

Packaging and unpackaging knowledge in mass higher education—a knowledge management perspective

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Abstract The progressive deployment of market-oriented regulatory frameworks in mass Higher Education Institutions (MHEI hereafter) triggered, in a wide variety of forms and degrees, the application of Knowledge Management principles in MHEI. This means the application of the knowledge ‘codification strategy’, where the focus is on the economies of the re-use of centrally developed knowledge through codifying, storing and distributing knowledge. This process however, presents significant challenges. Both knowledge and non-knowledge related aspects might constrain the application of knowledge codification strategies in MHEI. The aim of this paper is to better understand the application of knowledge codification strategies in MHEI, from a knowledge management perspective. This is done by examining the use of course outlines as the critical means to ‘transfer’ codified knowledge. The research site was a MHEI that explicitly followed a ‘codification strategy’, where the profits come from the economies of scale and low cost operation. Research findings point out mixed outcomes. The set of cost-saving managerial-oriented initiatives together with the deployment of knowledge codification strategies simultaneously supported the knowledge transfer of codified-oriented courses associated to low levels of tacit knowledge and constrained knowledge transfer of codified-oriented courses associated with slightly higher levels of tacit knowledge. This finding can be credited to a set of both knowledge and non-knowledge related issues. The implications for the management of knowledge in MHEI were explored.

Keywords Mass Higher Education · Knowledge management · Knowledge codification · Limitations

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Introduction

The progressive deployment of market-oriented regulatory frameworks in Mass Higher Education Institutions (MHEI hereafter) triggered, in a wide variety of forms and degrees, the commodification of both higher education and knowledge. This seems to be closely related to the application of Knowledge Management (KM) principles in MHEI.

Interestingly, commodification of higher education encompasses the application of managerialism logic to learning and teaching activities. As such, knowledge is routinized and transformed into a codified product, which enables both the use of the economies of scale principles and the appropriation of academic and teaching knowledge (Willmott 1995). Thus, learning is approached as a rational-cognitive systematic acquisition of knowledge through mechanistic processes, where the curriculum is standardized, centrally developed, and students are approached as customers, facilitating both managerial surveillance and separation of conception from delivery (White 2007; Buchbinder 1993; Hayrinen-Alestalo and Peltola 2006). This low cost operation is achieved by: focusing on teaching at the expense of research activities; reliance on part-time faculty members, who teach for lower wages; and minimum academic governance (Morey 2004).

In contrast, knowledge commodification means the conversion of knowledge into a product (course outlines) that can be stored, distributed and marketed (Willmott 1995). As a consequence, course offerings and learning outcomes become standard modular objects that can be assembled ‘acquired’ stored (credit accumulation) or exchanged (credit exchange) through different mechanisms (Trowler 2001). Knowledge production and diffusion, therefore, parallel the manufacturing industries, where mechanistic processes can be designed, processed, and delivered, independent of the context (Hellstrom and Raman 2001).

Within this scenario, it appears that MHEI are applying KM principles that match market-oriented and knowledge commodification approaches. This means the application of what Hansen et al. (1999) called a knowledge ‘codification strategy’, where the focus is on the economies of the re-use of centrally developed knowledge, through codifying, storing and distributing knowledge. The direct application of rational business models to MHEIs, however, is problematic since they are knowledge-intensive organizations (Alvesson 2004). Consequently, these services are partly intangible, with most outcomes being subjective, since the key processes involved are knowledge acquisition and sharing. Thus, the need to transfer academic, teaching and managerial knowledge between geographically dispersed units created by the expansion of MHEI presents significant challenges.

Furthermore, the transfer of codified knowledge (CK) is complex and it may not be possible to codify—and commoditize—all knowledge (Ancori et al. 2000). Firstly, there is no such thing as ‘pure’ CK, as all knowledge has both codified and tacit components (Polanyi 1983). Secondly, different courses have varied degrees of knowledge explicitness and tacitness (Donald 1986; Palmer and Marra 2004), which affect the codification/decodification process. Thirdly, the tacit portion of knowledge might be difficult or impossible to codify due to both knowledge and non-knowledge related reasons. Knowledge-related reasons that constraint knowledge understanding includes the need for interpretation, cognition and the multiple meanings of knowledge (Tsoukas 2005). Non-knowledge related reasons encompass the role that trust, politics, emotions and context may play in the knowledge transfer process. The role of context, for example, is crucial in the knowledge transfer process since knowledge might be situated, making sense in a specific temporal or emergent context, but not in others (Thompson and Walsham 2004). The context factor is directly connected to the deliberate separation of knowledge codification and knowledge decodification, namely that ‘the very notion of transfer rests upon a conceptual separation of learning and the contexts to which the learning may be applied’ (Tenant 2001: 169).

