

THE NEXUS BETWEEN UNIVERSITY, SOCIETY AND KNOWLEDGE – AN INTRODUCTION

Juha Tuunainen

University of Helsinki

Raj Mohan

Auburn University

The college and university system which was initially established to provide a cultivated life style for off-spring of the social elite and supply trained personnel for the clergy, found its objectives expanding during the 19th Century by addition of vocational and professional training and the conduct of research. These objectives were, in turn, sustained by the conception of education as the primary instrument of progress, a vision popularized by Enlightenment thinkers of the 17th and 18th Centuries and eventually institutionalized in publically-supported mass education.

The evolution of education into an instrument of social change and social justice was, perhaps, inevitable. The elite, to be sure, employed education as a device for its own self enhancement. The middle classes, by contrast, employed it as an instrument of social mobility which, in the very act of providing access to higher circles, threatened the elite with enlargement if not destruction. The middle classes were using education as a device to eliminate differences between themselves and entrenched privilege. The simultaneous rise of the child labor laws and of compulsory education were early anticipations of the tendency to expand education into a general instrument of social justice and not simply as a means of middle-class mobility. The child labor laws, to be sure, were intended to accomplish two major objectives: to protect children from economic exploitation; to protect adult labor from the competition of cheap, underpaid child labor. However the child labor laws meant that children who might otherwise be employed productively were cut adrift. The compulsory education laws, both took up the slack of child unemployment and prepared children for more complex vocational careers than they could otherwise have anticipated.

Just as child unemployment was transformed into an educational problem, so, in turn, various forms of technological unemployment which accompanied the rise of industrial capitalism, mass production, automation, and, finally, computerization, have been

conceived as problems of reeducation. Moreover during the Great Depression many special programs were undertaken to permit both urban and rural unemployed young people to pursue college training, rather than to drift among the unemployed and perhaps into crime. After World War II, G. I. benefits permitted millions, many of whom could not otherwise have managed it, to pursue college educations. When the problems of minorities became critical, the educational system once more was relied upon as a primary instrument of social justice. The colleges and universities have become secular temples of progress, opening their portals to extend succor to the homeless (the economically displaced and unemployed) and the underprivileged.

While education has been used as an instrument of social justice almost all groups have looked to the educational system for legitimation. Many occupations and professions, for example, have undertaken certification and upgrading through the establishment of programs, departments, institutes, schools or colleges in the universities. When they have succeeded they have ensconced faculties with administrative staffs requiring offices, office equipment, and demanding a share of the university budget. Such intra-institutional groups have developed research and library facilities and the right to grant undergraduate and graduate degrees; they have, in turn, formed political alliances with their professional associations and, at times, lobbied for legislation that would enhance their mutual professional standing.

While some interests have employed education as an instrument of social justice and others (the occupations and professions) have used it as an instrument of legitimation, business has discovered that it is "good business" to make grants to universities. It creates good will; it permits the business to spend money on "philanthropic" projects which would otherwise go into taxes; it often produces research findings of use to business. Foundations interested in shaping the course of society have often granted (frequently on a matching fund basis) money for research or educational programs in areas they wish to see developed. Such grants have often been conceived as "seed money" intended to implant into the tissues of the college and university system a benign tumor which will quickly acquire autonomy and a life of its own. Like the occupations and professions seeking to enhance their socio-economic standing, they have discovered something, (university administrators have sometimes learned to their sorrow), that facilities are often more easily established in universities than disposed of. What started out as a partial gift may become a permanent expensive program. Moreover, government at all levels (city, state, and federal) has found it expedient to spend taxpayers' money on a variety of research problems as a device for

winning university administrators and professors to support some government program, on the one hand, and ameliorating social tensions, on the other. And, once again, there is a build-up in the range and variety of activities carried on in the name of the university. Those who argue that a society's educational institutions neglect the society of which it is a part, possibly represents those few interests still clamoring to become a part of the university. There are few issues, or programs, or problems in societies that do not sooner or later end up in the colleges and universities. The larger universities have evolved into great sprawling bureaucracies carrying on hundreds of activities. Millions of people look to the universities for purposes which are often contradictory to one another.

