is no correlation between productivity and these attitudes, contrary to public perception.

Brew, A., & Boud, D. (1995). Teaching and Research: Establishing the Vital Link with Learning. *Higher Education*, 29, 261-273.

Much time and effort has gone into trying to demonstrate an empirical link between research activity and teaching performance. In general, the correlations between these factors have been shown to be low. This paper argues that the attempt to find such a link will always be confounded by different conceptions of the two enterprises. The debate about the relationships between teaching and research as presently conceived is not fruitful. 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, though in different contexts. Greater emphasis needs to be placed on the ways in which knowledge is generated and communicated. Those aspects of teaching which lead to learning and the learning which occurs through research provide the vital link. This is important if the debate is to progress beyond a political defence of the status quo and be of practical use to considerations of whether, in higher education, teaching without research is to be encouraged.

Burke, L. A., & Cummins, M. K. (2002). Using Undergraduate Student-Faculty Collaborative Research Projects to Personalize Teaching. *College Teaching*, 50(4), 129-133.

A collaborative research project, which was offered as an alternative to traditional undergraduate independent study courses, is discussed. The authors describe the characteristics of traditional independent study courses and how collaborative research efforts differ from them. Such projects provide an in-depth exposure to the topic under study, produce outcomes of a scholarly paper or presentation at a professional meeting, and facilitate authentic interactions between student and teacher. Specific guidelines for establishing a collaborative research project are provided. The authors, a college faculty member and an undergraduate student,

outline the benefits of collaborative projects and specific lessons learned from their experiences executing a project.

Caffarella, R. S., And Others. (1992). Delivering Off-Campus Instruction: Changing Roles and Responsibilities of Professors in Higher Education. *Continuing Higher Education Review*, 56(3), 155-167.

Interviews with 22 faculty teaching in off-campus programs showed (1) teacher role changed because of compressed time frame, student expectations, and existence of cohort groups; (2) professional and personal satisfaction diminished because of time pressures, diminished interaction with on-campus colleagues; and (3) faculty needed consistent administrative support for scheduling, equipment, and recognition among others.

Cheney, L. V. (1991). Tyrannical Machines: A Report on Educational Practices Gone Wrong and Our Best Hopes for Setting Them Right. *Humanities*, 12(1), 4-10, 36-37. Examines accelerating trend in colleges and universities toward emphasis on research. Comments that prestige and funding accrue from research, not teaching. Analyzes factors in the decline of communicating knowledge as lighter teaching loads result in cost escalation and fewer course offerings. Argues the balance between scholarship and teaching must be restored.

Clack, G. S., & Joynson, R. B. (1992). Reflections on a Teaching Exchange in Psychology. *Teaching of Psychology*, 19(1), 31-33. Discusses experiences of U.S. and British psychology professors who exchanged teaching duties. Reports perceptions of differences between departments. Examines views concerning students, approaches to teaching, and faculty issues. Concludes that upper level U.S. undergraduates could benefit from British teaching methods. Suggests the British system of department governance needs a more democratic approach.

Clark, B. R. (1997). The Modern Integration of Research Activities with Teaching and Learning. *The Journal of Higher Education (Columbus, Ohio)*, 68, 241-255. A revised version of a paper given at the second international meeting of the (American) National Academy of Education, which was held in Sweden on September 22-25, 1994, is presented. The writer presents the thesis that research activity can and does operate as a significant teaching mode and as a valuable means of learning. He first grounds his compatibility thesis in an ideal-type notion of a research-teaching-study nexus. He then provides a brief historical overview of the way close resemblances to the nexus became organizationally embedded in universities, first through the German 19th-century construction of what is now called "the academic research group" and then, under 20th-century circumstances, by the American addition of "the advanced teaching group." The writer demonstrates the feasibility of much greater use of research-based teaching and learning in American undergraduate programs and outlines American elementary and secondary education reform efforts that emphasize student involvement in research. Overall, the writer emphasizes an inquiry model of education in his compatibility thesis.

- Colbeck, C. L. (2002). State Policies to Improve Undergraduate Teaching: Administrator and Faculty Responses. *Journal of Higher Education*, 73(1), 3-25.
Compared faculty and administrator responses at Ohio State University and Youngstown State University versus the University of Tennessee, Knoxville and Tennessee Technological University to their states' policies to improve undergraduate instruction. Found that responses to Ohio's faculty workload mandate versus Tennessee's performance funding initiative reflected differences in institutional contexts, time lapsed since policy enactment, and conflicting state policies.
- Colbeck, C. L. (1998). Merging in a Seamless Blend: How Faculty Integrate Teaching and Research. *The Journal of Higher Education (Columbus, Ohio)*, 69(6), 647-671.
A study investigated how university faculty simultaneously accomplish and integrate teaching and research. A total of 12 faculty members from the English and physics departments at two universities participated in structured observations and interviews, and 18 faculty colleagues and nine department chairs and deans participated in interviews. It was found that the English and physics faculty integrated teaching and research between 8 percent and 34 percent of their work time, that the English faculty integrated research more with classroom teaching, and that the physics faculty integrated research more with training students how to conduct inquiry. Emerging patterns from comparing and contrasting activities and contexts indicate that the nature and opportunities for teaching and research integration differ according to the purpose of the teaching effort, disciplinary paradigm consensus, disciplinary norms for training students to carry out research, university evaluation and reward policies, and faculty involvement in decision making. The implications of the results are discussed.
- Collison, M. N. -. (1991). Big Universities Seek Smaller Classes, More Contact with Professors. *Chronicle of Higher Education*, 37(17), A37, 39-40.
Although costs inhibit large-scale change, many large institutions are moving toward improvements in undergraduate education, with some imitating some aspects of small colleges. Reduced class and section sizes, elaborate orientations, special freshman groups, and courses in which faculty share cutting-edge research with freshmen and sophomores are among the initiatives.
- Dalbey, M. A. (1998). Undergraduate Education and Professional Responsibility. *ADE Bulletin*, (120), 13-15.
Urges that PhD-granting departments consider shrinking their graduate programs, thus reducing overproduction of PhDs and, by reducing the number of sections taught by graduate assistants, perhaps providing new tenure-track positions. Urges also that PhD-granting departments examine staffing practices in lower-level offerings and commit to engaging tenure-track faculty members at all curriculum levels.
- Daly, W. T. (1994). Teaching and Scholarship: Adapting American Higher Education to Hard Times. *The Journal of Higher Education (Columbus, Ohio)*, 65, 45-57.

Davis, J. R. (1994). Integrating the Quality Triad: Curriculum, Teaching, and Assessment. *Educational Record*, 75(1), 42-46.

For change in higher education to be effective, it is necessary to integrate three important current movements: curriculum development; instructional improvement; and college outcomes assessment. The problems prompting the movements are closely connected, and their solutions are interrelated. Faculty workload and reward system are related issues.

Del Rey, E. (2001). Teaching versus Research: A Model of State University Competition. *Journal of Urban Economics*, 49(2), 356-73.

This paper analyzes a game between two competing universities that teach and research in the same jurisdiction. The resulting equilibrium is unique and symmetric but differs according to preferences, technologies, and public policy. The budget for university finance is exogenously given and consists of a lump-sum amount and a per-student allocation. Under this finance structure, we are able to identify four types of equilibrium characterized, respectively, by full-time teaching, full-time research, selective teaching plus research, and mass teaching plus research. Conditions for each of them to take place are derived. By manipulating the parameters of the finance scheme, the government can, in some cases, determine final levels of research and education quality.

Dey, E. L. (1995). The Activities of Undergraduate Teaching Faculty. *Thought & Action*, 11(1), 43-62.

A study examined the nature and scope of teaching-related activities of undergraduate faculty, based on a 1992-93 national faculty survey. The research investigated faculty's professional and personal goals, principal activities and primary interests, preferences for teaching and research, expectations for students, allocation of time, teaching and research activities, goals for undergraduates, and instructional methods used.

Druger, M. (1997). Reform in Undergraduate Science Education. *Journal of Natural Resources and Life Sciences Education*, 26(1), 4-5.

Argues for altering the balance between research and teaching at the university level to improve science education for undergraduates. Recommends changing the tenure and promotion guidelines to recognize high-quality teaching, redefining good scholarship to include innovative teaching methods, introducing professional development programs to change attitudes, and recognizing the special talents required to teach introductory courses.

