Influences of National Culture on IC Development in Higher Education Institutions

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Abstract

The impact of market relations on Higher Education Institutions (HEIs) worldwide is leading to the commodification of knowledge, with the linking of research output to financial rewards. The literature on HEIs, while acknowledging the importance of research and the managerial changes taking place within the sector, offers little guidance on how research productivity can be maximised. The only guidance available comes from the Knowledge Management and Intellectual Capital Management literatures which emphasise the importance of teamwork. This literature does not, however, discuss the impact national culture might have on the ability of organisations to engage in teamwork.

The study reported here fills the gap through a comparative study of the research process in HEIs in individualistic and collectivist cultures. The study was carried out in two phases involving respectively interviews in an HEI in an individualistic culture (UK) and an email questionnaire to researchers in an individualistic (Australia) and collectivist society (Slovenia). One of the main conclusions arising from the first phase of research was evidence of an absence of teamwork, resulting in feelings of isolation and reduced research output. The second phase found a statistically significant correlation between propensity to engage in teamwork and collectivist culture. It also found teamwork to be strongly correlated with increased research output.

The lessons are drawn for HEIs in an increasingly competitive Tertiary sector.

Keywords: knowledge creation, knowledge management, intellectual capital management, higher education, national culture, individualistic, collectivist.
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Introduction
Intellectual Capital (IC) focuses on building and governing intellectual assets from strategic and enterprise governance perspectives (Marti, 2002) and increased pressure on Higher Education Institutions (HEIs) to improve their IC research outputs has been driven by cut-backs in basic funding to coupled with the introduction of research-linked productivity incentives (Hellstrom and Husted, 2004). These drivers, bringing market relations into Higher Education Institutions (HEIs) (Shore and Selwyn, 1998), have resulted in a commodification of education and knowledge (Willmott, 1995), with knowledge traded for financial rewards (Meek, 2003). The overall driver may be the realisation that knowledge as a production factor overwhelmingly surpasses physical assets, and is “the main source of future wealth, prosperity and growth” (Marti, 2003).

Commentators are united on the importance of enhancing research output in the Higher Education Sector, describing the management of IC and knowledge-based research organisations as having “huge potential” (Leitner and Warden, 2004) and being “crucial” for the performance of universities and research organisations (Leitner, 2004). Much of the history of IC spans only a decade (Bontis, 2004a) so it is not surprising that issues relating to IC in universities have only recently attracted attention (Leitner, 2004). In this short time, the issue of IC in HEIs has turned on reporting issues (Leitner and Warden, 2004) the IC knowledge base (Castellanos et al, 2004) and the importance of institutional and organisational factors on IC output (Hollingsworth and Hollingsworth, 2000). Still overlooked, is the issue of the management of IC in HEIs with “hardly any experiences reported for HEI” (Leitner and Warden, 2004).

If the factors influencing IC in HEIs have been neglected, so too has the influence of national culture on HEIs. This, again, is not that surprising. The “national view” of IC is still “in its infancy” (Bontis, 2004a), is focused on the western world (Bontis, 2004b) and is divided into work which, on the one hand, benchmarks the IC activities of different countries and on the other hand, work which charts the influence of national culture on successive stages of the IC process. These studies rely on one of two models, these being a “process-orientated” model in which the inputs (resources and competences) are engaged in a transformation process involving the networking and motivating of people that abuts in outputs (Bonfour, 2003; Leitner and Warden, 2004) and a “structure-orientated” model which distinguishes between four main foci. These are financial, process and human capital, which one might see as broadly equivalent to the input stage, but overlapping into the transformation stage, and market and
renewal capital, overlapping with the output stage but feeding back into inputs (Edvinsson and Malone, 1997; Marti, 2003; Bontis, 2004a and 2004b).

The research examining IC benchmarking across a range of countries, whether western countries (Bonfour, 2003), Arab countries (Bontis, 2004a) or in single countries such as Sweden (Rembe, 1999), Israel (Pasher, 1999) and Egypt (Bontis, 2004b), tends to be conducted within the process-oriented tradition. By contrast, the research examining single points in the IC cycle, for example Lynn’s research (1999) focusing on the propensity of firms to report IC (this appears to be the “output” stage) or Chaminade’s research (2002) examining the influence of national culture on the prioritising and management of IC, is conducted within the structure-oriented tradition. This research has produced disparate findings, for example that Sweden is better at IC reporting than North America (Lynn, 1999), that Sweden is more adept at prioritising IC than Spain (Chaminade, 2002) and that there is no difference in IC reporting between Spain and Sweden (Chaminade, 2002). These studies appear to be focused on the input and output stages of the IC process, with the second, transformation stage, largely ignored. Chaminade makes a suggestion that Sweden, as a more feminine country may have more of the nurturing conditions necessary for the emergence of IC, and that Spain, as a more masculine culture, may need to educate people on the importance of co-operation and knowledge sharing. However, the transformation process followed in these two countries is otherwise ignored.

