

Spring 3-1-2003

Teaching vs. Research: Toward the Reconciliation of an Academic Dilemma

Mario Norbis
Quinnipiac University

Angela M. Arrey-Wastavino
Quinnipiac University

F. Abel Ponce De Leon
University of Minnesota

Follow this and additional works at: <https://openriver.winona.edu/eie>



Part of the [Higher Education Commons](#)

Recommended Citation

Norbis, Mario; Arrey-Wastavino, Angela M.; and Ponce De Leon, F. Abel (2003) "Teaching vs. Research: Toward the Reconciliation of an Academic Dilemma," *Essays in Education*: Vol. 5 , Article 2.
Available at: <https://openriver.winona.edu/eie/vol5/iss1/2>

This Article is brought to you for free and open access by OpenRiver. It has been accepted for inclusion in *Essays in Education* by an authorized editor of OpenRiver. For more information, please contact klarson@winona.edu.

**Teaching vs. Research:
Toward the Reconciliation of an Academic Dilemma**

Mario Norbis
Quinnipiac University.

Angela M. Arrey-Wastavino
Quinnipiac University.

F. Abel Ponce De Leon
University of Minnesota

Abstract

A line of thought that compares two major changes in Higher Education and the societal environments surrounding them is presented. A model, currently taking place, associated with the perceived controversy between teaching and research is introduced and discussed. The need to foster appropriate procedures where university constituencies are brought together to participate in the process of reshaping the university model guaranteeing its survivability is recognized. Finally, options for teaching comparable with the scale established for research are proposed as a reconciliatory model to solve this academic dilemma.

Introduction

Though the topic of teaching vs. research has been studied extensively in higher education, its multidimensionality has permitted its exploration from a number of perspectives. Thus, during the last half of the century approaches have varied from the most radical pedagogy to the most traditional conservative research practices (Bloch, 1998; Braccia, 1994; Brew, 1999; Colbeck, 1992; Hattie, 1996; Smeby, 1998).

From an additional angle, more recently the long neglected student perspective has arisen as a new voice in the field (Jenkins, et al., 1998). Research indicates that students do not necessarily oppose to their faculties research activities as essential to the profession, rather they incline for being informed about such process. Academician's duties are public and are well known by the community and other sectors, however, the activities carried out beyond teaching, named research, are kept away from the students' knowledge.

According to Jenkins et al (1998) a reconciliatory perspective seems to lay on keeping both activities equally public and accessible to the academic community by incorporating students as a participatory element has been suggested in the study. Furthermore, exteriorizing the research activity step-by-step may contribute to provide motivation among the clients. Offering an option to observe the process from a closer perspective as an alternative and not necessarily limited to either the confines of teaching or research, but as an integral part of the intellectual process is brought up by the same study.

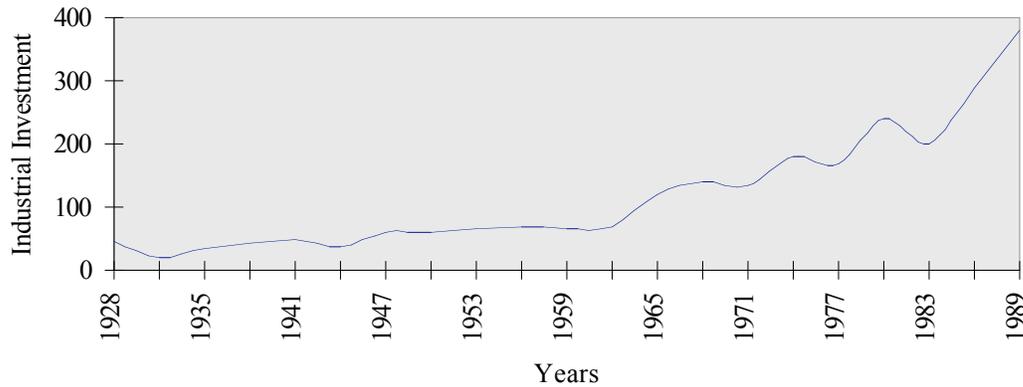
On the other hand, the Teaching-vs-Research academic dilemma was challenged by the Boyer report on scholarship in 1990, subsequently bringing the reclassification of higher education institutions in the country and evidencing a continuous debate in its saga: Scholarship Assessed (Glassick, et al., 1997.) The impact has been concretely observed on determining national higher education institution ranks and standards.

This discussion situates both elements, teaching and research, as preponderant to the teaching-learning process carried out at institutions competing for clients. The main objective of this study is to evidence a neglected aspect claiming to add another key to contribute to the reconciliation of teaching vs. research as an academic dilemma.

