Accepted version of Boud, D., Dahlgren, L-O., Abrandt Dahlgren, M., Larsson, S., Sork, T. and Walters, S. (2006). Creating a 'world class' program: reciprocity and constraint in networked global collaboration, *International Journal of Lifelong Education*, 25, 6, 609-622.

Creating a 'world class' program: reciprocity and constraint in networked global collaboration

David Boud, University of Technology, Sydney
Lars-Owe Dahlgren, Madeleine Abrandt Dahlgren, Staffan Larsson, Linköping University
Thomas J. Sork, University of British Columbia
Shirley Walters, University of the Western Cape

Abstract

The paper reflects on the construction of a common Masters program across four universities located on four continents in order to explore the role of networks in international educational collaboration. The study draws on the documented processes of the principal members of the program team. It is presented as a case study of the development of the program that uses ideas drawn from actor-network theory to draw attention to the conjunction of human and non-human actors that shaped the resulting web-based courses. Constraints arising from major institutional and systemic obstacles were addressed through the effects of the actor-network. The reciprocity of action and de-centering of individual activity made possible through the collaboration enabled the human actors to sustain a level of innovation within their own institutions that would not have been possible through them acting alone.

Corresponding author:
Professor David Boud, Faculty of Education, University of Technology, Sydney, PO Box 123, Broadway, NSW 2007, Australia.

Email: David.Boud@uts.edu.au

Creating a 'world class' program: reciprocity and constraint in networked global collaboration

What kinds of programs are needed to address the challenges of learning in globalising societies? How can they be developed without perpetuating previously oppressive relationships between countries at different stages of development or between the centre and the periphery? How should they be created and conducted? While the notion of globalisation in higher education is much discussed and analysed and its traces are to be found in courses at every level, the implications for educational practice as distinct from educational content are often unclear. Globalisation is often considered in the abstract rather than constructed from the experience of those directly involved. Often globalisation discourse is paradoxical, as when it

includes only participants from one part of the world (Larsson et al, 2005; Abrandt Dahlgren, forthcoming).

This paper considers how the experience of a group of adult educators working cooperatively across different continents illuminates issues of learning in the context of globalisation. It focuses on the conception and development of an innovative Master's-level program of study developed by four universities located on four different continents. The program resulting from this process involved a common set of courses for students who learn together in what can be regarded as a single 'world class.' The focus of the program is adult learning and global change ('global' is used in the program and here in the conventional meaning to refer to matters so pervasive and all-inclusive as to exist in or affect the whole world.) Teaching is provided from each participating university in turn while students remain enrolled in their own 'home' university.

The paper draws on the documented experience of the principal developers as they struggled to create a new kind of program that sought to avoid some of the hegemonic features of programs developed in one country for students of another, such as the tendency to always privilege the knowledge of the host country. The aim is to make sense of the complex interaction between program developers across four continents in constructing a program to meet the various needs of an international population at a time of rapid global change.

Discussion focuses on an analysis of the actions of the key actors in the developments that led to the program rather than on the program itself. It is about the emergence of a new form of program sustained through networks rather than the particular content and features of the courses. The reason for this focus is that the act of creation raised fundamental issues about international cooperation, the challenges of offering programs of study simultaneously through different institutions and the role of cross-country teaching relationships. The argument presented here is that the formation of such a program demonstrates the challenges of working in learning contexts that foreground globalisation and that an analysis of the issues involved provides a basis for appreciating the learning challenges students face when operating in a global context. It moves beyond a structuralist framework used in a previous paper about the planning process for the program (Larsson et al, 2005) to illuminate other features. The paper focuses on understanding the nature of the network that was created, what it enabled and what sustained it. Issues of pedagogy arising from this are substantial but will necessarily be addressed elsewhere.

The analysis uses ideas from actor-network theory to explore issues involved in the development. It is neither possible, nor necessary to give a full exposition of this, sometimes elusive, theory here. However, various concepts developed in this theory have been fruitful in making sense of our experience. Actor-network theory points to issues which have been neglected in other kinds of analysis, for example, the importance of non-human factors in the planning dynamic and examining the ways in which actors network to create more complex forms of organisation: "This is that the very dividing line between those objects that we choose

to call people and those we call machines is variable, negotiable…" (Law, 2000, p. 17). Callon (1986) introduces the metaphor of an "actor-network", to mark the connectedness of various "actors", who can be both human and non-human. Law (2000) writes about the relational materiality: "Rather it is a *sociotechnical order*. What appears to be social is partly technical. What we usually call technical is partly social. In practice nothing is purely technical. Neither is anything purely social. And the same may be said for the economic, the political, the scientific, and all the rest" (ibid, p.10). Nespor (1994) points out how social practices are shaped by networks that connect nodes and knots together: "Practice is distributed across the spaces and times it produces so that 'social interactions', settings, and events, are intersections of trajectories that tie together distant times and spaces and give them form as social space" (p. 16). Drawing on actor-network theory, the analysis suggests that it is the movements of actors' trajectories in space and time and the representations of practice in concrete or virtual form that create and reproduce networks that in ordinary language are called learning or knowledge.

