Developing the third strand of university activity: mapping the involvement of students and staff in knowledge transfer activities

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Name of Author(s)
Kerri-Lee Harris
Helen Dedman

Contact Details
Kerri-Lee Harris
Centre for the Study of Higher Education
The University of Melbourne
Parkville, Victoria, 3010
Australia
E-mail: k.harris@unimelb.edu.au
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Kerri-Lee Harris and Helen Dedman

Abstract

There are significant shifts taking place in universities as they respond to changes in the type of knowledge most valued, and the ways in which knowledge is created and utilised in society. Knowledge transfer, engagement with the community in a two-way exchange of ideas and information, is now recognised as a core university activity. This paper presents a possible typology for considering the range of activities considered to play a role in knowledge transfer. In particular, the nature of the intersection between knowledge transfer and teaching is examined, and the various dimensions of student involvement explored. It draws in particular on experience and examples from the University of Melbourne, an institution currently undergoing major curriculum transformation in conjunction with a renewed and explicit emphasis on knowledge transfer activities.

Changes in the way knowledge is valued, created and shared have led to a shift in the way universities define themselves. Universities no longer monopolise the generation or storage of knowledge in society. Community needs and priorities are significant in determining the research and teaching profile of universities (Gibbons et al. 1994), and engagement with their communities is a recognised core university activity. This has led to the development of new paradigms to represent university responsibilities. In 1990 Boyer (Boyer 1990) described four interacting dimensions to scholarship – discovery, integration, application and teaching. Subsequently, the US Kellogg Commission (Kellogg Commission 2000) proposed ‘learning, discovery and engagement’ as a depiction of university responsibilities, more accurate than the classic formulation of ‘teaching, research and service’.

Knowledge transfer is not a new concept, nor does it originate from the study of higher education. Business, economics and management are all concerned with mechanisms and consequences of knowledge flow. Universities, however, have a particular and vested interest in the concept, given the centrality of discovery and learning to their role in society. Defining and demonstrating knowledge transfer in universities has therefore become an active area for theoretical debate and change in policy and practice.

For higher education, defining knowledge transfer is not a simple matter. The terminology debate – whether to use ‘knowledge transfer’, ‘outreach’, ‘engagement’, ‘third-stream activity’, etcetera – is the most obvious, yet this potentially obscures a much larger area of uncertainty. The range of activities and outcomes that constitute knowledge transfer – by whatever name - are neither readily defined nor generally agreed. This difficulty stems, in part, from the close relationships between knowledge transfer, teaching and research. It is for this reason that some commentators question the value of identifying a third stream of activity at all. The counterargument is that declaring knowledge transfer a distinguishable role of universities is necessary in order to recognise, and thereby promote and enhance, these activities.

This paper presents a possible typology for considering the range of activities considered to play a role in knowledge transfer. In particular, the nature of the intersection between knowledge transfer and teaching is examined, and the various dimensions of student involvement explored. It draws in particular on experience and examples from the University of Melbourne, an institution currently undergoing major curriculum transformation in conjunction with a renewed and explicit emphasis on knowledge transfer activities.
Embedding knowledge transfer through policy and curriculum reform: a case study

In 2005, the University of Melbourne presented a new institutional vision. The 2005 *Growing Esteem* report (The University of Melbourne 2005) described “three equal priorities for the University of Melbourne – research, teaching and knowledge transfer”, adding a “new dimension to the teaching-research nexus”. A triple helix was used to symbolise the way in which “Melbourne’s academic programs should form a tightly-wrapped spiral of distinct but related activities”.

The University has formally defined knowledge transfer as “the two-way flow and uptake of ideas between the University of Melbourne and the broader community” (The University of Melbourne 2007a).

In order to advance the knowledge transfer activity of the University, and to promote this to external audiences as a feature of the institution and the student experience, a range of strategic initiatives have been developed. These include annual awards for University staff and teaching and research programs which showcase knowledge transfer, and a program of competitive grants for students to fund knowledge transfer projects. In addition, knowledge transfer has been embedded in human resources policy and in the guidelines for curriculum development. The University aims to make knowledge transfer a feature of all Melbourne’s academic programs.

Attempts to further define knowledge transfer continue. The full range of activities that might constitute knowledge transfer are still emerging, and the challenge remains to capture this diversity in a way which assists communication with staff, students and the community. By providing illustrations of knowledge transfer from among existing activities, the University is seeking to both define the concept in more detail, and to identify opportunities and institutional strategies for the future. It is likely that frameworks, categories and descriptors of various types will be needed, each tailored to specific purposes.

