

Academic Capitalism and its Impact on the American Professoriate

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Abstract: *In recent years, much attention has been paid to the idea of academic capitalism and the notion of the entrepreneurial university. By first providing a history of the development of the idea of academic capitalism and then reviewing the relevant literature of academic capitalism and its impact on faculty members, this review asks the questions: What was the context in which early notions of academic capitalism were developed? How have scholars come to define academic capitalism? What does the literature reveal of the entrepreneurial role of faculty members? Finally, this paper concludes with the probing question, what are the implications of entrepreneurship to the professional status of the American professoriate?*

In recent years, much attention has been paid to the idea of *academic capitalism* and the notion of the *entrepreneurial university*. This is particularly the case in research-intensive institutions where cutting edge research has historically been tightly coupled with governmental and corporate advances. While the literature is mounting concerning institutions and their new role in the knowledge economy, surprisingly little research sheds light on the entrepreneurial role of faculty and its impact on the professional status of the professoriate. By first providing a history of the development of the idea of academic capitalism and then reviewing the relevant literature of academic capitalism and its impact on faculty members, this review asks the questions: What was the context in which early notions of academic capitalism were developed? How have scholars come to define academic capitalism? What does the literature reveal of the entrepreneurial role of faculty members? Finally, this paper concludes with the probing question, what are the implications of entrepreneurship to the professional status of the American professoriate?

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The Context and Early Studies of Academic Capitalism

The notion of academic capitalism has its foundation in labor economics in that those identifying a shift toward academic capitalism see an increase in the involvement of academia in the free market. During the industrial revolution, faculty members were able to put themselves between the forces of capital and labor. In a sense, faculty members acted as gatekeepers of knowledge; they prepared those entering the market with the human capital needed to be successful; however, faculty members themselves were able to remain an isolated entity. This isolation protected faculty members from the influences of the market. During this period, and for many years previously, higher education was largely considered to be a public good (Abbott, 1988; Perkin, 1989). A shift began, however, during the 1970s and through the 1980s, where professors began to get closer to the market (Slaughter & Rhoads, 1990b). The 1980s marked a significant change in the economy with increased competition from the Pacific Rim. To compensate, the United States economy began to demand greater advances in research and technology. This resulted in the birth of the knowledge economy or the *new economy*, defined by Powell and Snellman (2004) as, “production and services based on knowledge-intensive activities that contribute to an accelerated pace of technological and scientific advance as well as equally rapid obsolescence” (p. 201).

Scholarly attention began to focus on the involvement of academia in the knowledge industry during the late 1980s and 1990s. Early studies examined the formation of university-corporate partnerships, the pressure on faculty members to do more research, the impact of decreasing governmental appropriations, and legislation impacting the nature of academia. Early studies tended to focus on decreasing public revenues for higher education and an increase in various activities to compensate. Through an extensive review of the literature, Fairweather (1988) concluded that colleges and universities were compensating for decreasing governmental revenues through liaisons with business and through the marketing of educational services. Massy and Zemsky (1990, 1994) described how faculty members were encouraged to do more research, especially in research and development centers on the edge of the universities in order to bring in more external revenue. In 1993, Breneman contributed to the funding literature by making one of the first

convincing cases identifying a significant decrease in public financial support for higher education; this was then supported in terms of the impact of decreased funding for public higher education on teaching and research through work conducted by Leslie, Oxaca, and Rhoades (1998). Also, Gumpert and Pusser (1995) demonstrated shifts in resource allocations from instruction to entrepreneurialism by way of increased funding for the administrative activities that accompany grant-sponsored research. Finally, Rhoades (1998) described legal and economic changes that shaped the management styles in higher education, specifically the loss of power of unionized faculty who have seen stronger supervision and control from the administration, a phenomenon also occurring in the corporate sector. These studies mark the beginning of significant attention to the notion of what has become known as academic capitalism or academic entrepreneurialism and helped to set scene for what many consider to be the foundational volume describing the phenomenon of academic capitalism: Slaughter and Leslie's (1997) *Academic Capitalism*.