From the KM perspective, course outlines constitute the main vehicle used to centrally develop and distribute uniform courses, at a low cost. Thus, course outlines represent the materialization of course developers' academic and teaching knowledge (codified knowledge), a crucial pre-requisite for knowledge commodification and an important component of the knowledge transfer strategy within MHEI (Buchbinder 1993). Indeed, the development and use of course outlines also can constrain both the codification and decodification of knowledge. The different experiences, cognitive styles and backgrounds of decoders (course instructors) can inhibit the homogeneous interpretation of course outlines. Additionally, within labour saving environments, knowledge codifiers might be wary about sharing all their knowledge to limit their chances of becoming redundant (Willmott 1995). Practical limitations also can impact upon the MHEI knowledge codifiers and knowledge decoders (such as, the maximum number of pages a course outline can have, time and resources availability).

The above overview highlights the implications for both knowledge codification and knowledge commoditisation in MHEIs. While, in some courses, packaging and unpackaging of well established knowledge can be perfectly feasible, in others it can be problematic. Therefore, the recognition of the diverse epistemological stances taken by different courses seems to be important to identify, and then redesign, as necessary, the mechanisms used to favour knowledge acquisition and assimilation (Meyer and Land 2005).

The aim of this paper is to better understand the application of knowledge codification strategies in MHEI, from a knowledge management perspective, by examining the use of course outlines as the critical means to 'transfer' CK. Because learning involves knowledge transfer (McKeachie 1987; Alexander and Murphy 1999), this study applies concepts and theories from the KM literature. Knowledge management is practice driven and emphasises the utilization of conceptual and IT-based tools for capturing, storing, and diffusing knowledge (Hislop 2005). The focus of this study is to understand the processes used by MHEI to 'transfer' course content and teaching related knowledge from experienced professors to course instructors. The course outlines (codification of knowledge) are designed and developed by the professors. Based on these course outlines, the course instructors had to develop and improve their understanding (decodification of knowledge) of how to apply specific concepts and teaching advice to the class. It is important to note that the empirical component of the study was developed at a for-profit Brazilian MHEI, responsible for a narrow set of undergraduate programs.

To theoretically contextualize knowledge transfer processes in MHEIs, the next section focuses on epistemologies of knowledge and learning. In this context university courses can be seen as either codified- or tacit-oriented. Section "[A Conceptual framework for Transferring Codified Knowledge](#)" outlines the conceptual model that is used to examine the empirical evidence related to the transfer of CK. After presenting and examining the empirical evidence in the "[Research Findings](#)" section, the last section discusses the limitations of the codification strategy in MHEIs.

Epistemology of knowledge and learning

Within MHEIs, the role of knowledge transfer and learning need to be better understood. This objective can be achieved by exploring the fundamental assumptions related to the nature of knowledge and how people learn. This section provides an overview of how the ideas of knowledge and learning are approached and interrelated.

As the debate about the nature of knowledge is still not settled, there exists a ‘mixed bag’ of epistemological assumptions within the conventional KM literature (Nonaka and Peltokorpi 2006). Researchers agree that knowledge has both explicit (codified) and tacit dimensions (Polanyi 1983). CK is conceptualised as knowledge which can be articulated, explicated and formalized (Zollo 1998), while tacit knowledge is composed of concepts, ideas, experiences and actions that cannot be clearly articulated, explained or objectified (Tsoukas 2005). It appears that tacit knowledge sharing requires the development of social processes for building trust and credibility between knowledge codifiers and knowledge decoders (Sole and Edmondson 2002; Orlikowski 2002). However, there is no clear agreement as to whether most knowledge has a higher proportion of either tacit or codified elements (Zack 1999). Some commentators (Cowan 2001) argue that only a small portion of knowledge is tacit, while others (Roberts 2000) argue that most knowledge is tacit. There are also debates about the extent to which knowledge can be codified. Whilst a number of researchers support the idea that tacit knowledge can be converted into CK (e.g. Nonaka and Takeuchi 1995), others argue that tacit knowledge cannot be captured (e.g. Collins 1990; Tsoukas 2005).

