ESRC Research Project on *Knowledge Transfer in HE in Scotland*

Working Paper 4

THE IMPLICATIONS OF KT POLICY FOR HIGHER EDUCATION

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This is the fourth Working Paper of the research project on *Knowledge Transfer in HE in Scotland*, funded by the UK Economic and Social Research Council (ESRC).

ABSTRACT

This paper attempts to communicate some recent and continuing work on Knowledge Transfer in Higher Education in Scotland. Knowledge Transfer (KT) has entered the higher education arena in the UK as the 'third sector' of higher education activity-along with research and teaching. Its antecedents lie in the commercialisation and technology transfer of the late 1980s and 90s, and this business-like orientation remains dominant in the KT policy discourse. Earlier research suggests that commercialisation opportunities are also uppermost in the minds of institutional managers and the increasing number of KT directors/officers who are responsible for translating management decisions into School and Department-level practice (Jones 2006 *forthcoming*).

This paper looks at the implementation of KT in HE in Scotland, drawing on data from a survey of researchers. The purpose of the paper is to draw on this research evidence in order to illustrate differences and tensions in approaches to and understanding of KT, and to consider what these differences suggest in relation to the direction of KT policy, and its implications for research in higher education.

KNOWLEDGE TRANSFER IN THE SCOTTISH CONTEXT

Put very briefly, KT constitutes the new 'third sector' or 'third arm' of HEI activity (along with research and teaching):

> *'The term knowledge transfer (KT) is used to describe the ways in which Colleges and Universities use their knowledge, ideas, skills, expertise and assets to bring*

[1] With acknowledgments to Linda Croxford and Delma Byrne for assistance in analysing the data.

benefits to the economy and society in general, whether this is at local, national or international level.' (SHEFC/SFEFC Joint Corporate Plan 2003-2006).

The nature of KT activity has shifted since its development from commercialisation activity, and, at least in the Scottish HE context, it is now entering the social and cultural arenas, as the KT grant supports the dissemination, application and commercialisation of research 'for the wider economic, educational, social, healthcare and cultural benefit of society.' (SHEFC 2001:4). However KT continues to be strongly inflected by policy makers' preoccupations with the new knowledge economy, and this may be particularly powerful in Scotland where knowledge is a key resource for future economic growth: 'the universities allow us to punch way above our weight' (Scottish Enterprise Respondent 1). In the context of the decline of manufacturing and heavy industry, 'knowledge is a key competitive weapon,' (SHEFC/Scottish Enterprise 2002).

Indeed policy-makers interviewed for the study of KT in HEIs in Scotland, whatever their location, connect the specific context of Scotland to the need for attention to KT as a cultural and social resource, along with KT as a contributor to public policy, in their overall assessment of KT and its role in the creation of a KE. This complex interlinking of economic, cultural and social references provides a frame for their discussion of emergent KT policy. Within that generally broad approach to KT there are differences of emphasis: Scottish Enterprise sees KT as part of the internationalisation and globalisation of Scottish business, MSPs see KT as not exclusively about commercialisation or social and cultural policy, but cutting 'right across the board'; the Funding Council identifies policy-related KT as part of universities' contribution to social and civic well-being, but, as we have seen, KT managers prioritise the commercialisation agenda.

A further important finding relating to the policy context is that KT from research is seen as a resource for governing in the SHEFC and Scottish Executive policy texts and interviews: there is a recognised need for 'evidence on the long-term priorities for Scotland; to discuss current work to forecast what will be important issues for Scotland in 20 years' time; and consider how Scottish HEIs can help shape and contribute towards this agenda.'(KTP1 22/04/05). The higher education sector is understood not just as a source of specific expertise, but as being able to 'influence and shape national policy while it is being formulated' (Scottish Executive Respondent 2). In other words, a new relation between governing and research-based expertise is envisioned: expertise moves beyond the task of *policy informing*, and becomes *policy forming* in a more complex form of governing.

