



## UNEVOC Forum

### The knowledge economy and new vocationalism: international and national challenges for mass higher education

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Oxford. It is part of a larger joint project between UNESCO-CEPES and the UNESCO-UNEVOC International Centre which aims to investigate the extent of and the trends in vocational content in higher education of today.

#### **I**ntroduction

>> This background paper provides an overview of the trends towards massification (Trow, 1970) and vocationalisation (Symes and McIntyre, 2000; Becher and Trowler, 2001) in higher education in the last two decades and explores the major impetuses that have led to deep transformations in the way in which knowledge is organised, produced and disseminated. To understand the shifting landscape of higher education in the post-industrial era requires a sophisticated analysis of the various and by no means straightforward relationships between the higher education sector, industry and government, the so-called triple helix (Etzkowitz and Leydesdorff, 1997). But it also requires an analysis of the complex dynamics of change and resistance within the academy, industry and governments themselves. In the academy, these dynamics include

changes to the way in which organisational and epistemological forms of knowledge production, knowledge dissemination and learning are changing dramatically, in real or conceptual terms (Subotzky and Cele, 2004).

Industry and government have similarly been subjected to radical re-orientation in the way in which they have become at once producers and users of knowledge in the so-called knowledge economy. Knowledge has developed currency in the workplace (Gee et al., 1996) and the emergence of knowledge industries, knowledge managers, and knowledge workers is giving it a new status. Knowledge is now connected to organisational capability, innovation and creativity; it has become a product to be produced and traded (Boud and Solomon, 2001). Governments interna-

tionally and many international agencies like UNESCO and the World Bank have likewise undergone a process of self reflection and have aligned themselves in radically different ways to the growing knowledge economy. In 1991, Robert Reich wrote the "The Work of Nations", which was hailed in many quarters as the definitive account of a new model of economic organisation. The core message, seized upon first by the USA and subsequently by countless governments, was that the core of a national development strategy is the importance of producing enough "symbolic analysts", the core knowledge workers of the new knowledge economy. It came as no surprise when Reich moved from Harvard to become President Clinton's labour secretary. In 1996, in a remarkable response to critiques of their effectiveness, the then President of the World Bank, James

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Wolfensohn, declared that his organisation would henceforth be known as "the knowledge bank".

Understanding what drives the new knowledge economy and examining the nature of knowledge and knowledge production are central to answering some of the questions frequently raised about the relationship

between vocational content and mass higher education.

This paper attempts to address these issues and considers four themes that subsume a myriad of challenges for higher education, industry, government and international agencies like UNESCO. These themes are:

» Globalisation and its effects on higher education

» The knowledge economy and the nature of knowledge

» The triple helix: an analytical model for researching partnerships in knowledge production and utilisation

» Work-based learning: promising possibilities for an infusion of new vocationalisation in mass higher education?

## lobalisation and its effects on higher education

» There is a fair amount of debate about what globalisation means. It certainly appears in a variety of forms: economic (products made in one country go on sale in another the next day), social (communication networks such as the Internet and satellite based media), and physical (international transport systems), all of which often intersect, making any conceptualisation of globalisation, at very least, a multi-faceted one.

For all that globalisation seems to make our working, social and personal lives seem ever more connected, there is an irreducible tension between this and ever increasing plurality and diversity at the local level. There are very few countries in Europe where cultural diversity is the exception rather than the norm. Communities and their institutions of learning have not simply rolled over and become outposts of more dominant forms of social, cultural, political and economic organisation. Thus, in examining the relationship between globalisation and the academia, Boud and Solomon (2001) argue that globalisation is less "a thing, bearing down upon universities in a prescriptive and deterministic way", but more, "a discursive practice". It is, according to them, "a way of thinking, acting and speaking that interacts with

socio-economic changes and new cultural configurations" (2001:22). Thus, globalisation is not simply a homogenising process but one that induces counter tensions and resistance. But it is also a process that nevertheless introduces a market into higher education and with it, a new language of accountability, efficiency, productivity and new organisational cultures. These effects are significant and are described by Slaughter and Leslie to be as profound as the changes in "academic labour which occurred during the last quarter of the nineteenth century" (1997:1).