Historical Perspective

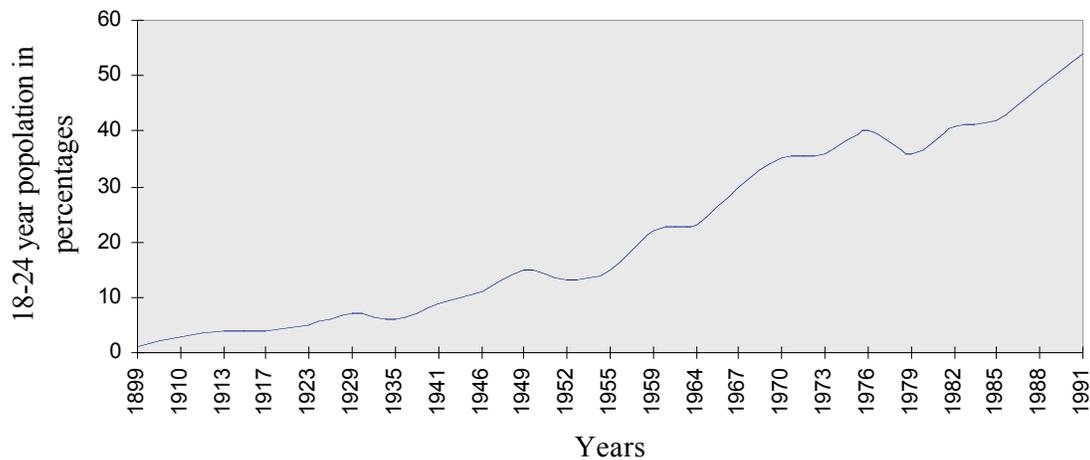
In Canada the “Teacher of the Year” is denied tenure, however the institution prides itself for its commitment to undergraduate teaching (Lewington, 1995). In Florida, amid faculty complains, tenure is granted to a faculty member with very low number of publications, but excellent teaching and community service record (Cage, 1995). These and similar news seemed to be the focus of the academic world during the past decade (Hartman, 1995). Clearly some institutions value research over teaching while others favor teaching. Why is this so? Are we at the historical point of a paradigm shift? Why is there a perception of controversy between teaching and research at Institutions of higher education? To answer these questions, it seems natural to compare the post World War II and the post Cold War societal characteristics, as departure points conditioning major changes in Higher Education.

Figure 1. Industrial investment in billions of dollars. Source: Darnay, 1992



The post war environment could be described as a society with higher expectations, in times in which the industrial revolution was at its peak (Fig. 1). There was a larger, more educated working force (Fig. 2) that included, for the first time, a significant proportion of women as active participants in the process of economic growth (Fig. 3). Potentially, this working force was ready for the acquisition and refinement of knowledge required to establish the continuity of industrial progress and the affirmation of an affluent society. Society had recognized the value of knowledge in creating wealth, and higher education had been correlated with prosperity (Grogono, 1994.) On the other hand, policy makers have also recognized the importance of research in generating new knowledge and have also correlated it with prosperity. Therefore, the natural flow of Federal economic investment was oriented toward the support of research at universities and institutions. The G.I. Bill was one of the many ways by which an influx of investment in higher education was directed to universities. Society's perception and the influx of money initiated the process by which research became a measure of success in academia at the expense of teaching. The pre-war environment represented a paradigm shift in academic focus, for the most part, teaching oriented and centered on agriculture and engineering.

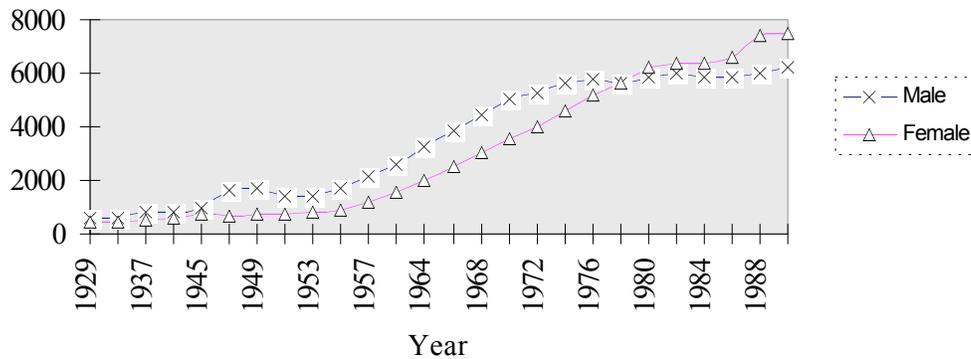
Figure 2. Higher education enrollment in percentages of 18-24 year old population. Source: US Dept. of Education, 1992