However the dominant interpretation of KT is economic and commercial. Knowledge is seen as providing an economic resource. Policy makers and researchers appear to agree with Castells[2] (1996:17) argument that the distinctive feature of contemporary global economic development is 'the action of knowledge on itself as the main source of productivity. In the

[2] Castells, M (1996) **The Rise of the Network Society**, Oxford: Blackwells.

context of research, knowledge becomes *internal* to (ie part of), rather than *external* to and distinct from, the economic process. Knowledge production is brought into close relationship with economic policy, and universities and their research are significant players in this policy frame. The centrality of research to the knowledge economy helps to explain the evidence of enhanced research steering practices across different national settings, including the UK (Ozga, Seddon and Popkewitz 2006). The drive to a knowledge economy/society has produced a range of policy pressures on HE in the UK, including those concerned with improving knowledge mediation or transfer (KT). Ironically, there may be some tension between the policy imperatives to economise or valorise research knowledge, and the optimum conditions for new knowledge production and transfer. Furthermore, knowledge economy policies have prioritised science and technology, and sidelined other forms of knowledge that are not so obviously translatable into economic returns. Yet there are important public 'goods' produced in research outside the techno-economic paradigm, and research-based knowledge about the new production of knowledge is also to be found in these spaces. However, it seems that these possibilities have not been recognised by researchers working in areas outside the techno-economic paradigm. The next section reviews the evidence from researchers.

Research and Knowledge Transfer: a survey of researchers in Scotland

This survey of researchers in the fields of education, health and technology contributed to the wider investigation of the development of knowledge transfer policy, and the ways in which it was being interpreted and implemented at key levels, ie by the Scottish Higher Education Funding Council, knowledge transfer managers in universities, and in this survey by university researchers in the fields of health, education and technology. University websites and other documentation was used to map research activity in the Scottish Universities in these fields, and work that was at the 'applied' end of the spectrum was selected, as being a more fruitful site for the exploration of KT activity.

The questionnaire survey was designed for electronic delivery to researchers in Education, Technology and Health in a representative sample of Scottish HEIs, including pre and post-1992 institutions with a range of knowledge transfer strategies. The survey was shaped by the resources drawn from the growing literature on the nature of knowledge, and on knowledge production for the knowledge economy/society. The key ideas here related to changes in the role and nature of knowledge (for example in the shift from mode 1 to mode 2 knowledge in a new context of reflexivity, in which knowledge, policy and practice and associated repertoires of expertise and scientific procedure are understood as themselves subject to scrutiny and interrogation. Questions were designed that explored researchers' views of knowledge production, to see if they were influenced by these ideas, which have obvious relevance for KT, especially civic or social KT. Internal CES and UoEs seminars were useful in testing our proposed design.

The survey questions explored disciplinary formation and shaping of research, and its effects on researchers' agendas and purposes. It aimed to assess the impacts of external and internal research drivers on research, with the assumption that these different factors would have consequences for attitudes to dissemination/transfer. The six-page survey contained 27 questions, and was divided into three main areas of enquiry: (i) personal/background details including role and status, and funding sources (ii) attitudes to, and views about research, knowledge and knowledge transfer (iii) views about the research field, its characteristics, contribution to society and policy, and capacity for KT. There was also a 'free' section for general comments on research, dissemination and knowledge transfer.

Sample and response

A large data base was constructed, drawn from 14 institutions whose websites revealed research activity in the areas of Health, Education and Technology. These were classified by type as 'Ancient', ie of 14^{th}-16^{th} century origin (4 institutions) 'Old', ie of 18^{th}-19^{th} century origin, and roots in science and technology, (4 institutions) and 'New' ie post-1992 institutions (6). There were 127 research centres containing 1,200 academics distributed across these institutions. Given the time and resources available, we decided to focus on 'applied' research. We constructed a sample of 600 researchers in Education, Health and Technology, evenly distributed across types of institution, and all working in Research Centres or Units that appeared to be engaged in research that explicitly sought to improve policy, practice, or public outcomes so that considerations of audience and wider application were likely to be present. We targeted this large population because we (correctly) anticipated low response rates.

The survey was emailed to all 600 researchers, and follow-up emails and telephone calls elicited a response from 84, of whom 42 were in Education, 21 in Technology and 21 in Health. The low response rate (13%) is indicative of the low levels of recognition of KT among researchers in general; responses were highest from researchers in senior positions (47% of respondents), those with more than ten years experience (60%) and on permanent contracts (64%). Thus the results are not representative of the views of researchers in general, but are biased towards those of established research leaders. It may be that the low response rates from less established researchers indicates a relationship between job insecurity, the need to prioritise applications and project work, and the lack of engagement in or involvement with KT.