The Initial Idea of Academic Capitalism

In 1997, Slaughter and Leslie published their text, *Academic Capitalism: Politics, Policies, and the Entrepreneurial University*. This study examined the implications of globalization on higher education in the United States, the United Kingdom, Australia, and Canada. The authors' main argument centered on how decreased funding of block grants to institutions moved colleges and universities (and individual faculty members) to resource-generating activities. This notion is the crux of academic capitalism, as described by Slaughter and Leslie, and frames their presentation. Just as Fairweather (1988) and Rhoades (1997) argue, Slaughter and Leslie point to the decrease in general governmental expenditures on higher education as the main impetus driving institutions as well as faculty members to enter into market or market-like behavior. Slaughter and Leslie defined *academic capitalism* as "institutional and professorial market or market-like efforts to secure external moneys" (p. 8). To provide a better understanding of this definition, what follows is a discussion of these market-like and market behaviors, as indicated by Slaughter and Leslie.

Slaughter and Leslie (1997) identify *market-like* behaviors as those approaching academic involvement in the free market whereas *market* behaviors refer to those behaviors directly involved with the market.

Market-like behaviors are defined as institutional and faculty competition for external funding through such measures as external grants and contracts, endowment funds, university-industry partnerships, institutional investment in professors' spinoff companies, and an increase in student tuition and fees. Market behaviors are defined as for-profit activity on behalf of the institution including patenting (and subsequent royalties and licensing), spinoff-companies, and arms'-length corporations. Of particular interest is the notion of arms'-length corporations, which often materialize in the form of university hospital systems. Though not officially part of the institution, these corporations are intimately affiliated with the medical and science departments of the university, assisting in acquiring additional external grants and conducting the research.

To support this idea, Slaughter and Leslie (1997) turn to resource dependency theory, which argues when individuals lack vital resources, they will turn to other means in order to maintain the status quo to which they have become accustomed. The authors go on to argue that turning to academic capitalism brings not only increased resources, but also esteem, particularly through obtaining external grants from prestigious organizations such as the National Institute of Health and external contracts with major players in the corporate sector. Thus, as a backbone of their argument of the shift towards market or market-like behavior, Slaughter and Leslie argue, "faculty will turn to academic capitalism to maintain resources and maximize prestige" (p. 114). While the initial groundwork towards a literature surrounding academic capitalism was established, a few years later, a more formal definition and theory of academic capitalism was articulated and future studies have been grounded in this more formal definition. Specifically, Francis and Hampton (1999) demonstrated how the trends first described in *Academic Capitalism* (1997) continued through the 1990s.

Towards a Theory of Academic Capitalism and the New Economy

In their volume, *Academic Capitalism in the New Economy*, Slaughter and Rhoades (2004) develop a more complete idea of academic capitalism. Notably, the authors turn away from resource dependency theory in lieu of developing a new theory of academic capitalism. Resource dependency theory requires a clear boundary between the

organization and the environment; however, in their newly developed theory of academic capitalism, the boundary is less clear and stronger emphasis is placed on the interaction between the two. With this new conceptualization, colleges and universities are seen not merely as being converted into the private sector, but rather that higher education institutions are, indeed, initiating academic capitalism. In other words, instead of the market forcing institutions into an environment of academic capitalism, colleges and universities (as well as individual faculty members) are actively seeking out such an environment. This is built on the foundation of Castells (1996, 2000) who argues for the centrality of organizations to the new economy. What follows is an elaboration of this new theory and its fundamental components.

The first component stressed by the authors is that of the way in which colleges and universities cannot be separated from the new economy because they contributed to its development. The knowledge-based economy did not develop without the support of academic institutions and, as such, higher education cannot be separated from it. Furthermore, the economy includes a strong global perspective. As an example, the reader is reminded that the Internet began in a university, a tool that has connected the globe and fueled a global economy. This globalization is not present solely in the market, either. Colleges and universities have globalized in the sense of offering extensive study abroad programs and, in some instances, opening complete campuses in different countries. A final artifact reflecting the globalization of higher education is that of an increased focus on distance and online education, allowing students from across the globe to access university resources and instruction. Thus, Slaughter and Rhoades (2004) argue that higher education has become deeply entrenched in the new economy, particularly through globalization in both sectors.