While there is recognition about the codified and tacit nature of knowledge, knowledge management models usually approach knowledge as requiring either a significant proportion of codified components (disregarding its tacit elements) or tacit components (neglecting codified components). As a consequence, the knowledge management models adhere to either objective or interpretive views of knowledge (Hislop 2005; Hazlett et al. 2005). The former approaches knowledge as something that is objective, out-in-the world and, therefore measurable (Davenport and Prusak 1998). The latter interprets knowledge as intangible, relational, situated, fluid, being both in-mind and in-body, and stressing the unfeasibility to capture and measure knowledge (Nicolini et al. 2003).

Like knowledge theories, learning theories have been categorised into two metaphors: the acquisition metaphor and the participation metaphor (Sfard 2008). In the acquisition metaphor, the human mind is seen as a container into which materials (knowledge, concepts, ideas, facts and meaning) are acquired, accumulated and owned by the individual. In the participation metaphor, learning is seen as legitimate peripheral participation, where the way learners do activities is the focus of attention. It encompasses interpretation and adaptation of personal schemata to environmental stimuli, since it is based on the individual’s previous personal experience, knowledge, and epistemology. Thus, ongoing learning involves social interaction through practice in specific contexts. Such practice is understood as arrays of human activity mediated by heterogeneous elements and organised around shared understanding (Schatzki 2001), while the context is approached as situated, evolving and culturally embedded. Both the constructivist views of learning (Lynch et al. 2006; Pea 1987) and the situated learning approach (Lave and Wenger 1991) can be categorized within this view.

Unsurprisingly, these learning metaphors reflect the two epistemologies of knowledge discussed above. The acquisition metaphor approaches knowledge as a property that is acquired and accumulated by individuals, irrespective of the role of context, while the participation metaphor sees knowledge as situated practice/discourse that is constructed by social interaction and identity building in specific community. Thus the objectivist view of knowledge seems to fit the learning as acquisition metaphor, something that makes sense to the process of commodification of knowledge and education. Similarly, the interpretive view of knowledge appear to match the learning as participation metaphor, constraining the idea of both knowledge and education commodification.

However, the reality of knowledge transfer and learning in MHEI is more complex than the dichotomic account of knowledge and learning, as presented above (e.g. Williams 2008). The extent to which MHEIs apply market-oriented strategies and whether their resources are tied to government funding is also important. Government funding is connected with achieving research outputs, student enrolment numbers, and graduate outcomes, etc. Consequently, MHEIs might opt to follow the objectivist view of knowledge, blended with the acquisition metaphor for some courses at specific levels (e.g. first year under graduate), while simultaneously applying interpretive views of knowledge, combined with the participation metaphor to other courses at other levels (e.g. post graduate). Thus the extent to which knowledge is more tacit or more explicit is important, but is not the only one, that shapes the knowledge transfer process (de Jong and Ferguson-Hessler 1996).

To address the codified versus tacit knowledge issue, and recognizing the cross-disciplinary nature of knowledge, university courses are considered either codified- or tacit-oriented. That is, some course may have higher degree of explicitness than tacitness, and vice versa (Donald 1986; Palmer and Marra 2004; Williams 2008).

For example, in some first year undergraduate courses, the content tends to be fairly standardized and structured, with research methods, symbols and problem solving procedures having wide scholarly agreement. The situation may be different for some post-graduate or higher degree courses at the frontier of science, especially where concepts with high degrees of abstraction and multiple interpretations are the likely to prevail, and there is less scholarly agreement, because of the evolving meanings attached to specific concepts (Collins 1990). Palmer and Marra (2004)'s findings in their comparative study of science/engineering and humanities college students and their understanding of knowledge support the proposed codified- and tacit-oriented categorization. They identified significant, but not polar, differences in how students understand knowledge. Most science students perceived science as either a fixed collection of facts or a mix of theories with exceptions, while social science and humanities students saw knowledge as a set of multiple views. Similarly, Kreber and Castleden (2009) found connections between the epistemological structure of a field and the way the academics engaged in their reflective practice. Thus, academics from both the soft and hard fields engaged in instrumental communicative and emancipatory learning, but to different degrees.

Within this context, it is possible to suggest that MHEIs that follow market-based frameworks seem to be congruent with the objective view of knowledge and the learning as acquisition metaphor. For this reason the next section outlines a knowledge transfer process model that aligns both the objective view of knowledge and the learning as acquisition metaphor.