In view of the small sample numbers in each research area we cannot place too strong interpretations on the results, and it is not appropriate to break down the sample into further categories. Nevertheless, the researchers who responded to the questionnaire give an interesting picture of their research and dissemination priorities.

Involvement in research

For the majority of respondents to the survey, research was the main activity to which they devoted their time (Table 1). However, there were some differences between researchers in education compared with those in technology and health; more than 50% of respondents in technology and health were devoting more than half their time to research, but a smaller proportion of those in education were doing so. It is likely that respondents who were not full-time researchers were involved in teaching, but we do not have data to confirm this. Teaching may be an important way in which research findings are shared with students.

Table 1: Percentage of time devoted to research by respondents

	Education	Technology	Health	All
	%	%	%	%
Less than 25%	20	18	10	17
26-50%	39	18	19	29
51-75%	10	45	19	21
76-100%	32	18	52	33
N (=100%)	(41)	(22)	(21)	(84)

The research activities in which survey respondents were occupied are summarised in Table 2 according to the average percentage of time devoted to each activity. On average, the most time-consuming activities for respondents to the survey were research project management (19%), reviewing existing literature/knowledge (15%) and writing papers for peer-reviewed journals (14%). On the whole, dissemination of research took up a relatively small proportion of research time (7% overall), but it may be that other research activities such as consultancy are in some ways part of the dissemination process. The small amount of time for dissemination may also be explained in terms of the process of competitive tendering for funded research projects, because there is so much pressure to cut costs that often the empirical data collection and report-writing take all the available resources, and very little time is available for dissemination.

Table 2: Average % of research time taken up by research activities

	Education	Technology	Health	All
	%	%	%	%
Applying For Funding	8	12	16	11
Reviewing existing literature/knowledge	15	15	13	15
Research project management	16	25	19	19
Field or lab work	12	17	7	12
Data analysis	13	6	9	10
Writing for publication in peer-reviewed journals	14	10	16	14
Writing research reports	11	6	8	9
Dissemination	8	4	6	7
Other (mainly consultancy)	7	3	6	5
N of respondents (=100%)	(41)	(22)	(21)	(84)

Research funding

The majority of respondents to the survey (86%) were involved in externally-funded research (Table 3), with many reporting multiple funding sources. Almost two-thirds of respondents received some funding from government, and just under half received funding from a research council. There were significant differences between research areas in the likelihood of receiving funding by charities, business or the European Union (EU): researchers in health were more likely to receive funding from charities, while those researching in technology were more likely to receive some funding from business or the EU.

Table 3: Sources of external research funds (% of respondents)

	Education	Technology	Health	All
	%	%	%	%
Government	68	55	57	62
Research Council	39	59	43	45
Charity*	17	14	62	27
Business*	2	68	33	27
EU*	10	45	14	20
Other (eg local authority)	37	36	19	32
Any External Funding	88	77	90	86
N of respondents (=100%)	(41)	(22)	(21)	(84)

Respondents were asked to estimate the percentage of their research funding received from each funding source, and this gives a slightly different picture (Table 4). On average, respondents in education received a greater proportion of their external research funding from government (49%) than was the case for technology or health. For respondents in technology, research council funding was the largest source of funding on average (31%), while for the health researchers the largest source was charities (31%).

Table 4: Average percentage of research funding obtained from each source

	Education	Technology	Health	All
	%	%	%	%
Government	49	18	29	36
Research Council	27	31	21	26
Charity	2	1	31	9
Business	0	15	9	6
EU	1	15	1	4
Other (eg local authority)	14	17	8	13
N of respondents (=100%)	(41)	(19)	(19)	(79)

Survey respondents were also asked to rank the different funding sources in order of preference, from 1 (highest) to 6 (lowest). The average ranks allocated are shown in Table 5. Research councils rank very highly in all research areas, followed by government. We note that for researchers in the area of technology, funding from business ranks 2nd, alongside that

of research councils, whereas for researchers in education and health the lowest preference is given to funding by business.