This perspective relies heavily on geographical metaphors, which may produce an alienating language. However, those familiar with Lave and Wenger's (1991) work can think of their view of learning as a movement from the periphery to the centre. Our empirical case is interesting in this theoretical context because it is a story of intersecting trajectories that have enabled networks that are unusual in several ways within the world of academic teaching. Our case also illustrates how the emergence of a network knitted together practices globally. It also illustrates the contingent nature of trajectories crossing in space and time that eventually produced an actor-network that has so far created a stable and developing program. It is the story of professors who happened to cross each other's paths at a specific time, who created a network that eventually was expanded to include students. One way of viewing the program that was produced is to see it as one that is different from others that operate internationally by being a network with several nodes of equal power. Often international education is seen predominantly as an export enterprise, i.e. there is a network of teachers and students, where there is one powerful node – the university that is running the program for students spread out over the globe. In our empirical case there are four universities involved each of which has an equal voice and 'stake' in the program.

In a previous paper (Larsson et al, 2005) we used Giddens' (1984) concepts of 'structure' and 'agency' and Dahlöf's frame-factor theory, as articulated by Lundgren (1985), to focus on structural relations between the various actors and the ways in which they construed what was possible for the program. Our focus there was on how the perceptions of the various factors influencing development both permitted and constrained the shape and substance of the program. While this was helpful in appreciating some of the main structural obstacles encountered and how these were surmounted it did not sufficiently capture the complex interactions of human, physical and geographical conditions we faced. This has led to a search for theoretical resources that can further illuminate the development of the program and deal more fully with the conditions and possibilities of the collaboration we created. While not engaging with all aspects of what is a complex, multifaceted and sometimes contradictory set of ideas, we have taken some features of actor-network theory to conduct a deeper and more

critical analysis of our practice.

Actor-network theory originally arose from the sociology of science and technology as a way of dealing with the creation of knowledge in complex systems. It has been used to analyse research networks and examine the complex processes involved in scientific and technological innovations (Latour, 1987) and the 'truths' produced in, for example, science (Clarke, 2002). It has also been used as a framework to examine undergraduate education in physics and business (Nespor, 1994), in medical education (Busch, 1997) and flexible learning more generally (Edwards & Clarke, 2002).

We were drawn to it for a number of reasons. Firstly, it deals with both people and things, what it terms human and non-human actors. Secondly, it focuses on the associations between human and non-human actors as they build networks and, as Miettinen (1999, p. 172) expresses it, 'the more actors mobilise, the stronger and more durable the networks'. Thirdly, it is directed towards networks that are dynamic. As Nespor (1994, p. 12) puts it, these networks 'expand, contract and shift configuration over time, and even the most stable and predictable of them are constantly being reappropriated and redefined by the nature of the flows that animate them…' It enables us to simultaneously acknowledge the localised and the distributed as well as the human actors and technologies that gave rise to and sustained our project.

Actor-network theory moves beyond the dualism of 'structure' and 'agency' (Law, 1997) and embodies a tension between the centred 'actor' on the one hand and the decentred 'network' on the other. Actor-network theory epistemologically challenges conventional binaries of subject and object, structure and agency, and culture and nature. It views both subjects and objects as 'quasi-objects' to be examined through the networks that constitute them (Edwards & Clarke, 2002). Law and Hetherington (2000) highlight the materiality of texts, pictures and other materials as information in concrete form and thus they also become actors.

The use of actor-network theory itself is, however, not unproblematic. It is a theory that is evolving and deliberately does not have a definitive articulation. Its current form has been criticised by some of its key originators (such as Latour and Law) so what is referred to today as actor-network theory is a coalition of interests rather than a well-defined theory. Ironically, Latour himself identifies 'four things that do not work with actor-network theory; the word actor, the word network, the word theory and the hyphen!' (1999, p. 16). He suggests (1999, p. 20) that it is a method not a theory as it is not a coherent set of concepts explaining or claiming to predict a phenomenon in the world. It has also been criticised by Engeström as turning all the actors into 'black boxes without identifiable internal systemic properties and contradictions' (2001, p. 140) thus occluding the learning in which they engage as part of the network.

Notwithstanding these concerns, many of the features of actor-network theory are sufficiently suggestive of new avenues of thinking to warrant the use of some of its elements here. We have found that it prompts us to consider issues not foregrounded in the ways we originally thought

about the development, but which have emerged as important to our current thinking and the ways in which programs of this kind grow and change.