In the work reported here the focus will be the second stage of the transformation process turning on the transformation of Human Capital. The focus on Human Capital is motivated by the view that "Human Capital is the pre-eminent antecedent for the intellectual wealth of a nation" (Bontis, 2004a). Human Capital is defined as including teamwork skills (OECD, 2001): we are reporting an exploratory study to discern the extent to which national culture may influence the transformation process in HEIs, encouraging a greater or lesser emphasis on teamwork, and in the process also investigating the impact on research productivity. The research questions are represented in Figure 1:
Further justification for the focus on HEIs, teamwork, and the influence of national culture is provided below.

**Place of IC within HEIs**

As indicated above, cut-backs in basic funding, as well as the introduction of new and rather bureaucratic reporting measures from governments, has led to increased pressures on HEIs to develop IC. In the UK, this has produced the Research Assessment Exercise (RAE) and in Australia the Research Quantum (RQ), both of which apply quantitative performance indicators to research activities. The result is a research productivity index which is used by Government distribute insufficient and decreasing (in real terms) research funding. As our questionnaire respondents indicated (see later), similar schemes apply in Slovenian Universities where an academic’s research performance can determine whether they remain in a research post or not.

In the UK, this pressurised research environment has led to significant structural change (Thomas, 2001), producing work intensification (Ogbonna and Harris, 2004), elevated stress levels, “widespread discontent and dissatisfaction” and a lack of team spirit and teamwork (ibid). Examples of this, obtained in a survey of 60 academics (Ogbonna and Harris, 2004), are the remarks of an academic in a new university contrasting the collegial atmosphere of the past (“years ago”) with the individualistic culture (“everyone is out for themselves”) of the present. A second academic, this time from an old university, reporting on the lack of team spirit and the fact that “people [are] only interested in themselves”, describes how he has not spoken to the occupant of the next office for six months.
A similar picture emerges from other UK-based research. One study focusing on the experience of new faculty in the UK (Luce and Murray, 1997-8) sees it as typified by a sense of isolation, heavy workloads, and a lack of support from senior colleagues. A further study (Lewis, 1999) on bullying in HE, indicates that 18% of the 1,800 academics surveyed have experienced bullying themselves and 25% have witnessed it happening to others. The incidence of bullying in HEIs was said, by respondents, to exceed the incidence of sex discrimination. A third study, funded by the Department for Education and Employment (Davies, 2002), examined fifteen HEIs and reported staff in those institutions as experiencing a style of management that offered little in the way of performance-based management systems, little or no encouragement, poor communication and lack of recognition for staff. Managers and supervisors were said to receive little targeted and structured training, leaving the managed to “develop their own models of behaviour to survive, cope and be successful in the workplace” (ibid).

Research conducted by two of the authors (Hersh and Moss, 2003) focused on issues relating to inter-disciplinary research. Questionnaires, completed by HE researchers working in the area of assistive technology (group 1) and visiting a Feminist Theory and Research web site (group 2), provided information on the extent to which human factors affected research effectiveness. In the first group (where 75% of the respondents were male), 30% of respondents experienced obstacles to their research and the majority (90%) of these respondents reported occasional or regular feelings of isolation. In the second group, two thirds of whom were female, isolation and obstacles and obstruction from colleagues emerged as problems for the majority of respondents. Being undermined as a researcher was a problem affecting a significant minority of respondents, with nearly 30% reporting this as a regular occurrence and 15% reporting this as an occasional event. These surveys highlight the problematic nature of isolation and individualistic work patterns, and its detrimental impact on IC.

Elsewhere, in a research study in Finland on the student research environment, a model of research is presented in which high external pressures are alleged to produce a “degenerative” research climate (Chiang, 2004). Given the market pressures exerted on many HEIs today (Shore and Selwyn, 1998), the logical effect of this model on an HEI sector experiencing high external pressures would be to produce uniformly degenerative research cultures. Unfortunately, although the author refers to an “individualism / teamwork” continuum, she does not explore its practical impact on the transformation process and through that, research output. It appears that early calls for greater investigation of academic labour processes (Oshagbemi, 1996) have been neglected, possibly on account of the view that “management practices do not act directly as drivers of intellectual capital” (Castellanos et al, 2004). This view appears to contradict the OECD view that intellectual wealth resides, inter alia, in teamwork and communication skills, elements in a management system (2001). It also appears to contradict the results of research illustrating the impact of rational
culture (Moss and Vinten, 2001) and social factors (Hersh and Moss, 2003) on the transformation process and through that, research output.

The lack of research theorising the influence of national culture on the transformation process in HEIs (Castellanos et al, 2004) is of concern given the importance of IC in the HEI sector. In Australia, for example, the proportion of the country’s research expenditure occurring in the HE sector has increased from 25.5% in 1990 to 29.4% in 1998-9, while in the European Union, universities performed 20.4% of their nations’ research effort (Meek, 2003). Given the centrality of research effort in HEIs today, it is critical to gain a better understanding of the factors that are likely to influence its success. The literature on IC and Knowledge Management (KM) will be reviewed for the guidance it offers on maximising IC output.