Table 5: Preferred source of external funding (mean)

	Education	Technology	Health	All
Government	2nd	3rd	2nd	3rd
Research Council	2nd	2nd	1st	2nd
Charity	3rd	4th	3rd	3rd
Business	5th	2nd	5th	4th
EU	4th	3rd	4th	4th
Other (eg local authority)	4th	5th	5th	5th
N of respondents (=100%)	(41)	(19)	(19)	(79)

MOTIVATION FOR UNDERTAKING RESEARCH

We wanted to find out what motivated people to do research, on the assumption that this would help us to understand their attitudes to knowledge and their orientations towards transferring or sharing knowledge derived from research.. In Table 6 we summarise the reasons that respondents rated to be very important. (They were asked to rate each statement on a scale of 1-4, with 1 as most important. In Table 6 we show the percentage who rated each statement as either 1 or 2, Most important or very important.)

Table 6: Main motivations for undertaking research (%)

	Education	Technology	Health	All
to make a contribution to advancing knowledge in my field	85	95	81	87
to find out about a puzzling issue	80	86	81	82
to produce knowledge that can make a difference to the wider community	80	82	81	81
to provide intellectual stimulation	73	77	81	76
to sustain independent critical thinking in my field	73	73	57	69
to keep my thinking fresh	68	73	62	68
to inform policy development and implementation	80	27	57	61
to build connections and networks with like-minded people	51	55	62	55
to enable my career progression and promotion	44	55	71	54
to develop applications of my ideas	49	77	33	52
to attract additional funding	46	55	57	51
to enhance my reputation in the field	44	55	57	50
to enable theoretical developments	51	41	43	46
to satisfy institutional pressures (RAE)	46	45	38	44
to enable methodological development	46	32	29	38
to keep up to date in my teaching	51	27	14	36
N of respondents (=100%)	(41)	(22)	(21)	(84)

The majority of researchers in all three areas rated very highly the traditional motivations for research "*to make a contribution to advancing knowledge in my field"* and "*to find out about a puzzling issue"*. There is also a very strong motivation related to Knowledge Transfer, with 81% rating highly the desire *"to produce knowledge that can make a difference to the wider community"*.

There are also interesting differences between the disciplines, with 80% of researchers in education motivated by a desire "*to inform policy development and implementation"*, while this is of relatively lower priority among researchers in health and technology. Similarly, rather more respondents from education placed a high priority on research "*to keep up to date in my teaching*" (51%).

In the technology field, three quarters of respondents were strongly motivated by the "*to develop applications of my ideas*". On the other hand, a relatively high proportion of respondents in the health area did research *"to enable my career progression and promotion".*

Respondents were also asked the question: "To what extent do you feel you are able to set your research agenda and methodology?" Their responses are summarised in Table 7. The majority of researchers confirmed that they felt able to set their own research agenda most or all of the time, and this was especially the case for researchers in technology.

Table 7: Percentage felt able to set own research agenda and methodology

	Education	**Technology**	**Health**	**All**
	%	**%**	**%**	**%**
all the time	12	27	10	15
most of the time	54	55	52	54
sometimes	27	18	33	26
hardly ever	7	0	5	5
N (=100%)	(41)	(22)	(21)	(84)

Table 8: In recent years my reasons for conducting research have become more... (% agreed with statement)

	Education	**Technology**	**Health**	**All**
	%	**%**	**%**	**%**
...institutionally-driven (eg to fit strategic planning)	32	50	33	37
...externally-driven (eg by funding conditions)	37	45	57	44
...departmentally-driven	15	23	14	17
...career-driven	17	18	10	15
...intellectually-driven	22	32	19	24
my motivations have not changed	51	32	19	38
other response	17	9	5	12
N of respondents (=100%)	(41)	(22)	(21)	(84)

Further questions asked whether reasons for conducting research had changed in recent years. To some extent responses varied by research area: half of researchers in education replied *"my motivations have not changed"*, whereas in technology half considered it was more

"institutionally-driven", and in health more felt it was more *"externally driven"*. However, in view of small numbers we should not make too much of these differences.

Respondents were asked about the characteristics of their way of working. Responses are summarised in Table 9. In the majority of cases researchers felt they worked as part of a team or a partnership. More than half stated that they provided research leadership.