The increasing interaction of higher education and the market, however, is not limited to globalization. In both sectors, knowledge has become a raw material. As an example, prior to 1981, fewer than 250 patents per year were given to universities; however, in 1999, universities filed 5,545 patents (COGR, 1999). Furthermore, 70 percent of research universities had acquired equity in companies licensing technology developed by the institution (Feldman et al. 2002). In addition, higher education and the corporate sector have begun to mirror each other in what is known as non-Fordist manufacturing: the move away from mass

numbers of full-time, technical employees to a smaller workforce of highly trained individuals and a growing number of part-time employees. In higher education, the percentage of part-time faculty members has increased from 22% in 1970 to 50% in 1997 (Benjamin, 2002). A final parallel of higher education to the market is that educated workers and technology savvy consumers. Students, just like consumers, now have higher demands for technology at the universities and greater expectations in their preparation for the new economy. As such, colleges and universities are offering additional computing services to students and placing a stronger focus on the development of business and technical curricula (Slaughter & Rhoades, 2004; Adelman, 1999).

Finally, any review of the parallels between higher education and the new economy would be remiss without a brief discussion of the neoliberal state. Over the past few decades, the United States has experienced a shift from social welfare to individual production. This shift has brought about what many refer to as the neoliberal state. Government spending on social programs has decreased steadily, as has funding for higher education. This movement is also apparent in the way in which students have become active consumers. Since the 1972 revised student financial aid legislation awarding aid directly to students through Pell grants, students have become increasingly more pronounced in their role as a consumer (Slaughter & Rhoades, 2004). This is also apparent in the way in which new circuits of knowledge have developed. Traditional, sit-down instruction has begun to be replaced with online and distance instruction. Business partnerships have increased forcing research to be judged not only by peers, but also by sponsors and patent offices (Slaughter & Rhoades, 1996). As a result, new interstitial organizations have emerged as well as new intermediating networks. These interstitial organizations function as connective tissue between colleges and universities and the corporate sector. Technology and licensing offices are becoming increasingly popular on university campuses, as are economic developing offices, trademark licensing offices, and fund-raising offices at the local level (school, or even department). New intermediating networks have developed to further facilitate the relationship between higher education and the corporate sector. Slaughter (1990) writes of the Business Higher Education Forum, an organization of corporate and university CEOs that made a case for Individual Education Accounts (IEAs) where workers can invest in the future

education of themselves and their families, tightening the bound of the corporate sector and higher education.

From the literature, we have observed how higher education and the new economy cannot be separated as higher education contributed to the economy's development. Furthermore, through globalization and in the increase in university-owned patents, higher education has further engrained itself in the new economy. With colleges and universities exhibiting increasingly more market and market-like behaviors, what can be said of individual faculty members and their role in this relationship between higher education and the new economy? What follows is a review of the literature surrounding the entrepreneurial role of faculty members and the possible implications this role may have on the American professoriate.

Focus on Entrepreneurial Role of Faculty Members

Many agree that the entrepreneurial role of faculty members began with the Bayh-Dole Act of 1980, which permitted universities and small business to have ownership of intellectual property and obtain any profit gains from it as well. This was the beginning of intellectual property (Brannock & Denny, 1998; Hall, Link, & Scot, 2001; Jaffe & Lerner, 2001; Lerner, 1999). The primary way in which faculty members enter into an environment of academic capitalism is through technology transfer, specifically through obtaining patents and licenses for their developments. While some have argued that engaging in academic capitalism is not only beneficial, but essential for faculty members (e.g. Lee, 2000), others dismiss academic capitalism as a merely marginal part of university work (e.g. Agrawal & Henderson, 2002) and point to its inherent dangers (e.g. Giroux, 2002). What follows is a review the existing literature on the involvement of faculty members in academic capitalism.