ICM and KM beyond HEIs
According to the OECD (1996), “knowledge is now recognised as the driver of productivity and economic growth” and this gives Knowledge creation (KC), KM and IC a vital place in economic performance. IC and KM describe the processes used to maximise knowledge creation, and many commentators have emphasised their criticality in market survival (Nahapiet and Ghoshal, 1998; Thurow, 1999; Simpson, 2002). The link with market profitability is considered as proven (Nahapiet and Ghoshal, 1998; Thurow, 1999; Simpson, 2002; Adams et al, 2003; Janz et al, 2003) leading Lee and Choi, authors of a review of the factors influencing KC and KM, to state that today “the question is not whether to manage knowledge, but how to manage it” (2003, p.180).

At the level of terminology, KC is primarily concern with generation of new knowledge while KM aims to organise “the availability and use of existing knowledge” (Bajaria, 2000). The three terms of KC, KM and IC are used to describe the steps involved in progressing from tacit (KC), to explicit knowledge (KM), to knowledge which involves an added-value dimension (IC). These terms may overlap, a fact recognised by the concession that “all knowledge has tacit components” insofar as tacit knowledge is possessed by people and cannot easily (if at all) be made explicit in a codifiable form (Leonard and Sensiper, 1998). This view is a product of the notion that “knowledge is a resource locked in the human mind” (Kim and Mauborgne, 1998) and it is the personal nature of tacit knowledge that has led commentators to suggest that KC requires a willingness on the part of those workers who possess it to share and communicate it (Kim and Mauborgne, 1998; Flood et al, 2001). This, in turn, has led to the view that organisations may only secure and leverage knowledge if employees cooperate in this goal (Jackson et al, 2003). As a result, it is recognised that sustainable competitive advantage can only come from resources that are rare, valuable and difficult to imitate, and that these resources are often the intangibles of human or social capital (ibid.).
It is accepted by several commentators that scarce knowledge and expertise cannot be accumulated at the top of the company but are embedded in the relationships of work groups, leading to an emphasis on the importance of Human Capital (Cross, 2001; Bartlett and Ghoshal, 2002). Thus Allen (1984) estimates that engineers and scientists are approximately five times more likely to turn to a person for information than to an impersonal source such as a database or a filing cabinet while Bartlett and Ghoshal (2001) postulate that a significant component of a person’s information environment consists of the relationships he or she can tap for various informational needs. This is in line with the finding that managers are more likely to obtain information from other people than from personal computer archives, the Internet or the organisation’s knowledge or database (Cross et al, 2001). It is clear that relationships are a key element in obtaining information and problem solving (ibid), and therefore key in the transformation process.

Also clear is the importance of teamwork, cooperation and collaboration, rather than competition, in the transformation process (Collins and Porras, 1994; Moore, 1996; Sveiby et al, 2002). A detailed model has been provided by Nonaka and Konno (1998) who envisage a four stage process, moving from tacit to explicit knowledge, involving socialization, externalization, combination and internalization. The importance of socialization, face-to-face relationships, cooperative interactions and team orientation in the development of Intellectual Capital is emphasised by Janz et al (2003 p.354-356) and has led to the realisation of the importance of an association between intellectual and social capital development (ibid. and (Jackson et al, 2003). The centrality of teamwork to knowledge creation is made explicit by Senge (1999) who describes teams, not individuals, as the fundamental learning unit in modern organisations.

Much discussion focuses on the conditions that facilitate team learning and, through that, KM. Cross (2001) identifies four factors that distinguish effective knowledge-centred relationships, ‘safety in the relationship’ being one of them. Storey and Quintas emphasise the sharing of knowledge (2001) while the issue of trust or “safety in the relationship” (Cross, 2001) is further explored by Abrams et al (2003) who empirically review the behaviours and practices that allow relations based on trust to flourish and have a positive influence on KC. They distinguish between two kinds of trust, namely trust in one’s own competence and trust based on benevolence. They propose factors that would assist in the development of trust, including personal connections, frequent, rich and collaborative communication, and a shared vision and language.

Interestingly, the literature makes it clear that the influences on IC can operate at both the organisational and individual levels. At the first level, are factors relating to an organisation’s culture (De Long et al, 2000; Hollingsworth and Hollingsworth, 2000; Janz et al, 2003 p.353). Janz et al conclude that “organisational culture is believed to be the most significant input to effective knowledge management and organisational learning”. This leads them to
suggest that the highest levels of competitiveness can only be achieved thorough enhancing the knowledge-centred culture of the organisation. At the individual level, French and Vince (1999) describe the way emotions such as anxiety and defensiveness and avoidance behaviours can block learning and change. Significantly, as indicated earlier, there have been no studies examining the evidence of the impact of national culture on the transformation process, and through that, IC output.

**The research problem**

Explaining the immense variation in the productivity of academics is a major objective in the sociology of science (Long, 1992). However, the impact of national culture on the transformation process, and through that IC output, has, as seen earlier, been ignored in both the IC and HEI literatures. The research described here is exploratory in nature, and a first attempt at addressing this gap. A grounded theory approach was used (Glaser and Strauss, 1999), with a first stage of qualitative research based on interviews followed by data gathering through questionnaires.