Table 9: My research work is most accurately characterised as... (% agreed with statement)

	Education	Technology	Health	All
	%	%	%	%
...individual labour	24	36	29	29
...teamwork	78	77	67	75
...research leadership	44	59	62	52
...partnership	66	45	62	60
...other	7	9	0	6
N (=100%)	(41)	(22)	(21)	(84)

Nature of the research field

In order to explore issues relating to the 'boundedness' of these fields, and the extent to which they had strong internal frames or codes of knowledge (Hargreaves 2000), we asked a number of questions about internal rules and procedures in research. It has been argued that tacit or sticky knowledge is characteristic of applied fields like these, and that such knowledge is, as a consequence, very difficult to transfer.

Table 10: Percentage of respondents who replied "yes" to each statement

	Education	Technology	Health	All
	%	%	%	%
Research field characterised by...				
...established rules about research procedures	31	35	59	39
...contested views about research methodologies	78	41	78	69
...implicit views of what counts as good research	79	61	73	73
Research field...				
...strongly bounded	7	13	7	9
...open	93	95	80	91
...pragmatic	85	87	94	88
...a mix of the above	90	73	81	84
Research work characterised by...				
...individual labour	39	44	15	35
...teamwork	88	85	94	89
...research leadership	55	65	77	63
...partnership	70	67	87	73
...other	50	33	50	43
N of respondents (=100%)	(33)	(18)	(15)	(56)

The data above do support the argument that these applied fields have few established and agreed rules, with the exception of health research. The majority of respondents see the field as open and pragmatic, with only a very small minority agreeing that it is strongly bounded.

In looking at the characteristics of research work, we wanted to see if the perception of the nature of the field was echoed in the social organisation of research. The data suggest that teamwork dominates, though there is a relatively high incidence of individual labour in education and technology, but not in health. Research leadership is exercised by the majority of respondents, rather more in health and technology than education. Partnerships dominate in health, but are also indicated by the majority overall.

The next issues that we explored relates to the indicators of quality that are understood and used by researchers. Here again, we felt that these questions would enable us to get a sense of the extent to which quality was seen as internal to the field, or as depending on external take up and application, and this would help in assessing the extent to which quality criteria enabled KT.

Table 11: Qualities of good research in field (Average Rank)

	Education	**Technology**	**Health**	**All**
	%	**%**	**%**	**%**
usefulness	3.0	2.9	2.4	2.8
applicability	3.2	3.1	2.4	3.0
originality	3.3	2.4	3.9	3.2
impact	3.6	3.4	3.5	3.5
imaginativeness	4.2	4.1	5.0	4.4
timeliness	4.5	4.3	4.4	4.4
transferability	5.2	5.2	4.2	4.9
longevity	6.2	6.5	6.4	6.3
N of respondents gave rank	41.0	22.0	19.0	80.0

It is apparent that all researchers rank usefulness highly (low scores indicate importance-the higher the score, the less significance is given to that quality indicator). Originality, applicability and usefulness are all identified as important, as is impact. Imaginativeness, timeliness and transferability have less significance as quality indicators, and longevity does not appear to me of high significance at all. These data suggest that there is a strong focus in these fields on the immediate, original and applicable, and this is hardly surprising, given the applied nature of the research that is being done by respondents. The lack of attention to longevity may suggest that researchers in these fields do not have a sense of the longer term development of their research, and its contribution to building a body of knowledge over time-which could have implications for KT activity. However, the numbers of respondents is small, and this deduction may not be very secure.

A related question on quality criteria explored the source of judgements of quality in the field. The results clearly identify the research community and the funding agencies as highly

significant-with the research community as the most powerful force. Practitioners are more significant than policy makers, and the wider public has no significance to speak of.

Table 12: Who sets criteria for good research in field? (Average Rank)

	Education	Technology	Health	All
	%	%	%	%
the research community	1.8	1.6	1.2	1.6
the funding agencies	2.1	2.3	2.8	2.3
practitioners	3.3	2.5	3.9	3.3
policy-makers	2.8	4.5	3.4	3.3
academic associates	3.6	3.4	3.2	3.5
the wider public	5.2	5.1	5.9	5.4
N of respondents gave rank	37.0	19.0	20	76

However, despite their absence from criteria-setting, it is the community at large whose well-being is seen as most significant, in terms of ranking the research contribution. The top ranking contributions contain categories such as well-being, cultural life and informed civic society, less important, in the average ranking are such considerations as improving policy making, economic growth, strengthening critical capacity and strengthening the research field.