The consequences of globalisation for universities are numerous and include the imposition of more stringent financial controls from governments which often go hand-in-glove with an imposition of a culture of academic compliance. Governments and funding bodies want more say in what is researched and want to be convinced about the potential application of research knowledge to the ever mounting demands for innovation and growth in the fields of health and human development and in the worlds of commerce and industry.

For some higher education institutions, there is a debate about the extent to which the sector can respond appropriately to the skills needs of a rapidly changing and dynamic policy and labour market. Others are re-examining and redesigning their programmes to incorporate a more vocationally-oriented content which prepares graduates for the world of work beyond academia. This vocational content takes many forms, from work based learning (including internships and workplace schemes), to complementary IT, language and management skills, in order to equip graduates with abilities supplementary to a solid knowledge base in their future career paths.

Competition in higher education, much of it induced on the one hand by "massification" or an expanding local student population, and, on the other, by the growing international demand is another factor. We have to ask whether higher education is becoming its own market, selling courses and programmes that are suggestive of an entry into the workplace after graduation.

Many universities in the United States have established satellite campuses, and in the United Kingdom, there is growing competition to corner the market in external provi-

sion, albeit without investing in a physical of site or "plant". The University of Bristol's Graduate School of Education, for example, offers a professional orientated doctoral degree in education in Hong Kong, taught entirely by academics from Bristol who use the facilities of City University in Hong Kong. The degree awarded is a Bristol degree, but interestingly, those Chinese students wanting to attend a degree ceremony need to do so in Bristol as the university holds on to an ancient convention that a degree ceremony cannot take place in the absence of the mace (a sort of sword of state), which unlike other aspects of globalisation, does not appear to travel well. Universities like Bristol, who physically market their products elsewhere, are constantly being threatened by global "mega-universities" like the University of Phoenix, USA, or the Open University, UK, who employ to effect the new "knowledge media" to offer entire courses (Becher and Trowler, 2001). Using new technologies in education result in huge savings for students and universities alike, and consequently enhance the global market position of these mega universities.

By its very nature, globalisation has an insatiable appetite for innovation and product development. This has encouraged closer synergies between governments and multinational companies who are constantly sketching out new plans for national and economic development. The effect on universities has been twofold: first, an increasing emphasis in government policies on the vocational functions

of higher education (DfEE, 1999) has forced many universities to reinvent their missions. There is now a real tension between those who see the role of universities as sites for learning, for pursuing the truth, and where blue skies research can still be legitimately pursued. Some universities in the UK, like Oxford, or at least in many of its disciplines, continue to eschew the pursuit of knowledge for utilitarian purposes and are not in the least threatened by it. This is probably because these institutions are able to market another commodity – brand name – and as long as there is a market for it, and a client able to pay for it, ancient universities like Oxford are likely to be slower in repositioning themselves to the vocational demands of the market. This brings us to the second effect of globalisation on the academy. The majority of higher education institutions are, however, diversifying and are continually marketing new courses – much more orientated to the needs of the human professions, commerce, and small and big business. This in turn makes those universities more attractive and accessible for those wishing to pursue a course of study that has a clearer route of progression into work. The upshot seems to have more applications to university. Thus, there appears to be a strong bi-directional correlation between massification and vocationalism.

But the link between learning and work is not at all clear in most European countries, and especially in those countries with transitional economies. The reasons for and



*Dr David Johnson giving his presentation at the international seminar "Vocational Content in Mass Higher Education? Responses to the Challenges of the Labour Market and the Workplace", Bonn, 2005*

consequences of this are varied. In Germany, students tend to stay on in higher education much longer than is the norm elsewhere, and it has one of the most educated workforce. However, there is also high unemployment. If there is to be a real link between supply side and demand side approaches to the question of learning and vocations, then we must explore and better develop synergies between higher education and the world of work. What does this mean in practice? Does it imply cooperation that goes beyond organisational coordination and advice (e.g. cooperation in working groups, employers' representatives in university committees) to include joint curricula design processes (e.g. joint analysis of current and future work roles in companies, etc.)? Thus, what kinds of institutional arrangements should there be between places of higher education and the world of work? I shall return to these questions in the final section of the paper.