A conceptual framework for transferring codified knowledge

In this study, the process of CK transfer is defined as having three main dimensions: knowledge codification; mechanisms used to transfer knowledge; and knowledge decodification (Zollo and Winter 2002). Knowledge codification is the extent to which accumulated experience can be abstracted into manuals that provide the know-what, know-how, and know-why, for the execution of tasks (Zollo 1998: 26). The process of codification of knowledge, however, is complex, problematic and debatable (Zack 1999). Some commentators (Cowan and Foray 1997; Cowan 2001) argue that the codification process is more linked to the technical and economic aspects rather than to the tacit features of

knowledge. However, other commentators (Johnson et al. 2002; Tsoukas 2005) contend the impossibility to codify the tacit dimension of knowledge, meaning that tacit elements of knowledge may remain uncoded.

A wide range of mechanisms have been identified being able to transfer knowledge (e.g. Olivera 2000; Prencipe and Tell 2001). These include personal-based means, such as face-to-face interactions that favour the transfer of tacit forms of knowledge; to canonical forms (e.g. written rules and books) that support the transfer of codified forms of knowledge; through to computer-mediated mechanisms, such as video and email. However, since these studies focussed on different stages of knowledge management (e.g. creation, diffusion, and application of knowledge) and types of knowledge (either codified-oriented or tacit-oriented), it is still not clear what mechanisms are the most appropriate for which situation.

Significantly, knowledge decodification involves interpretation and application that, in turn, implies an understanding of the meaning of the codes used by the sender and thus, how to interpret these codes (Hall 2006:18). Therefore, the interpretation and application of knowledge depends on the users who determine when and how to use the knowledge (Collins 1990). Further, the interpretation and application is also situated since it is affected by the specific circumstances of the user and (evolving) contextual conditions (Thompson and Walsham 2004; Nonaka and Takeuchi 1995). This explanation helps to understand why, during decodification, users might opt to break established norms and create alternative actions, by adapting those rules to the specific local conditions (Nyiri 1988). Attempting to decodify pedagogical knowledge in course outlines, for example, involves both practical tips and advice, as well as teaching experience, via the integration of content knowledge with specific student and teaching contexts and pedagogical situations (Zanting et al. 2003). This complexity of teaching knowledge is related to its practical nature of being tacit, situated, temporal, personal, and connected to prevalent local traditions (Polanyi 1983; Nyiri 1988). Consequently, it cannot be transferred, but only learned during action (Revans 1966). Hence, both the knowledge-related (e.g. cognition) and the non-knowledge related (e.g. trust, cost saving strategies) aspects need to be taken into consideration during both the codification and decodification process (Guzman and Wilson 2005). To throw light on the process of CK transfer in MHEIs, the empirical component of the present study addresses the three stages of knowledge transfer, focusing specifically on the use of course outlines as a key mechanism to transfer knowledge. The next section outlines the study's methodological aspects, while the subsequent section details the research setting.

Methodology

Case study methodology (Yin 1981) was used in the current study to facilitate a deeper understanding of the contextual conditions surrounding knowledge codification, transfer, and decodification processes (Bryman and Bell 2003). The approach relates to the key assumptions that, for understanding, all CK needs tacit knowledge to a greater or lesser extent. The data were collected through in-depth, non-structured interviews, direct observation, and document examination. Six course instructors, three expert professors, three course coordinators, three outline planners, ten students, two Heads of associated units, and the Dean of Studies were interviewed. The interviews were both formal and informal as one member of the research team was working as a course coordinator and course instructor during the research period (September 2005 to September 2006). Both interview methods aided to overcome a number of the well-known problems identified by

Fontana and Frey (1998). Indeed, the multiple data collection methods and the feedback from interviewees concerning the data collected enabled the triangulation of the data, a key aspect that supported validation. Three case studies were assessed, at headquarters, and in two education units.

Research setting

The empirical component of this study was developed at the HighEd-Co (not its real name), a privately owned for-profit Brazilian MHEI. HighEd-Co owns thirty education units, distributed around the country. As at March 2009, there were 40,000 students and 2,500 staff, including 1,500 part-time only course instructors.