Table 13: Do you think research in your field is contributing to...? (Average Rank)

	Education	Technology	Health	All
... well-being in the community	2.1	3.4	2.9	2.6
... regional economic growth	4.2	2.6	3.0	3.4
... institutional status	2.9	4.3	3.7	3.5
... cultural life in the community	2.9	5.6	3.9	3.7
... informed civic society	3.4	3.6	5.8	3.9
... improving policy making	4.3	4.5	4.4	4.4
... improving professional practice	6.0	2.9	6.3	5.1
... national economic growth	5.4	4.4	7.3	5.6
... improving people's lives	5.1	6.4	7.5	5.9
... strengthening your research field	7.8	3.5	7.3	6.1
... critical capacity in society	8.1	3.7	8.4	6.4
...improving people's experiences/ opportunities	6.3	7.0	8.8	7.0
N of respondents (=100%)	35.0	19.0	17.0	68.0

There are some differences within the subject areas that may be worth noting. For example, technology researchers give greater weight to ‘strengthening the research field’ than do education and health researchers, and they are also, perhaps surprisingly, more inclined to rank ‘improving professional practice’ as a significant contribution. This may indicate that researchers in health and education feel that it is more difficult to make an impact on professional practice, or it may indicate a gap between research and practice.

The nest set of questions explored dissemination practices. We wanted to see if people were aware of, and responsive to, attempts to change dissemination in order to create more active and varied forms of research impact that could support KT, or if the traditional patterns of dissemination were still dominant.

Table 14: Dissemination in Field (% agreed with statement)

	Education	Technology	Health	All
dissemination has shifted in recent years from exclusive focus on publication to more varied processes...	54	36	43	46
dissemination is largely undertaken through publication in peer reviewed journals and is aimed at colleagues in field...	32	59	33	39
dissemination requires that all those involved & those expected to benefit are engaged in planning etc...	29	27	14	25
there is policy pressure to engage in more varied dissemination, but this is a distraction from core task of getting new knowledge into the scientific literature...	2	9	10	6
dissemination is something of an afterthought in the research process…	5	9	5	6
N of respondents (=100%)	(41)	(22)	(21)	(84)

The majority of respondents indicated that they agreed that dissemination processes had changed, and reflected a variety of strategies. Education (54%) and Health (43%) researchers were more in agreement with this statement than were researchers in technology (36%), who were also more inclined to endorse traditional dissemination through peer-reviewed journals and aimed at their colleagues (59%) as against 32% of education researchers, and 33% of health researchers.

A surprisingly high percentage of respondents in Education (29%) and Technology (27%) agreed that dissemination required all those involved in or expected to benefit from the research should be engaged in planning processes: it seems unlikely that this degree of commitment is reflected in research design. It is interesting that Health researchers are less committed to this practice (only 14% agreed with the statement).

The next set of questions asked respondents to indicate the ways in which they did disseminate their research.

Table 15: How do you disseminate your research? % who gave each response

	Education	Technology	Health	All
through academic conferences...	95	100	95	96
through academic publication	93	95	100	95
through workshops for practitioners	83	77	81	81
through teaching/supervision	68	86	76	75
through electronic media...	68	68	43	62
through tailored publications...	68	50	38	56
through institutional publicity...	54	64	43	54
through workshops for policy makers	61	41	48	52
through the media...	34	50	29	37
other	5	9	5	6
through www.scottishresearch.com	0	0	0	0
N of respondents (=100%)	(41)	(22)	(21)	(84)

It is evident that traditional methods are dominant, with academic conferences and publications indicated by 96% and 95% of respondents. A high proportion across all areas also used workshops for practitioners, and a higher proportion in technology (77%) and Health (76%) than in education (68%) disseminated through teaching and supervision. This may reflect the regulated content of teacher education, or it may indicate the dominance of contract research work in education-once again, it is not possible to be very confident about drawing these inferences from the small numbers here.