Eble, K. (1990). The Degradation of Undergraduate Education.

Increased emphasis on research and grantsmanship leaves college faculty with little time or inclination for undergraduate teaching. Concern for education has given way to concern for power. Higher education is now only distantly connected with shaping a citizenry.

Eddins, S. G. N., Williams, D. F., Bushek, D., Porter, D., & Kineke, G. (1997). Searching for a Prominent Role of Research in Undergraduate Education: Project Interface. *Journal on Excellence in College Teaching*, 8(1), 69-81.

A University of South Carolina program provides marine science students with learning opportunities that merge research and undergraduate study. In three semesters, students mastered complex scientific concepts and important professional skills such as critical and independent thinking, teamwork, and problem solving. Student/faculty and student/student interactions improved, and students gained statewide visibility in the scientific and business communities.

Elton, L. (1992). Research, Teaching and Scholarship in an Expanding Higher Education System. *Higher Education Quarterly*, 46, 252-268.

Fairweather, J. S. (1989). Academic Research and Instruction: The Industrial Connection. *Journal of Higher Education*, 60(4), 388-407.

Liaisons with industry are instruments for increasing university participation in economic development. The question of whether such liaisons are consistent with other academic missions, especially undergraduate instruction, and particularly in high-demand technical fields, that are the focus of many business-university partnerships, is explored.

Feldman, K. A. (1988). Effective college teaching from the students' and faculty's view: matched or mismatched priorities? *Research in Higher Education*, 28(4), 291-344.

Feldman, K. A. (1987). Research Productivity and Scholarly Accomplishment of College Teachers as Related to Their Instructional Effectiveness: a Review and Exploration. *Research in Higher Education*, 26(3), 227-298.

Fellman, G. (1995). On the Fetishism of Publications and the Secrets Thereof. *Academe*, 81, 26-35.

A critique of the requirement that faculty members should publish their work is provided. The publishing imperative disparages teaching, which is the other main part of professors' work, and it discourages critical inquiry into conditions of liberation of the self and of society. In addition, it requires faculty to forego what they learn from process in favor of the mandated alternatives of quantification and reification. Emphasis on publication can be a barrier to useful inquiry, authenticity, and growth, and it can corrupt the effort to take time in formulating and presenting one's thoughts. The pressure to publish belittles efforts to identify issues worth studying, discourages the care and discipline necessitated by the intricacies of growing, and undermines dedication to the classroom, collegiality, and self-respect among professors. Reasons for the power and persistence of the publishing imperative are discussed.

Fox, M. F. (1992). Research, Teaching, and Publication Productivity: Mutuality versus Competition in Academia. *Sociology of Education*, 65, 293-305.

Gafney, L. (2005). The Role of the Mentor/Teacher: Student and Faculty Views. *Journal of College Science Teaching*, 34(4), 52-56.

A study examined the role of the research mentor/teacher. Data were obtained primarily from students and mentors at the State University of New York, the City of New York University, and Long Island University. Findings highlighted five key themes: the image of the scientist, classroom learning versus laboratory learning, mentoring/teaching styles, varied expectations, and multiple mentors. Each of these themes is discussed.

Garfield, J. B., & Hendel, D. D. (1989). Pathways to Success: Transforming Obstacles into Opportunities.

A number of examples illustrate that large institutions, often criticized for not delivering high-quality undergraduate education, can use the faculty's applied research activities to improve the student experience.

Gavlick, M. (1996). Triangulating the Relationship among Publication Productivity, Teaching Effectiveness, and Student Achievement. *New Directions for Institutional Research*, (90), 49-56.

A model postulating a relationship between faculty research activity, instructor behaviors, and student achievement is advanced, based on two causal models, one linking research activity and instructional effectiveness and another validating student evaluations as good indicators of instructional effectiveness, as measured by student achievement. The importance of distinguishing and isolating specific teaching behaviors is emphasized.

Gerhardt, L. A. (1997). Adjusting the Balance. *ASEE Prism*, 7, 12.

In faculty evaluations, universities should reconsider the methods they use for measuring and balancing research and teaching activities. Currently, research typically carries the greatest weight in a faculty evaluation. However, increased emphasis should be placed on teaching, as it is the quality of students and what they accomplish in the future that provide the best evidence of university productivity.

Gilbert, M. (1989). Scholarship versus Pedagogy: The Future of International Studies Education. *Political Science Teacher*, 2(1), 1, 4-5.

Discusses the tension between the university faculty's research mandate and their teaching responsibilities. Suggests that there are no rewards for acquiring teaching skills and that research agendas often drive the construction of undergraduate political science curricula and contribute to the neglect of producing engaging textbooks.

Goddard, A. (2003). Academics Wish to Keep Dual Role. *The Times Higher Education Supplement*, (1606), 64.

Chris Webster, a professor of urban planning at Cardiff University in Great Britain, told a recent British conference that most academics are committed to both teaching and research activities and that the synergy between the two informs their work. Some 67 percent of the 140 academics at both old and new universities surveyed by

Webster saw strong links between teaching and research, whereas just 4 percent saw no link between the activities.

Gottlieb, E. E., & Keith, B. (1997). The Academic Research-teaching Nexus in Eight Advanced-industrialized Countries. *Higher Education, 34*, 397-419.

The purpose of this study is to examine the international complexities of the research-teaching nexus in higher educational institutions. The Carnegie International Survey of the Academic Profession is employed to compare teaching and research activities in eight countries. These countries include the former West Germany, United Kingdom, Sweden, The United States, Australia, Israel, Japan, and South Korea. Findings reveal that teaching and research are not mutually exclusive activities in the work/life of faculty. Research oriented faculty are more likely to view their research commitments as being competitive with teaching. Research is found to positively affect teaching, but attributes of teaching (e.g., course load, student demand, etc.) negatively impact research. In addition, the paper finds academic orientation and the number of articles published during the past three years to be the most important factors in determining the number of weekly hours spent on research and teaching activities.

Grassmuck, K. (1990). Some Research Universities Contemplate Sweeping Changes, Ranging from Management and Tenure to Teaching Methods. *Chronicle of Higher Education, 37*(2), A1, 29-31.

University presidents say a new paradigm must be developed to move institutions into the twenty-first century. Despite variety in reforms proposed and adopted, three common threads emerge: improvement of undergraduate education and better research /teaching balance; globalization of programs; and restructuring of academic and administrative areas to cope with financial constraints.

Green, T. M. (1992). Between Scylla and Charybdis: Teaching and Research on the Academic Deep. *ADFL Bulletin, 23*(2), 15-18.

Explores the comparative importance of scholarly research and effective teaching among college and university language faculty in gaining tenure and promotions, suggesting that there be more tangible recognition given to faculty whose language instruction serves to attract and retain students in foreign language study.

Hackmann, D. G. (2003). The Promotion/Tenure Dilemma: Maintaining a Research Agenda While Developing Distance Learning Teaching Excellence. *Journal of Technology and Teacher Education, 11*(2), 307-319.

This reflective article shares an associate professor's personal beliefs regarding distance education, his initial experiences with teaching distance learning courses, and his concerns with simultaneously sustaining a research agenda when teaching distance courses. The following recommendations are presented to assist in striking a workable balance between teaching and research: (a) participate in distance learning training offered by the institution, (b) consider releasing the faculty member from one course assignment during the initial semester of distance teaching, (c) consider scheduling courses for simultaneous delivery, (d) develop distance learning mentors

and colleague support networks, (e) invite student suggestions, and (f) include the study of distance learning as one facet of the research agenda.

Harbon, L. (2000). Teaching and Researching: One Academic's Welcome to the World of Initial Teacher Education. *Teacher Education Quarterly*, 27(2), 99-103.

Part of a special issue on the role and relevance of research in teacher education institutions. A beginning teacher educator describes her involvement in a small teaching and research project that facilitated the combination of both teaching and research responsibilities. She quotes from journal entries that outlined her reactions to her interactions with students and examines her reactions to the management of her teaching and research activity. The writer contends that her reflections on this activity and on the teaching/research dilemma led her to believe that teaching and research cannot be separated. She maintains that if the human face of initial teacher education is not to be forgotten, teaching and research must always be interconnected.