Many agree that academic capitalism has pushed faculty members towards applied research and away from more pure forms of research (e.g. Stokes, 1997). Stokes (1997) demonstrates, however, how faculty members who are involved in applied, market-like research have a strong positive correlation with publishing. Furthermore, Lee (2000) argues that faculty benefit from university-industry connections due to better funding for assistants, equipment, and better insights from corporate scientists by connecting theoretical developments to practical

applications. Mendoza and Berger (2005, 2008) extend this argument suggesting that academic capitalism has influenced academic cultures and research behaviors in a positive way. In these studies, faculty members perceive academic capitalism as actually improving the quality of teaching and not negatively affecting scholarship or academic achievement. With so much emphasis on applied research, scholars have also probed the question of the impact of academic capitalism on the teaching-research balance, particularly in the unionized faculty arena where workloads are often pre-described (Rhoades, 1998) These studies find, however, similar results to those of Mendoza and Berger (2005, 2008), in that increased research activity does not necessarily hinder teaching as faculty members benefit from exposure to the corporate sector and are able to bring more core content knowledge to their students. Furthermore, these findings appear to be in line with Clark's (1998) argument that research and teaching cannot, and should not, be divorced from one another. Mars and Metcalfe (2009) stress the importance in educating future faculty members in how to engage in academic capitalism successfully through training in adapting research to market-oriented activities.

Others see academic capitalism as having either a more passive influence on higher education or a substantial negative effect, and are resistant in embracing a complete shift towards more market or market-like behaviors. In a study conducted at MIT, Agrawal and Henderson (2002) report less than 10 percent of faculty members engaged in patent activities. Those in opposition, or at least in resistance, to academic capitalism often present an ideological argument. Saunders (2007) warns of the threats the neoliberal economy presents for students. Marginson and Rhoades (2002) discuss how academic capitalism has pushed universities to become more homogenous and more active in the development of regional activities, to the detriment of academia's mission. Soley (1995) argues that undergraduates have little advantage from increased institutional funding for research activities. Furthermore, students may, in part, may bear the burden of such increased funding through higher tuition rates. Worth noting, however, is that much of the debate surrounding academic capitalism and its impact on faculty members often focus on those disciplines most susceptible to market influences: the hard sciences and technology. While this is certainly the case in terms of many research grants and patents, academic capitalism is pervasive in that all fields and disciplines feel the institutional shift

towards market or market-like behaviors through a straying from the institution's mission (Marginson & Rhoades, 2002) and undergraduate disadvantage (Soley, 1995).

In addition to explicit implications of academic capitalism, the literature also reveals findings on more latent implications—specifically we examine implications on the academic reward structure and the agency of the academy. Over the last ten years, a line of research has developed along the lines of the academic reward structure and academic capitalism. Most recently, a study by Lach and Shankerman (2008) demonstrates that reward structures that include interaction with the outside corporate community improve the performance of faculty members, in terms of research productivity and publication. This finding supports early studies that found how merit is now being acquired, at least in part, vis-à-vis market and market-like activities (Rham, 1994; Campbell, 1995; Lee, 1996). Again, however, it is noted that these findings are more closely related to the hard sciences and technology fields.

In a compelling piece, Giroux (2002) argues that the political and social agency of the academy is evaporating in this environment of academic capitalism. According to Giroux, higher education has entered into a state of being so highly corporative that market forces now reign supreme over the fundamental tenants of higher education: freedom of inquiry, curiosity of the world, and matters concerning pedagogy. Giroux continues to argue that such a shift threatens the experience of students and the public nature of higher education. Faculty members may find themselves in a new kind of institutions, an institution that has very little differentiation from the corporate sector where autonomy and academic freedom begin to evaporate.