Because HighEd-Co is an open capital company, the profits come from the economies of scale and low cost operation. A major strategy used to save on operating costs is the application of a ‘codification strategy’ that standardizes courses by codifying, storing and distributing them at a low cost. The academic content of the courses is centrally determined, and the local units have little autonomy to manage their operational procedures. A ‘structuration’ approach was developed to achieve its strategic goal of geographical expansion and growth. In order to assure the delivery of consistent course content, HighEd-Co centrally ‘pack’ knowledge into course outlines.

Expert professors, with PhD and research experience in the area, were hired to develop the course outlines only. The formal role of the course instructors was to assimilate the academic and teaching advice codified in the course outlines, adapt to it to the local conditions of operation, and to deliver the lectures. Because HighEd-Co is a ‘teaching’ university, its policy is to hire course instructors with Master level qualifications only. Most course instructors (75%) have postgraduate qualifications, with 50% having more than two years of professional experience.

The present study has focused on courses where, generally speaking, knowledge can be considered codified-oriented. Specifically, the focus was on two first year courses from the production engineering undergraduate degree (Calculus and Organizational Theory). Both courses are considered as codified-oriented, as they have a well agreed structure, content and there exists a set of codified learning resources (e.g. textbooks). However, in order to consider the role of type of knowledge on the CK transfer process, the selected courses differ on the portion of tacit knowledge associated with each. Calculus can be considered a course associated with a low portion of tacit knowledge, because of the stability of the body of knowledge, its logical structure, explicit concepts, known methods and precise results. In contrast, Organizational Theory can be considered a course related to a slightly higher portion of tacit knowledge, since there are diverse of views in the field, concepts are mostly context-dependent, and the structure of the body of knowledge can be configured along diverse logics.

Research findings

The empirical evidence suggests that the codification strategy has limitations that are connected with the different assumptions made by key stakeholders regarding the codification process, the nature and role of knowledge transfer mechanisms, the decodification process, and the non-knowledge related aspects. These aspects are reflected in the interview data and are discussed in more detail below.

Assumptions regarding the nature of knowledge and the codification process

HighEd-Co's stakeholders (top management, expert professors (knowledge codifiers), and course instructors (knowledge decoders)) had different assumptions in relation to the nature of academic and teaching knowledge, and the codification process. Their top management strongly believed that all academic and teaching knowledge can be codified; they treated knowledge as an undifferentiated product, ignoring the difference between codified and tacit-oriented courses and, therefore, consciously pursued a 'knowledge codification' strategy. This codification strategy constituted the cornerstone of the HighEd-Co strategy to commodify knowledge and higher education services, as well as to expand its operations. Their main organizational process was composed of a group of courses and associated organizational and managerial routines established to set up and run the academic and operational portion of the units. Top management was convinced that course outlines were sufficient to enable the transfer of academic and teaching knowledge from HighEd-Co to its subsidiary units.

The lesson number one is the 'packaging' of teaching... the adopted solution [standard course outlines] seems to be adequate given our two main challenges: the accelerated expansion of enrollments and the opening of new units. That is, the goal is to grow without [the] problems of having to replicate our teaching quality standards. [Academic Dean].

The expert professors (knowledge codifiers) knew it would be impossible to write down all their knowledge and experience related to a specific course. That is, they were aware that it was necessary for the course outlines to be adapted to the local conditions, and that they may be called back, in the future, to improve the course outlines. The temporal nature of their relationship with HighEd-Co, combined with top management's assumption about the feasibility to codify all knowledge, however, prevented this from happening.

I try to write in the outlines [course outlines] the best advice ... but sometimes I am not sure if the reader will use the textbook in the way I am indicating [Expert Professor 3].

The course instructors shared a similar view. They were aware of the limitations of the codification strategy, realizing that professional and teaching experience was important to knowing how to apply the knowledge contained within the course outlines.

The [course] outlines are important since [they] indicate textbooks available in the library and describe examples. [However] I do have my own additional material and [I] always end [up] changing (sic) the outline instructions [Course Instructor 3].

The interview data suggest difficulties in promoting CK transfer as being linked with the heterogeneous views held about the nature of knowledge by the top managers, expert professors and course instructors.

Assumptions regarding knowledge transfer mechanisms

Course outlines were the central mechanism officially recognized and promoted by HighEd-Co to transfer knowledge.

The idea [of the course outline] is that somebody has already 'broken his head' (sic) detailing each lecture, with the best way to conduct each difficult step...to discover

the best possible example. This is what we call lecture structuration. We hand in these [course] outlines to the new teachers [course instructors]. This process assures a high quality lecture. [Course Coordinator 2].