From the start, the developers were committed to research their own practice and maintained records of events and their interpretations of them. The data on which the paper draws is of three kinds. Firstly, there is a contemporaneous record of face-to-face meetings and decisions made at each stage of development. Secondly, there is the documentation submitted to each university for accreditation/approval purposes. This provides an educational rationale and full details of what was accepted. Thirdly, there are personal accounts collected from the principals by e-mail during 2002. These accounts record personal and institutional motivations, perceptions of key issues and a view of what has been achieved so far. We have engaged in a process that Alvesson (2003) describes as 'self-ethnography. It also gives a picture of the trajectories and how the network emerged and expanded. The account presented here is a result of multiple iterations among the author-actors as they each disputed and resolved the ways in which the data had been interpreted by each other.

The first section consists of a narrative drawing from the accounts of the principal developers describing what they saw as the key steps in the emergence of the program and what they perceived to influence the decisions that were made. It illustrates how the constraints of each context and the possibilities of technologies shaped the nature and form of what was produced. The second section analyses this development using some perspectives from actor-network theory. This aims to identify influences and potentialities and demonstrate ways in which the complex interplay between relationships, resources and technologies shaped decisions. The paper concludes with a section in which the developers reflect on their experience and the analysis and draw conclusions about the creation of new kinds of distributed (Lea and Nicoll, 2002) programs. It locates the type of program developed within a spectrum of program forms designed to accommodate international students.

Part 1. Emergence of the program

The idea that led to the program germinated in 1998. It was fostered by the contingencies of personal contacts between principal human actors in each institution all of whom held chairs in adult education in their respective countries. The world of scholarship in adult education is not a large one and all had had some contact with one another before discussions about this program began. Shirley Walters from South Africa visited Sweden after a proposal for a distance-learning program in adult education at the University of the Western Cape failed to attract funding. She discussed possible joint programs with Staffan Larsson. He was receptive to this as it was at a time when there was a move at Linköping to establish, for the first time, Master's programs for international students. Shortly after Shirley had returned to Cape Town, David Boud from Australia visited Linköping as part of a sabbatical leave. The University of Technology, Sydney had been offering part of its own long-established master's in adult education in distance mode and institutional priority was being given to international initiatives. Following a walk in the snow and further discussions the notion of a three-way collaboration emerged.

In the language of actor-network theory we can see here several trajectories crossing. These trajectories crossed in a contingent way, however connected by being located in the same spot during a certain period in time. It was also critical that meetings came in a certain order in that one set of actions built upon the possibilities for the next. Another key aspect is that these trajectories represented somewhat different academic networks. Although the initial actors were in the same general field hitherto they had not been specifically reading each other's work. In terms of problematisation (i.e., who is accepted into the network), the choice included some consideration of difference. The existing programs of the initial three institutions had different emphases and addressed different groups in different social circumstances. In that sense we can notice that different practices of representation crossed and in that the kind of practices among students that were going to be mobilised in the new program were projected by the blend of trajectories into a new mix.

But what kind of collaboration was desired? Moving students between countries could not be contemplated as most of those who would benefit from such a program would be in employment and with work and family commitments. Another conventional master's program in adult education was inappropriate as a focus as two of the partners were already offering such a program. Something imaginative was needed. The critical question was, what could be done together that could not be done separately? Arising from discussion of this the guiding narrative became students working together about globalisation and learning drawing upon their diverse contexts and operating with each other through some form of electronic communication .

Instead of moving students, messages are moved. Instead of connections through travel, network connections are electronic links. The trajectories will not cross in physical space, but in 'cyberspace.' This also had the effect that the Swedes could not get money from the agency for the internationalisation of Swedish universities that they had thought would support the project, since they only supported connections in physical space (i.e., through covering travel costs). The decision to let students connect through the Internet instead of via physical meetings also made possible a network in which the local and the global could be problematised through the program in new ways. Rather than students from different locations meeting at the location of the teacher, thus emphasising work in the country of the venue, teachers were decentred as they had no students in their own physical location and students were situated in their own local contexts.

We wanted collaboration from strong centres of adult education research. We discussed involving the University of British Columbia and Kjell Rubenson in particular as he had good links with each of the three groups. Part of the discussion focused on the need for university adult educators to take into their own hands the development of global courses and not run the risk of what might be second-rate instrumental programs being developed for profit by commercial organisations to tap into what was believed to be a large market. We had to collaborate if we were not to be rendered marginal in a rapidly globalising world. We also had to do so in a way that was regarded as legitimate and important in our own institutions. Four

universities on four different continents working together on adult learning and global change was something which subsequently captured the imagination of the key human actors and senior staff in the faculties in which they were located. As one of us expressed it, what appealed to us was 'the grandness of it all'.

