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Abstract

According to Halse and Malfroy (2010) research supervision should be viewed as a profession. Professions have their own institutional norms, of course; explicit norms are what makes something a profession, rather than a craft. But in the world of contemporary higher education, where the word "institution" is often used to denote the organization of the university and the bureaucracy of HE policy-making, the institutionalized aspects of professional life can get lost. This paper examines the growing literature on research supervision through the lenses of a) knowledge theory, with its tacit, explicit and latent dimensions; and b) new institutional theory, with its focus on the diffusion of norms of social practices through isomorphism. It identifies three competing institutional logics: the traditional "craft" approach, an emerging "factory" mentality of measurable outcomes and target, and a middle way – a "professional" logic. The paper concludes with a discussion of the role of accountability and how it influences the legitimacy of these competing institutional logics.

Keywords: Research supervision, Higher education policy, Knowledge creation, Institutional theory

Introduction

At the heart of research is the creation of knowledge. Guiding the development of new researchers involves sharing the techniques of knowledge creation. When it takes place in the setting of a university dependent upon external funding, a place

where new scholars as well as new scholarship develop, a host of interlocking and occasionally contradictory institutional imperatives apply. This paper explores the emerging literature on the processes of research supervision as exemplified in the vignettes from the tale of two systems. Research studies and research supervision have attracted growing attention in journals on higher education in recent years. Much of the writing has a normative character; empirical studies seek to unearth attitudes and behaviour of students and supervisors with an eye on finding prescriptions for practice. Several studies were motivated, more or less explicitly, by the public policy environment and demands for accountability of public funds devoted to research supervision. These studies paint a picture of richness and depth but leave the subject largely without a theoretical base; Petersen (2007, p. 475) calls the field "acutely under-theorised". This paper aims to address that gap. We look first briefly at the university system and its requirements for accountability, then at theories of knowledge creation – tacit, explicit and latent. We then consider institutional theory and how it relates to knowledge creation before applying this thinking to critique the literature concerning the supervision process itself. We conclude with observations about possible future avenues of research and a discussion of how accountability itself addresses the development and acceptance of competing institutional logics.

Universities, research, and public policy

Higher education in the UK, as in many other countries, depends on funding from government. Even under the reforms in development at the time of writing (Spring 2011), which would see the burden of costs for undergraduate education shifting from the state to the student, sufficient "stick" will continue to be held by government

even as it offers a "carrot" in a degree of freedom in setting fees. In terms of funding for research students in particular, the hand of government is quite strong. It is an area with strong public policy inputs and implications (Evidence, 2010; HEFCE, 2007, 2009a, 2010a, 2010b; Universities UK, 2010). Much of the funding for research degrees comes from government. In 2010-11, the Higher Education Funding Council for England provided £205 million directly for the research degree programme supervision fund, amounting to 12.8 per cent of the total "quality-related", or QR funding (HEFCE, 2010c). Further funds come indirectly, e.g. from the other 87.2 per cent, when so-called "mainstream QR" money, generally used to fund the lecturing staff's own research, is used for studentships instead. Grants from research councils and foundations for specific projects may also lead to recruitment and supervision of research students to support the tasks. Even nominally "self-funded" students from countries in the European Economic Area pay fees at a lower level than "overseas" students, a discount that often means funds are topped up from other sources to cover the costs of supervision and associated facilities. While these funding arrangements nominally encourage "autonomy" by allowing "universities to choose how the funding should be spent" (HEFCE, 2009b), they come with expectations in terms of outputs. The phenomenon of "publish or perish", as it is known and practised in the United States, may no longer pertain in Britain, but the imperative to account for the public funds at use is still strong, including efforts to seek accountability through surveys of student concerning the quality of supervision (Higher Education Academy, 2011; UKCGE, 2011).

Academics have shown both scholarly and personal interest in the subjects of research and research supervision, and in how bureaucratic imperatives concerning

the resulting publications may distort the purposes of scholarly activity (Adler & Harzing, 2009; Hogler & Gross, 2009; Oswick & Hanlon, 2009; Putnam, 2009). Anecdotal evidence from discussions at conferences in the UK among colleagues and at forums organized by professional bodies suggest that business schools across the spectrum of new, old and ancient universities are pushing business school academics to write for a narrow range of publications (3* and 4* journals, as ranked by the UK Association of Business Schools). In a provocative polemic, Willmott (2011, p. 4) puts it this way: "Journal list fetishism is perverse."