Implications of Faculty Entrepreneurship

Aside from the implications of academic capitalism on the activity of faculty members and its impact on research and teaching, scholars have recently begun to probe the question of what academic capitalism is doing to the professional status of the professoriate. The original, public good model of higher education was closely in line with the Mertonian (1942) norms of science, specifically communalism, universality, the free flow of knowledge, and organized skepticism. *Communalism* refers the common ownership of thoughts, knowledge, and ideas. *Universality*

refers to the notion of evaluating individuals on a universal set of truths. *The free flow of knowledge* is closely related to *communalism* and refers to the ability of information to dissemination across the field. Finally, *organized skepticism* refers to notion of all ideas being subject to professional scrutiny. These ideals are seen as essential in the development of knowledge and a key part to the professional status of the professoriate.

In addition, the public good model also promoted academic freedom and provided faculty members with the freedom to research topics of their interest. Croissant and Restivo (2001) found evidence that graduate students in engineering are being socialized to pursue scholarly interests that respond to corporate demands instead of investigating their own problems to solve. Such a shift presents significant hurdles to upholding the notion of academic freedom and the free flow of knowledge. Slaughter and Rhoades (2004) argue how open access to knowledge was scarce in an environment of academic capitalism and that secrecy was more the norm. In addition, communalism did not align well with the profit taking nature of academic capitalism. These issues present significant stress between faculty members and their institutions.

From the literature, we see an abandonment of communalism, universality, and the free flow of knowledge by way of patents and copyrights. No longer are academics in a position to freely share their findings with the field. As Slaughter and Rhoades (2004) highlight, this is particularly the case in the natural sciences and, most notably, in the high-profit areas such as oil. A related vein is that of start-up companies where professors are able to begin their own enterprises based on discoveries they made. Also, the notion of organized skepticism comes into question with more research being directed to a specific application as opposed to the pure realm of academic journals. Moreover, Campbell and Slaughter (1999) argue how academic capitalism provides for a climate challenging the traditional norms of objectivity, replicability, and openness, and, as such, providing for additional venues in which misconduct can take place. In such an environment, academic capitalism can be viewed as a significant threat to the future professional status of the professoriate—and, perhaps, to academia in general as scholars have argued that by entering into academic capitalisms, colleges and universities undermine funding for public education (Slaughter & Rhoades, 2004).

Discussion

The majority of the literature surrounding academic capitalism seems to suggest that such a shift towards market and market-like behaviors on the behalf of institutions and individual faculty members and students is inevitable. As such, it becomes paramount to understand the consequences of such a transformation, both explicit and latent. Explicitly, we see a shift towards a greater focus on applied research as opposed to pure research. In addition, we see faculty members favoring research activities closely tied to corporate or government funding over teaching and service opportunities. What is more telling, however, is how graduate students are now being socialized to embrace academic capitalism to the point of directing their future research agendas towards more market-like areas. While we see a significant body of literature growing depicting this shift towards an environment of academic capitalism and its explicit changes, the literature contains significantly fewer studies examining the latent consequences of such a shift. While some have argued that academic capitalism does not negatively affect teaching and scholarship and that publication activity improves significantly for those faculty members engaged in market and market-like activities, others agree that such a shift undermines the very meaning of academia and threatens the professional status of the American professoriate.

Some would dismiss this latter claim, arguing that the nature of academic life in the twenty-first century is changing and that a natural change for faculty members is to embrace the new economy, to which higher education has contributed significantly. These same individuals would argue that without a significant body of literature demonstrating the negative effects of the market on institutions, faculty members, and students, there is little incentive to turn away from academic capitalism in favor of more traditional practices, especially given the evaporation of public funding for higher education. Such an argument assumes that a decrease in public funding is the antecedent for the entrance of institutions and faculty members into an environment of academic capitalism; however, is this chain unidirectional? Could it be possible, as some have argued, that academic capitalism undermines the nature of higher education and, as a consequence, allows policy makers to shift funds away from colleges and universities under the guise that the institutions can “get by on their own?” Future research, both empirical and

theoretical, is warranted on the changing nature of the academic profession under the developing area of academic capitalism.

While this review has focused on the role of faculty members in academic capitalism, a final area of focus that warrants discussion is that of university presidents and their position on corporate partnerships. By way of analyzing speeches given by university presidents to congress, Slaughter (1993) identifies a shift from what she calls “fruits-of-research” narratives to “orders-of-magnitude” narratives. More specifically, Slaughter (1993) finds that university presidents moved towards endorsing policy initiatives that encourage privatization, deregulation, and commercialization, all of which are in light with the notion of academic capitalism. This area, too, warrants future empirical and theoretical research.