Furthermore, the different stakeholders had different assumptions regarding the role of course outlines. While the top managers saw course outlines as the sole mechanism to transfer knowledge, the expert professors, saw them as ‘outlines only’ that needed to be improved and adapted to the contextual conditions of the local unit, as the following quote suggests.

After the teacher [course instructor] receives the [course], outlines it would be great if they contact me (sic)...it could be a good idea to do a training or discussion session. [Expert Professor 2].

Complicating the matter even further was that different purposes were given to course outlines at different locations. In some units, the outlines were approached in a flexible manner, providing space for adaptations, while in other units, the outlines were perceived in a less flexible way, as the next two quotations reveal.

The main role of [a] course outline is to support the teacher [course instructor] in the preparation of class activities. We do not have [the] intention...to ask that, for example, all suggested textbooks were used or yet that all suggested exercises were applied as planned in the course outlines. [Course Coordinator 2, unit 2].

...at a non structured course, outcomes are totally in the hands of teachers. At a structured course, there is a part that is in the hands of teachers [course instructors], but there is also a ‘back office’ that supports him [sic] ... from the general design of the course to suggestion of examples, exercises and case studies. All is there ready to be used. [Academic Director].

Assumptions regarding the decodification process

HighEd-Co did not support decodification activities. Their top managers assumed that the knowledge contained in the course outlines would be understood and assimilated, without problems, by course instructors. Further the top managers assumed that having course instructors with the required academic qualification and professional experience would be sufficient for the efficient delivery of course outline content.

The profile of our course instructors must combine academic knowledge with professional experience. In general, we look for teachers with postgraduate qualifications and five years industrial experience, in average (sic). [Human Resources Manager].

However, HighEd-Co ignored the difficulty of finding instructors with the required academic qualifications in certain geographical areas, as in the case for Unit 2; when top managers realized, they transferred the issue to the local unit management. By contrast, course instructors made it clear that the adaptation of course outlines during decodification was absolutely necessary, especially in the case of organizational theory, a course associated to slightly higher degree of tacitness than calculus. In such cases, their professional experience was the key for contextualizing concepts from course outlines.

It is important to remember that [course] outlines only suggest materials to be used. There are things that need to be worked out by the teacher [course instructor]. Group activities are a good example. We need activities that can be marked otherwise students go away. Sometimes, outlines indicate a reading, but how may I allocate marks for a reading activity? (sic) [Course Instructor 4].

Sometimes I use examples from our local industries. Here, for example, the mining industry is strong. It is where the students and I develop our professional activities...talking about services, for example, it doesn't make much sense. [Course Instructor 2].

Furthermore, course instructors also realized the limitations to the decodification process imposed by the separation of knowledge codifiers (expert professors) from knowledge decodifiers (course instructors), a structural feature of the knowledge codification strategy.

I never had any contact with the responsible [author] of the course outline. When there is a problem I talk with the course coordinator ... usually we arrive to a common interpretation of the outlines. [Course Instructor 2].

Significantly, the expert professors did not know how the decodification process occurred, since the course outlines were developed before the actual units were set up and, therefore, the course instructors had not yet been hired. They assumed that the course instructors would have adequate academic qualifications and, more importantly, the experience for the course they were to deliver; this was not always the case.

The person [course instructor] who will use this material [course outlines] need to be familiar with this type of literature...it is not everybody that uses these authors...Accordingly HighEd-Co (sic), the majority of teachers [course instructors] are Master or Doctors [PhDs], this leaves me more at ease. [Expert Professor 2]

Finally, decodification also involved political aspects that must not be ignored. Newly hired course instructors were inhibited from raising their voices to ask for additional support for fear of appearing academically 'weak' among their peers and with top management. Because course instructors were mostly part time, contracted temporarily, and were not unionized, they were restrained from asking for help during the decodification process. Additionally, since their main job was in another organization, they did not perceive themselves as 'teachers' but as experienced professionals. The above suggests that political aspects are important in understanding the decodification process and should not be overlooked (e.g. Huzzard 2004).

Discussion

Within the HighEd-Co's stakeholders (top managers, expert professors, and course instructors) there was a lack of congruence of the key assumptions related to the nature of knowledge, the codification process and the nature of knowledge transfer mechanisms. This situation partly explains the limitations of using course outlines as the sole standard vehicle for transferring knowledge from expert professors to course instructors. Non-knowledge related reasons, such as contextual differences between the knowledge sender and the knowledge receiver, employments status, and the application of cost saving strategies further explain the limitations of the codification strategy in HighEd-Co. These issues are discussed in the following paragraphs.