Those criteria mean that in the 2010 list only 323 of several thousand journals across all business disciplines qualify. For specialist fields, the range is very narrow: Tourism and Hospitality journals with a 3* or 4* ranking number only three; even a broad field like Marketing has only 17 journals with at that level (ABS, 2010). This selection arose in part because of a correlation found in an analysis by the ABS of journal ranking with funding outcomes from the government's Research Assessment Exercises in 2001 and 2008 (Kelly, Morris, & Harvey, 2009). Expectations of similar "success" under the Research Excellence Framework in use for 2014 drive the approach taken by schools to the policy.

These funding exercises also place value on the research culture of universities, so data associated with the numbers of PhD students, the on-time completion rates, the number of articles authored by student-supervisor teams and other metrics are coming into more prominent use. They affect the work-allocation models used to deploy academic staff and divide their time between classroom teaching, supervision and personal research. So academics and their senior managers face growing requirements to collect data about the research activities of staff and students,

quantifying the contributions to knowledge, their "relevance" (in the language of RAE 2008) or "impact" (for REF 2014), as if to calculate the efficiency of funding. This bureaucratization of knowledge is a long way from the ideal of knowledge creation that led many of us to join the academy and to emulate the "masters" under whom we studied and whose "craft" we hoped to acquire.

Knowledge creation

Despite this bureaucratization, PhD awards are still assessed for the contribution to knowledge: The award is defined, that is, in terms of knowledge creation, a concept well known in business and management studies through the work of Nonaka and his collaborators (e.g. Nonaka, 1991; Nonaka & Takeuchi, 1995) and their contribution to scholarship in strategic management and organizational learning. Building on the concept of tacit knowledge (Polanyi, 1966), Nonaka suggests that knowledge traditionally transferred from master to apprentice – the tacit-to-tacit exchanges he calls socialization – could be made more valuable through a cycle of tacit-to-explicit transfer or externalization, then explicit-to-explicit combination, and then explicit-to-tacit internalization, the four-stage process he identifies as knowledge creation. In particular, the phase of externalization makes possible the leverage of knowledge, getting more use by more people, and with it an industrialization of knowledge through its commoditization, a phenomenon long known to scholars as large lectures and textbook publishing.

Recognizing that this "SECI" process was short on knowledge *creation*, Nonaka developed the concept of "ba" (Nonaka & Konno, 1998; Nonaka, Toyama, & Konno,

2000), a Japanese word for a physical or virtual "space" for the meeting of minds that would foster the generation of new knowledge. With "ba", he comes close to describing the processes that scholars hope to undertake through collaboration with peer and, crucially for this paper, with the supervision of research students as they pass from being the apprentice in the craft relationship to the journeyman and then masters that we know of as peers. The elusive quality of "ba" has led other scholars to seek to expand the concept (Choo & de Alvarenga Neto, 2010). Still others (Agrawal, 2006; Collinson & Wilson, 2006; Hargadon & Fanelli, 2002) invoke the concept of latent knowledge to account for the dormant, untapped potential to be found through knowledge creation processes. Blackman and Sadler-Smith (2009, p. 577) use the term latent in a somewhat different way, applying it to pre-conscious knowledge available "to conscious awareness, recallable from long-term memory ... with effort but not yet expressed", a definition that still evokes potential often untapped. Nordberg (2007) likens the way such latent knowledge is surfaced thorough collaboration to a model of group dynamics known as the Johari window (Luft, 1984; Luft & Ingham, 1955). In opening the Johari window, a process of increasing openness between collaborators, group members discover not just more of what they individually know but also to see connections and pieces of the puzzle that none knew before the collaboration. While these uses of the term "latency" differ in detail, they all seek to identify an added layer in the creation of knowledge arising from interaction and discovery.

This sense of collective, mutual and shared creation, however, has little to do with the industrialization of knowledge creation experienced in the tacit-to-explicit transfers that Nonaka highlighted, which led to the industry we now call knowledge

management. Between the craftsmen's tacit-to-tacit knowledge transfers, the factory made possible by tacit-to-explicit knowledge externalization, and the occasional collaborative Eureka moments when latent knowledge comes to the surface lies another model of knowledge processes, one with links to craft and industry, one suited to creating legitimacy while encouraging efficiency – the profession, an overtly institutionalized approach.

Institutional theory

Those working in the professions – law, accountancy, medicine and some would say teaching – gain their privileged autonomy through a combination of their specialist knowledge and their adherence to codes, guidelines, ethics and norms. These ways of working come to be taken for granted and embedded in actions and provide legitimacy in the face of the inherent difficulty in holding those with specialized knowledge to account. They become, in a word, institutionalized.