Conclusion

We have learned of the context in which early notions of academic capitalism have developed, the way in which scholars have come to define academic capitalism, the entrepreneurial role of faculty members, and have begun to probe the question of possible threats academic capitalism brings to the professional status of the American professoriate. From the literature, a shift towards the idea of academic capitalism is apparent; however, little evidence exists demonstrating the consequences of such a shift, both explicit and latent. Particularly in this time of economic difficulty, future research is warranted on the nature of academic capitalism and its associated consequences for institutions, the market, faculty members, students, and the general public. It is likely that research in such an arena will become a hotbed for the academic community as increased economic pressures tempered with a desire to hold higher education to its original ideals come into play. Will academic capitalism be a detrimental influence to the professional status of the American professoriate? Only time will tell.

References

- Abbott, A.D. (1988). *The system of professions: An essay on the division of expert labor*. Chicago, IL: University of Chicago Press.
- Agrawal, A., & Henderson, R. (2002). Putting patents in context: Exploring knowledge transfer at MIT. *Management Science*, 48(1), 44-60.
- Adelman, C. (1999). *The new college course map and transcript files: Changes in course taking and achievement, 1972-1993* (2nd ed.). Washington, DC: U.S. Department of Education, National Institute on Postsecondary Education, Libraries, and Lifelong Learning, Office of Educational Research and Improvement.
- Benjamin, E. (2002). How over-reliance on contingent appointments diminishes faculty involvement in student learning. *Peer Review*, 5(1), 4-10.
- Brannock, J.C., & Denny, A.M. (1998). Basic guidelines for university-industry research relationships. *SRA Journal*, 30(1/2), 57-62.
- Campbell, T.D. (1995). Protecting the public's trust: A search for balance among benefits and conflicts in university-industry relations (Unpublished dissertation). University of Arizona, Tucson, AZ.
- Campbell, T.D., & Slaughter, S. (1999). Understanding the potential for misconduct in university-industry relationships: An empirical view. In J. Braxton (Ed.), *Perspectives on Scholarly Misconduct in the Sciences* (pp. 259-282). Columbus, OH: The Ohio State University Press.
- Castells, M. (1996). The information age: Economy, society and culture. *The rise of the network society, Vol. 1*. Oxford, UK: Blackwell.
- Castells, M. (2000). The information age: Economy, society, and culture. *End of millennium, Vol. 4*. Malden, MA: Blackwell.
- Clark, B. (1998). Places of inquiry. In K. Kempner, M. Mollis, & W. Tierney (Eds.), *Comparative Education*. ASHE Reader Series. Boston, MA. Simon and Schuster.

- Council on Governmental Relations. (1999). *A tutorial on technology transfer in U.S. colleges and universities*. Retrieved from: www.cogr.edu/techtransfertutorial.htm
- Croissant, J.L., & Restivo, S. (2001). *Degrees of compromise: Industrial interests and academic values*. Albany, NY: State University of New York Press.
- Fairweather, J.S. (1988). *Entrepreneurship and higher education: Lessons for colleges, universities, and industry*. Washington, DC: ASHE-ERIC Higher Education Report.
- Feldman, M., Feller, I., Ailes, C.P., & Roessner, J.D. (2002). Equity and the technology transfer strategies of American research universities. *Management Science*, 48(1), 105-121.
- Francis, J.G., & Hampton, M.C. (1999). Resourceful responses: The adaptive research university and the drive to the market. *Journal of Higher Education*, 70(6), 625-641.
- Giroux, H.A. (2002) Neoliberalism, corporate culture, and the promise of higher education: The university as democratic public sphere. *Harvard Educational Review* 72(4), 424-463.
- Gumport, P.J., & Pusser, B. (1995). A case of bureaucratic accretion: Context and consequences. *The Journal of Higher Education*, 66(5), 493-520.
- Hall, B.H., Link, A.N., & Scott, J.T. (2001). Barriers inhibiting industry from partnering with universities: Evidence from the advanced technology program. *Journal of Technology Transfer*, 26, 87-98.
- Jaffe, A.B., & Lerner, J. (2001). Reinventing public R&D: Patent policy and the commercialization of national laboratory technologies. *RAND Journal of Economics*, 32(1), 167-198.
- Lach, S., & Schankerman, M. (2008). Incentives and invention in universities. *RAND Journal of Economics*, 39(2), 403-433.