In terms of actor-network theory, this was the embryo of a strong network between several institutions. The human and the technical fused in the development of the program. Decisions were informed by the human capacities of the planning staff as well the technological possibilities: both human and non-human actors being prerequisites, but necessarily intermingled. The choice was based on earlier connections, but these connections had to be developed. It was also a choice that excluded all the other potential participants, at least initially. Looking in the mirror some years after, it is obvious that this choice has also weakened other connections in the planning staff. One of the team remarked jokingly at a meeting in 2002 that she spent more time together with the intercontinental staff, than with her colleagues at home. The choice of institutions indirectly formed the content, since it reduced the possibilities to what these institutions represented in terms of knowledge (i.e. which networks the academics were part of in terms of ways of representing the world of adult learning.)

But having a good idea was not enough. To translate this into practice would require considerable planning. How could we find the resources to plan when we were distributed around the world? The strategy adopted was to utilise our involvement in academic conferences as opportunities to meet and plan. By coordinating involvement in the international conferences at which we might present papers we could find the time to meet at marginal cost, or so we thought. This partly worked, but the time required and the frequency of contact needed to talk through the complexity of the challenge required additional meetings. A pattern developed of having two meetings a year, one alongside a regular international conference and another in association with a local event that could be arranged to utilise the expertise of those meeting. As the program became fully operational this reduced to the present pattern of one per year. The principle of rotating venues was established and meetings eventually took place in the US and the UK as well as the four countries involved.

The challenges of development

A quick tally demonstrated that we all had approximately the same number of units in a master's program and that we could share the teaching according to the different expertise brought by each partner. The curriculum was necessarily shaped by the inclusion and exclusion of staff. There was inter-play between the key interest of participants in the decision-making and the course-structure., i.e. the inclusion of South Africa gave additional impetus for the issue of globalisation as experienced in the Global South to be raised in a more pronounced and immediate way. Thus, geographical distribution of power in decision-making had tangible effects. We grappled with issues ranging from who would offer which course to how long they would be, what would be the configuration of the academic year (which is fundamentally different in the southern and northern hemispheres), to how the program would be offered. (These matters were resolved with relatively little difficulty.)

Fundamental to the planning process was thus how to manage time and space in terms of the time students would spend on specific tasks, the interrelationships among students between students and teachers and the creation of boundaries between these time-spans. One obvious consequence of our time-space situation was the exclusion of communication on the web in real time. No time would suit everyone. This had severe effects on the choices of communication strategies. This shows how the web as an actor makes conversation over distances possible but also that time differences and connection costs constrain many possibilities. Time in this program was not distributed by timetabled hours and the magnitude of student tasks was subject to great variations of interpretation. Creation of such boundaries is a key trait of educational planning. Tyack and Tobin (1994) describe a grammar of schooling that has dominated for a very long time, where time is divided into lessons, content chopped up in small pieces and distributed in time as well as in space (home-work and school-work). In our case it is the adjustments of time-use that is a key prerequisite to create a network-traffic.

However, four problematic themes emerged that occupied much time and effort. These were: the influence of local decision-making processes, differing economic models of postgraduate education in different countries, inconsistencies in assessment systems, and constraints on the use of information and communication technologies. These were discussed in some detail in Larsson et al (2005).

Of these challenges it was the issue of technology that provided the greatest threat to the success of the initiative. How can students located on four continents benefit from studying together? Obviously, traditional print and post-based distance learning packages would deliver materials to students, but connectivity and interchange would be so slow as to be ineffective. Supplementing this with electronic communications would provide the interconnectivity, but the more that was learned about the problem of message overload in the use of conventional e-mail between teachers and students, the more this looked like a major barrier.

The technological solution was to use a web-based tool such as WebCT or Blackboard to provide a virtual learning environment. Through such a platform course material could be provided instantly, discussion boards established and a range of other learning enhancements incorporated. Could this be utilised by students in all countries? A crucial formative moment occurred when the development team sat in the office of the director of information technology at UWC in Cape Town and saw how painfully slowly a single web page was displayed. The technical constraint of limited bandwidth appeared to prevent the use of the desired solution. We believed that South African students would be disadvantaged because of limited bandwidth both into the country and into UWC. An equally formative moment occurred six months later during a demonstration of WebCT at UBC. We saw a fully web-based course demonstrated and, much to our surprise, a number of students located in South Africa using it without difficulties. Technological development had reached the point when our desired solution could be realised. There were still substantial problems to be overcome in using a learning environment that required ready access to the Internet in a relatively poor country, but it became possible.