Hathaway, R. S., Nagda, B. A., & Gregerman, S. R. (2002). The Relationship of Undergraduate Research Participation to Graduate and Professional Education Pursuit: An Empirical Study. *Journal of College Student Development*, 43(5), 614-631.

A study examined the effects of participation in an undergraduate research program on the pursuit of graduate and professional education. Participants were 108 nonresearch graduates and 183 research graduates from the University of Michigan. Results revealed that participation in undergraduate research had a uniformly positive influence. Those involved in research were more likely to pursue graduate education, pursue postgraduate research activity, and use faculty for job recommendations. Results also indicated a specific relationship between participation in an undergraduate research program and the pursuit of professional degree programs. Further results are presented, and the implications of the study for undergraduate research programs and student affairs are discussed.

Hattie, J., & Marsh, H. W. (1996). The Relationship between Research and Teaching: a Meta-analysis. *Review of Educational Research*, 66, 507-542.

A review of various models of the relationship between research and teaching in universities is presented, and the evidence necessary to assess each model is outlined. A meta-analysis of 58 studies demonstrates that the relationship is zero. Suggestions for future directions are provided, and it is argued that a major goal could be to adopt strategies that enhance the relationship between research and teaching.

Heft, J. L. (1994). Teaching and Research at Comprehensive Universities. *Current Issues in Catholic Higher Education*, 14, 37-41.

Heller, S. (1988). Higher-Education Reformers Take up Challenge to Give Teaching--and Teachers--More Clout. *Chronicle of Higher Education*, 34(27), A1, 14.

The higher education reform movement is struggling against the existing faculty

reward system and academic culture to support active improvement of college instruction.

Heller, S. (1988). Universities Grapple with Academic Politics as They Strive to Change Their Curricula. *Chronicle of Higher Education*, 35(2), A12-13, 16.

The movement to improve the quality of general education (the common courses taken by students outside their majors) continues. Change is difficult because it is resisted by a significant number of faculty. Experiences at the University of Wyoming and the University of Washington are described.

Heller, S. (1987). Ways to Improve Undergraduate Education Sought by New Alliance of State Universities. *Chronicle of Higher Education*, 33(18), 13, 14.

Representatives from 12 state universities have formed the Alliance for Undergraduate Education to prove that attention is being paid to undergraduates on their campuses. Participants expect to discuss how to avoid the depersonalization of large campuses and packed undergraduate classrooms.

Heller, S., & Mangan, K. S. (1987). Many Professors Reject the Shibboleth that Research Is the Enemy of Teaching. *Chronicle of Higher Education*, 33(20), 11, 14.

Good research and good teaching are not mutually exclusive, professors and deans demonstrated at the meeting of the Association of American Colleges. The traditional "teacher-scholar model" is seen as intimidating, since most faculty members aren't publishing enough. The model should include scholarship that doesn't end up in print.

Hershberger, A., Cesarini, P., & Chao, J. (2005). Balancing Acts: Tenure-Track Faculty in Learning Communities. *Academe*, 91(4), 44-48.

One facilitator and four members of a learning community designed to help junior faculty members achieve a better balance between teaching and research describe the struggles and successes they have experienced in balancing research and teaching. They explore their perceptions of what they thought they would achieve in the learning community and what they actually accomplished. They consider the surprises, the risks, and the research outcomes associated with the learning community, as well as their overall growth as scholars, teachers, and colleagues.

Hodges, L. (1995). Glittering Reputations do not Impress Students. *The Times Higher Education Supplement*, (1176), 10.

A commission, chaired by Ernest L. Boyer, president of the Carnegie Foundation for the Advancement of Teaching, is to investigate the unequal status that exists between research and teaching in some top research universities in the U.S. At the heart of this issue is the concept of tenure. Tenure is granted through the writing of research papers and not on the quality of a professor's teaching.

Jackson, W. K., & Simpson, R. D. (1993). Redefining the Role of Senior Faculty at a Research University. *New Directions for Teaching and Learning*, (55), 69-79.

With federal aid, the University of Georgia at Athens has developed a program that

increases senior faculty involvement in undergraduate instruction. In a year-long seminar, senior faculty members work with junior faculty, teaching assistants, and campus faculty development staff to improve introductory-level instruction.

Jacobson, R. L. (1992). Colleges Face New Pressure to Increase Faculty Productivity. *Chronicle of Higher Education*, 38(32), A1, 16-18.

Agencies in at least a dozen states are seeking information about college faculty workload, including number of student contact hours, reflecting concern about faculty productivity and quality of undergraduate teaching. The issue is considered delicate, but both internal and external pressure to account for faculty time and salaries are mounting.

Johnson, R. M. J. (1996). Faculty Productivity and the Complexity of Student Exam Questions. *New Directions for Institutional Research*, (90), 41-47.

A study of 560 research university faculty of biology, chemistry, history, and psychology compared faculty publication rates of books and journal articles with the complexity of their exam questions. Results found that the teachers who published books and who published fewer articles asked more critical-thinking questions. It is suggested that fragmentation of research efforts may be an issue of concern.

Kalivoda, P. (1995). Exemplary Senior Faculty at Research Universities: Their Guiding Principles for Balancing Teaching and Research. *Innovative Higher Education*, 20(2), 95-116.

Study of 10 exemplary research university faculty found their guiding principles for balancing research and teaching included a life centered on primary concerns, commitment to teaching, a sense of interdependence between teaching and research, self-improvement as a way of life, seizing opportunities, persistence, avoidance of politics and gossip, generosity of ideas, and a sense of vocation as avocation.

Kaplan, R. (1998). The Scientist/Professor and Undergraduate Education. *Teaching of Psychology*, 25(3), 173-176.

A reprint of an article that first appeared in *Teaching of Psychology*, vol. 1, 1974, pp. 24-27. The writer discusses four ways in which research-oriented faculty members can join the enterprise of teaching undergraduate students. Research-oriented faculty can team teach within a course to explore new combinations, cooperate for a set of courses, use undergraduate students in teaching capacities in certain situations, and use projects as major proportions of course work. The writer outlines the advantages of using these strategies.

Kardash, C. M. (2000). Evaluation of an Undergraduate Research Experience: Perceptions of Undergraduate Interns and their Faculty Mentors. *Journal of Educational Psychology*, 92(1), 191-201.

A study evaluated an undergraduate research experience (URE). Participants were 57 undergraduate science interns and their faculty mentors at a research university. Results suggested that UREs do enhance the development of undergraduate's research skills. Findings showed that interns perceived a significant improvement in

their research skills during the URE, a view supported by faculty mentors' assessments of interns' skill levels. In addition, it was found that men and women rated their skill levels similarly at both the beginning and end of the URE, with the exceptions that men had more confidence in their ability to form research hypothesis and their ability to understand contemporary concepts in their field.

Kaya, N., Webb, J. D., & Weber, M. J. (2005). Faculty Scholarly Goals: Relationships between Institutional, Departmental, and Individual's Emphasis. *Education (Chula Vista, Calif.)*, 125(3), 446-453.

Relationships between institutional, departmental, and individual's emphasis on scholarly roles as well as how faculty set goals based on the importance given to teaching, research, and outreach roles were examined. New faculty members on tenure-track positions in member institutions from National Association for State Universities and Land Grant Colleges (NASULGC) were surveyed from two discipline areas: (a) the natural sciences, and (b) the social and behavioral sciences. Findings indicate that when increased emphasis was placed on teaching by the institution and department, teaching goals set by the faculty also increased. A similar trend existed in research. Regardless of gender, faculty in the social and behavioral sciences had greater number of teaching goals and faculty in the natural sciences had more research goals. Implications of these findings are discussed.

Koplik, S. Z., & Welsh, J. F. (1993). Tip the Delicate Balance. *Trusteeship*, 1(5), 22-24. College governing boards can help improve productivity by (1) refining the institution's mission to appropriately balance research and teaching in the faculty workload, and (2) establishing a collaborative strategic planning agenda with faculty and campus leaders. Results will benefit taxpayers, parents, and students alike.

Krebs, P. M. (2005). Colleges Focused on Teaching Too Often Neglect Research. *The Chronicle of Higher Education*, B14-15.