## **T**he knowledge economy and the nature of knowledge

>> The importance of knowledge for industrial and human development has always been taken for granted. The relationship between science and industry can be traced back to the industrial revolution. By 1826, for example, the magazine of the *Society for the Diffusion of Useful Knowledge* was reaching 200,000 subscribers. The relationship between science and industry has continued to grow but it has also altered in respect of how knowledge is produced and used but it is only in the 1960s that the critical importance of knowledge for economic success was underlined.

The economic crisis of the 1970s brought about by the collapse of "Fordism" as a major mode of production gave rise to a new form of fast capitalism (Gee, 1996). The post Fordist period gave rise to new ways of organising work and the workplace. There was a rapid shift towards more flexible production systems and "on-demand" supplies that in turn gave rise to new niche markets. In his accounts of globalisation, Giddens (1990) shows how the new infrastructure and technological architecture allowed for instantaneous flows of capital and information between sites that came to form part of a global network. These financial flows led to new financial systems and new futures markets,

enabled by the rapid development and innovation in technology. Thus, globalisation fuels and in turn is fuelled by the advance of new information technologies. In this, knowledge has begun to assume a much more important status as a commodity to be had and traded, and it is here where the notion of a knowledge economy is given birth. It would seem that the more knowledge a country can usefully produce and trade, the higher its chances of economic success. Berglind Ásgeirsdóttir, OECD Deputy Secretary-General, recently put the case as follows:

"While knowledge always has been at the heart of economic development, there is

substantial evidence that the capacity to produce and use knowledge has much more explanatory value in determining levels of economic welfare and growth than in the past" (2005:1).

Ásgeirsdóttir (2005) goes on to analyse the four key pillars of the knowledge economy.

According to her, **the first pillar** is "innovation". She shows that expenditure in research and development (for example in patents) grew in the second half of the 1990s in most OECD countries. The importance of innovation as a key competitive factor has forced a faster cycle time and meant that firms have had to experiment with new ways to acquire innovations either through links to universities, alliances with each other or through mergers and acquisitions.

**The second pillar** is the development of new technologies. The economic link between new technologies and growth in GDP is readily seen in the USA and in some countries of the European Union, but the effect has been much smaller in France, Germany and Italy.

According to Ásgeirsdóttir (2005), **the third pillar** is human capital – the knowledge, skills and competences instilled in workers. Human capital is very important for developing a knowledge economy in several respects. First, we know that there is a well-established relationship between human capital and labour productivity and human capital is therefore a significant determinant of growth. Second, the two previous mentioned pillars of the knowledge economy – innovation and new technologies – are not effective without a stock of trained and qualified workers to realise their benefits. OECD countries have increased the percentage of the population that have attained at least a secondary education in order to meet the increased demand for "knowledge-intensive" employment."

**The fourth pillar** is "enterprise dynamics". An interesting phenomena in recent years is the rapid rise and fall of newly created firms. By some bizarre market principle in new economics, those industries leading innovation in one area, do not necessarily lead in follow-on technologies. Ever more newly created firms seem to spur innovation in many diverse areas. Ásgeirsdóttir (2005) points out that they have been

responsible for an increasing share of the growth in the private research and development and patent activity in the United States and a number of OECD countries.

"The dynamics in firm turnover (exit and entry) reflects the ability of countries to expand the boundaries of economic activity, shift resources and adjust the structure of production to meet consumers' changing needs" (Ásgeirsdóttir (2005:4).

So what are the implications of the knowledge economy for mass higher education and vocationalism?

Up to now, knowledge and knowledge production were seen as the domain of the academy. The key interest in knowledge was the pursuit of truth and human progress (Toulmin, 1990), and knowledge, as distinct from know-how, seemingly had little place in workplace discourse. This state of affairs has changed rapidly and knowledge is now seen to be a central factor for productivity and the performance of employees and organisations: for organisational capability, innovation and creativity. It has become a product to be produced and traded. The production of relevant knowledge is seen as central to the role of higher education in contemporary society but the question is, what constitutes such knowledge, and what is the nature of its production.