One issue that, perhaps surprisingly, was more easily dealt with than anticipated was that of negotiating the content of the program and who would teach it. As might be expected some areas of the program were covered more than adequately by existing courses offered by partners (eg. adult learning), whereas others were more thinly spread (eg. global change). Unlike many faculty deliberations about courses, discussion and decision-making from start to finish were contained in two meetings. The program was formed by the constellation of persons present and the time-constraints made time-consuming discussions impossible. Another aspect of the content was that the specific actors sitting around the table at least partly belonged to different academic networks in terms of how they represent the world (eg. a professional orientation, a post-colonial orientation, etc.). Distribution of content to different institutions and staff meant that collaborators did not have to involve themselves in creating a common way of representing the world. The material vehicle was common, but what was represented through it was not. Different perspectives were celebrated in the program and expectations were created for students that this would be the case. In this area a loose network was established, in spite of close collaboration. The close network described in physics by Nespor (1994) was therefore not formed. It was acknowledged that our program could only function if we were very constrained on some issues (a common timetable) and very loose on others (a wide variety of conceptual content).

Part 2. An analysis of actors and networks: critical incidents and reconfigurations

Who were the actors involved? At the obvious level there are the individuals from the four institutions who met and communicated with each other and other colleagues who were actively involved from time to time, comprising about twenty in all. Another set of human actors was students envisaged as the beneficiaries of the program. At the time of original planning these were not identifiable individuals but imagined learners who nonetheless had characteristics, needs and aspirations that had to be considered. The non-human actors were the communications (primarily e-mail) and physical transport systems that enabled the human actors to meet and exchange views. Importantly it was also the web platform, Blackboard, which was adopted as the learning environment and was used as a medium for keeping records of the entire development project. Another set of actors was academic conferences that provided part of the legitimation for physically meeting—a feature highly valued by the human actors—and which represented nodes of other networks of which the academic actors were also part. Yet others were the various, conspicuously non-networked, accreditation systems that approved the courses and created demands for certain kinds of information in particular formats.

The networks were formed with human and non-human actors. The initiating team enlisted colleagues and administrators whose assistance was needed in putting together and getting the program approved. The initiating team was also part of the wider network—the 'invisible college'—of researchers in adult education that met at conferences and read each other's work. The structures of the academic field themselves constituted another network; conference proceedings, books and journals formed a web of connectivity in which human actors could

operate. The use of the Internet itself was a key to the development. It was the medium through which we communicated when apart, it was the network supporting the learning platform and the ways in which students were enabled to communicate with and work with each other.

Networks in actor-network theory are not the structures, nor the relationships themselves, but, as Law (1997) argues, processes or achievements. Therefore, it was what was made of the pre-existing and emerging networks we must consider. Possible connections do not constitute a network; it is realised connections that do. Actor-network theory is also concerned with the mutual interrelationships between actors and the network. In the case of the innovation here, the actors alone could not create the program; it was only through their interconnectedness via existing 'invisible colleges' and mutual links that enabled the program to be brought into being. Similarly, without the technologies, the group itself and the program for students could not be formed or sustained to produce new connections and involve new actors.

The new actor-network formed through the development of the program both cements existing relationships and creates the context for involving others. These others are immediate colleagues who help teach the courses and students in the first instance, but potentially others also. While the actor-network was challenging to initiate and the program difficult to establish, the new network creates a stability that makes possible consolidation and further development. For example, while the courses were designed initially to accommodate students from the four countries involved, students from six additional countries were involved in the second cohort. To date, students located in 25 countries are enrolled, so eventually the network will have actors —students and program graduates—in many locations over the globe. That the actor-network increases in size and strength as more actors become enrolled (Busch, 1997)—a tenet of actor-network theory—is illustrated by this. Strengthening the actor-network is not just about increasing the number of human actors; the adoption of the web-platform was a major factor in creating a more manageable set of connections. In turn this makes the network more robust and permits the involvement of additional actors. However, the human actors involved in the original design process have resisted expanding the network beyond the original four universities even though the innovative character of the program has resulted in several overtures from various universities around the world to join the partnership. There is some concern that even though adding other respected universities to the partnership might broaden the base of support and expand the intellectual resources available to the program, if done too quickly it might weaken the strong relationships among the original actors and introduce challenges to the hard-won agreements reached about the program's underlying philosophy and operating patterns.

The starting point was the idea of co-operation comprising four parallel versions of a program developed jointly. This also comprised the use of e-mail for communication within and between these four separate networks. The Internet as a means for communication was at the outset not seriously considered, but could be regarded as a sleeping actor at this point, as one of the partners had limited technical possibilities. We eventually decided that the program should be essentially the same in each institution, and offered by each university as its own, but with teaching for each course provided by only one of the four partners. This meant that the same

program had to proceed simultaneously through the accreditation processes of four different systems. The decision about a jointly delivered program also introduced the first serious threat to the network, in that it challenged university bureaucracies, which at this time stepped in as significant actors—albeit from a pre-networked era—introducing different demands on approval, financing and assessment. A critical incident in this process was that one of the four partners was unable to enrol students in the first cohort, but had to undertake the teaching for the other three institutions. That this could occur is testimony to the level of trust and commitment that had been engendered by the collaborative process.