Krochalk, P. C., & Hope, E. (1995). A Framework for Integrating Faculty Discipline-Related Research with Classroom Teaching and Learning. *Journal on Excellence in College Teaching*, 6(2), 3-15.

A framework for conducting discipline-related research through professor-student collaboration, developed at California State University, Dominguez Hills, is outlined and its application in one classroom project is described. Results of a survey of 225 undergraduate and graduate students in the clinical sciences, health sciences, and teacher education concerning their participation in the project showed a very positive response.

Kronik, J. W. (1996). "My Teaching and My Work": The Conditions of Professing. *ADFL Bulletin*, 27(3), 36-39.

Maintains that a synergistic combination of teaching and research is a critical feature at major institutions of higher learning. The article states that the tension between these two endeavors stems from "research" being considered "publication." The

article concludes that research should be shaped by one's teaching instead of teaching flowing from one's research.

Kuh, G. D., & Hu, S. (2001). Learning Productivity at Research Universities. *The Journal of Higher Education (Columbus, Ohio)*, 72(1), 1-28.

A study examined the learning productivity of undergraduates at research universities. Data for the study were taken from the College Student Experiences Questionnaire national research program. Results did not indicate that the undergraduate experience at research universities is substandard. With the exception of selective liberal arts colleges, the learning productivity of research university students was on a par with other types of colleges and universities. Research universities have improved their relative performance in the 1990s by requiring students to do more reading and writing and by making faculty members more accessible, an improvement that is especially noteworthy as it represents areas institutions can influence directly. Furthermore, students at a small set of high-performing universities benefitted from their college experience and were engaged in educationally purposeful activities at levels comparable to their counterparts at selective liberal arts colleges.

Lagowski, J. J. (1993). Perceptions. *Journal of Chemical Education*, 70, 693.

The opinions and concerns of various interest groups should determine the direction of higher education. Legislators, the general public, the administration, the faculty, and students all have perceptions and legitimate interests that should be considered.

Lagowski, J. J. (1993). Who Will Teach the Undergraduates? *Journal of Chemical Education*, 70, 607.

The research-only attitude prevalent in many faculties is no longer acceptable. With the ending of the Cold War and the recent focus on undergraduate education, departments must develop a faculty that can and will both teach and do research. It is essential that departments and their faculties are capable of accommodating students who want to work in an industrial setting or research university and students that want to teach in a liberal arts or community college.

Lagowski, J. J. (1992). The Compatibility of Teaching and Research. *Journal of Chemical Education*, 69, 603.

Lancy, D. F. (2003). What One Faculty Member Does To Promote Undergraduate Research. *New Directions for Teaching and Learning*, (93), 87-92.

Offers one faculty member's story of working with undergraduates and a checklist for others who seek ways to involve undergraduates in their teaching and research.

Leslie, D. W. (2002). Resolving the Dispute: Teaching is Academe's Core Value. *The Journal of Higher Education (Columbus, Ohio)*, 73(1), 49-73.

A special issue on the changing nature of post-secondary education faculty and their work in the new millennium. A study investigated faculty members' perceptions of the relative primacy of teaching and research as promotion criteria and examined

whether the incentive structure of academe matches faculty members' values, attitudes, and work patterns. Data from a sample of 517,954 full-time faculty members whose main responsibility was for-credit teaching were analyzed. It was found that full-time faculty agreed that the main criterion for promotion should be teaching effectiveness and disagreed that publication should be the main criterion for promotion but that academe's explicit reward structure favored research and publication. In addition, research faculty were most likely to agree and community college faculty were most likely to disagree that research should be the main criterion for promotion and research faculty most strongly agreed that research is rewarded more than teaching, whereas community college faculty were most likely to disagree that research is rewarded more than teaching. Discussion of the results is provided.

Leslie, D. W., & Gappa, J. M. (1995). The Part-Time Faculty Advantage. *Metropolitan Universities: An International Forum*, 6(2), 91-102.

A national study indicates that part-time faculty now teaches a major portion of undergraduate studies, and that most institutions plan to use more in the future. Data from the study are used to describe part-time faculty characteristics, how they contribute to their institutions, and the conditions in which they work. Suggestions are made for strengthening academic programs.

Luce, J. A., & Murray, J. P. (1998). New Faculty's Perceptions of the Academic Work Life. *Journal of Staff, Program & Organizational Development*, 15(3), 103-110.

Analyzes new faculty's perceptions of working in a university. Indicates that most new faculty was overwhelmed by class preparation and did not believe they understood the requirements for tenure. Argues that universities should be more supportive of new faculty members. Contains 15 references.

Maddux, C. D. (1994). Resisting the National Trend to Devalue Educational Research and Publication. *Computers in the Schools*, 11(1), 21-27.

The issue of resisting the national trend to decrease the importance of research and publication is discussed. Although advocates for the need to increase the importance of teaching and service may dispute it, there is a national trend to decrease the significance of research and publication. The dichotomy of teaching and service versus research and publication has become a fashionable topic for public, rather than professional, debate. The basic premise of the dichotomy--that university professors neglect their teaching and service so that they can devote large amounts of time to publication and research--is erroneous. The reality, it appears, is that research and publication have been assigned secondary importance by American universities and that they are regarded as the responsibility of only a handful of faculty members. Those who realize the importance of research and publication should oppose the current trend.

Magner, D. K. (1997). Report Says Standards Used to Evaluate Research Should Also Be Used for Teaching and Service. *Chronicle of Higher Education*, 44(2), A18-A19.

A recent Carnegie Foundation for the Advancement of Teaching report counters the conventional wisdom in academe that faculty research must be evaluated by standards different from those of teaching and service, maintaining that the different types of faculty work have much in common and must be judged similarly if teaching and service are to gain respect in promotion decisions.

Mangan, K. S. (1987). Undergraduates, Professors Collaborate on Research at More and More Colleges. *Chronicle of Higher Education*, 33(37), 1, 26.

The belief that students aren't sufficiently involved in their education is one reason for the surge of interest in undergraduate research. Research programs can be important tools for recruiting students. The program at Massachusetts Institute of Technology is described.

Marsh, H. W., & Hattie, J. (2002). The Relation between Research Productivity and Teaching Effectiveness. *The Journal of Higher Education (Columbus, Ohio)*, 73(5), 603-641.

A study examined the relationship between teaching effectiveness and research productivity. Participants were 182 academics in 20 departments at a large urban university in Australia. Results revealed that teaching effectiveness and research productivity were almost uncorrelated and thus supported the hypothesis that they are independent constructs. Results showed that the near-zero correlation between teaching and research was remarkably robust across the 20 academic departments under study. Moreover, results showed that critical tests were nonsignificant for all potential moderators of the teaching-research relation that were considered. Implications of the results are presented.

McCaughey, R. A. (1993). But Can They Teach? In Praise of College Professors who Publish. *Teachers College Record*, 95, 242-257.

McCaughey, R. A. (1992). Why Research and Teaching can coexist. *The Chronicle of Higher Education*, 38, A36.

McKenna, J., Bickle, M., & Carroll, J. B. (2002). Using Scholarship to Integrate Teaching and Research. *Journal of Family and Consumer Sciences*, 94(3), 39-45. Educators can use a five-stage model of scholarship to integrate teaching and research. They can use Ernest Boyer's four stages of scholarship--discovery, integration, application, and teaching--to meet teaching expectations and also to fulfill research expectations by producing scholarly work. Furthermore, they can add a fifth stage, outcome, which involves them in producing a scholarly product in order to meet promotion and tenure expectations. Since scholarship may be seen as holistic, the elimination of one stage lessens the strength of the model. By using the five stages of scholarship, educators often generate creative ways of addressing classroom learning and discover that scholarly work is a much broader notion than traditionally defined research. The use of the scholarship model in an upper-level merchandising course at a land-grant university is described.