Accordingly, the new university-research base model and the influx of financial support from the Federal and State governments required a system of accountability. Who were the most reliable scientists and institutions that deserve the research financial support available? In response to this question, two systems, that are still in use, (University of California, 1991; Fairweather, 1993) were developed: peer review of research work and level of productivity. The latter expressed as the total output of new knowledge per unit of time and level of investment. Scientists that were successfully measured by the accountability system were rewarded with prestige (Lewington, 1995). On the other hand, teaching did not evolve in the same direction and was relegated to the level of another university function (Gray, 1992). Apparently, prestige becomes the most important element in the gap between Teaching and Research (Fairweather, 1997). Land Grant Universities, across the board, adopted this new economically imposed reality and aligned their internal reward systems after this model (Fairweather, 1997; Kerr, 1995). However 4-years private institutions did not follow through with this trend, preserving their dedication to teaching as a priority over research.

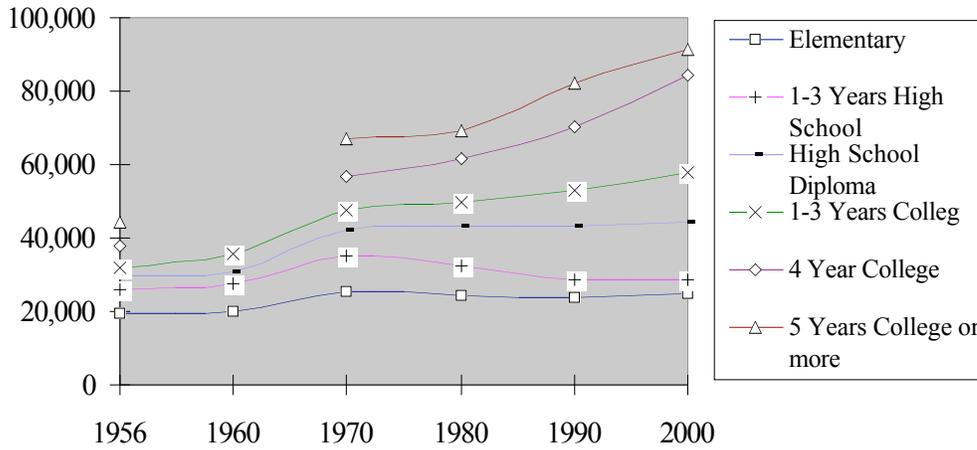
We believe that the model for Land Grant Universities was successful and unquestionable until the early eighties when research's diminishing returns on investment became apparent. Simultaneously, other factors converged to develop new practices and model the post Cold War era. The one that resulted in another paradigm-shift comparable in magnitude but opposite in direction to the one that started after World War II.

Figure 3. Male female enrollment in thousands. Source: US Dept of Education, 1992



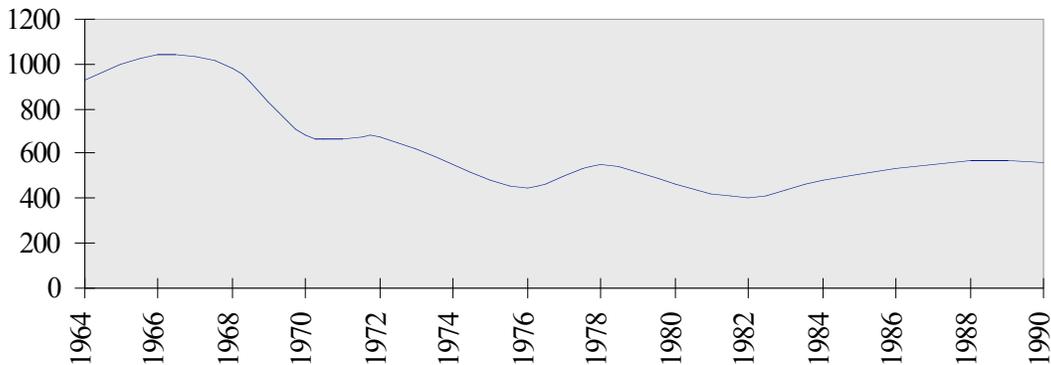
This new trend could be described as one having a larger educated population (Fig 3) and a higher standard of living. More importantly, a society defining a value driven need of higher education for every one of its members as a measure of success and guaranteed employment (Fig 4), and a university vision of sustained growth. Simultaneously, support for research and higher education at the Federal and State levels was diminishing for Federal investment in Sciences and Engineering (Fig. 5.) The shifting societal vision with respect to higher education has created an increased demand for it and the need for individuals to assume the investment necessary to achieve it. Therefore, Federal and State programs for higher education are being questioned, cut or reduced. This new reality positions university administrations to look at new sources of revenue like students' tuition to guarantee survival in a competitive market.