The first reconfiguration of the network was caused by the inclusion of the Internet as an important actor in the system. This inclusion was made possible by the loyalty of the partner with the weakest technical resources whose needs strengthened the network. The discovery that the limited bandwidth into South Africa was not the overwhelming constraint it was thought earlier to be points to the importance of technological development as a key factor in our actor-network. What was until then a potentially vulnerable network was strengthened by the ability of students in South Africa, and indeed in other countries, to access the Internet from places other than a university campus. They could attain download times that made web-based study possible. This could only be sustained, however, by limiting the pedagogical content of the program to resources that could be accommodated within the still limited bandwidth. The technological solution was 'low-tech' as it avoided the use of audio, video and synchronous chat.

The second critical incident was an acute questioning of the model of collegial leadership of the program. This challenged the relationship between the collaborating partners, but paradoxically resulted in strengthening the network even further, since the outcome of a critical discussion was the decision to keep the model of a co-ordinating leadership as a four-way agreement. This critical incident, thus, did not result in a reconfiguration of the actor-network system although it clearly had the potential to do so.

A third critical incident appeared as a result of a conflict between two of the non-human actors: the course platform and the economy. The choice of one of the alternatives considered would have brought insurmountable economic consequences for at least two of the partners. The incident was resolved by a second reconfiguration meaning that another platform was chosen. This choice was made possible through the introduction of a new actor, the Linköping Blackboard licence. The ICT-centre at Linköping University was from then a new actor in the network, providing the server and necessary technical support for the project.

We can see how the economy as an actor in the network has played out in different ways at different times during the process, each time challenging the original idea of mutual agreement. An external actor, the Swedish International Development Agency (SIDA), also put money into play within the network. A SIDA grant made it possible to arrange workshops with students in the first cohort and to actually involve them in the development process. This was an important means of strengthening the network. Since the courses were developed in sequence rather than

in parallel, this provided the opportunity for later course developers to benefit from the input of students.

One of the main reasons for each institution offering the program as its own was to circumvent the difficulties that arose from each institution (and country) operating a different economy of higher education. In one extreme, programs were fee-free so long as the number of student places could be accommodated within those allocated by the state (Sweden) and at the other master's programs are based on full cost recovery fees (Australia). Canada and South Africa operate in a mixed economy for postgraduate places wherein fees cover part of the costs while the state subsidizes the rest.

The writing of papers and the presentation of research about the program is another way of strengthening the network without directly adding more human actors. The presence of documentation of the innovation and the act of public commitment to the program strengthens the network. This is an example of the way in which the performativity of the innovation contributes to its sustainability. Other activities that have reinforced the network include rotating planning meetings so that each university has an opportunity to draw into the network local colleagues, deans and other administrators who "meet and greet" the core planning group. This raises the profile of the program. It builds political capital among those whose work or reputation can be enhanced through close association with an innovative international undertaking. Several of the principal actors have also spent time on sabbaticals and in other ways with colleagues at partner universities. And early graduates of the program organized a symposium in South Africa in August 2004, attended by peers from Canada, Sweden and Australia. For most students, this was the first time they had met face-to-face with others with whom they had been studying in a virtual classroom for two years. Each of these represents efforts that have sustained and strengthened the network.

The use of ideas from actor-network theory has thus directed our attention to features of our practice not explicit or even conscious to us at the time and has enabled us to notice and value the variety of facilitating features and technologies that were essential to this collaboration.

Part 3. Reflections on the development of distributed global programs

The process of developing a collaborative venture was not initiated with the intent of producing a global program, but it rapidly took on this character. It is therefore appropriate to end this discussion with some reflections on how our experience and the analysis we have undertaken have shaped our views about such an enterprise.

Our experience has shown that it is possible to develop an initiative in which four universities can collaborate together in ways that respect their differences but which leads to a common degree program which all share and in which all have similar stakes. A key feature of our collective experience has been the extent to which reciprocity has been a theme. We did not create a new joint venture entity to make it work, but adopted a networked approach in which

one node is not privileged over others. This has only been possible because no one individual or institution has wanted to or been allowed to dominate. This has not, we suggest, been a matter of personalities but rather because of awareness among the human actors that such an approach would sabotage the process.