- Merriam, R. W. (1988). A Function in Trouble, Undergraduate Science Teaching in Research Universities. *Journal of College Science Teaching*, 18(2), 102-106.
Discusses the standards by which professors are evaluated for advancement and the reasons why these standards are antithetical to fostering a good learning environment for students. Gives some insights into what can be done to create an atmosphere in which teaching is not the lowest priority.
- Middaugh, M. F. (1999). How Much Do Faculty Really Teach? *Planning for Higher Education*, 27(2), 1-11.
A 1996 study of teaching-load among tenured and tenure-track faculty in 24 disciplines at 48 research universities, 40 doctorate-granting universities, 80 comprehensive colleges and universities, and 115 baccalaureate colleges is summarized and the results analyzed. It was found that tenured and tenure-track faculty generates a much larger proportion of undergraduate teaching activity than might be expected.
- Milem, J. F., Berger, J. B., & Dey, E. L. (2000). Faculty Time Allocation: A Study of Change over Twenty Years. *Journal of Higher Education*, 71(4), 454-475.
Examined changes in amounts of time faculty spent in teaching, advising, and research activities over the past 20 years. Found institutions are becoming more similar in their patterns of faculty time allocation, particularly regarding time spent on research. However, time spent advising and interacting informally with students appears to be decreasing. Implications for faculty reward structures are drawn.
- Mooney, C. J. (1992). Syracuse Seeks a Balance between Teaching and Research. *Chronicle of Higher Education*, 38(29), A1, 14-16.
Syracuse University (New York) is working to change the publish-or-perish ethos in higher education through better organized courses, more vigorous teaching evaluation policies, and merit raises and grants for strong teachers. More ambitious changes may follow. The modest plan has become the most comprehensive such effort to date.
- Mooney, C. J. (1991). Professors Feel Conflict between Roles in Teaching and Research, Say Students Are Badly Prepared. *Chronicle of Higher Education*, 37(34), A15-17.
A national survey examined opinions of college faculty (n=35,478) on a broad range of issues, including teaching, values, political orientation, and quality of professors' personal lives. Respondents feel a conflict between teaching and research roles, believe their students are badly prepared academically, and think their campuses place a high priority on institutional prestige.
- Moses, I. (1990). Teaching, Research and Scholarship in Different Disciplines. *Higher Education*, 19(3), 351-375.
- Nagda, B. A., Gregerman, S. R., Jonides, J., von Hippel William, & Lerner, J. S. (1998). Undergraduate Student-Faculty Research Partnerships Affect Student Retention. *Review of Higher Education*, 22(1), 55-72.

Evaluates the impact on college student retention of a University of Michigan program promoting student-faculty research partnerships premised on the fact that successful retention efforts integrate students into the university's core academic mission. A participant-control group design shows that partnerships are most successful in promoting retention of higher risk students: African Americans and students with low achievement.

Neilsen, L. (2000). Academy Performances, Academy Rewards: Cautionary Tales. *Teacher Education Quarterly*, 27(2), 163-170.

Part of a special issue on the role and relevance of research in teacher education institutions. The writer discusses the hierarchies that exist within academe and their role in the "publish or perish" dilemma. Specifically, she examines the lack of professional ethics and abuses of power of numerous professional teacher educators vying to increase the number of their publications and gain research funding.

Nikolova Eddins, S. G., & Williams, D. F. (1997). Research-Based Learning for Undergraduates: A Model for Merger of Research and Undergraduate Education. *Journal on Excellence in College Teaching*, 8(3), 77-94.

Outlines a model for research-based learning (RBL) in undergraduate study, using thematic, collaborative research and related activities as learning tools. The results of a four-year project illustrate that RBL serves more students than traditional undergraduate research models, encourages faculty-student interaction, stimulates new scholarship, and prepares undergraduates to better adapt to workplace demands.

Nikolova Eddins, S. G., & Williams, D. F. (1997). Strategies for Sustainable Integration of Research Activities with an Established Curriculum. *Journal on Excellence in College Teaching*, 8(3), 95-108.

Research-based learning (RBL) is a model for merging research and undergraduate education. To link RBL with a curriculum across the institution, the authors used discipline-specific RBL strands, each of which is a set of interconnected course options that couple out-of-class research experiences with an established curriculum. Student learning is sustained in learning "spirals" of intellectual growth and professional skills.

Olsen, D., & Simmons, A. (1996). The Research versus Teaching Debate: Untangling the Relationships. *New Directions for Institutional Research*, (90), 31-39.

A study at a research university on the relationship between faculty research productivity, specific instructional practices, and faculty-student contact found that faculty with strong research profiles did not avoid teaching low-level undergraduate courses, rely on lecture over active learning techniques, or use multiple-choice tests more often than others, but they also did not show better pedagogical skills.

Olson, J. E. (1994). Institutional and Technical Constraints on Faculty Gross Productivity in American Doctoral Universities. *Research in Higher Education*, 35(5), 549-567.

A study of constraints on university faculty productivity in the United States suggests that universities cannot expect major productivity gains without redefining

faculty roles in research or teaching. Some economies of scale were found, but they do not necessarily represent increases in value of faculty efforts.

Perlman, B., Konop, K., & McFadden, S. H. (1996). New Faculty do Want to Teach. *Teaching of Psychology, 23*, 232-234.

Applicants for a tenure-line assistant professor position in cognitive psychology at a public regional university were surveyed on their teaching preparation, interest, and experience 3 years later. Respondents (n = 76) rated their preparation to teach undergraduates as good or excellent, and they demonstrated a strong interest in teaching.

Phipps, R. A. (1996). Square One in the Restructuring Process. *Trusteeship, 4*(2), 21-25.

To initiate a campus wide restructuring process, governing boards should begin by asking some fundamental questions about the institution concerning what and how students should learn, equitable faculty teaching load, quality and definition of research, and the role of tenure in promoting institutional mission. Barriers in the process of organizational change, particularly resistance, must be anticipated.

Poulsen, S. J. (1991). Making the Best Use of the Seven Principles and the Faculty and Institutional Inventories.

Colleges using the Seven Principles for Good Practice in Undergraduate Education were surveyed concerning the usefulness of the principles and the faculty and institutional inventories designed for measuring their application. Respondents indicated a need for clearer information about potential and actual uses.

Rasmussen, E. B., Laywer, S. R., & Buskist, W. (2003). Examining the "Teacher-Researcher" Distinction in Psychology: Do Successful Researchers Teach? *Teaching of Psychology, 30*(1), 72-74.

Academic lore suggests that a successful researcher spends little time teaching and derives little enjoyment from these few opportunities. To test this notion, we surveyed the editorial board members of 7 American Psychological Association journals regarding their teaching activities and attitudes. We found that the typical editorial board member spends a substantial amount of time teaching and derives satisfaction from doing so.

Rau, W., & Baker, P. J. (1989). The Organized Contradictions of Academe: Barriers Facing the Next Academic Revolution. *Teaching Sociology, 17*(2), 161-183.

Examines the organized contradictions linked to the simultaneous bureaucratization and professionalization of academe that restrict excellence in undergraduate instruction. Presents a general systems model that points out the need for a coordinated set of changes which, if institutionalized, could lead to an academic revolution. Responses by Lee Bowker and Zelda Gamson follow.

Romainville, M. (1996). Teaching and Research at University: A Difficult Pairing. *Higher Education Management, 8*(2), 135-144.

The assumption that the university's dual missions of research and teaching

complement and stimulate one another and differentiate the university from other institutions is questioned. It is suggested that only a new way of managing the relationship between the two will enable universities to meet new challenges in growth of service tasks, cost and specialization of research, and mass education.

Romano, J. L., Hoelsing, R., & O'Donovan, K. (2004). Faculty at Mid-Career: A Program to Enhance Teaching and Learning. *Innovative Higher Education*, 29(1), 21-48. The Mid-Career Teaching Program (MCTP) is an innovative teaching enrichment program that is designed to enhance the instructional practices of mid-career faculty at the University of Minnesota. The yearlong program offers post-tenured faculty the opportunity to meet together to discuss teaching and learning issues in depth, to refine their professional identities to fit their current goals and situations, and to adapt their teaching styles to meet the demands and expectations of today's students. The MCTP has been successful and well received on the University of Minnesota campus and could easily be adapted to other campuses.

Serow, R. C. (2000). Research and Teaching at a Research University. *Higher Education*, 40(4), 449-463.