Earlier research by two of the authors had revealed high levels of isolation amongst academics (Hersh and Moss, 1991) and an apparently negative effect on IC output. Such a negative effect would be in line with the findings in the KM literature which associates high levels of IC output with low levels of isolation, and high levels of teamwork. Interviews were carried out with academics in the UK in order to establish the extent of their isolation, and the factors that might have a bearing on this. The results showed high levels of isolation, little reference to teamwork, and suggestions that these factors impeded IC. Where respondents denied experiences of isolation, reference was made to teamwork and enhanced productivity.

These results led the authors to posit that isolation might be linked to the individualistic and masculine nature of the national culture, and that a greater sense of teamwork, and consequent increased IC output, might emerge from a more collectivist and more feminine culture. A questionnaire was therefore sent to academics in countries at extreme ends of the individualism / collectivism and masculine and feminine spectrum, asking about the incidence of individual or group-based IC research, and also asking about IC output. This second phase had a quantitative element, in line with grounded theory (Glaser and Strauss, 1999). The rationale for selecting Australia and Slovenia is described in the next section.

**Individualism / collectivism**

National culture is understood as the “shared attitudes, values and understandings in a society which are shaped by common experiences, and result in collective mental programmes” (Clark, Ebster-Grosz et al. 1997). Individualism is defined in Hofstede as the degree to which people in a culture prefer to act as individuals rather than as members of groups (Hofstede 1980). It
is predicted that collectivism would have an influence on the propensity of academics to engage in team-based research activities (‘referred to in the present article as ‘team research’) advocated in the general ICM and KM literature (Collins and Porras, 1994; Moore, 1996; Nonaka and Konno, 1998; Senge, 1999; Janz et al, 2003; Jackson et al, 2003) as contrasted with a greater incidence of non-team work (‘solo-research work’) in an individualistic national culture.

Australia is reported to be a highly individualistic culture (Hofstede, 1980; 2001; Trompenaars, 1993) while Slovenia is described as highly collectivist (Globokar, 1996; Hofstede, 1980; 2001). The collectivist nature of Slovenian society was confirmed in a contemporary study (Globokar, 1996) describing Slovenia as a country whose values are rooted in “mutual assistance” and the “collective exchange of skills and work”.

Methodology

i. Interviews

A series of semi-structured interviews were conducted with fifteen academic staff in a University in the UK. The participants were randomly selected from four separate faculties, with equal numbers of males and females, and equal numbers of junior and senior members of staff chosen. A semi-structured interview format was employed (Coolican, 1999) on the basis that a small number of structured questions would ensure coverage of a wide territory. The interviews lasted an average of thirty minutes during which the respondents were asked a number of pre-arranged, mostly closed questions. These focused on the experience of isolation, whether it was positive or negative, and the putative causes, whether structural or psychological.

Non-obtrusive interviewing measures were used to minimise the participants’ awareness that they were involved in the research process (Haslam and McGarty, 1998) and, as part of this, participants were encouraged at the end of the interview, to express their views on related topics. This made the conversation informal and relaxed for the interviewee (Coolican, 1999). The establishment of rapport with the respondents was an essential part of the interview, and the interviewers did this by emphasising the anonymity and confidentiality of responses. (Participants were also given the opportunity to withdraw from participation, in line with ethical practice, but no one, in fact, did so). The authors decided not to use a recording device due to the possibility of it inhibiting the free expression of views (Coolican, 1999), particularly on sensitive subjects (Denscombe 1998).

The interviews were carried out by two researchers with one focused on asking the questions, and the other on taking notes. At the end of the interview, the researchers spent about an hour discussing the notes and the impressions gained. The method is regarded as one that produces an accurate record “as long as notes can be written up immediately, or very soon after the interview
ends’ (Bell, 2001 p.140). The notes also act as a form of permanent record (Denscombe, 1998).

ii. Questionnaire
In accordance with grounded theory (Glaser and Strauss, 1999) an initial phase of research (the interviews) was followed up by a quantitative phase to test emerging theory. Accordingly, a questionnaire, based on the issues arising from the interviews in the UK, was randomly distributed to academics in Australia and Slovenia.

Initially the questionnaire were sent to approximately 200 people across the two universities in Slovenia at Ljubljana and Maribor, as well as in research institutes there. Australia has a number of universities, so a subjective judgement was used as to which were likely to have high percentages of staff involved in research and 200 people were then contacted. Subsequently, a further 4 sets of about 125 e-mails were dispatched to additional staff in the same institutions. In both countries, social science and humanities departments were judged the most likely to respond, a further factor was whether the department or faculty web pages contained a list of staff including their emails. Biographical information or job titles, where available, were used to determine whether a member of staff was research active.