A significant feature of this has been the deliberate de-centering of individuals and institutions. While we have an international coordinator and named individuals take specific roles. However, none of them, nor anyone in their institutions, takes on a traditional leadership role in which they make decisions that are accepted by others with modest levels of consultation. All decisions of any substance require four-way agreements; none of the institutions is identified as, or is *de facto*, the lead institution—all 'own' the program. While this has led to additional demands in the development process, this constraint has also established a kind of stability. This stability is not interpreted by us as rigidity as in practice the faculty members teaching each course have a similar degree of autonomy as they would have in any one of the institutions. They are subject to the gaze of their colleagues in ways that are unfamiliar to them—as their teaching is available to be seen by the others without them being immediately aware of scrutiny—but there is a care in the giving of feedback that maintains the principle of autonomy throughout. This de-centering does not involve an eclipsing of power. Rather than a major node at the point of control of conventional programs, there are four key nodes guarded by senior professors in the four institutions.

Actor-network theory prompted us to enlarge our analysis through drawing attention to the importance of the layers of networks that sustain our principal, four-way network. These consist of the inter-relationships of other colleagues, of links to conferences and publications, the Internet and travel that is a common feature of academic life. While separate in location and institution the layers of communication, interconnectivity and mutual dependence are greater than it appears at first sight. Now that the program is in operation, there are new networks of teachers and students which both need to be sustained and which in turn sustain networks. It is interesting to speculate on what might occur in a field significantly larger and more diverse than the relatively modest one of academic adult education. Similar processes would be at work, but some features of interconnectivity would be less and mutual dependence might not be so apparent. The insights from theory point to some of the processes which have worked to our benefit, but the question remains of what is it that has built and sustained our commitment over time when faced with so many practical adversities?

The development was experienced as a creative and satisfying process by the authors, albeit one that involved major frustrations and disappointments interspersed along the way. The constraints we faced focused our innovation and while we might prefer that some of them did not exist (eg. conflicting assessment schemes), this is a representation of the very diversity of learning around the globe that the program portrays. Reciprocity was a key feature throughout. Without recognition that so much more could be achieved through being fully reciprocal and the willingness to subordinate individual desires to a greater collective desire, a 'world class' program could not have been developed.

Before we end this reflection, we must acknowledge a few problems that remain unsolved. We do this to illustrate the fact that even with the best of intentions and considerable goodwill among the initiating human actors, networks remain fragile. Two examples illustrate this. The program has been operating in its current configuration will full participation from all four partners since 2001. Several efforts have been made to conclude a formal legal agreement (letter of understanding) among the four universities, but five years on this still has not been accomplished. One reason for this is the differences in legal systems involved and the problematics of crafting a written agreement that is understandable and acceptable to the legal officers of all four institutions. Another is the varying degrees to which universities have experience with such complex undertakings and their comfort with the compromises required. One of the partner universities, for example, has as part of its collective agreement with faculty a provision that the structure and content of online courses developed as part of a faculty member's workload remain the intellectual property of that faculty member rather than of the employer. This is an unconventional provision by international standards and has made it difficult to arrive at language that respects the intellectual property rights of faculty and the rights of the participating universities to offer a program with reasonable continuity within the curriculum. A third reason is the relatively low priority we as academics have placed on concluding this agreement. We see the program operating satisfactorily without an agreement, but also realize that a serious breech of the principles that have guided our collaboration could easily destroy the network.

The second example of an unsolved problem is that because of the constraint of differing regimes of financing postgraduate education in the different countries, it is not possible to move money or students between institutions (students can and do travel freely, but remain enrolled in their original institution). In the case of the Australian institution, the requirement that fees should cover all costs and that programs not cross-subsidise each other, combined with internal competition from programs in the same field with lower fees has threatened its participation. Despite support from the other institutions with international students, overwhelming financial constraints mean that UTS as an institution may not continue as a formal partner. That to date this has not threatened the network is an indicator of the strength of the multiple connections discussed above.

Notwithstanding these concerns, a new kind of networked program has been created and sustained. It has stimulated innovation in institutional responses, in flexible working and in pedagogy. Actor-network theory is not a predictive methodology, but it does suggest that the system will be sustained if the robustness of the network prevails. The entering of new actors will test this in practice.

Acknowledgement

Each author currently teaches in each of the institutions mentioned in this paper. We wish to thank Nicky Solomon for comments on an earlier version of this paper.

References

Alvesson, M. (2003) Methodology for close-up studies—struggling with closeness and closure, *Higher Education,* 46, 167-193.

Abrandt Dahlgren, M., Larsson, S. and Walters, S. (forthcoming) Making the invisible visible: on participation and communication in a global, web-based Masters programme, *Higher Education*,

Busch K. V. (1997). Applying actor-network theory to curricular change in medical schools: Policy strategies for initiating and sustaining change. Midwest Research-to-Practice Conference in Adult, Continuing and Community Education Conference [October 15-17, 1997]. (East Lansing: Michigan State University). (http://www.anrecs.msu.edu/research/busch.htm) [accessed: 17 April 2005].