Figure 4. Average family income by educational attainment of the householder. Source: US Census Bureau 2000.



The relation between Teaching-Research is now viewed from a different perspective. The idea of the student-customer was born (Grogono, 1994; Braccia, 1994), along with the perception of a controversy between teaching and research.

Figure 5. Total federal obligations for science and engineering divided by enrollment in constant 1984 dollars. Source: US Dept. of Education, 1992; Darnay, 1992; National Science Foundation, 1995.

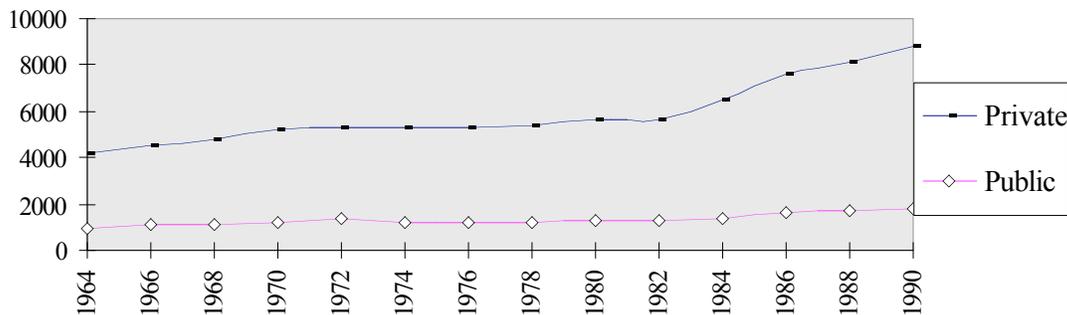


The Current Structure

The prevailing model of university operation follows the trends of allocation of economic resources on which their operating budgets function. In general terms, Land Grant universities depend on State allocations, research generated overhead, tuition, and

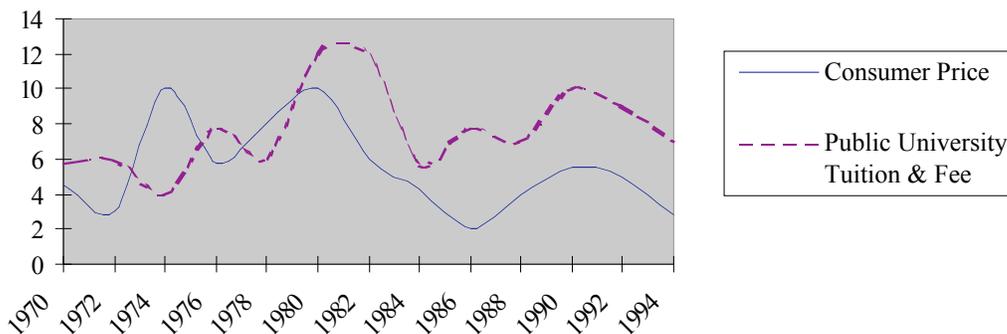
marginally on endowments. Currently, state allocations have been reduced and/or maintained at level funding (Grogono, 1994; Goldstein, 1995), while tuition costs have increased (Fig. 6) to compensate the loss in Federal and State allocation and inflation costs (Fig, 5).

Figure 6. Tuition and fees increase in constants 1984 dollars. Source: Dept. of Education, 1992.



Overall, reduction of state support for Higher Education is translated as a reduced tax burden while increased tuition costs is equated with customer needs for expanded services, hence an increased demand for teaching. Therefore, dependency on these customary financial resources is under restructure. It is envisioned that a) state allocations would not increase significantly in the near future, and b) tuition couldn't be further increased without affecting student accessibility (Figures 6 and 7). A major shift toward reorganization (increased operating efficiency and downsizing) is under way at Land Grant universities (Roush, 1996). This entails the need to develop their endowments, increase the student-faculty ratios and redefine the teaching/research faculty loads without affecting the teaching quality in spite of the overall faculty reduction.

Figure 7. Annual percentage increase in Public Universities tuition and consumer prices. Source: Mortenson, 1995.