The kinds of knowledge generated in workplaces differ to a large degree from knowledge produced in academic settings. Gibbons et al. (1994) have attempted to describe the contrast in terms of **two modes** of knowledge production:

"In Mode 1, problems are set and solved in the context governed by the, largely academic, interests of a specific community. By contrast, Mode 2 knowledge is carried out in a context of application. Mode 1 is disciplinary while Mode 2 is transdisciplinary. Mode 1 is characterised by homogeneity, Mode 2 by heterogeneity. Organisationally, Mode 1 is hierarchical and tends to preserve its form, while Mode 2 is more heterarchical and transient. Each employs a different type of quantity control. In comparison with Mode 1, Mode 2 is more socially accountable and reflexive. It includes a wider, more temporary and heterogeneous set of practitioners, collaborating on a problem defined in a specific localised context" (1994:3).

Gibbons (1985) highlights a fundamental tension "between the way science (or knowledge) is used in our societies and the way in which it is supposed to be generated. The tension arises because it is not clear whether the knowledge that is generated is being used properly or whether if it were generated properly it would be usable".

Gibbons captures well the divide between knowledge production and utilisation, although in reality, the divide is not as stark as it is made out to be. There is growing criticism of the Gibbons mode 1 and mode 2 knowledge model (see Subotzky and Cele, 2004), much of which suggests that scientific research in higher education is mediated by more than the rules of the scientific discipline and that applied research conducted within industry also benefits from disciplinary rules and frameworks. To suggest that one mode of knowledge production should make way for the other is not the most fruitful way of taking forward the debate about the role of higher education in the new knowledge-based economy. Clearly, we cannot replace a disciplinary form of enquiry that emphasises fundamental epistemological principles and that forms the basis for understanding the discipline with one that is needs driven, whilst at the same time not closing off the opportunity to contribute to societal need. After all, academics are, or should be, concerned and active citizens too. The flip side of the coin suggests that research more orientated to application and development should not eschew the fundamental principles upon which research in any one tradition is built. The same argument applies – after all, industrial researchers are, or should be concerned and active citizens too. I suppose what I am arguing here is that neither the conventions of a discipline, nor the pressing needs of an economy should render the scientist or researcher a mere instrument or slave in service of either. On both counts we should learn from history to ensure that the unintended consequences of scientific discovery are mediated as far as is possible, with an informed understanding of global political relations. But how do we create a sensible plan within higher education for dealing with the tension of knowledge creation and use?

The Bologna process has massive implications for the organisation of the university degree structures across Europe. In the United Kingdom, there is already a fairly

clear separation between undergraduate degrees and postgraduate degrees. It might be argued that traditionally, most undergraduate degrees in the United Kingdom concentrated on laying the foundations of a discipline whilst post graduate degree training at the Masters level and recently, with the introduction of taught, professional doctoral degrees, emphasised more learning about the profession or vocation, in a conceptual sort of way. This was not so much "how-to-do it", but more, "how to reflect upon what you have been doing" (if you were a professional topping up your learning with a Masters degree) or "could do" (if you were thinking of going into a profession but feeling that you did not know enough about it, despite your undergraduate degree). Even where degree courses were vocationally oriented to start with, such as law, nursing or teaching, a conceptual, reflective element was introduced at the Masters degree level. With such a conceptual structure in place (see figure 1 ), planning where vocational content might best sit within a degree structure is made easier.

It is important too to differentiate not only where vocational content is best located within the learning cycle, but what such content might be (hard technical skills or the softer skills of self management, organisation, multimodality), and the processes by which this is best learned (e.g., workbased placements).

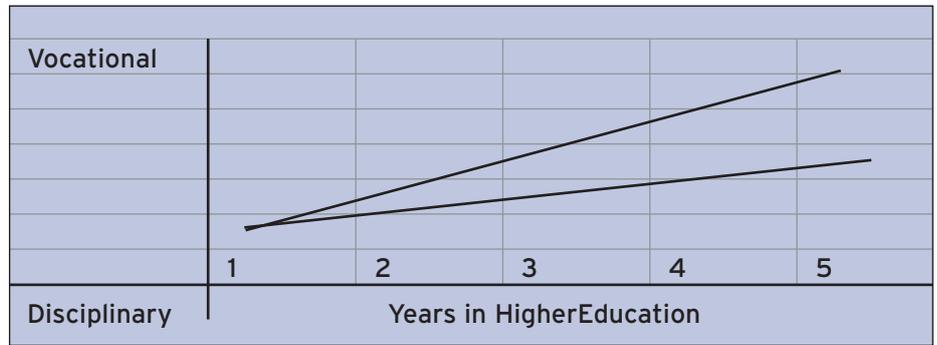


Figure 1: A template for locating the best fit options for vocational content in mass higher education