Limitations of the codification strategy

The application of a ‘codification strategy’ (Hansen et al. 1999) at HighEd-Co is consistent with Morey’s (2004) findings that MHEIs deliberately deploy a series of cost saving strategies in order to deliver education services with convenience at a low cost. Nevertheless, it is argued that the codification strategy has limitations when applied to the higher educational sector, since its main services are knowledge-related, and the feasibility to codify knowledge varies, depending on both knowledge and non-knowledge related aspects.

The empirical evidence indicated that courses associated to different portions of tacit knowledge were treated in the same form for codification and decodification purposes. However, while the codification strategy may perfectly suit courses having a high content of CK (Hansen et al. 1999), such as first year undergraduate calculus; in the current study, this was not the case for a course associated to a slightly higher degree of tacitness, such as organizational theory. The tacit dimension was ignored since the contextual nature of this course and the situated nature of learning were neglected. Therefore, the transfer of knowledge from expert professors to course instructors, via course outlines, was problematic and incomplete in the case of organizational theory. Importantly, both expert professors and course instructors were contracted on a casual basis. Thus they had little identification with HighEd-Co and they were separated in space and time terms, making their interaction almost impossible. These difficulties only exacerbated the learning situation.

The lack of understating of the role of the decodification process

Whilst both calculus and organizational theory were considered codified-oriented courses, their decodification process was not homogeneous. In the case of calculus, the decodification was straightforward since the use of codified means (such as textbooks and course outlines) supported the decodification of knowledge. In contrast decodification problems arose in the case of organizational theory. At HighEd-Co, the decodification stage was ignored since there were no adequate knowledge transfer mechanisms to help bridge the codification and the decodification stages. Specifically, as organizational theory tends to be associated with a higher portion of tacit elements than calculus, differentiated resources and mechanism to promote its transfer and learning, such as face-to-face meetings and computer-mediated communications channels (e.g. video conferencing) were necessary. This finding is congruent with that of Olivera (2000) and Prencipe and Tell, (2001). They suggested that people-centered transfer mechanisms are adequate for transferring tacit forms of knowledge since social face-to-face interaction promotes communication, understanding and trust between the knowledge sender and knowledge receiver (Guzman and Wilson 2005).

Thus, organizations need to know how to differentiate between codified- and tacit-oriented courses, in order to organize differentiated processes to support codification, knowledge transfer mechanisms and decodification. On the other hand, the understanding of this process must go beyond the micro level examination of the CK transfer process, and consider the larger context of privately owned MHEIs. Consequently, the application of the knowledge codification strategy must be viewed within the current wave of commodification of higher education involving the use of cost saving measures, such as the use of temporary contracts for both expert professors and course instructors.

The role of non-knowledge aspects in the knowledge transfer process

While the codification strategy, combined with the objective views of knowledge and the learning as acquisition metaphor, seems to perfectly match one to another, the reality of CK transfer in MHEI transcends the knowledge issues. The set of cost-saving managerial-oriented initiatives applied to HighEd-Co simultaneously supported the knowledge transfer of codified-oriented courses associated to low levels of tacit knowledge and constrained knowledge transfer of codified-oriented courses associated with slightly higher levels of tacit knowledge. Thus, in the case of Calculus, the use of expert professors, hired on a casual basis to codify knowledge, combined with the use of part-time casual course instructors, to decodify and deliver knowledge, fits the knowledge codification strategy that, in turn, supports knowledge and higher education commodification strategies. In the case of organizational theory, however, the use of casual part-time knowledge codifiers and knowledge decodifiers, combined with the separation of space and time needed by the expert professors and course instructors, constrained the knowledge codification strategy, limiting the extent to which knowledge can be commoditised.