Non–standard methods of dissemination are minority activities, though education and technology do use electronic media, and educational researchers (61%) are more active than the other fields in providing workshops for policy makers. Media use is low fro education researchers (34%) and for health researchers (29%) but technology researchers make more use of this form (50%). No one is using Scottishresearch.com.

Effective Dissemination

We also explored researchers' views of the most effective forms of dissemination, and provided space for open comments from researchers giving the reasons why they selected particular forms.

In summary form, the main points made in this section of the survey were as follows:

(a) Education

There is a split between respondents who identified traditional academic forms as most effective (7) (these included publication in both academic and practitioner journals, and conferences), and those who signalled the need to tailor dissemination strategies to the audiences involved (32), and who favoured policy and practitioner audiences. There was a discernible tension between the statements that academic dissemination counted in recognition and career terms 'the only way to gain legitimacy in my field' and those that endorsed tailoring of dissemination to meet different audience needs. One respondent

commented that this is a difficult issue: 'No single method achieves all desired dissemination aims. What is needed is a mixed economy of dissemination. There is a tension between the desire to inform policy and practice on the one hand, and the need to respond to institutional pressures'. Only one respondent indicated support for traditional academic dissemination on the grounds that it had 'a longer effect than other methods. There is a need to create resources others can draw on'. Another said that dissemination was effected through teaching, while a further respondent suggested that payment for the research indicated that it would be used 'If people pay for the research they obviously want it done and they will act on it'.

(b) Technology

Researchers here are more committed to traditional academic forms of dissemination, than are their colleagues in education. Not only do they privilege these forms over more varied activities or tailoring to meet different audience needs, they also give reasons for this preference:

> *'Publication in high profile journal (Nature etc)-immediate recognition of high quality by all involved'*
>
> *'Academic publication-top journals crystallise the best of the research in the field'*
>
> *'Academic publication and conferences-most suitable to have work challenged by suitably qualified peers'*
>
> *'International peer-reviewed journals-reaches the global community'*

Of the 22 respondents from technology, only 6 indicate that they tailor research to practitioner or policy audiences, when undertaking dissemination. These respondents are largely engaged in academic dissemination through traditional means, and, unlike their education research colleagues, identify key journals and their capacity to communicate the best research as highly significant forms of dissemination, along with peer engagement at academic conferences.

(c) Health

Health researchers provided responses that are closer to Education than to technology. There is a split between academic dissemination (7) and tailored dissemination (10). One respondent argues that academic dissemination is important and effective because 'it is available to all', while others emphasise the fact that academic journals reach the scientific community and that peer reviewed journals have credibility. Arguments in favour of traditional academic dissemination, though a minority here, are expressed clearly and strongly, and not only as a pressure from the RAE or the institution, though the tension between tailored approaches and the RAE does feature here: 'Websites tend to be more accessible to a wider audience but we tend to be bound by pressures of the RAE and therefore

peer-reviewed journals. Practitioner journals would often be a more useful outlet, but not viewed highly by the RAE process, so this misses'.

Barriers to effective dissemination

(a) Education

Of the 35 comments recorded by researchers in education, 16 identify 'time' as the key barrier to dissemination. Lack of time is connected to a variety of causes-from the tight scheduling of research contracts, to institutional demands on time, to the lack of sufficient time to prepare proposals and manage projects, so that dissemination is squeezed out. This material suggests that barriers to effective dissemination include the conditions of production of research, and may relate to particularly risky and pressured work contexts.

Funding and resource constraints are noted by 10 respondents: here barriers are created by the need to prioritise project applications, and by the lack of funding provided to support active dissemination beyond the life of the project. Problems with the policy audience are identified in 5 comments, which are critical of policy-makers willingness to engage with research, and suggest a degree of 'anti-intellectualism in both the policy and practitioner communities. The RAE also features: it is mentioned as a barrier directly in 3 comments, but is also there by implication, when comments are made about 'reward and recognition mechanisms'.

(b) Technology

From a total of 18 comments, only 4 made by researchers in the technology field relate to time. The barriers to effective dissemination noted in these comments are more varied than those in education. They include lack of trust and anxiety about intellectual property (3), overproduction of poor quality publications (2), the gatekeeping functions of editors of high impact journals (2), need to focus on generating knowledge (1), and absence of interest in, or knowledge about dissemination (3). One comment noted that '(we) need more media attention, but generally, no barriers for dissemination in this field'

(c) Health

A total of 17 comments included 6 that identified time as a major issue: as in education research, this related to pressure to get the next contract, and the time and cost involved in writing for publication. The RAE was identified as discriminating against applied research, encouraging intellectual snobbery, and bolstering traditional views of credible research (4). Other comments related to the problems of translating complex material into information that a lay public could understand (4).