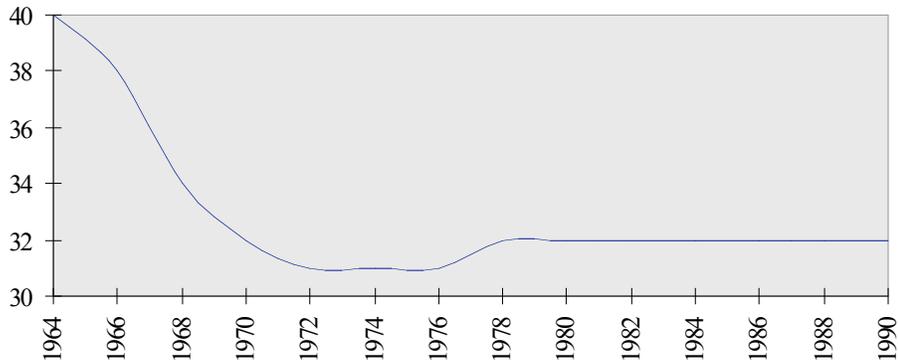


Private 4-year colleges, on the other hand, are for the most part dependent upon tuition and endowments for their operating budget functions. This demands a major recruitment effort to maintain the level of tuition generated income. It seems that the success of this activity is influenced by the prestige of the college, which in turn feeds into its ability to compete for students, with other colleges, from a shrinking pool of candidates. This is evidenced in Figure 8 that specifically points at enrollment in 4-years private institutions as compared to the overall enrollment in 4-year institutions over the years. Similarly, with more and larger competitors for endowments, private colleges are forced to show significant achievements to entice new donors. In real terms, this translates into a quest to maintain or increase the prestige of the college focusing on what is termed "the scholarship of discovery / development" (Braccia, 1994), i.e. research, a new area for most of these institutions. Increased, prestige results in both: institutional academic recognition, such as national accreditation and student demand, which can also be seen as a consequence of the former. Besides prestige, research in the science areas constitutes a source of overhead income and a new source of financial support. Again, it seems logical that redefining faculty teaching-research loads is necessary to adapt to this new reality.

Other approaches to restructuring adopted by Land Grant Universities and 4-years Private colleges include the elimination of programs or departments that are not perceived as a productive investment or have not reached the level of prestige necessary for the university to use them to increase enrollments. The objective of this practice is the elimination of research activities in the unproductive areas, while concentrating on teaching activities if the program or department in question was involved in providing basic general education or if it is central to the mission of the institution (Roush, 1996.) These latter teaching functions are now being concentrated in new academic divisions and, for the most part, are carried out by adjunct professors, part-time instructors and/or lecturers. As a result, teaching becomes an enhanced activity, but seldom accordingly rewarded. On the other hand, in four-year public universities as well as private colleges, salaries are inversely correlated with percentage of time spent in teaching or the number of hours in class per week (Fairweather, 1997).

Although educational institutions define the society at large as their ultimate customer, their immediate customers are the students (Grogono, 1994; Braccia, 1994) being served. While the former was always accepted, the latter is a relatively new notion in Land Grant Universities deriving from the fact that students are taking, via tuition, a larger share of their educational costs as shown in Figures 7 and 8. Conversely, in private 4-year institutions, the student-customer vision has always been part of the system.

Figure 8. Enrollment in four-year private institutions as percentage of the overall enrollment in four-year institutions. Source: US Dept. of Education, 1992.



Land Grant Universities and Private Colleges are urged, now more than ever, to provide customer satisfaction, although the degree of effort in this area is perceived to be more pressing and more immediate in private colleges due to higher tuition investments. Customer satisfaction translates into higher demand for "scholarship of communication, integration and application of knowledge" (University of California, 1991), all of which can be summed-up under the heading of "teaching." Therefore, demonstrating again the need to redefine the faculty teaching-research loads, the balance, in this case, being inclined towards teaching, advising, counseling and, if possible to lower student/faculty ratios.

Institutions are looking for prestige, but in the current structure prestige is associated to research, while customer satisfaction is strongly related to quality teaching. This dilemma is part of the reality of those institutions in need of both: prestige and customer satisfaction. However, their struggle is enhanced by their inability to delineate a clear message and goals to its faculty constituency (Mooney, 1992). These mixed messages include inconsistencies in assessment and the different scales of reward for teaching and research (Kerr, 1995; Gray, 1996). Therefore, setting the stage for the perception that there is conflict between these two academic activities.

Deciphering the Conflict

The idea of a university as an institution evolved early in the second millennium and it has been shaping itself in a very dynamic way for the past 900 years. In its early stages, it did not require any tangible infrastructure, only individuals willing to learn and individuals willing to teach. Its original focus was limited to philosophy, history and theology, while it includes now every imaginable area of knowledge, and has evolved into a formal and popular educational system. By no means one can think that it has reached

its final stage of evolution. To the contrary, being a dynamic process one cannot predict its future, however, one can participate in such process (Kerr, 1994).