These findings challenge a number of ‘knowledge society’ views (e.g. De Weert 1999), including the shift from the traditional divisions of labour to the greater integration of knowledge functions. While the findings reported in the literature posit that codification and decodification are two sides of the same process (Hall 2006), organizations still continue to separate these activities since it is part of the mass production/consumption business model. Although there are well known economic benefits, the separation of knowledge creation from knowledge use cannot be taken for granted. The view by Wood (2002) suggests that it is not possible to separate knowledge production from knowledge use. Additionally, there is the delicate problem of experts disclosing their knowledge during the codification stage (Roberts 2006). Here lies a contradiction with the new division of knowledge. Firstly, trying to re-integrate knowledge codification and knowledge decodification challenges the basic pillars of the mass education model. The very idea of the division of knowledge is, by fractioning codification and decodification, to have lower distribution (replication) costs and, more importantly, its appropriation, storage, and marketing will become feasible. In contrast, the non-integration of those elements might eventually cause its failure, since their integration seems to be crucial for a ‘complete’ knowledge transfer.

The use of course outlines, as a means by which to transfer CK, can also be interpreted as part of a larger mass-education policy, which involves a deliberate attempt to ‘commodify’ academic and teaching knowledge in order to control educational services. In the case of HighEd-Co, appropriation occurred when expert professors articulated, codified, and formalized part of their knowledge in course outlines. After the expert professors delivered the newly-developed course outlines, the CK contained in the course outlines became the intellectual property of HigherEd-Co. Moreover, because HighEd was using a franchise strategy to expand its units, when the franchisees signed a contract they received hard copies of a program structure and course outlines for each course. Thus the course outlines became valuable objects and were traded in the marketplace. This means that the commodification process problem, seems to be greater in the case of codified-oriented courses associated to higher levels of tacit knowledge.

Conclusions

This study highlighted three limitations with the codification strategy in MHEI. These limitations are: that the application of course outlines, as a vehicle to transfer CK is linked

partly to the different assumptions that key stakeholders have regarding the nature of knowledge; the extent to which CK is associated, more or less, with tacit elements; and the convergence of non-knowledge related issues.

Three management implications can be drawn from the research findings. Firstly, MHEI must recognize the diverse nature of knowledge that is embedded in the different courses and carefully design the CK transfer process to fit those needs. Thus the idea that course outlines serve a one-size-fits-all strategy must be discarded. Secondly, in the case of courses which need significant amounts of tacit knowledge in order to be codified, transferred and decodified extra resources need to be allocated. This process might include the development of customized coordination mechanism between the course outline codifiers and decodifiers. Thirdly, the homogenous application of knowledge codification strategies, combined with the use of labour-saving strategies, seems to trigger contradictory outcomes, both supporting and constraining the application of knowledge and higher education commodification.

Importantly, the empirical evidence draws from a single case study. As a consequence, rather than attempting to develop generalizations from the research findings (Yin 1981), this study has developed alternative insights in relation to the examination of the use of course outlines in MHEI as a key vehicle to transfer knowledge. While the process of CK transfer was examined to assess the nature of knowledge embedded in the two first year undergraduate courses (Calculus and Organizational Theory), there was a void with respect to the role of the context. It is, therefore, recommended that further studies consider both the type of knowledge and the context. For example, a useful research path might be to focus on course outlines from different disciplines delivered in very different contextual settings.

Another limitation of this study relates to the narrow empirical focus, that is, on two codified-oriented courses only. A logical next step would be to focus on tacit-oriented courses, as well as on courses that fall within the in-between category. Thus further empirical studies focusing in a wider range of courses are required.

Research into the commodification of knowledge issue could also be extended by surveying a number of MHEIs in order to empirically verify whether there is a commodification of knowledge trend. The commodification hypothesis can also be better investigated if comparative studies were developed in countries with very different industrial relations institutions, since the strategy to temporarily hire part-time only course instructors can be constrained by country specific labour regulations.

Currently, it is known that knowledge codification and transfer issues experienced by the private MHEIs are also experienced by the public MHEIs. However, it is possible that the problems are likely to be amplified in the public MHEIs. Unlikely private MHEI that deliberately focus on teaching activities only, public MHEIs, are also compelled to follow state-regulated market-orientation policies (Hayrinen-Alestalo and Peltola 2006), as well as needing to cater for both knowledge production (research) and knowledge transfer (teaching and commercialization) activities. Thus further investigations into knowledge transfer studies are required to focus on public MHEIs.

Also of importance is the need for empirical studies to assess MHEIs in order to test the 'new division of knowledge' hypothesis raised in this study.

Finally, the portion of tacit knowledge associated with calculus and organizational theory was determined using stereotypical characteristics of those courses. To gain a better overview of this situation, there is a need to develop a detailed conceptual framework that can assist in differentiating between codified- and tacit-oriented courses.

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