There is an inherent tension in attempting to both distinguish and integrate knowledge transfer in higher education. If, as is widely acknowledged, knowledge transfer is integral to both teaching and research, separation is likely to remain problematic. This situation has a parallel in that of the nexus between research and teaching, suggesting a model that features the pair-wise relationships of each of the three activities as fertile sites for continued analysis. For example, further exploration of the nature of the teaching-KT nexus may both enhance the conception of knowledge transfer and complement the existing emphasis on the KT-research relationship. In the next few years, curriculum development at the University of Melbourne will provide a valuable case study of the intersection between knowledge transfer and student learning, in particular.

A knowledge transfer typology

Given the complex nature of knowledge transfer, development of a conceptual framework can assist with mapping, planning and reviewing knowledge transfer activities. Table 1 presents such a framework, based on the range of activities commonly cited as examples of knowledge transfer. In particular, and for the purposes of this paper, Table 1 attempts to capture the relationship between knowledge transfer and teaching.

The typology in Table 1 is not intended as a definitive description of knowledge transfer, and is unlikely to encompass the full array of contributing activities. The six primary categories are derived from the apparent broad purposes defining types of activity. As such, the categories are not mutually exclusive – many activities will have multiple purposes and so will ‘straddle’ categories. Rather, Table 1 provides a framework within which particular activities can be located, and areas for further development identified.

The six broad categories of the typology (Table 1) are described below:

1. Service to communities

University staff commonly describe their involvement in knowledge transfer in terms of direct contributions to communities. Such contributions to ‘the public good’ include sharing their specialist knowledge through presentations, publications and educational programmes, and engagement in public debate.

In addition to sharing knowledge and ideas, in some disciplines staff regularly volunteer their specialist skills. Pro bono legal advice is one well-established example of contributing to the public
good. In addition, university staff lend their specialist skills to communities at times of crisis. One such example is the involvement of University of Melbourne anatomists in the identification of human remains after recent civil war in East Timor.

Students too are involved in sharing knowledge and skills with the broader community. Postgraduate research students are likely to be involved in activities very similar to those of staff. There are also examples of undergraduate involvement in programs such as peer-tutoring of science students in secondary schools.

Historically, universities have served as repositories of information and cultural collections. Developments in technology now make it possible to provide greater access to such resources. Networked catalogues and records make the existence of materials known, and digitisation enables access to rare texts and other materials.

Another contribution university staff make to community groups is to raise the profile of particular issues or the work of organisations. Most particularly, by lending disciplinary insight, communication skills, and political awareness, university specialists assist community groups in lobbying government or business for support.

2. Partnerships in research
Research partnerships between university staff and external organisations are a well-recognised component of research in Australia, and receive dedicated research funding from the Australian Research Council. The external partners include government departments, business and industry groups, and third sector organisations. In addition, university researchers are encouraged to partner with business in the commercialisation of their research. Partnerships of this nature provide very tangible evidence of knowledge transfer, and the two-way exchange of information and ideas.

In many cases the external partner provides insight and ideas, while the university partner takes primary responsibility for the research and its outcomes. Student projects are often of this type. For example, students engage with business in a ‘consultant’ role, identifying an issue of concern to the organisation, and then conduct a project to investigate or address the problem.

Such activities ensure that those involved in knowledge building in universities are connected with the societies that might benefit from the knowledge. Obviously, knowledge transfer can involve working with communities to identify issues and problems of importance, and so inform research, teaching and also related knowledge transfer activities. This does not mean, however, that all such knowledge transfer is linked to ‘applied research’. On the contrary, it is argued that pure research – the pursuit of knowledge for its own sake – involves asking the same question … ‘how might this new knowledge be relevant to society?’ (Armstrong 2007).

3. Partnerships in teaching
The involvement of external groups in planning university curricula has a long history in the professions. Many courses in the health sciences and engineering, for example, are developed in consultation with professional accrediting agencies. For these courses, such external recognition is fundamental to their success.

Communities also influence curriculum design in less formalised ways. University staff regularly draw upon insight from their network of external contacts in determining issues of importance, and incorporate these into their teaching. People with specialist expertise and relevant experience are sought from outside the University to have direct input into classroom teaching and assessment.

Practice-learning, such as through clinical and industry placements and internships, is yet another example of the role of external partners in university teaching. The principal learning objectives of such placements vary. Clinical placements, for example, will include a focus on specialist techniques and professional practice, and will often be assessed. Internships with business or ‘work placements’ with industry or third-sector organisations are likely to focus on the development of employability skills, such as communication, teamwork and interpersonal skills.