Knowledge Transfer

Finally, the survey asked directly about the use of KT funds to support dissemination.

Table 16: Have you used Knowledge Transfer Funds to support dissemination?

	Education	Technology	Health	All
% yes	8	14	5	9

It is evident that only a small minority of respondents have made use of the KTG.

This question was followed by a section that invited 'free' comment on KT and how it might be enabled. Those who used this section (18) seem to have been researchers with a favourable orientation towards KT, and they argued for the involvement of multiple stakeholders in research, but pointed to major obstacles in relation to funding, education public and professionals, and countering academic snobbery and RAE related elitism. An interesting comment was made about the difficulty of promoting interdisciplinary research and transfer, as mechanisms for supporting such work at institutional level were absent, and the quality of such work had yet to be established, because it was innovative. One technology researcher commented that 'ultimately the thing made by the engineer speaks for itself'.

DISCUSSION

Although there is little evidence of knowledge about KT funding or institutional policy for KT support, the vast majority of the researchers responding to this survey are active disseminators, and the majority are using multiple modes of dissemination, tailored for different audiences, and recognise that dissemination has changed, to embrace workshops and conferences for user groups. A minority indicated that dissemination was now characterised by engagement of all those involved and expected to benefit in planning, conducting, evaluating and reporting research findings. Dissemination is high on researchers' agendas, but it seems that KT is assumed to be a different kind of activity. This is partly a question of terminology, but probably also reflects the gap between research cultures and institutional, entrepreneurial KT cultures. In fact researchers in this study are strongly committed to, and shaped by, public and policy concerns, but this work is not being recorded or recognised as KT.

The relationship between forms of knowledge and capacity to transfer is more difficult to read from the data. There were difficulties in analysing the data, as the questions addressing the nature of knowledge in the field were considered by some respondents to be difficult to answer, and we have missing data (which might also suggest that these are, indeed, areas of weak coding or boundaries). Across the different fields, there is an emphasis on pragmatic research methods, on externally-generated criteria of quality and on practice and policy-oriented outcomes. Researchers do research 'to produce knowledge that can make a difference to the wider community' (63%) and to 'make a contribution to advancing

knowledge in my field' (57%). Perhaps unsurprisingly in these applied fields only 13% do research to enable theoretical developments or methodological developments (8%). Researchers across the fields report a degree of insecurity of status, along with considerable pressure on funding and on time. It is possible that the combination of material conditions of work, and weak disciplinary framing, reduce capacity for reflexivity and thus for consolidating knowledge, and this may affect transfer (including transfer in its traditional RAE-assessed forms). However it could also be argued that these characteristics support new knowledge production-in action, and are conducive to transfer. More in-depth work is needed on this topic.

This research suggests that, if KT in the social, civic and public policy fields is to be encouraged, in line with SHEFC and Scottish Executive policy, then we need to find ways of removing obstacles presented by (a) the pressures lack of time and resource to engage with KT and (b) the lack of recognition of KT within disciplines and institutions. Without addressing these issues, the desire of policy makers for more active and productive translation from research to policy, and as a resource for civic and social life, is unlikely to be realised. Perhaps the policy message has been rather too closely bound to the economic element of the knowledge economy agenda, and is thus failing to reach the 'softer' social sciences.

REFERENCES

Hargreaves, D. (2000) 'The Production, Mediation and Use of Professional Knowledge among Teachers and Doctors: a comparative analysis' in *Knowledge Management in the Learning Society*, Paris: OECD/CERI, OECD publications.

Ozga, J Seddon, T and Popkewitz, T S (eds) (2006) **Research and Policy: steering the knowledge-based economy**, London and New York: Routledge, Taylor and Francis.

Scottish Higher Education Funding Council (SHEFC) (2001) *Knowledge Transfer Grant Circular Letter HE/24/01* (http://www.shefc.ac.uk/library/).