Starting from the concept that teaching and research are not opposed to each other, instead that they are complementary and a part of this dynamic process; one can envision that as knowledge is generated, it requires to be passed on. Doing otherwise defeats the purpose of generating new knowledge. Therefore, both activities are central and necessary to the very existence of the university. Having described this general concept, there are still several ways to accomplish teaching and research. An institution dedicated to pure teaching, does not depart from the high school model, conversely dedication to purely research fits better the model of a research Institute. Land Grant Universities and Private Colleges, in our view, are neither of these, they are both. However, based on current universities and colleges policies and rewards, the perception that teaching is subordinate to research has permeated all constituencies within the academy. This is the result of the accumulation of prestige conferred to Institutions and individuals involved and successful in research. Achievements in teaching seem more elusive and difficult to define than those in research (Mooney, 1992 ; University of Massachusetts, 1995; Colbeck, 1992). Evidence of exclusive teaching in higher education has been observed on the duties assigned to the high population of adjunct instructors/ faculties, who have been liberated from service as well as research (Coalition on the Academic Workforce, 2000; US Department of Education, Office of Educational Research and Improvement, 2001; US Department of Education, 2000). This teaching responsibility conveys the obvious expectation: to excel. However, scarce/ segmented studies on their teaching effectiveness is available to corroborate this expectation at the national level. Additionally, the prestige such position in academia maintains is well known by fulltime faculties who juggle a set of commitments (American Federation of Teachers, Higher Education Department, 1998; National Center for Education Statistics, 2001). Therefore, accumulation of prestige, for teaching, has proven to be more difficult. Forty years of routinely evaluating research without a comparable counterpart of teaching evaluations evidences reality. If there is recognition that teaching is as important as research, then it seems appropriate that institutions and individuals engaged in teaching should be able to accumulate the same level of prestige as it is gained with research activities. The objective here is to be able to develop an evaluation system accepted by the culture of the academic community that were capable of conferring to the teaching function, equivalent levels of prestige. It seems that one such system could be based on the peer review process that has proven to be the cornerstone of research evaluation (Kerr, 1995). We do not imply that this is the only system available, but it seems reasonable to borrow the system until a better way is found by consensus. This should be followed by the development of an appropriate reward system, tending to correct the trend that professors' pay is inversely related to time spent on teaching (Fairweather, 1997).

Undoubtedly, there would be resistance to implement an evaluation system for teaching (Mooney, 1992; Baker, 1997). Faculty will be more reluctant to be evaluated in an area where they, for the most part, lack training. Professors have not received formal training in teaching; normally they enter the faculty after three or four years of research oriented work toward their Ph.D., with little or no exposure to develop teaching techniques (Colbeck, 1992). We believe that change has to be implemented at all levels, starting from the current Ph.D. curricula. Doctoral students are, for the most part, required to teach as teaching assistants, however, they are not trained to teach as they are to do research, perpetuating the intuitive teaching approach, the apprentice model. Doctoral curricula assume that every human being has an innate ability to teach and moreover, this ability is such that it will be successful even in the absence of training. This situation translates ultimately into unsatisfied student-customers. Idealistically, it may be postulated that pedagogy, as the systematic procedure of transferring accumulated knowledge, should be offered as an alternative to do research either at the graduate level, or as professional development for those who have chosen such venue. Unfortunately, only in exceptional occasions this is present in academia. This practice may be interpreted as limiting the principle of democracy and autonomy claimed by academicians that ultimately may translate into dissatisfied/frustrated professionals and customers alike.

Interestingly, in Private Colleges, that have traditionally emphasized teaching as the main, or sole, activity, faculties have developed teaching abilities in spite of the lack of training in a "do it or die" environment. Now, when these institutions, in a quest for prestige, requires faculty to excel in research and implement an evaluating system in this regard, it is natural to experience faculty resistance to the change. In this case the opposite phenomenon, to that of the Land Grant Universities, is observed because faculty had been disenfranchised from research.

Moreover, when literature of teaching and research is examined, attention has concentrated on modifying the research component during the last decade (Barone, 2001; Willinsky, 2001) Making research more accessible to the general population has been reflected on Action Research, which has demonstrated a common effort among constituents of higher education communities. In contrast, the methodology of transferring knowledge (pedagogy) has been greatly neglected by these circles. In higher education the methodology to teach diverse disciplines rarely exists in curricular programs. This practice has been emphasized in colleges of education focusing on children (elementary & secondary) and some areas of adult education addressed to specific education/knowledge. In areas such as the traditionally called professions, law or medical schools, and/or the hard sciences, the systematization of teaching techniques is absent as opposed to the methodologies to conduct research such as qualitative and quantitative methods.