4. Graduate attribute development
There is a growing emphasis on ‘graduate attributes’ in higher education. That is, identifying the characteristics that – ideally – define graduates from the institution, and then ensuring that the university experience provides possibilities for all students to develop these attributes.
Table 1. A typology of university knowledge transfer activities

1. **Service to communities**
   - a. Dissemination of specialist knowledge and expertise
      Which may include: public lectures; educational programs for external organisations; publications for general audience (eg books; websites; documentaries); mentoring and tutoring in schools.
   - b. Involvement in public debate, involving contribution of specialist knowledge and expertise
      Which may include: public commentary on topical issues; involvement in government committees; policy-related consultancy.
   - c. Volunteer work with communities, involving contribution of specialist knowledge and expertise
      Which may include: health practitioners working with aid agencies; lawyers involved in pro bono work.
   - d. Improving access to information sources and collections of the University
      Which may include: promoting awareness of cultural collections; improving access to collections through digitisation and related information technologies.
   - e. Raising the profile of issues and/or external organisations
      Which may include: sponsorship, support and the promotion of community causes.

2. **Partnerships in research**
   - a. Draw on external insights and experience
      Which may include: determining research priorities and possible applications of research; involvement in the dissemination and application of new knowledge; contribution of expertise to university-based project.
   - b. Collaborative research
      Which may include: research partnerships with industry, government or external agencies.
   - c. Commercialisation of research and innovation
      Which may include: clinical trials for pharmaceuticals; development and marketing of the products of research; commercial production of performance, such as screenplays.

3. **Partnerships in teaching**
   - a. Draw on community ‘voice’ to identify issues of importance
      Which may include: inclusion of topics, case studies or activities in curricula.
   - b. Draw on input from external expertise and experience
      Which may include: input into curriculum planning; direct involvement in teaching through guest seminars, practical classes or project leadership; assessment of student performance.
   - c. Develop students’ skills, such as discipline or profession-specific skills, or more generic/transferable skills
      Which may include: clinical placement; internships; community-based projects.

4. **Graduate attribute development**
   Development of attitudes and ‘qualities’ valued as ideal attributes of graduates, such as civic and global awareness, and leadership skills
   Which may include: volunteer programs, independent of curricula; placements that involve students interacting with external organisations and individuals, and in situations with which they are unfamiliar (including student exchange); student ambassador and mentoring programmes.

5. **Linking students to potential employment**
   Opportunities for students to experience specific work environments, and to introduce employers to potential recruits
   Which may include: industry placements; internships; mentoring programs.

6. **Raising aspirations for tertiary study**
   Encouraging school students to aspire toward tertiary education
   Which may include: ‘science-in-schools’ programs; university-to-school mentoring.
While some graduate attributes might be directly ‘taught’ within the university curriculum, others are more readily developed through exposure to diverse experiences and situations. For example, in becoming “active global citizens (who) accept social and civic responsibilities” (The University of Melbourne 2007b), students benefit from engagement with the broader community, locally and internationally. It is for this reason that volunteer programs working with community groups, and international student exchanges are gaining prominence in the design of the overall student experience of university.

The development of leadership skills can also be linked to knowledge transfer activities. For example, the University of Melbourne has recently introduced a ‘Student Knowledge Transfer Grants Scheme’. This competitive scheme aims to encourage student-directed initiatives through the provision of funding to support community partnership projects.

5. Linking students to potential employment

Some student internships, placements and projects are explicitly intended to introduce employers to potential recruits. Other industry placements create opportunities for students to experience particular work environments to help them in choosing a career path. For example, several university-to-school peer tutoring programs in Australia provide university students with exposure to the secondary school teaching environment, and participants use this to make decisions about a career in teaching (Harris & Shaw 2006).

6. Raising aspirations for tertiary study

Universities have both a social responsibility and a vested interest in promoting tertiary study. Increasing and broadening participation in higher education is a priority in Australia, particularly among indigenous Australians and other under-represented communities. The establishment of the Academy of Sport, Health and Education (ASHE) in the Goulburn Valley is an example. ASHE is a highly strategic and significant partnership between the University of Melbourne and the local indigenous community that uses sport to encourage “indigenous people to undertake education and training in a culturally-appropriate environment” (no author 2007).

Other programmes aim to enthuse secondary school students in the study of particular disciplines at university, such as the physical sciences and mathematics, in an attempt to address skills shortages and falling interest in these fields of study.

Knowledge transfer as the ‘two-way flow and uptake of ideas’

The importance of ensuring a two-way exchange between universities and the broader communities is emphasised, both in the literature and in the mission statements of institutions. It is not surprising, therefore, that many ‘showcased’ activities involve partnership projects, with recognised information flow to the university. This might imply a hierarchy of activities, favouring reciprocal partnerships and challenging the inclusion of some ‘information giving’ activities, such as public lectures or publications. Indeed, it is on this basis that some writers argue in favour of the expression ‘community engagement’, and stress the importance of community input into projects.