Out of about 900 questionnaires sent out, responses were received from 34 Australian and 31 Slovenian academics, distributed as shown in Table 1:

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Table 1: Responses to the e-mail survey

Many authors have reported low response rates to email surveys and the response rate of 7.2% achieved in this case was slightly higher than the 1% to 6% normally obtained in e-mail surveys (Kent and Brandal, 2003). It is suggested that the slightly higher than normal response rate may be due to the higher than average use of email by academics. It can also be seen that there is evenness in the split for both grouping variables; gender and country of origin. An initial analysis showed that there were no outliers, but that the data was not parametric. Consequently it was decided to use a non-parametric test to seek out any significance which might exist within the data set. The Mann-Whitney test was used to measure the significance of responses between samples. Content analysis, as a way of combining both quantitative and qualitative methods, was used to reveal the importance of certain concepts (Riley et al, 2000) and put the quantitative data into context.
Frequency of publication is generally used as a measure of output and academic success (Long, 1992). Therefore respondents were asked to indicate their research output over the previous three years, with details as to numbers of refereed journal articles, books and conference papers. It is recognised that this a quantitative rather than qualitative measure of research output but there are problematic elements to obtaining qualitative measures. Thus, widely used indicators of the rank order or prestige of the journal or other publication and citation statistics both have their drawbacks. In particular, the popularity of an area of research, whether the particular research topic is considered mainstream within the research area as well as factors relating to the identity of the researcher can have a significant influence on which journals the work is published in, as well as frequency of citation. It is also recognised that output quantity may vary through a researcher’s working life and that three years is a relatively short period to take account of this variation and the long time delays before publication in some journals. On the other hand, there was a concern that if respondents had been asked to give publication details for a longer period, researchers might have needed to refer to a publication list, and this might have deterred them from completing the questionnaire. There are also difficulties in comparing different types of output, such as books and journal papers. Therefore, though we quote the data on research output, we are aware that it has to be interpreted with a degree of caution.

Results

i. Interviews

*Incidence of isolation*
Respondents were asked whether they had experienced isolation at work (a standard definition was used for all respondents). Two thirds of respondents admitted to feelings of isolation, with only 33% not experiencing such feelings. Gender and level of seniority are not factors in this.

*The experience of isolation*
Where respondents indicated feeling isolated, they were asked whether the experience was perceived as positive or negative. Only one respondent experienced this isolation in a positive way and this was linked, in the respondent’s mind, to an independent personality.

Respondents were asked to describe the experience of isolation. Answers covered a range of feelings. One fear was that one might progress down a route only to find, in later discussions, that it had been a waste of time. That frequently led to stress and demotivation with many respondents declaring that isolation made it difficult to switch off from work. Given this, the role of supervisors and colleagues at work was perceived as critical (it was hoped that they would function as catalysts and motivators) and interaction with others was perceived as throwing up ideas and opportunities for research. In the absence of this, it was feared that researchers might see no purpose in what they are doing and give up.
A commonly expressed view was that as a result of isolation, people would “spiral down into depression” and either produce sub-optimally or “stop giving 110%”. This could have a direct impact on private as well as working life. As one of the respondents said – “once seeds of doubt are sown, you can convince yourself that it is not going well”. Again, according to another, “if nobody tells you that you are doing the right work, you may persuade yourself that you are doing something wrong although everything may be OK”. From that point, it is very easy to lose commitment to work and to the institution, or even have thoughts about leaving a workplace. For a person whose self-identification comes from her/his work-based relationships, the experience of isolation could be devastating and lead to health problems. The problems created by isolation were perceived as particularly acute when the research was going badly – feelings accompanying those situations were frequently described graphically as “beating your head against brick wall”. In that case, it would be easy to become depressed.

Depression of this kind was perceived as affecting private as well as working life. One person commented: “I don’t know where it leads further, we haven’t had any murders yet, but I can imagine people leaving”. For someone whose self-identification came from their work-based relationships, the experience of isolation was perceived as “death-giving”. The isolation produced a feeling that management didn’t care about staff. “We all hate them – it’s like the French Revolution”. Someone said they couldn’t do anything about the culture of bullying “because if they did their career would be finished”. This led to the view that “people are frightened to express their views”.

A respondent from a different school referred to an apparently positive and supportive culture. “My office is like a house-party” and colleagues are perceived as “close, supportive and helpful. This definitely helps with the workload”.

Causes of isolation
Generally the causes of isolation that emerged from the interviews could be classified into two factors, structural and psychological. Structural aspects were defined in this research as including physical elements of the working environment (e.g. absence of common room) as well as elements in the working environment relating to hierarchy, structure and formalised policies and behaviours at work. Psychological factors were understood to exist both at the macro level (as reflected in the culture of the organisation) and at the micro level (as reflected in the psychology of individuals).

Structural factors
Eleven out of fifteen people declared structural factors to have a very important or important role in the negative feelings of isolation that they experienced during the research process. Of these, all cited the absence of a common room as a
factor. A shared space where employees could meet, sometimes accidentally, was frequently described as a place where ideas might spontaneously come into being. Where such meetings did take place, for example over a morning cup of tea, the conversation might end with a declaration like “let’s do a paper on it”. As one of the respondents noted, contacts between teaching and research staff would be beneficial for both groups. People would be given a greater opportunity to learn about their work, find common interests and create new working relationships that could result in better group work. Many interviewees argued that they go out for a lunch break with people they already know, but that a common room could encourage a “drop-in aspect” with existing acquaintances renewing contact, as well as new contacts being formed.