One inevitable casualty of the continuous adding of additional activities into the university system was old style humanistic education. As representatives of all sections and classes of society crowded into the university and as the variety of course offerings was indefinitely multiplied, the original curriculum designed for the needs of a restricted upper class became unrealistic. Every proposed addition to the curriculum had its passionate sponsors. It was always easier to add new courses to a curriculum than to remove old ones (though old ones sometimes faded away or phoenix like reappeared under new names) or to rethink the aims of a liberal arts education. As the curriculum was extended and made more permissive until it became a virtual self-service cafeteria, it was increasingly difficult to win agreement on the goals and objectives of college education. Old graduates from the colleges and universities no longer shared a common culture with newer graduates nor were they capable of passing judgment on the quality of the education of "the recent graduates. Judgments of the quality of teaching became virtually meaningless under the circumstances.

The concept of what every college educated individual should know grew increasingly ambiguous and excellence in teaching became harder (if not impossible) to determine, but contribution to knowledge was presumably easier to ascertain—at least if it resulted in printed material which was acknowledged to be important by professionals of the given field. Publication and public, particularly professional, recognition became a primary foundation for claims for salary increase and promotion. The ancient practice by universities of seeking to recruit famous professors assumed a new significance when professors quietly reduced their teaching obligations to a minimum, turning their primary efforts toward research and publication. Famous professors of the past were usually teachers; now they are researchers. Under the new system the size of his popular following is not important for official recognition of a professor, but the length of his publication list.

Furthermore, the quality of teaching often deteriorated in direct proportion to an individual's success as a productive researcher.

While there is no necessary contradiction between competent teaching, and research, there are practical reasons why they often interfere with one another. The kind of research and publication which brings professional recognition usually entails specialization. The specialist develops a micro-perspective: completely mastering the literature in a small area, bringing its nuances under his microscope. He speaks with increasing precision to an ever-narrowing audience. Effective teaching, on the other hand, usually requires a broad or macro-perspective. No one has ever formulated more clearly than Darwin the manner in which specialization may actually lead to the atrophy of the kinds of abilities which not only makes for excellence in teaching, but a rich personal life.

Up to the age of thirty, or beyond it, poetry of many kinds, such as the works of Milton, Gray, Byron, Wordsworth, Coleridge, and Shelley, gave me great pleasure, and even as a school-boy I took intense delight in Shakespeare, especially in the historical plays. I have also said that formerly pictures gave me considerable, and music very great delight. But now for many years I cannot endure to read a line of poetry: I have tried lately to read Shakespeare, and found it so intolerably dull that it nauseated me. I have also almost lost any taste for pictures or music.... My mind seems to have become a kind of machine for grinding general laws out of collections of facts, but why this should have caused the atrophy of that part of the brain alone, on which the higher tastes depend, I cannot conceive... The loss of these tastes is a loss of happiness, and may possibly be injurious to the intellect, and more probably to the moral character, by enfeebling the emotional part of our nature.¹

Without any question, as Darwin observed in the rare candor with which he reported the deterioration of his general human interests under the influence of scientific preoccupations, the demands of research are often directly contrary to those of humanistic teaching. Though it is quite possible that Darwin would have been a superior teacher of biological research.

When grants by the foundations and government for research became available, it became possible for many individuals to eliminate teaching obligations completely. Sometimes, to be sure, individuals in the elite institutions retained a few residual graduate teaching duties. Graduate seminars, however, often have more the character of

conferences between research associates than undergraduate situations. Moreover, they provide the professor-researcher with direct access to graduate students he requires as research assistants. When such ties between professor-researchers and graduate students are established an invidious distinction develops between graduate and undergraduate teaching. Graduate teaching may then be described as “quality” The professoriate was developing a stratification characterized by an elite at the top (engaged in specialized research, grant getting, professional publishing with residual teaching obligations largely confined to graduate professors engaged in undergraduate teaching). Stratification also appeared between institutions with major research students) in contrast to the *hoi polloi* (or mass of commo and graduate programs and the great mass of the teaching institutions. When the Ph.D. emerged in the 20th Century as the criterion of academic respectability, the upgrading of institutions of higher learning took the form of increasing the number of Ph.D.’s on the teaching staff and the adding of graduate study to the institution’s teaching programs