It can be argued, however, that the level of analysis should be the institution or organisational unit, rather than the individual activity. Under this interpretation, the two-way flow and uptake of ideas refers to the sum of activities, and so recognises a far broader range of contributions. It should also be noted that some activities which appear to be primarily unidirectional in terms of information flow – such as the presentation of a public lecture – will almost always influence both parties. In the case of the public lecture, for example, there is the inherent influence on the speaker of reconceptualising the knowledge to ensure its relevance for a public audience. In addition, ‘question time’ and subsequent communication with participants provides a powerful source of feedback and ideas. And even one-way knowledge transfer has the potential to build relationships that might result in subsequent partnership activities.

Few activities now collected under the banner of knowledge transfer are new to universities. Arguably, however, two aspects of the related university context have changed. First, there is a growing awareness of the importance to universities of genuine two-way, mutually-beneficial engagement with external groups. Second, and of particular relevance to teaching, are efforts to ensure that all students benefit from and participate in knowledge transfer.
Figure 1: Sites of knowledge transfer in the university experience of students

Figure 2: Dimensions of student involvement in knowledge transfer activities
Student involvement in knowledge transfer

As noted earlier and in Table 1, there are many examples of student involvement in knowledge transfer activities of all types. Some activities are directly related to course curricula, while others form part of students’ broader university experience. Figure 1 illustrates some of the types of activity that involve students, including the points of intersection with curriculum.

The typology presented in this paper (see Table 1), and the illustration of sites of student involvement in knowledge transfer (Fig. 1) may assist curriculum planners and others seeking to enhance the nexus between knowledge transfer and teaching. It might also be helpful to consider two further dimensions for institutional planning in this area: the degree to which involvement by the student is an institutional requirement, and whether activities involve active contribution by the student (Fig. 2).

For example, an external partnership that informs the curriculum design of a course will influence the learning for all students. It is likely to be ‘invisible’ to students, however, and does not directly involve them in community engagement (quadrant 2 in Fig. 2). ‘Quadrant 4 knowledge transfer’ would include access to voluntary programs and initiatives, such as study abroad or school-based mentoring. Not all students would participate, but those who did would be directly engaging in knowledge transfer with people and communities external to the university. Quadrant 3 would see all students directly involved, perhaps through mandatory practice-based learning or collaborative research projects. Quadrant 3 might be desirable for particular purposes, such as developing students’ employability skills, or for particular courses. In large courses, however, ensuring the direct involvement of all students is likely to be particularly challenging for an institution. Access to hosts for practice-based learning, for example, is becoming increasingly difficult in some areas and requires considerable coordination on the part of the university (Barraket et al, 2008). It is likely that universities will need to make strategic choices about the types of knowledge transfer involvement that might be considered for mandatory participation.

In addition to the categories presented in Table 1, there is also evidence of an underlying move toward the development of students’ ‘knowledge transfer skills’ – skills students will use in the practice of knowledge transfer beyond graduation. These are described as the ability to communicate with diverse audiences, to work collaboratively, and to understand and critically appraise the contexts for their actions, among others. This adds an extra dimension to knowledge transfer, framing knowledge transfer as something that a university not only engages in directly, but that is self-perpetuating through the activities of alumni.

Concluding remarks

Many universities, in Australia and internationally, are seeking to redefine their core activities to better reflect current practice and institutional mission. For publicly-funded institutions – particularly where mission-based funding models are employed – this is imperative (Kellogg Commission, 2000; DEEWR, 2008; Universities Australia, 2008).

Individuals too are wrestling with the concept of knowledge transfer and describing their involvement in it. Increasingly, universities are embedding knowledge transfer in human resources processes, thereby recognising and raising the status of the activity. Staff are encouraged to consider knowledge transfer in relation to their research and their teaching, and to provide evidence of contribution in this area. In addition, those involved in course planning are being challenged to demonstrate relationships between teaching and knowledge transfer, moving activities such as workplace learning and community engagement from the periphery of curriculum design to centre stage.

Whether described as community engagement, third-stream activity or knowledge transfer, more sophisticated conceptual frameworks are required. It is no longer sufficient to simply equate knowledge transfer with commercialisation of research. Universities’ involvement with their communities has long been much broader than this, and the increasing trend toward engaging students in knowledge transfer demands more inclusive typologies.
References


Kerri-Lee Harris is Senior Lecturer in Higher Education, Centre for the Study of Higher Education, The University of Melbourne. Helen Dedman is Executive Manager, Department of Medicine, The University of Melbourne.