Another factor in people’s perception of isolation was the separation of the institution into schools or faculties. It was reported that higher quality research output, with important benefits to society, could only come from contacts between researchers with different specialisations. These contacts were perceived as needing to be informal rather than formal and centrally managed. One of the respondents, with many years of experience in research and the management of research, suggested that KC and KM management should be organised in multidisciplinary research centres with links to many schools, faculties, and private and public organisations.

Some of the respondents also described as problematic the fact that they might be faced with teaching and research duties with ill-defined expectations in those two areas. That situation produced conflicts between those primarily engaged in one or other of these activities. One of the respondents blamed HE institutions of being not focused enough on its primary role – teaching – and stated that “there is more consistency in private sector”. It was thought that universities should be more precise in defining the roles of teaching and research in their activities, and present clear expectations to their academic employees.

Some of the respondents cited the gender imbalance in the workforce as a factor in isolation. “As a woman, you feel very isolated within the University. The University does not embrace differences”. Issues around age were also mentioned. One respondent expressed the view that a number of colleagues, male and female, were isolated because they are “old” and seen as of the old school.

Meetings were perceived as one way of minimising isolation caused by structural features. It was mentioned that “it’s difficult to be a team if people do different things, but meetings are good as a support”. Frequent meetings and discussions not only enhance communication, but above all create feelings of teamwork, minimise isolation, facilitate knowledge exchange and creation, and offer support to less experienced.

*Psychological factors*
The psychological factors leading to isolation were rated as very significant or significant by just over half of the respondents. Moreover, there were twice as many comments concerning the effects of psychological factors on isolation as the effects of structural factors. This suggests that respondents were more likely to perceive a link between psychological factors and isolation at work. Personality was perceived as causing or breaking feelings of isolation – “the right personalities can prevent isolation”.

It was apparent that psychological support from colleagues and co-workers was perceived as critical to preventing feelings of isolation, and through that, promoting KC and KM. It was argued by one of the respondent that “we give more support to research students than to fellow academics”. That opinion was followed by the suggestion that a formal mechanism of support should be implemented that mimicked working relationships between students and their supervisors. One respondent was of the view that some element of isolation might be “part of the process”, however good the supervision and support from line managers, but colleagues and co-workers were seen as having a role in maintaining psychological balance and preventing feelings of isolation at work.

Controversially, one of the respondents argued that “isolation is not a psychological problem – people are just busy”. Although that argument was not mentioned by other respondents, the frequent emphasise on uncontrollable and overloaded timetables might play a part in creation of feelings of isolation. Overcoming this barrier to teamwork would require HEIs to be given significant extra resources, including staff, in order to reduce workloads to more manageable levels.

ii. Questionnaires
As indicated earlier, the questionnaire had a mixture of quantitative and qualitative questions (‘closed’ and ‘open’ questions), which were analysed using non-parametric statistics and content analysis respectively.

a) Closed questions.
The questionnaires revealed that significantly more Slovenian academics work with several colleagues or as part of a research team than Australian academics do (p<0.05) and in terms of research output (journal articles, conference papers and books) are significantly more productive than Australians (p<0.001). They also revealed a positive correlation between working with one or more colleagues and increased research output (p<0.05).

These findings are in line with the hypotheses driving this work, namely that collaborative work would be associated with increased IC output, and that it would be more prevalent in a collectivist / feminine country than an individualistic / masculine one. Analysis of the questionnaire results also reveals that, almost half the Australian sample (46%) indicate a preference for working on their own, a result that compares with 0% of Slovenians. Of those respondents, across the
whole sample, who conduct research on their own, one third (37%) admit to feeling isolated. This figure contrasts with those working in groups where only 9% admit to feelings of isolation.

b) Open questions.
The qualitative responses threw further light on attitudes to solo-research as compared to team-research. Only 23% of Australians presented advantages for team-research, compared with 95% of Slovenians. Here are some of the Australian responses from those defending solo-research:

i. Australians

“Partly it is a temperament thing. Working with students and in admin, research time for me is welcome time away from other people, treasured as much for what it is as what it produces”

“Ideally I would like to do the research myself, but this simply isn’t possible all the time anymore with teaching / admin and community commitments. So, where funded, I work with Research Assistants, which I enjoy very much”.

“I do some of the most profound work when I am working on my own”

“As an archaeologist I always work with a team in the field and lab. At the same time I think of myself as mostly working alone, insofar as I organize, secure funding for and direct most of the projects I am involved with. Sometimes I work absolutely alone as well, writing more conceptual/theoretical stuff”.

Reasons are offered for this preference for solo-research work:

“I find research teams are too restrictive and not necessarily representative of or engaged with my research interests”

“I like working on my own within a virtual research group because I have the advantages of both flexibility, independence and collegiality”.