This is not necessarily easy. A rethink of the "goodness of fit" between what is offered and what is needed to sustain growth in modern day economies has huge implications for the internal organisation of higher education institutions. What happens to its academic and support staff for example? Is it out with the old and in with the new? Does it imply a radical reorientation in the way in which these organisations work, how they go about their business? What are the financial and indeed political implications of remaking the higher educational institution? These are no longer academic questions. There are countless international examples of academic restructuring. The seminar seeks to learn from experiences elsewhere, especially to inform the higher education policy debates in societies with transitional economies.

The debates about what higher education needs to do to meet the growing and changing needs of politics, economics and human development appear to be circular. They involve debates about the readiness and willingness of academics to make epistemological and organisational shifts, concerns about standards and equivalence, problems of academic dislocation and disempowerment, and concerns about disciplinary and individual identity. What seems to be lacking is a more elaborate model of analysis that captures some of the tensions and contradictions but that proposes a way upon which new forms of partnership can emerge for the production of relevant and useful knowledge that satisfies different audiences.

I shall now turn to discuss an analytical model that might do just that.

## The triple helix of higher education, industry and government: An analytical model for researching knowledge production

» The model draws on cultural historical and activity theory and is adapted from the work of Engeström (1994). Engeström is particularly interested in transformations in work and organisations. The model is informed by the theories of Vygotsky, Luria and Leont'ev and the basic argument is that knowledge is made through, and in participation in, common, purposeful activity. In this sense, human action becomes a central tenet of the theory (Wertsch, 1995). While there is little that is new in this conceptualisation of how humans learn (though still disputed in some quarters concerned about internal mental processes), a second core tenet of the theory is the notion of tool and artefact

mediation. Scholars who identify with the theories of Vygotsky (1978) and Dewey (1916) agree that human thought and development depend on the special conditions created by human interaction and the centrality therein of psychological and cultural tools.

The twin concepts of *human activity and mediation* are inextricably related in socio-cultural research. "Activity" means the active engagement in the cultural practices of an organisation. Any form of knowledge creation in activity is *mediated* by historical and cultural tools and their transformations. According to Vera John-Steiner (2000:32) a psychological or cultural tool

might include signs and symbols systems such as language, mathematical symbols, or scientific diagrams, or artefacts of a more physical nature, such as a computer. These psychological or cultural tools are used by humans to mediate each others' understandings of the social world.

Psychological tools are constructed socially and we have access to them by participating with others in meaningful social activity. According to Rogoff (1995) what distinguishes a sociocultural approach to other theories of learning is that interactions between the scientist, learner and psychological tools is a mutually constituting process.