The latter part of the 20th century witnessed a radical transformation in the ways in which the relationship between science, university and society was understood. The linear model of innovation (Godin 2006) and the related traditional contract between science and society (Martin 2003) was challenged. Global economic competition, increasingly complex societal problems and changes in public policy-making have all contributed to alterations in the social roles and responsibilities of academics, universities and science. In public policy, universities have been regarded as central contributors in innovation, economic growth and competitiveness of nations in the global knowledge-based economy (OECD 1996). Simultaneously, social accountability pressures towards science and universities have mounted. An example of this trend is the introduction of the so-called third mission of the university (Nedeva 2007) into the university law in many countries, as well as the development of related systems of indicators by using which the social impact of university activities are measured (Molas-Gallart al. 2002).

In science and technology studies, the increasingly important role of science in the economy has been discussed in terms of commercialisation of research results (Radder 2010), changing norms of science (Ziman 2000, Tuunainen & Knuuttila 2008) and emergence of the entrepreneurial university (Etzkowitz 2003, Tuunainen 2005). Another line of research has attempted to redefine the nature and types of contemporary scientific research under such headings as Mode two knowledge production (Gibbons et al. 1994) and post-normal science (Ravetz 1999). In addition to these, scholars have paid attention to the changes in public-policy making (Lemola 2002), or focused on

technological risks and ethical issues that are becoming increasingly important topics in societal decision-making (Bijker 2006). Still another group of analysts have addressed the role of scientists as advisors and experts in the context of jurisdiction and other forums of public policy formation (Jasanoff 1994). Finally, within the sphere of public understanding of science, the focus of study has been shifted towards democracy of science and the increasing importance of citizens from the point of view of science and technology (Callon et al. 2009).

Within this broad context of discussion, the aim of this special issue is to uncover varieties and changes in the university-society interaction. By so doing, it seeks to contribute to our understanding of the societal role of universities in general and of scientific research in particular. The articles that will follow are based on presentations given at the XVII World Congress of Sociology, organized by the International Sociological Association (ISA) on 11–17 July 2010, in Gothenburg, Sweden. In this congress two sessions on the university-society relationship were held. These sessions were jointly organized by Juha Tuunainen of the Research Committee 23 (Sociology of Science and Technology) and Raj Mohan of the Research Committee 04 (Sociology of Education). When pulling together this special issue, Tuunainen organized the initial peer-review of the manuscripts (except that of Esko et al.) and Mohan, the editor of the *International Journal of Contemporary Sociology*, communicated the feedback to the authors and made the *publication decisions*.

The first paper in this special issue is that of Terhi Esko, Juha Tuunainen and Reijo Miettinen. The article examines various forms and means of interaction between university research and the society in the fields of humanities and social sciences. The analysis is based on three case studies: 1) Finno-Ugric and Baltic-Finnish languages, 2) multidisciplinary urban studies and 3) research on learning difficulties. The authors discuss the case examples in relation to innovation policy, innovation research and the third mission activities of universities. By way of conclusion, the article stresses that there has been too much emphasis on the commercialization of research results, instead of research on other forms of knowledge mobilization. Another point made by Esko and others is that quantitative indicators are not able to capture the whole array of social and cultural impact of research. More research on the impact of university research should thus be conducted by means of qualitative research methods and by paying special attention to the historical development and discipline-specific characteristics that obviously affect the societal outcomes that sprout from academic research.