“Much of my work is too specialised to be shared “

“Typically I work on my own in a small department – I find it difficult to get support or invitations to work in a team”.

None of the Slovenian respondents who offered an opinion (a total of 22) defended a preference for solo-research work.

With regards to team-research, the arguments of both the Australian and Slovenian respondents fell into four main categories, with the Slovenian respondents presenting arguments in all four categories and the Australians in only three of them. The percentages of Australian and Slovenian respondents giving responses in each of the four categories was different from each other, as shown in Tables I and II respectively.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Australian: % citing this factor</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased opportunities for discussion</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Construct</td>
<td>Slovenian: % citing this factor</td>
<td>Examples</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Improved knowledge / information</td>
<td>29%</td>
<td>“Different skills”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Ability to share ideas”</td>
</tr>
<tr>
<td>Improved motivation</td>
<td>29%</td>
<td>“More enjoyable with someone else who can take half the responsibility”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“My work is interdisciplinary”</td>
</tr>
<tr>
<td>Greater efficiency</td>
<td>43%</td>
<td>“Pleased to see how many outcomes group-research has generated for others as well as myself”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Quicker”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Two heads better than one”</td>
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</tbody>
</table>

Table II: % of Australians citing certain constructs as important in team research

<table>
<thead>
<tr>
<th>Construct</th>
<th>Slovenian: % citing this factor</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased opportunities for discussion</td>
<td>20%</td>
<td>“Discussion is crucial for me therefore I like to work with a colleague. The institution of mine is small and I do not have colleagues with similar interests. That is why I try to stay in touch with colleagues from other institutions”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Non-stop brainstorming”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“share experiences”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“like to communicate and share my experiences and knowledge with others”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>better discussion</td>
</tr>
<tr>
<td>Improved knowledge / information</td>
<td>45%</td>
<td>“Compare different solutions”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Specialised knowledge”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Exchange of information”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Diversification of knowledge”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“…different skills and knowledge could be applied”</td>
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<tr>
<td></td>
<td></td>
<td>“Exchange opinions”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Exchange of ideas”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Different views, thinking, capabilities ….. “</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Better results”</td>
</tr>
<tr>
<td>Improved motivation</td>
<td>25%</td>
<td>“I enjoy working with other people”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“mutual motivation”</td>
</tr>
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<td></td>
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<td>“stimulating environment”</td>
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<td></td>
<td></td>
<td>“shouldering the responsibility”</td>
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<tr>
<td></td>
<td></td>
<td>“Feel a useful member of the group”</td>
</tr>
<tr>
<td>Greater efficiency</td>
<td>10%</td>
<td>“division of labour (work), fast search for solutions “</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“sharing the workload”</td>
</tr>
</tbody>
</table>

Table III: % of Slovenians citing certain constructs as important in team research

The cross-national differences in responses are shown below (see Table IV):
Some important findings have emerged from an analysis of the interview and questionnaire data. The initial interview data revealed that two thirds of a random sample of UK academics suffer feelings of isolation, which can have a negative effect on IC research. The causes of isolation are seen as rooted in structural and psychological factors. Men and women appear to be equally affected but the isolation could, according to one respondent, be felt particularly acutely by women. “As a woman, you feel very isolated within the University. The University does not embrace differences”. Isolation in a university setting can be experienced acutely, and this parallels the evidence that already exists on the debilitating effect of isolation on personal life (Murphy and Kupshik, 1992).

Teamwork was perceived as something that could repair the sense of isolation in these interviews. Since these interviews were conducted in an individualistic/masculine culture, it was posited that lower levels of isolation, greater teamwork, and greater consequent research productivity might be experienced in a collectivist/feminine culture. In order to test this, questionnaires were distributed to academics in Australia and Slovenia, countries at the extreme ends of individualism/masculinity and collectivism/femininity respectively. In line with expectations, the quantitative results revealed significantly higher levels of teamwork in Slovenia, and a significant correlation between teamwork in the transformational process and elevated IC research output. This confirms the findings of an extensive literature confirming that IC and KM is fostered through a transformation process centred on teamwork.

Where the qualitative findings are concerned, responses on the contribution to the transformation process made by teamwork indicate a strong focus in Australia on the benefits of increased output as compared with a strong focus in

<table>
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<tr>
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<th>Australian: % citing this factor</th>
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<tbody>
<tr>
<td>Increased opportunities for discussion</td>
<td>0%</td>
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</tr>
<tr>
<td>Greater efficiency</td>
<td>43%</td>
<td>10%</td>
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</tbody>
</table>

Table IV: Summary of reasons given for team-working

Discussion
Slovenia on increased knowledge and discussion. The importance in Slovenia placed on discussion could be interpreted as an emphasis on a relational activity.