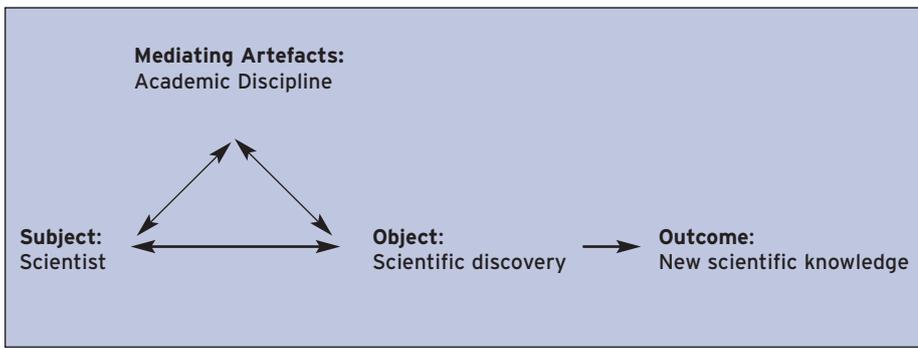


Figure 2: A simple model of disciplinary-based scientific research

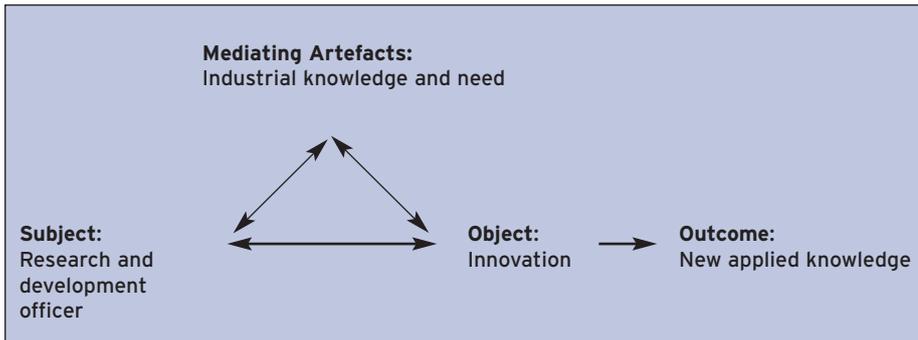


Figure 3: A simple model of industry-based scientific research and development

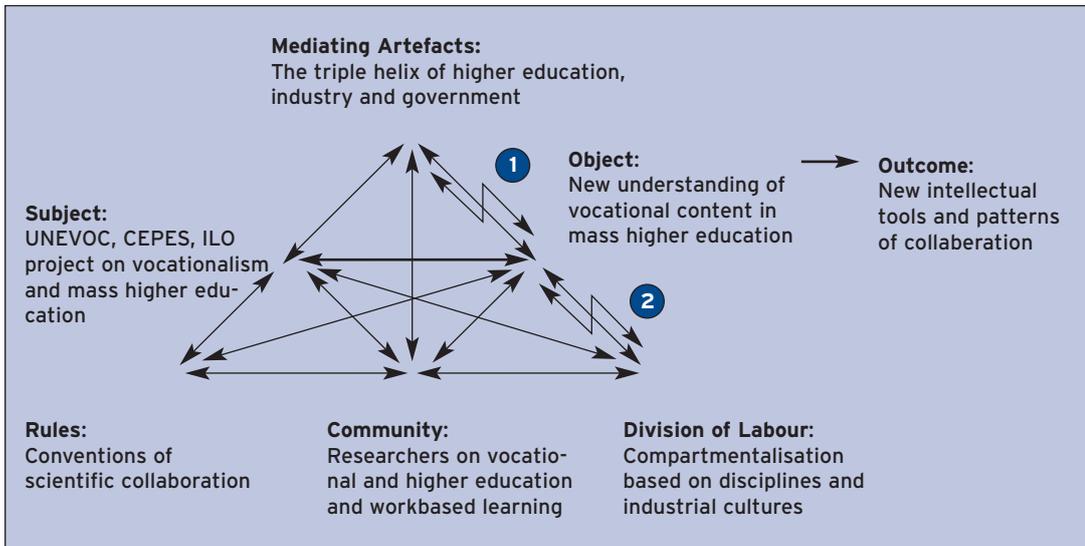


Figure 4: An elaborated activity system design for research into vocational content in mass higher education  
Adapted from Engeström, 1994

There is still a measure of debate within the school of sociocultural and activity theory as to the differences between the ideas of Vygotsky and Leont'ev (Zinchenko, 1995). Leont'ev's seminal works on activity theory have been criticised for a restrictive emphasis on tool-mediated production of objects as the prototypical form of activity. It is said that he neglected communication and mediation by signs.

The theory is best illustrated by figures 2, 3 and 4 above.

Figure 2 shows a simple conception of knowledge production based in a scientific discipline in higher education. Here, the subject or researcher is a scientist interested in pursuing scientific research, which is driven primarily by a question that she is interested in. The objective of the activity is to produce new scientific knowledge. In

so doing, the scientist draws upon a body of available literature in her discipline, where previous discoveries are reported, to frame her own research. Using cultural historical and activity theory we argue that this existing body of research knowledge, and also, knowledge of the rules and conventions of scientific research, mediate the research process that the scientist is embarking upon.