Clearly, teaching is at a disadvantage in the models currently used in higher education in the country provoking inequalities in academic performance and its

assessment. It is here proposed that to successfully implement a reward system equivalent to the one offered for research requires teaching training as an essential pre-component.

Conclusions and Recommendations

Evidently moving to the middle ground where teaching and research receive equal recognition will encounter resistance from different groups of the same constituency (Grogono, 1994). Therefore, reinforcing the perception that teaching and research are activities in conflict, instead of being complementary to each other. The perception of conflict between these two academic activities at any institution will vary depending on the position the institution occupies in the spectrum between pure teaching and pure research.

Moving to the middle ground, Syracuse University, being a good example (Mooney, 1992), implies reallocation of resources; institutions that have heavily invested in research are investing in programs to reward teaching and conversely those heavily invested in teaching are developing an infrastructure for research. These actions have demonstrated a need on emphasizing pedagogy in higher education.

Faculty, feeling pulled in many directions (Kerr, 1995; Gray, 1996), respond to this situation by fueling the discussion surrounding the confrontation between teaching and research, avoiding the central issue of survivability of the university as an institution. University administrators should foster the appropriate environment to bring together the different constituencies of the university to interact and discuss the forces that are creating pressure for change. University communities, on the other hand, should be willing participants in reshaping the university model with a long term vision focused on survivability of the university as an institution and not on their particular needs. This vision should ultimately define the contributions of the university to the society at large. From an administrative point of view, a reconciliatory approach seems to be a peremptory need transpiring from practice. The multiple roles played in academia (administrator-instructor-researcher) not necessarily should be in conflict, to the contrary, it demonstrates the flexibility traditionally offered to the professoriate but not necessarily exercised. Nevertheless, motivation and preparation are two preponderant elements required to improve academic practices.

References

Altman, H. B. (1995). Peer review of teaching: Increasing interest. *The Newsletter for Academic Deans and Departmental Chairs*, 52 (5) 1 - 2.

- American Federation of Teachers, Higher Education Department (Year not available). *The vanishing professor*. Author. [Available] http://www.aft.org/higher_ed/reports/professor/index.html.
- Andre, R & Frost, P (Eds.) (1997). *Researchers hooked on teaching: Noted scholars discuss the synergies of teaching and research*. Ca: Thousand Oaks, Sage.
- Athey, T. H. (Year not available). *Non-traditional universities challenge 21st century higher education*, Cal Poly University Pomona. [Available] <http://sbox.kirtland.cc.mi.us/extra/nontradunis.htm>
- Athey, T. H. (1995). Teaching and research: Establishing the vital link with learning. *Higher Education*, 29, 261-73.
- Baker B. & Burns C. (1997). Dialogue. *The NEA Higher Education Advocate*, 14 (6) 5. [Available] <http://www.nea.org/he/head9697/advo9706/dialog.html>
- Barone, T. (2001). Art, science, and the predisposition of educational researchers. *Educational Researcher*. 30 (7) 24-28. [Available] <http://www.aera.net/pubs/er/eronline.htm>
- Bloch, E. (1998). *Research as a vital foundation for society*. [Available] <http://www.nsf.gov/pubs/1998/nsb97150/bloch.htm>
- Boyer, E. (1990). *Scholarship reconsidered: Priorities of the professoriate*. Princeton: The Carnegie Foundation for the Advancement of Teaching.
- Braccia J. (1994). The customer-driven classroom. *The teaching professor*, 8 (7): 5-6.
- Brew, A. B. (1999). Research and teaching: Changing relationships in a changing context. *Studies in Higher Education*, 24 (3) 291-301.
- Cage M. C. (1995). A test case for tenure. *Chronicle of Higher Education*, December 8, A-17.
- Coalition on the Academic Workforce. (2000). *Who is teaching in U.S. college classrooms? A collaborative study of undergraduate faculty*. [Available] <http://www.theaha.org/caw/index.htm>.
- Cohen, E. (Year N/A). *The academy and American civilization*. <http://www.philanthropyroundtable.org/magazines/00-11/cohen.html> The 21st Century University.