It is apparent from these interviews and the literature review that the influence of national culture on the IC transformation process has been played down in both the IC and HEI literatures. As a consequence, the point posed by Lee and Choi still stands: “the question is not whether to manage knowledge, but how to manage it” (2003, p.180). The findings reported here illustrate the debilitating effect human problems, including isolation and lack of teamwork, can have on IC. They show the extent to which solo-research can lead to reduced IC output, and team-research can lead to enhanced IC output. These problems are shown in Figure 2:

![Figure 2: A model of the impact of national dimensions on effectiveness of Human Capital in the IC Transformation process.](image)

The solutions to these problems are beyond the scope of this paper and would require solutions ranging from the simple to the more complex. Simple measures could include the provision of common rooms or other physical spaces in which employees could meet (Nonaka and Konno, 1998). This would provide an arena within which relationships could be fostered and knowledge advanced. Other simple measures could include increasing the frequency of meetings, improved communication and the provision of clearer objectives to staff, always ensuring that a balance is maintained between open-ended and narrow prescriptions of the aims or methods of research, as the latter could lead to a reduction in both academic freedom and creativity. Other measures, dependent on political will...
and improbable options in the short term, could include increased resources to higher education, an associated reduction in work loads and increased security of employment. The latter could stem the loss of well qualified and experienced researchers who might leave research when unable to find permanent positions, and whose departure could disrupt team work.

More complex measures would include formal and informal mechanisms of support and changes in the management culture designed to reduce the barriers between people (Cross, 2001), as well as solutions addressing attitudes to team work. These barriers are likely to be particularly acute in individualistic / masculine national cultures.

Further work
The conclusions of this research are still preliminary, as they are based on relatively small sample sizes. It would therefore be useful to confirm the results by surveying a much larger sample of researchers in a number of different countries spanning the individualism / collectivism axis. It would also be useful to include questions concerning the culture of the institution and department and also include researchers from both the arts/humanities and science/ engineering departments. We are also interested in investigating the nature of team work (whether formal or informal), the experience of collaboration within and outside a department or institution, and the relationship between collective work and interdisciplinarity.

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References


Bajaria, H J (2000), Knowledge management and creation: inseparable twins, Total Quality management, 11, 4&5&6, 562-573


Bell, J (2001), Doing your research project, Buckingham, Open University Press


Bonfou, A (2003), The IC-dVAL approach, Journal of Intellectual Capital, 4, 3, 396-412


Coolican, H (1999), Research methods and statistics, London, Hodder and Stoughton

Cross, B, Parker, A, Prusak, L and Borgatti, S P (2001), Knowing what we know: supporting knowledge creation and sharing in social networks, Organizational Dynamics, 30, 2, 100-120

Davies, J K (2002), Managing the effect in Higher Education: valuing staff to enhance performance, HESDA Briefing Paper, January 2002

De Long, D and Fahey, L (2000), Diagnosing cultural barriers to knowledge management, Academy of Management Executive, 14, 4, 113-127

Denscombe, M (1998), Good research guide, Buckingham, Open University


French, R and Vince, R (eds) (1999), Group relations, management and organisation, Oxford, Oxford University Press

Glaser, B G and Strauss, A L (1999), Discovery of grounded theory: strategies for qualitative research, Aldine Transaction


Hersh, M and Moss, G (2003), Heresy and orthodoxy: challenging established paradigms and disciplines, Journal of International Women’s Studies, 5, 3, 6-21


Janz, B D and Prasarnphanich, P (2003), Understanding the antecedents of effective knowledge management: the importance of a knowledge-centred culture, Decision Sciences, 34, 2, 351-384


Leitner, K-H, (2002), Intellectual capital reporting for universities: conceptual background and application for Austrian universities,


Leonard, D and Sensiper, S (1998), The role of tacit knowledge in group innovation, California Management Review, 40, 3, 112-32

Lewis, D (1999), Workplace bullying – interim findings of a study in further and higher education in Wales, International Journal of Manpower, 20, 1/2

Long, J (1992), Measures of sex differences in scientific productivity, Social Forces, 71 (1), 159-178

Luce, J A and Murray, J P (1997-98), New faculty’s perceptions of the academic work life, Journal of Staff, Programme & Organisation Development, 15, 3, 103-110


Moss, G and Vinten, G (2001), Choices and preferences: testing the effect of nationality, *Journal of Consumer Behaviour*, 1, 2, 198-207


Ogbonna, E and Harris, L (2004), Work intensification and emotional labour among UK University lecturers: an exploratory study, *Organization Studies*, 25 (7), 1185-1203


Pasher, E (1999), The Intellectual Capital of the State of Israel, Kal Press, Herzlia Pituach, Israel


Senge, P (1999), *The fifth discipline*, Australia, Random House


Thomas, H (2001), Funding Mechanism or Quality Assessment: responses to the Research Assessment Exercise in English Institutions, Journal of Higher Education Policy and Management, 23, 2

Thurow, L (1999), Building wealth: the new rules for individuals, companies, and nations in a knowledge-based economy, New York, Harper Collins

Trompenaars, F (1993), Riding the waves of cultures: understanding cultural diversity in business, London, Nicholas Brealey Publishing

Willmott, H (1995), Managing the academics: commodification and control in the development of university education in the UK, Human Relations, 48, 9, 993-1027