This paper examines tensions between the research and teaching components of the faculty role. It does so by reporting results from a case study of committed undergraduate teachers at a research university. Having agreed that research was the dominant element in the university's academic reward system, sample members were cross-classified along two dimensions: First, their own adaptation to the reward structure, as indicated by their five-year records of involvement in funded research; second, individuals' stated attitudes and beliefs toward the teaching and research roles. Although the 11 active researchers (ARs) within the sample reported somewhat more positive attitudes toward research than did the 18 less-active researchers (LAs), we found considerable overlap across, and variation within, the two subsamples. Particularly noteworthy were the presence of a strong allegiance to the historic teaching mission of public universities among both groups and, among the LAs, an oppositional cadre of politically adept senior faculty who had achieved some success in preserving or expanding the place of undergraduate teaching in the reward systems of their departments and colleges. The paper concludes by considering the case study findings in light of both recent theoretical work on intrinsic motivation and the future of the teaching role.

Serow, R. C., Brawner, C. E., & Demery, J. (1999). Instructional Reform at Research Universities: Studying Faculty Motivation. *Review of Higher Education*, 22(4), 411-423.

Concerns about quality of undergraduate teaching have focused attention on motives underlying faculty performance at research universities. A case study of faculty participation in one instructional-reform coalition is presented. Results indicate three distinct motivational patterns, corresponding roughly to variations in individual's faculty status. Implications are considered in light of recent calls to restructure university faculty reward systems.

- Serow, R. C., Van Dyk, P. B., & McComb, E. M. (2002). Cultures of Undergraduate Teaching at Research Universities. *Innovative Higher Education*, 27(1), 25-37.
A study examined cultures of undergraduate teaching at research universities. Participants were 69 tenured faculty members and administrators in the natural and applied sciences in five public research-intensive institutions. Results revealed a reality that was more complex than that suggested by the treatment of undergraduate teachers as little more than dependable workers with interests best served by top-down proposals for better recognition and reward. Results highlighted an explicitly oppositional element that questioned both the ethos of competitive achievement and the scholarship of teaching model. Furthermore, results showed that the oppositionists differed from the official teaching culture in that they were aloof from organized instructional reform activities and resisted their institutions' increasing emphasis on research productivity as the primary aspect of the faculty role.
- Sharobeam, M. H., & Howard, K. (2002). Teaching Demands versus Research Productivity: Faculty Workload in Predominately Undergraduate Institutions. *Journal of College Science Teaching*, 31(7), 436-441.
Discusses the workload of mathematics and science faculty in predominately undergraduate institutions and the impediments to their research activities. Provides data by discipline.
- Sloane, D. E. E. (2001). Why I Like Teaching Online. *ADE Bulletin*, (129), 63-64.
Describes specific experiences and benefits of teaching online. Considers how networking student learners to reduce teacher workload appears to be one of the most important functions for computer-based education.
- Soderberg, L. O. (1985). Dominance of Research and Publication: An Unrelenting Tyranny. *College Teaching*, 33(4), 168-172.
The continued nonevaluation of teaching contributes to the dominance of research in the evaluation of faculty members. For both promotion and salary increases, the number of articles published is basically the definition of research. The idea that research is more important than teaching is discussed.
- Stahl, F. A. (1991). Research and Teaching: Partnership, Not Paradox. *College Teaching*, 39(3), 97-99.
Participating in research is valuable for the undergraduate college student's development in the sciences. Students can observe the professor's typical behavior as he leads the research effort as well as learn and practice research ideas and techniques. Financial support is needed for this kind of research involvement.
- Sullivan, A. V. S. (1996). Teaching Norms and Publication Productivity. *New Directions for Institutional Research*, (90), 15-21.
A study of 114 full-time, tenured or tenure-track faculty of history, psychology, mathematics, and biology investigated the relationship between scholarly productivity and 4 norms of teaching. It was found that faculty recognizes and acknowledges norms that support teaching, while simultaneously participating in

expected research activities. In addition, they attach similar value to student welfare, regardless of publication rate.

Tang, T. L., & Chamberlain, M. (2003). Effects of Rank, Tenure, Length of Service, and Institution on Faculty Attitudes toward Research and Teaching: The Case of Regional State Universities. *Journal of Education for Business*, 79(2), 103-110. In this study, the authors examined the effects of rank, tenure, length of service, and institution on faculty members' attitudes toward research and teaching in a sample of 233 professors from six regional state universities in Tennessee. Results revealed that the length of service had a significant effect on faculty perceptions regarding research orientation and how rewards influence teaching, whereas rank and tenure did not. Faculty members with 20 or more years of service had the lowest research orientation; those with ranks lower than full professor showed the strongest belief that rewards influence teaching. The authors discuss these and other results in light of faculty development, mentoring, and the socialization process

Tang, T. L., & Chamberlain, M. (1997). Attitudes toward Research and Teaching: Differences between Administrators and Faculty Members. *The Journal of Higher Education (Columbus, Ohio)*, 68, 212-227. A study examined administrators' and faculty members' attitudes toward the mission of the university, research, teaching, and the reward systems related to teaching and research. The participants were 155 administrators and 232 faculty members from six regional state universities in Tennessee. It was found that administrators did not differ significantly from faculty members on research orientation, whether rewards influence research and personal interest but did differ on teaching orientation, whether rewards influence teaching, and the university's mission. Administrators were inclined to believe that research and teaching are mutually supportive and are the mission of the university, that faculty must be effective teachers, and that reward influences teaching. Faculty members were less inclined to believe that both teaching and research are essential parts of their job. They believe that they have not been rewarded for their teaching, that they enjoy teaching, that research interferes with teaching, and that they should not be required to both teach and carry out research.

Terenzini, P. T. (1999). Research and Practice in Undergraduate Education: and Never the Twain Shall Meet? *Higher Education*, 38(1), 33-48. This paper identifies some of the most significant -- and counterproductive -- gaps between what research reveals about how college students learn and how to maximize student learning, on the one hand, and, on the other, current academic, pedagogical, and administrative practices and policies. Drawing on research evidence from the cognitive and neural sciences, anthropology, sociology, psychology, education, and other sources, the paper first summarizes what is known about how students learn and what instructional practices and structures appear to be most effective in promoting student learning. The paper then contrasts this research-based evidence with current pedagogical, curricular, structural, and administrative practices and policies, and discusses the implications for instructional and

organizational practices and policies. The paper concludes with a discussion of five explanations of why the gap exists and what might be done to close it.

Terenzini, P. T., & Pascarella, E. T. (1994). Living with Myths: Undergraduate Education in America. *Change*, 26(1), 28-32.

The following five common myths about college education are examined: (1) that institutional reputation reflects educational quality; (2) that traditional teaching methods are proven effective; (3) that good teachers are good researchers; (4) that faculty influence students only in class; and (5) that student academic and nonacademic experiences are separate and unrelated areas of influence on learning.

Teven, J. J., & McCroskey, J. C. (1997). The Relationship of Perceived Teacher Caring with Student Learning and Teacher Evaluation. *Communication Education*, 46(1), 1-9.

Finds that undergraduate student perceptions of caring on the part of their teachers were substantially associated with the students' evaluation of their teachers, their affective learning, and their perceptions of their cognitive learning. Calls for research which helps to identify the specific teacher behaviors which communicate caring to students.

Vidal, J., & Quintanilla, M. A. (2000). The Teaching and Research Relationship within an Institutional Evaluation. *Higher Education*, 40(2), 217-229.

The authors present an analysis of the relationship between research and teaching in universities. The aim is to determine to what extent this relationship is strong enough to support the idea that teaching and research should be analyzed together from an institutional evaluation point of view. Two main questions are presented: (a) should research be evaluated from an institutional point of view? And if so, (b) which specific aspects of research activities can be evaluated within each institution? Empirical data have been obtained within the Spanish National Program for the Evaluation of the Quality of Universities and these are supplemented by interviews. Evidence is found of strong connections between research and teaching and in particular areas analysis of the two dimensions together will help in designing better improvement strategies for universities.

Weaver, F. S. (1989). Scholarship and Teaching. *Educational Record*, 70(1), 54-58.

Good teaching requires consistent scholarly commitment by faculty, including formal presentation of ideas and findings for public scrutiny. Institutions serious about undergraduate teaching should work imaginatively to make active scholarship compatible with teaching responsibilities. The difference in scholarship appropriate for undergraduate and research university faculty is one of degree.

Weber, M. J., & Russ, R. R. (1997). Freshmen Students' Perceptions of Research. *Journal of Family and Consumer Sciences*, 89, 19-22.