- Colbeck C. (1992). *Extrinsic rewards and intrinsic interest : The influence of tenure on faculty preference for teaching or research*. Paper presented at the annual meeting of the Association for the Study of Higher Education, Minneapolis, MN, November 1.
- Darnay A. (Eds.) (1992). *Economic indicators handbook*. Detroit: Gale Research Inc.
- Fairweather J. (1997). The relative value of teaching and research. *The NEA 1997 Almanac of Higher Education*, 43-62.
- Faiweather J. (1993). Faculty reward structures: Toward institutional and professional homogenization. *Research in Higher Education*. 34 (5) 603-623.
- Glassick, E., et al. (1997). *Scholarship assessed: Evaluation of the professoriate*. Princeton: The Carnegie Foundation for the Advancement of Teaching.
- Goldstein W. (1995). In defense of offensiveness among college professors. *Amherst Bulletin*, 4, May 26.
- Grogono A. (1994). Tenure the teacher: Let research be its own reward. *Educational Record*, Winter, 37-41.
- Gray P. J., Diamond R. M. & Bronwyn E. A. (1996). A national study on the relative importance of research and undergraduate teaching at colleges and universities, Executive Summary. *Center for Instructional Development*. Syracuse University, February, 1-29.
- Gray P. J., Froh R. C. & Diamond R. M. (1992). A National Study of Research Universities, On the balance between research and undergraduate teaching. *Center for Instructional Development*. Syracuse University, March, 1-17.
- Hartman, R. (Producer). (1995, February 26). *Get Real/ 60 Minutes*. New York: CBS Inc.
- Hattie, J. (1996). The relationship between research and teaching: a meta-analysis. *Review of Educational Research*, 66 (4) 507-542.
- Jenkins, A., et al. (1998). Teaching and research: Student perspectives and policy implications. *Studies in Higher Education*, 23 (2) 127- 141.
- Kerr, S. (1995). An academic classic : On the folly of rewarding A, while hoping for B. *Academy of Management Executives*. 9 (1) 7-15.
- Kerr, S. (1994). *Troubled times for American higher education: The 90' s and beyond*. Albany : State University of New York Press.

- Lewington, J. (1995). Canada's professor of the year cannot get a full-time Job. *Chronicle of Higher Education*, 42 (16) A-40.
- Mooney, C. (1992). Syracuse seeks a balance between teaching and research. *The Chronicle of Higher Education*, 38 (29) A-1.
- Mortenson, T. (1996). Family income by educational attainment of householder 1956 to 1994. *Post-secondary Education Opportunity*, 46, 13-16.
- Mortenson, T. (1995). Public institution tuition and fees up sharply again in FY 1995. *Post-secondary Education Opportunity*, 35,11-14.
- National Center for Education Statistics (2001). *Background characteristics, work activities, and compensation of faculty and instructional staff in post-secondary institutions: Fall 1998*. U.S. Department of Education OERI, NCES 2001-152. [Available] <http://nces.ed.gov/pubs2001/2001152.pdf>.
- National Science Foundation / Science Resource Studies (1995). *Survey of federal science and engineering support to universities, colleges and nonprofit institutions*. Author.
- Roush, W. (1996). URI tries downsizing by formula. *Science*, 272 (April 19) 342-46.
- Smeby, J. (1998). Knowledge production and knowledge transmission. The interaction between research and teaching at universities. *Teaching In Higher Education*, 3 (1) 5-16.
- University of California (1991). *Report of the university-wide task force on faculty rewards*. Oakland, California: author.
- University of Massachusetts (1995). *Rethinking undergraduate education for the next century : Interdisciplinary seminar*. Amherst, Massachusetts: author.
- US Department of Education (2000). *Fall staff in post-secondary institutions, 1997*. Author. [Available] <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2000164>.
- US Department of Education, National Center for Education Statistics. (1996). *Institutional Characteristics of Colleges and Universities*. Author.
- US Department of Education, National Center for Education Statistics & Office of Educational Research and Improvement. *The Condition of Education, 2001* (2001)NCES 2001-072. Author. [Available] <http://nces.ed.gov/pubs2001/2001072.pdf>

US Department of Education, National Center for Education Statistics & Office of Educational Research and Improvement. *National Study of Postsecondary Faculty Field Test Report* (2000). Working Paper Series No. 2000-01, (NSOPF:99) January 2000. Author. [Available] <http://nces.ed.gov/pubs2000/200001.pdf>

US Department of Education. Office of Educational Research and Improvement (2001). *Digest of Educational Statistics 2000*. Author.

US Department of Education. *Instructional Faculty and Staff in Higher Education Institutions Who Taught Classes to Undergraduates: Fall 1992*. (2000) NCES 2000-186. Author. [Available] <http://nces.ed.gov/pubs2000/2000186.pdf>

US Census Bureau (2001) *Historical Income Tables*. Author. [Available] <http://www.census.gov/hhes/income/histinc/>

Willinsky, J. (2001). The strategic education research program and the public value of research. *Educational Researcher*. 30 (1) 5-14. [Available] <http://www.aera.net/pubs/er/toc/er3001.htm>.