- Lee, Y.S. (1996). 'Technology transfer' and the research university: A search for the boundaries of university-industry collaboration. *Research Policy*, 25, 843-863.
- Lee, Y.S. (2000). The sustainability of university-industry research collaboration: An empirical assessment. *Journal of Technology Transfer*, 25(2), 111-133.
- Lerner, J. (1999). The government as venture capitalists: The long-run of the SBIR program. *Journal Business*, 72(3), 285-318.
- Marginson, S., & Rhoades, G. (2002). Beyond national states, markets, and systems of higher education. A global agency heuristic. *Higher Education*, 43, 281-309.
- Mars, M.M., & Metcalfe A.S. (2009). The entrepreneurial domains of American higher education. ASHE Higher Education Report, 34. San Francisco, CA: Jossey-Bass.
- Mendoza, P., & Berger, J.B. (2005). Patenting productivity and intellectual property 30 policies at Research I universities: An exploratory comparative study. *Educational Policy Analysis Archives*, 13(5), 1-22
- Mendoza, P., & Berger, J.B. (2008). Academic capitalism and academic culture: A case study. *Educational Policy Analysis Archives*, 16(23), 1-27.
- Merton, R.K. (1942, 1973). *The sociology of science: Theoretical and empirical investigations*. (Reprint.) Chicago, IL: University of Chicago Press.
- Perkin, H.J. (1989). *The rise of professional society in England since 1880*. London, UK: Routledge.
- Powell, W.W., & Snellman, K. (2004). The knowledge economy. *Annual Review of Sociology*, 30, 199-200.
- Rahm, D. (1994). U.S. universities and technology transfer: Perspectives of academic administrators and researchers. *Industry and Higher Education*, 8(2), 72-78.

- Rhoades, G. (1998). *Managed professionals: Unionized faculty and restructuring academic labor*. Albany, NY: State University of New York Press.
- Saunders, D. (2007). The impact of neoliberalism on college students. *Journal of College & Character*, 8(5), 1-9.
- Slaughter, S. (1993). Beyond basic science: Research university presidents' narratives of science policy. *Journal of the Society for Social Studies of Science*, 18(3), 278-302.
- Slaughter, S. (1990). *Higher learning and high technology: Dynamics of higher education policy formation*. Albany, NY: SUNY Press.
- Slaughter, S., & Rhoades, G. (2004). *Academic capitalism and the new economy: Markets, state and higher education*. Baltimore, MD: Johns Hopkins University Press.
- Slaughter, S., & Leslie, L. (1997). *Academic capitalism: Politics, policies, and the entrepreneurial university*. Baltimore, MD: Johns Hopkins University Press.
- Slaughter, S., & Rhoades, G. (1990a). Professors, administrators, and patents: The negotiation of technology transfer. *Sociology of Education*, 64(2), 65-77.
- Slaughter, S., & Rhoades, G. (1990b). Reforming the social relations of academic science: Technology transfer. *Educational Policy*, 4(4), 341-361.
- Slaughter, S., & Rhoades, G. (1996). The emergence of competitiveness research and development policy coalition and the commercialization of academic science and technology. *Science, Technology, and Human Values*, 21(3), 303-339.
- Soley, L.C. (1995). *Leasing the ivory tower: The corporate takeover of academia*. Boston, MA: South End Press.
- Stokes, D.E. (1997). *Pasteur's quadrant: Basic science and technological innovation*. Washington, DC: Brookings Institute Press.