A study examined freshmen students' perceptions of research at a land-grant university, specifically their perceptions of the role of research within the university and the relationship between research and instruction. The participants were 1,101

freshmen students in core classes at a Midwestern land-grant research university who were asked open-ended questions. The results indicated that the majority of freshmen believed research was a foundation for instruction and that they perceived a relationship existed between research and instruction. The results also indicated that freshmen perceived the faculty to be actively involved in research and that the faculty shared the results of their research with students in their classes. These results imply that faculty should continue presenting research in their courses so students will have a better understanding of the effect research can have on instruction.

Wilson, P. (1996). A Call for Closer Professor-Student Relationships: Students at the University of Alaska, Fairbanks, Speak Out. *Anthropology & Education Quarterly*, 27(3), 432-441.

A study of 60 native students in a psychology course at the University of Alaska, Fairbanks, regarding professor/student relationships and academic achievement is presented. Students valued accessibility, approachability, availability, genuineness, and caring, as well as cultural knowledge and awareness.

Wilson, R. (2001). It's 10 a.m. Do You Know Where Your Professors Are? *The Chronicle of Higher Education*, 47(21), A10-12.

The provost of Boston University, working with a group of faculty members, has proposed changes that would ensure that faculty members do not ignore students once they have earned tenure. The changes include requiring professors to be in their campus offices at least four days a week and requiring professors who do less research and writing than their colleagues to do more teaching and service.

Wilson, R. (1999). Yale Relies on TAs and Adjuncts for Teaching, Report Says. *The Chronicle of Higher Education*, 45(31), A15.

A study by the Graduate Employees and Students Organization concludes that undergraduates at Yale University are twice as likely to be taught by a graduate student or an adjunct instructor as by a tenured professor. Yale officials have dismissed the study as skewed. The study concludes that tenured and tenure-track professors perform only 30 percent of classroom hours spent instructing undergraduates.

Wilson, R. (1991). Vanderbilt Program Offers Undergraduates a Chance to Discover the Joys--and Sometimes the Frustrations--of Scholarly Research. *Chronicle of Higher Education*, 37(46), A21-22.

Vanderbilt University (Tennessee) involves students in faculty research projects to enrich the undergraduate experience. The summer program offers stipends to students to work with faculty or graduate students on specific projects. Students are exposed to the processes of research and better able to choose or reject a research career.

Woodside, B. M., Wong, E. H., & Wiest, D. J. (1999). The Effect of Student-faculty Interaction on College Students' Academic Achievement and Self Concept.

Education (Chula Vista, Calif.), 119(4), 730-733.

The effects of student-faculty interactions in higher education have received considerable empirical attention. However, there has been no empirical work that has examined the relation between student-faculty interaction and college students' self-concept. The purpose of this study was to examine the relations among academic achievement, self-concept, and student-faculty interactions. The sample consisted of 106 female and 70 male college students ranging from 18 to 56 years of age. Participants completed a questionnaire containing a teacher immediacy scale, a self-concept scale and demographic items. Regression analyses indicated that student-faculty interactions were predictive of students' academic achievement and scholastic self-concept. However, no relation was found between teacher immediacy behaviors and the following self-concept domains: intellectual ability, social acceptance, and global self-worth.

Worthy, W. (1990). Research Universities Pay More Heed to Freshman Science.

Chemical and Engineering News, 68(18), 27-28.

Discussed is a conference on the freshmen year in science and engineering which was sponsored by the Alliance for Undergraduate Education. Emphasizes an increasing emphasis on teaching in research universities. Lists six steps to create a strong science and engineering education program.

Wright, M. (2005). Always at Odds?: Congruence in Faculty Beliefs about Teaching at a Research University. *The Journal of Higher Education (Columbus, Ohio), 76(3), 331-353.*

The writer explores congruence in faculty beliefs about teaching at a research university. She examines research university departments in which there are instructional congruence--a culture in which individuals perceive that their beliefs about teaching align with their institution because department members have constructed shared understandings of effective teaching and of the value they place on instruction--and those that have a culture of incongruence. The writer uses social network data to explain the presence of these two teaching cultures in departments. She concludes by contextualizing these findings with qualitative data about the organizational and instructional practices that foster network types associated with instructional congruence and incongruence.

Young, J. R. (2002). The 24-Hour Professor. *Chronicle of Higher Education, 48(38), A31-A33.*

Explores how online courses have redefined the relationship between faculty members and their students, turning the notion of office hours on its head.

Young, J. R. (1997). Rethinking the Role of the Professor in an Age of High-Tech Tools. *Chronicle of Higher Education, 44(6), A26-A28.*

Some faculty feel that, as tasks become "unbundled," technology may take over instructional duties that define professor's jobs, with courses designed outside the institution, lectures replaced by Web sites, tests created and administered by outside organizations. Others feel that computers foster more interactive and lively learning

environments and that students benefit when teachers have time to do what they do best.

References: Other Geographic Areas

Asmar, C. (2004). Innovations in Scholarship at a Student-Centered Research University: An Australian Example. *Innovative Higher Education*, 29(1), 49-66.

The writer discusses the ways in which the University of Sydney in Australia has encouraged innovation in teaching and learning, via a commitment to the scholarship of teaching and learning (SoTL). These innovative approaches to SoTL centered on the institutional philosophy; an institution-wide, multicampus approach to innovation and change; the power to implement change; the evaluation of the performance of teachers; and the provision of financial and career incentives to support innovation and scholarship in teaching. The writer also discusses in detail one particular innovation at the University of Sydney that was expected to meet with resistance but that has so far been well received.

Ballantine, J. (1989). University Teaching around the World. *Teaching Sociology*, 17(3), 291-296.

Explores the concept of good teaching in universities worldwide by interviewing professors and exchange students from USSR, England, Spain, Yugoslavia, the Soviet Union, Turkey, India, Malaysia, the Philippines, China, Hong Kong, Taiwan, and Japan. Finds that teaching receives low priority in elite institutions while universities with open access consider good teaching important.

Brivati, B. (1995). Too Much Research, Not Enough Teaching? *The Times Higher Education Supplement*, (1187), 18.

A commentary on an article by Ros Coward and an exchange of letters that recently appeared in The Guardian newspaper in Great Britain. The series examined whether Professor Anthony Giddens of Cambridge University spent enough time with his students. Coward argued that academics neglect their students and that their lives are governed by research and conferences. The writer refutes this allegation and argues that research and conferences improve the quality of teaching in an institution and also make a global contribution to a field.

Coate, K., Barnett, R., & Williams, G. (2001). Relationships between Teaching and Research in Higher Education in England. *Higher Education Quarterly*, 55(2), 158-174.

A study examined the relationships between teaching and research in the working lives of academics in higher education institutions in Great Britain. Academic staff and department heads from eight higher education institutions participated. It was found that six possible relationships between teaching and research exist: integration, research as a positive influence on teaching, teaching as a positive influence on research, independent relationships between teaching and research, research as a negative influence on teaching, and teaching as a negative influence on research. The findings reveal that a range of factors influence the way in which

teaching and research can affect each other negatively and even drive each other apart. Suggestions for managing and enhancing the teaching and research relationship are offered.

Currie, J., & Jenkins, A. (1999). How to Get Research to Tie the Knot. *The Times Higher Education Supplement*, (1404), 32-33.

The writers discuss the difficult but necessary task of combining teaching and research in academia. It is a necessary task because students need to be given clear information as to why the research is taking place, what the staff is doing, and what the benefits are.

Elton, L. (2000). It Starts with the Student. *The Times Higher Education Supplement*, (1445), 34.

The writer contends that if the mutually beneficial link between teaching and research is to be retained, there must be a sea change in the philosophy of learning. This sea change should involve a move toward interdisciplinary, problem-based curricula rather than single discipline syllabuses. Moreover, the student must become the central figure in the teaching and learning process.

Gibbs, G. (1995). How Can Promoting Excellent Teachers Promote Excellent Teaching? *Innovations in Education and Training International*, 32(1), 74-84.

Discusses ways to reward and promote excellent teachers based on a survey of higher education promotion practices in the United Kingdom. Highlights include the need for promotion criteria; the need for standards; balancing different areas of achievement, including teaching, research, and administration; student feedback questionnaires; implementation; and monitoring.