Figure 3 shows a similar simple conception of the knowledge production process in industry. Here, the scientist based in a research and development section of a large high technology components factory embarks on a research and development project which is driven largely by the need to innovate. The objective is to develop knowledge that will shape a new technological protocol. The scientist draws on available knowledge and technological expertise that exists in the company and from a wider literature base. She is also aware of the rules and parameters under which research and development take place. We argue that this knowledge frame mediates the research activity she is engaged in.

These figures might well capture the mode 1 and mode 2 knowledge production models that Gibbons was taking about, but we know that they are inadequate to capture the shifting landscapes of scientific research and research partnerships between higher education and industry.

Figure 4 draws upon a more elaborated version of the activity model (see Engeström, 1994). We take as an example the vocationalism and mass higher education research project that UNESCO-UNEVOC and CEPES are engaged in and of which this seminar is a part. The main concerns of the UNEVOC/CEPES project is globalisation, the new knowledge economy and the challenges for vocational and higher education. The subject of the research is thus UNEVOC and CEPES, and the object of the research is to develop a research agenda and an agenda for action in respect of vocational education and

knowledge production in mass higher education. The research programme seeks collaboration from a number of partners, including the academic community (Oxford University, Griffith University, etc.), and government and government agencies, for example, the national Centre for Vocational Education and Training, Ministry of Education, Romania. The collaboration is governed by certain rules, e.g., the conventions of scientific collaboration. As part of its work, it identifies other members of the vocational and technical education and higher education community and organises a seminar in which the knowledge held in this community becomes collectivised. The main concern remains the tension between the current division of labour (although this is no longer a hard division) between academic disciplines and research in industry in what counts as appropriate knowledge and how it is best produced. The tensions are shown by the lightning arrows, 1 and 2. The outcomes envisaged by this project include new intellectual tools (i.e., a book and a set of recommendations for practice) and new patterns of collaboration.

**Figure 4** shows how we might apply a socio-cultural and activity theory model to a project on vocational content and mass higher education being undertaken by UNEVOC and CEPES but it also opens up the possibilities for analysing a wide myriad of factors that concern universities, industry and government agencies.

We have included some of these questions in our summary paper, but using the analytical model proposed here, we might wish to consider the following questions:

*Mediating artefacts:* Looking at the existing knowledge base, do we have a sufficient understanding of the triple helix of higher education, industry and government (including international agencies)? Is the skills agenda too dominant and excluding of dispositions towards citizenship, particularly a global citizenship?

*Rules:* How do we continue to collaborate to research and develop an action agenda for meeting the most pressing skills needs for sustainable economic growth and poverty elimination, especially in the poorest economies?

*Community:* How can we maximise and collectivise our knowledge base on vocationalism and mass higher education? What can we learn from the sphere of work and the involvement of ILO, for example in worker education, trade union education?

*Division of labour:* How might the divide between developing knowledge for knowledge sake and developing knowledge for utilitarian purposes be bridged sensibly and without the imposition of one frame of reference upon another? How do we prevent a sense of alienation and dislocation in academia and stem a sense of frustration amongst employers? What do we do to ensure progression of graduates into the workplace?

*Object:* How can we increase our understanding of what constitutes vocational content – how do we differentiate between hard skills, transferable skills and the skills needed to navigate our way between our complex and interwoven private, public and working lives?

*Outcomes:* How can we best use the outcomes of our work to inform policy, enhance practice and communicate promising avenues and blind alleys?

## **E**merging contexts for new vocationalism: work-based learning

» The final theme that is considered here is an examination of how synergies might be developed between higher education and the world of work. What does this mean in practice? Does it imply cooperation that goes beyond organisational coordination and advice (e.g. cooperation in working groups, employers' representatives in university committees) to include joint curricula design processes (e.g. joint analysis of current and future work roles in companies, etc.)? Thus, what kinds of institutional arrangements should there be between places of higher education and the world of work?

Boud and Solomon (2001) argue that closer cooperation between the academia and

industry does not represent such a radical shift. They propose that there is already "an increased emphasis on professional and vocational practice in higher education in both undergraduate and postgraduate courses over the past decade" (2001:19).

Student learning no longer sits neatly inside the boundaries of academia. Workplace problems are used as learning resources, professional placements are offered and these include learning projects and individual negotiated learning contracts.