DiMaggio and Powell (1983) examine how institutional practices arise, propagate and persist through isomorphism, as individuals copy the practices of other, whether through mimesis, coercion or the acceptance of norms. Professionals are often distinguished by their ingrained, embedded normative isomorphism, which gives those practices a ritual character, passed on to newcomers to the profession through socialization into the profession. They adopt such rituals and routines despite their apparent inefficiencies (Meyer & Rowan, 1977) for the sake of the legitimacy that accrues to those who accept the strictures.

Because they come to be taken for granted, institutions become semi-conscious, unconscious or perhaps pre-conscious considerations when individual actors decide what actions they may take. Institutional norms, rituals and routines may be imported from fields outside the organization, for example, discipline-based expectations acquired through functional or professional training, creating barriers to organizational change desired by management and adaptation of the organization as a whole to environmental forces. Institutions, in short, contribute to stability and persistence, providing structure, purpose and meaning through their symbols and language. Adherence to institutional norms creates legitimacy of action in the eyes of those who adhere even loosely to their prescriptions, justifying actions that conform to institutional expectations to the actors themselves. Institutions help explain the stability and persistence of certain practice and ways of thinking, including the resistance to change and the need for a "precipitating jolt" to initiate the process of deinstitutionalization (Greenwood, Suddaby, & Hinings, 2002, p. 60).

According to Thornton and Ocasio (2008, p. 103) institutions, "through their underlying logics of action, shape heterogeneity, stability and change in individuals and organizations". These logics, involve structural, normative and symbolic elements that give sense to the actions that the institutions prescribe, helping them to become taken for granted. Logics shape individual and organizational action through creating collective identities, explaining the reasons why certain actors and action achieve status and power and how certain categories of meaning achieve legitimacy and others do not. Institutional forces help explain why certain attitudes and practices persist; less clear is how change occurs in the face of institutional pressures for conformity. Thornton and Ocasio (2008) suggest that competing and conflicting

logics within an organizational field provide the opportunity for individual agency, for institutional entrepreneurship, even in the face of strong institutional pull towards the established set of arrangements.

Thornton and Ocasio (1999), studying a field adjacent to ours, examined a case of competing logics in higher education publishing, where after considerable struggle a professional, "editorial" logic was superseded in many organizations with a performance-oriented, "managerial" logic. Building on this analysis, the next section explores how three institutional logics emerge from the theoretical, empirical and normative literature on research supervision: supervision as "craft", as "factory", and as "profession", with their own associated discourses and their basis respectively in mimetic, coercive and normative isomorphism among actors.

Supervision

Petersen (2007) sees supervision as an activity that spans category boundaries, an idea this paper extends by drawing upon the concept of competing institutional logics, which seek to legitimate different categories of meaning. The empirical literature on supervision has many references to the way that supervisors claim they behave towards their research students as they themselves were treated when they earned their PhDs (e.g. Anne Lee, 2008). This type of mimetic isomorphism is easy to understand: To find a model for an infrequent activity with deep personal interaction, people often look to their nearest memories of the setting and replicate it. When the experience is associated with the award of an honour and title, the experience exudes legitimacy in the eyes of peers not just within the organization but

around the world. As we have seen, however, that mode of operation in research supervision faces challenges now from the pressure for the efficient use of resources. We can view this pressure as leading to contested and conflicting institutional logics at work, constraining and shaping decisions of supervisors. Lee and Kamler (2008, p. 521), for example, explore methods to help PhD students to aim their writing from an early stage towards publication, but in the context of pressures that take on an institutional character within what they call "an intensifying environment of textual production and exchange". The demand for accountability is evident. Firth and Martens (2008, p. 279) challenge the "oppressive liberal discourses" around supervision arising from the "increase in the number and diversity of both research candidates and supervisors and the financial incentives for on-time completions" and seek to assert the "restoration of the 'whole person' which has been obscured by the managerialism or rationalism associated with liberal ideology" (2008, p. 280).

Leaving aside the element of protest in such sentiments, we see in the development of policy and practice in the UK a similar movement towards managerialism through the vehicle of accountability. A private research firm, commissioned by HEFCE to analyse the "future of research", concludes: "Whilst universities remain autonomous institutions, increased public investment both through grants and fees income has made them more visible and more accountable. They must now strive harder to retain the respect once naturally granted" (Evidence, 2010, p. 2). That accountability now includes an emphasis on the impact of research assessed through case studies (HEFCE, 2011) as well as analysis of the research environment, a metric that includes the research culture the university creates, leading to other institutional

efforts to assess the facilities on offer to research students, the seminars available to them and even the social life the university organizes for research students (Higher Education Academy, 2011). How "autonomous" the university is under all this scrutiny is somewhat open to question.