Goddard, A. (2003). Academics Wish to Keep Dual Role. *The Times Higher Education Supplement*, (1606), 64.

Chris Webster, a professor of urban planning at Cardiff University in Great Britain, told a recent British conference that most academics are committed to both teaching and research activities and that the synergy between the two informs their work. Some 67 percent of the 140 academics at both old and new universities surveyed by Webster saw strong links between teaching and research, whereas just 4 percent saw no link between the activities.

Jacobs, G., & Gravett, S. (1998). University Teachers' Conceptions of Their Teaching Role. *South African Journal of Higher Education*, 12(1), 54-60.

Interviews with 19 South African university teachers addressed how they view their teaching task, what they expect of students, what they think students expect of them. A primary finding was that conception of the teaching role appeared subject- and content-centered, suggesting that faculty development activities should help teachers develop an informed theory of practice focused on enhancing student learning.

Jenkins, A. (2003). Intellect Thrives on Diet Rich in Research. *The Times Higher Education Supplement*, (1570), 20.

It would be a mistake to sever the link between teaching and research in higher education. An understanding of research processes gives students the insight and ability to understand and cope with a world of "supercomplexity."

Kane, R., Sandretto, S., & Heath, C. (2002). Telling Half the Story: A Critical Review of Research on the Teaching Beliefs and Practices of University Academics. *Review of Educational Research*, 72(2), 177-228.

A critical review of research on teaching beliefs and practices of university academics revealed that the espoused theories of action of academics have not been distinguished from their theories-in-use in some studies. It is our contention that research that examines only what university teachers say about their practice and does not directly observe what they do is at risk of telling half the story. Our review revealed several unsupported claims about university academics' teaching practice, raised concerns about data gathering and analysis methods, and found that research on primary and secondary teachers' beliefs has been used infrequently to inform research in tertiary settings. The review identifies implications for understanding university academics' development as teachers and provides direction for further research. Reprinted by permission of the publisher.

Leon, P. (2003). 'Role Split is an Attack on Identity'. *The Times Higher Education Supplement*, (1599), 24.

There is disagreement over whether evidence exists to prove that students benefit when their tutors are enthusiastic researchers in their subject. The work of a national research project in Great Britain linking research and teaching in a number of disciplines, in which seven Learning and Teaching Support Network subject centers are participating, is discussed.

Neumann, R. (1996). Researching the Teaching-Research Nexus: A Critical Review. *Australian Journal of Education*, 40(1), 5-18.

A review of literature concerning the relationship between college teaching and faculty research activities looks at the historical and organizational origins of faculty work, then examines three approaches in the literature: (1) personal commentaries; (2) correlations of effectiveness and productivity measures; and (3) faculty attitude and workload surveys. Other investigative approaches are also discussed.

Neumann, R. (1994). The Teaching-Research Nexus: Applying a Framework to University Students' Learning Experiences. *European Journal of Education*, 29(3), 323-338.

An Australian study investigated the perceptions of 28 graduate and undergraduate students concerning university teaching and learning, especially with regard to their contact with research projects. The objective was to determine whether students are aware of faculty's research role and whether the conduct of research has an impact on teaching and learning.

Neumann, R. (1994). The Teaching-Research Nexus: Applying a Framework to University Students' Learning Experiences. *European Journal of Education, 29*(3), 323-338.

Part of a special issue on governments and higher education curriculum. A study investigated how the conduct of research by university teachers affected the teaching and learning experience of students. In a series of 28 student case studies, students participated in 60-90-minute audiotaped interviews. There were four general findings: most of the students experienced a relationship between the teaching and research roles of academics; each of the three levels of connection--tangible, intangible, and global--could be identified; the influencing factors--the nature and level of development of the discipline, the type and purpose of a course, and the ability and motivation of the student--were evident; and a fourth influencing factor of opportunity for personal interaction with teachers should be added to the framework for examining the nature of the teaching-research nexus.

Neumann, R. (1992). Perceptions of the Teaching-Research Nexus: A Framework for Analysis. *Higher Education, 23*(2), 159-171.

Interviews with senior academic administrators in Australian research universities concerning the relationship of teaching and research components of academic work revealed a strong belief in a symbiotic relationship with important but subtle interconnections. A three-level (tangible, intangible, and global) nexus between the two components is suggested.

Orsmond, P. (1997). When Teaching Interrupts the Real Work. *The Times Higher Education Supplement, (1300)*, IV.

Part of a special section on good teaching in higher education in Great Britain. For some higher education lecturers, teaching seems nothing more than an interruption to their real role as an academic. Therefore, the role of the lecturer as a professional must be reassessed. The presence of an active body of educationists does not negate the need for practicing lecturers to conduct educational research. Educational research influences everyone in higher education. Thus, lecturers must influence educational research.

Over, R. (1993). Correlates of Career Advancement in Australian Universities. *Higher Education, 26*(3), 313-329.

Australian university faculty (n=81) who had advanced significantly in rank over the period 1978-88 were compared with 72 who had remained at the same rank during that time. Variables examined included demographic variables, work habits and attitudes, performance in research-related academic roles, and self-reported commitment to teaching.

Ramsden, P., & Moses, I. (1992). Associations between Research and Teaching in Australian Higher Education. *Higher Education, 23*(3), 273-295.

A study of 869 faculty in 18 Australian higher education institutions found no relationship or a negative correlation between (1) teachers' reported commitment to undergraduate teaching and (2) publishing and research activities at the individual

and department levels. Implications for policy and student course choice are discussed.

Rowland, S. (2000). Healthy Marriage is on the Rocks. *The Times Higher Education Supplement*, (1459), 28-29.

The writer questions the supposition that teaching and research are significantly different activities. He believes that this assumption accords with the market view of learning rather than with the reality of academic work. He regards the ability to inquire, to engage others in personal inquiries, and to learn from them as characteristic of the good teacher, the good learner, and the good student. The writer does not think that knowledge is marketable, because those who learn it do not take it away from those who teach it.

Taylor, J. (2001). The Impact of Performance Indicators on the Work of University Academics: Evidence from Australian Universities. *Higher Education Quarterly*, 55(1), 42-61.

A study examined the effect of the application of performance indicators on teaching and research activities. Participants were 152 university academics from four representative Australian universities. The results indicated that most of the participants claimed their approach to teaching and research has changed since the application of performance indicators. In research, the change has been that academics now focus on external research grant applications and publications and maximize the quantity produced from these activities. In addition, a sizable proportion of the participants indicated a shift in their work priorities toward research at the expense of teaching, with a possible explanation for this being the lack of special incentives to increase their emphasis on teaching.

Warton, P. M. (1995). What Parts of Teaching do Academics See as Feasible to Delegate? *Higher Education*, 29, 129-141.

This paper investigates Australian academics' views about teaching by asking them about the aspects of their job they could contract to others. In particular, it contrasts the views of 26 academics in the Humanities with those of 26 in the Social Sciences. The results showed no differences as a function of level of appointment or gender but a significant difference by teaching area: academics from the Social Sciences were more likely to approve in general the practice of 'buying out' time. When asked about contracting out specific aspects of teaching, the only area of difference was for marking (Social Sciences were more often in favour). In all other respects, the viewpoints expressed by academics from the Humanities and Social Sciences were very similar. Such approval was rarely given unconditionally, however. Concerns were expressed about the need to maintain some degree of supervision or responsibility for teaching. Academics agreed on their overall goals in teaching, on whether or not lecturing, tutorials and student consultation could be contracted to others and on the ideal amounts of time to spend on teaching, research, and administration. It is argued that this pattern of results is more likely to reflect a difference in implementation of goals rather than a difference in baseline ideas as a result of different cultures in the two teaching areas.

Appendix B: Excluded References

- Long-Awaited Innovation Strategy Disappointingly Vague. (2002). *CAUT Bulletin*, 49(3), A3.
- "Publish or Perish": the Role and Meaning of "Research" in Teacher Education Institutions. (2000). *Teacher Education Quarterly*, 27(2), 7-170.
- Beyond Scholarship Reconsidered. (1996). *Quest (Champaign, Ill.)*, 48, 127-220.
- The Politics of Intervention: External Regulation of Academic Activities and Workloads in Public Higher Education. (1996). *Academe*, 82, 46-52.
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