If Esko and others analyzed the forms of interaction between university researchers and external societal stakeholders on the basis of qualitative case studies, Nicole Schulze addresses knowledge transfer in terms of quantitative analysis of transfer patterns in chemistry and sociology. Applying data from Germany she claims that significant differences exist in the transfer performance and transfer approaches between the two disciplines. Chemists transferred their knowledge primarily by means of staff exchange, contract research as well as commercial activities, such as university spin-off companies, patents and licenses, whereas sociologists concentrated on using mass media, public lectures and popular scientific publications. When it comes to explaining the observed differences, Schulze refers to a typology of scientific disciplines developed by Richard Whitley (2000). Having a high degree of mutual dependence between researchers and a low degree of task uncertainty chemists usually focus on the personnel and research transfer. Sociology, on the other hand, shows a low degree of mutual dependence and a high degree of task uncertainty, and researchers therefore carry out broad transfer and diffusion approaches. The patterns of knowledge and technology transfer are thus rooted in dissimilar organizational and social structures of disciplines, a condition which tends to neutralize at least some of the aims of the policy-makers.

In the last few decades, academic research and the university have, nonetheless, become under pressure to generate economic prosperity and societal benefit. This has resulted in changes in university practices in many countries. The second article by Seiko Kitajima addresses the characteristics and mechanisms of university transformation in Japan since the early 1980s. By means of analyzing the changes that have taken place in Japanese industrial, education as well as science and technology policies the paper claims that universities in Japan have been transformed into corporate-like actors that seek to commercialize research results and initiate collaborative projects with industrial partners. Being rather similar to the reforms that have taken place in other countries, universities in Japan are thus placed in an equivocal position between business enterprises and public research and teaching organizations, an arrangement, which seems to be difficult to manage in practice. The specific feature of the Japanese development when compared to the changes in other countries is, however, the simultaneous pursuit to make universities business-like actors while retaining strong state control of their activities at the same time. It thus seems that the Japanese government is in a contradictory position where seeks to make universities organizational actors in their own right while keeping hold of

bureaucratic control at the same time. What will come out of this in the future is an interesting topic of research and analysis.

The discussion on the transformation of university activities will be continued by Federico Vasen, who presents an analysis of institutional policies used in Argentina for the promotion of research activities in the country's largest higher education establishment, the University of Buenos Aires. Basing his analysis on the specific history of the university institution in the Latin American setting he shows how the societal environment of Argentina influenced the development of the research policy at the University of Buenos Aires. Starting with the attempts to re-establish universities as loci of scientific research during the post-dictatorship era of the 1980s, the policy-makers in Argentina shifted from innovation policy-oriented commercial R&D in 1990s to support research that addressed the needs of the underprivileged during the 2000s. By the turn of the Millennium, the deep economic crisis of the country thus triggered a significant re-orientation in the university's research policy from commercial innovation to a more inclusive idea about societal responsibility and social well-being of the poor in Argentina. As such, the case provides an interesting point of comparison to the recent developments of university policies in Europe, Japan, and the United States of America.

The topic of the university's societal responsibility and possibilities of promoting social and economic development in the so-called low income countries is further investigated by Veronica Brodén, who strives for understanding what research aid consists of and what tensions and problems there exist in the area. On the basis of literature on research capacity building and a mini-study about the Swedish Secretariat for Research Cooperation, she investigates what research aid actually is, which methods are used to support it and whether some methods are more successful than others. When it comes to the dilemmas that exist in research aid, inequalities of various kinds constitute the biggest problem. In collaborative efforts between researchers and universities coming from high and low-income countries one part always has more financial resources and is more experienced with the modern Western science than another. So, despite the fact that many aid actors pursue to escape from the colonialist heritage it is still questionable whether or not this is being achieved. According to Brodén, research aid still confronts a number of Catch-22 situations where aid actors cannot avoid problems because of mutually exclusionary, contradictory constraints.

In contrast to the previous articles that are based on empirical research, the last paper by Maria Salmela-Mattila tackles the issue of university-society relationship from the theoretical vantage point of

Niklas Luhmann's systems theory. In order to understand this relationship one has to understand, she argues, what kind of an organisation the university is in general, and, in case of any single university, what kind of geographical, social and historical preconditions the environment sets for the university. When it comes to the university, Salmela-Mattila conceptualizes it as an organization with established, formal membership and common rules of practice. The most important environments that affect the university's workings are, according to her, its scientific environment, its organisational environment and its human environment. Being dependent on stimuli that originate from its environments, investigating what actually happens at the fringes of the formal university is therefore of central importance to the understanding of the characteristics of today's university and, more importantly, of its future.