Callon, M. (1986) The sociology of actor-network: The case of the electric vehicle. in: Callon, M., Law, J. and Rip, A (Eds.) *Mapping the Dynamics of Science and Technology. Sociology of Science in the Real World*. Basingstoke: The Macmillan Press, 19 - 34

Clarke, J. (2002). A new kind of symmetry: actor-network theories and the new literacy studies, *Studies in the Education of Adults*, 34 (2), 107-123.

Edwards, R., & Clarke, J. (2002). Flexible learning, spatiality and identity, *Studies in Continuing Education,* 24 (2), 153-165.

Engström, Y. (2001). Expansive learning at work: toward an activity theoretical reconceptualization, *Journal of Education and Work*, 14 (1), 133-156.

Giddens, A. (1984). *The Constitution of Society: Outline of the theory of structuration*. (Cambridge, Polity Press).

Larsson, S., Dahlgren, M. A., Walters, S., Boud, D. & Sork, T. J. (2005). Confronting globalization: Learning from intercontinental collaboration**,** *Innovations in Education and Teaching International***,** 42 (1), 61-71.

Latour, B. (1987). *Science in Action*. (Cambridge, MA, Harvard University Press).

Latour, B. (1999a). On recalling ANT. In J. Law & J. Hassard (Eds.). *Actor-Network Theory and After (*Oxford, Blackwell), 15-25.

Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate peripheral participation*. (Cambridge, Cambridge University Press).

Law, J. (1999). After ANT: complexity, naming and topology. In J. Law & J. Hassard (Eds.). *Actor-Network Theory and After (*Oxford: Blackwell), 1-14.

Law, J. (2000) Introduction: monsters, machines and sociotechnical relations. in: Law, J. (Ed.) (2000) *A Sociology of Monsters. Essays on Power, Technology and Domination.* London: Routledge, 1 – 23.

Law, J. and Hetherington, K. (2000). Materialities, globalities, spatialities. In Bryson, J., Daniels, P., Henry, N. and Pollard, J. (eds.), *Knowledge, Space, Economy*, (London, Routledge), 34-49.

Lea, M. R. & Nicoll, K. (Eds.) (2002). *Distributed Learning: Social and Cultural Approaches to Practice*. London: RoutledgeFalmer

Lundgren U.P. (1985). Frame factors and the teaching process. In T. Husén & Postlethwait (Eds.) *The International Encyclopedia of Education Vol.4*. (Oxford, Pergamon Press).

Miettinen, R. (1999). The riddle of things: activity theory and actor-network theory as

approaches to studying innovations. *Mind, Culture and Activity*, 6 (3), 170-195.

Nespor, J. (1994). *Knowledge in Motion: Space, time and curriculum in undergraduate physics and management*. (London, Falmer Press).

Response to referees

One of the referees comments very positively on what is referred to as a 'carefully crafted paper' and offers no points to respond to. The second referee is more critical. The following addresses the 6 points made by the second person:

1. The reviewer mentions four 'interesting notions' that he/she does not believe are picked up adequately in the paper. *Reciprocity* and *constraint* are key elements and have now been elaborated and discussed further in a number of places. *Global learning* has been replaced and 'global' is only used here in its conventional sense and this has been clarified in the text. '*World class'* is only used ironically (the quotation marks are a sign of this for those who do not readily spot irony!) and has not been developed further.
2. Further clarification of 'network' and 'global' required. Additional discussion including Callan's description of an actor network has been included. Law's definition of a network is given on page 12. The matter 'global' is addressed in point 1.
3. 'The nature of 'actor-network theory' is uncertain and its application in the paper needs tightening. Additional discussion of ANT has been included. However, the paper makes no claim to be an application of actor-network theory, only to use some of the ideas generated by ANT. Any further exposition of what we have now alluded to as the somewhat elusive ANT sufficient to satisfy the reviewer would distort the paper and detract from the main themes. There are many references to original sources to enable readers to satisfy themselves about ANT.
4. Claims are made or implied about the network described transcending traditional teacher-student and colonial or post-colonial status but no evidence is given for these suggestions. We find this comment rather puzzling as (a) the only mention of colonial/ post-colonial was in a brief illustration of the professional orientation of some of the actors and was not discussed further in the paper, and (b) the paper is about the development of the program, and only refers in passing to its pedagogy. We have clarified this latter point so as not to raise expectations about the pedagogical relationships subsequently developed, but also given further illustration of the relationships that prevailed. Pedagogy in the program as now indicated in the text is the subject of another paper in preparation.
5. The way in which the empirical data were actually used needs to be made more transparent. Two changes have been made with regard to this. Firstly, the emphasis on the data sources has been played down, and secondly, the iterative nature of the analysis between the authors has been emphasised.
6. Some of the claims should be made more modest. This has been done and some of the enthusiastic tone has been modified, without we hope detracting from the style.