In Britain, Australia and South Africa, the recognition and accreditation of prior learning (RPL and APL) has become

commonplace, and non-traditional learners find it easier to navigate their way within the qualifications framework. Boud and Solomon (2001) claim that while these sat uneasily with traditional pedagogical and disciplinary practices, increasingly they are becoming accepted as part of the wide repertoire of higher education.

The university itself is becoming more open, as evidenced by increased numbers of cross faculty courses and interdisciplinary research institutes and centres. The relationship between the university and the outside world is more open also as evidence by entrepreneurial and research relationships with government and industry.

>> This paper has raised some important questions about the implications of new forms of work, driven by fast capitalism, new technologies and the knowledge economy, for the role of higher education in knowledge production and the creation of new learning models. It raises many more questions than it answers, but then this is the intention. It sets out an analytical framework that it hopes will be useful in guiding the ongoing work of UNESCO-UNEVOC, CEPES, ILO and other partners, and proposes that at least some of the questions posed can be reflected upon within this framework.

The paper illustrates that there is a repositioning of higher education in relation to our rapidly changing social, economic and political worlds, and there does appear to be a general vocationalisation of undergraduate and postgraduate programmes. We know that this is uneven amongst universities in any one country and that interesting models are emerging amongst different countries, each at the present time sensitive to their own social and cultural locatedness.

We have heard that there are growing alliances between higher education, industry and governments, but we are also aware that within each of these sectors, organisational cultures and practices are being continuously reviewed in relation to new global and local demands.

The paper alerts us to the dangers of a skills agenda in improving the value of human capital or to bolstering the knowledge economy. It calls as much for political literacies as it does technical literacies.

It considers the promise of workplace learning and highlights that there is a possible danger that knowledge "for the job" becomes localised. The question about knowledge being transferred beyond the organisation is critical.

Globalisation, new technologies and the demands for vocational content in mass higher education constitute a fascinating research agenda and I hope that, in some small way, this paper contributes to it.




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## References

- Becher, T. and Trowler, P. (2001). *Academic tribes and territories*. 2<sup>nd</sup> edition. Buckingham: SRHE / Open University Press.
- Boud, D. and Solomon, N. (2001). *Work-based learning: a new higher education?* Buckingham: SRHE / Open University Press.
- DfEE (1999). *Learning to succeed. A new framework for post 16 learning*. London: The Stationary Office.
- Engeström, Y. (1994). *Activity theory and the construction of knowledge*. Organisation 7.2.301-10.
- Etzkowitz, H. and Leydesdorff, L. (eds.) (1997). *Universities and the global knowledge economy: a triple helix of university-industry-government relations*. London: Pinter.
- Gee, J., Hull, G., and Lankshear, C. (1996). *The new work order: behind the language of new capitalism*. St Leonards, NSW: Allen & Unwin.
- Gibbons, M., Limoges, C., Notwotny, H., et al (1994). *The new production of knowledge: the dynamics of research in contemporary society*. London: Sage.
- Giddens, A. (1990). *The consequences of modernity*. Cambridge: Polity.
- Johnson, D. (2003). Activity theory, mediated action and literacy: assessing how children make meaning in multiple modes. *Assessment in Education*, 10,1,103-129.
- King, K. and MCgrath, S. (2004). *Knowledge for development? Comparing British, Japanese, Swedish and World Bank aid*. London: Zed Books.
- Subotzky, G. and Cele, G. (2004). New modes of knowledge production and acquisition: peril or promise for developing countries. In P. Zeleza and A. Olukoshi (eds.) (2004) *African Universities in the 21st century*. Vol. 11 Knowledge and Society. Senegal: CODESIRA.
- Symes, C. and McIntyre, J. (2000). *Working knowledge: the new vocationalism and higher education*. Buckingham: SRHE /Open University Press.
- Toulmin, S. (1990). *Cosmopolis: the hidden agenda of modernity*. New York: Free Press.
- Trow, M. (1970). *Reflections on the transition from mass to universal higher education*. *Daedalus*, 90: 1-42.
- Vygotsky (1978). *Mind in Society*. Cambridge, MA: Harvard University Press.
- Wertsch, J. V. (1985). *Vygotsky and the Social Formation of mind*. Cambridge, MA: Harvard University Press.
- Wertsch, J. V. (1998). *Mind as Action*. Oxford: OUP.