Taken together, the contributions in this special issue present a multifaceted and dynamic picture of the interaction between knowledge production, university organization and developments of the wider society. By so doing, they underline the multiple changes that are currently taking place at the levels of national policies, individual universities and research practices in the face of global challenges of our times, such as the intense economic competition, increasing social inequality and effects of colonial regimes. At the same time, the studies collected here reinforce the need to investigate the nexus between university, society and knowledge more systematically and rigorously in the future.

REFERENCES

- Bijker, Wiebe E. 2006. Why and How Technology Matters. In Goodin, Robert E. & Tilly, Charles (eds.) *Oxford Handbook of Contextual Political Analysis*. Oxford: Oxford University Press, 681–706.
- Callon, Michel, Barthe, Yannick & Lascoumes, Pierre. 2009. *Acting in an Uncertain World: An Essay on Technical Democracy*. Cambridge, Mass.: The MIT Press.
- Etzkowitz, Henry. 2003. Research Groups as 'Quasi-firms': the Invention of the Entrepreneurial University. *Research Policy* 32, 1, 109–21.
- Gibbons, Michael, Limoges, Camille, Nowotny, Helga, Schwartzman, Simon, Scott, Peter & Trow, Martin. 1994. *The New Production of Knowledge. The Dynamics of Science and Research in Contemporary Societies*. London: Sage.

- Godin, Benoît. 2006. The Linear Model of Innovation: The Historical Construction of an Analytical Framework. *Science, Technology and Human Values* 31, 6, 639–667.
- Jasanoff, Sheila. 1994. *The Fifth Branch: Science Advisers as Policymakers*. Cambridge: Harvard University Press.
- Lemola, Tarmo. 2002. Convergence of National Science and Technology Policies: The Case of Finland. *Research Policy* 31, 1481–1490.
- Martin, Ben. 2003. In Geuna, A., Salter, A. J. & Steinmueller, W. E. (eds.) *Science and Innovation. Rethinking the Rationales for Funding and Governance*. Cheltenham: Edward Elgar, 30-68.
- Molas-Gallart, J., Salter, A., Patel, P., Scott, A., & Duran, X. 2002. *Measuring Third Stream Activities. Final Report to the Russell Group of Universities*. April 2002. Brighton: SPRU.
- Nedeva, Maria. 2007. New Tricks and Old Dogs? The ‘Third Mission’ and the Re-production of the University. In Epstein, Debbie, Boden, Rebecca, Deem, Rosemary, Rizvi, Fazal & Wright, Susan (eds.) *The World Yearbook of Education 2008: Geographies of Knowledge/Geometries of Power: Framing the Future of Higher Education*, 85–105. New York: Routledge.
- Tuunainen, Juha. 2005. Contesting a Hybrid Firm at a Traditional University. *Social Studies of Science* 34, 2, 173–210.
- Tuunainen, Juha & Knuuttila, Tarja. 2008. Determining the Norms of Science: From Epistemological Criteria to Local Struggle on Organizational Rules? In Ylijoki, Oili-Helena & Välimaa, Jussi (eds.) *Cultural Dimensions in Higher Education Studies*. Springer.
- OECD. 1996. *The Knowledge-based Economy*. Paris: OECD. Available online at: <http://www.oecd.org/dataoecd/51/8/1913021.pdf> (Accessed 16.3.2012.)
- Radder, Hans. (ed.). 2010. *The Commodification of Academic Research: Science and the Modern University*. Pittsburgh: University of Pittsburgh Press.
- Ravetz, Jerome R. 1999. What is Post-Normal Science? *Futures* 31, 647–653.
- Whitley, Richard. 2000. *The Intellectual and Social Organization of the Sciences*. Oxford, New York: Oxford University Press.
- Ziman, John. 2000. *Real Science. What It Is, and What It Means*. Cambridge: Cambridge University Press.