Such analyses and the actions they generate inside business schools create a language and discourse about supervision that affect the way in we speak and even think about the issues, even what issues may legitimately be discussed in an institutionalized setting (Fairclough, 1992; Phillips, Lawrence, & Hardy, 2004). We look first at the idyllic, remembered mode of supervision, the "craft", before discussing how supervision is also viewed with less nostalgia as a "factory" and then consider an alternative logic: the "profession".

Supervision as craft

From the supervisor's point of view the desirable state is often that of master working with an apprentice. Lee and Green (2009, p. 624) describe the metaphor of apprenticeship in these terms: "'Master–apprentice' or 'expert–novice' metaphors in one form or another are often deployed, more or less explicitly, in supervisor stories of their practice." Indeed, their other two metaphors – authorship and discipleship – have echoes of a craft-like approaches, though with less emphasis on a progression of the candidate as the project develops.

In their research with research supervisors, Halse and Malfroy (2010) liken supervision to Aristotle's virtue *technê*, or craft knowledge. They write of the need to

match the needs of the candidate for skills and methods at different stages in the process with the specific technical skills of supervisors, and note that "*technê* involves more than technical expertise because the supervisor is a master craftsman (*technitês*) who knows not only how to do something but also the reasons for doing so" (2010, p. 87). Dysthe and her colleagues (2006, p. 312) write about how the attempt to improve the quality of Master's research projects led to creation of supervision groups to instil the "practical know-how of the craft of research", helping these students integrate into the research culture of the university.

Although Firth and Martens (2008, p. 287) challenge aspects of the old approach from a feminist and post-colonial stance, their proposed remedies to the drive towards the "managerialist" orientation in supervision involve a "personal transformation [that] belongs to the non-professional part of supervisors' and candidates' lives", something akin to the craft mode. A similar theme arises as Lee (2008) discusses two influences on supervisors' approach: their concept of research supervision and their personal experience as a doctoral student. In addition to functional aspects, like project management and encouraging critical reasoning, the supervisor's see their role as "enculturation", or bringing the student into the community of scholars, "emancipation", or letting the student free to develop, and "developing a quality relationship" (2008, pp. 270-271), in effect therefore as a prelude to future collaboration with a peer.

These aspects, especially as they draw on their own student-experiences and probably from less pressured days, suggest the logic of a craft, of tacit-to-tacit knowledge transfer. That approach can fail, for example, if the process develops

what Dsythe et al. (2006, pp. 299-300) call "[o]verdependence on the supervisor, lack of ownership and mismatch of personalities". These issues, together with concerns over the accountability for public money and the drive for greater efficiency point towards a different logic for supervision, the logic of the factory.

Supervision as factory

In history, and especially during the industrial revolution, factories replaced crafts as a method of achieving efficiency in production. They do so by turning the skilled work of individuals into routines and processes that can be replicated and reproduced without demonstration, that is, through the application of technology (broadly defined) to make tacit knowledge explicit. Answers to process questions become formulaic, standardizing; norms are codified for ease and consistency of application.

The concern about this trend we heard above from Firth and Martens (2008) is far from a lone voice. Deuchar (2008, p. 489), for example sees a "market-driven, consumerist service ethic" emerging in the process of supervision "driven forward by new quantifiable expectations imposed by external bodies" like the councils that fund university research in the UK. Grant (2005, p. 343) identifies a "neo-liberal discourse of supervision ... associated with the sweeping economic reforms of the 1980s", when the Conservative Party came to power under Margaret Thatcher in the UK, in which education becomes a commodity and educational institutions become commercial enterprises. Both see these pressures as influencing the supervision style. Grant (2005) likens the discourse about "Proper Supervision" to a consumer contract, and cites Yeatman (1995, p. 10) suggesting that "contractualist technologies" to manage supervision are structures that "embed ways to make both

parties accountable to each other". Yeatman points to a mutual accountability for a shared project, but her implication is that both parties may therefore also be held accountable to the institution and its sources of funding.

Nor is this orientation viewed simply as upsetting the comfortable lives of craft-oriented academics. Some scholars share the concerns of Firth and Martens both about the effect on the research student and about the broader impact on society: This managerial emphasis tends to favour the privileged individuals over the less well off and the development of narrow knowledge over perspective. For example, in recounting a shift in emphasis among academics after a change in government policy reduced funding and encouraged faster completion, Neumann (2007, p. 464) says: "The most common strategy favoured by experienced supervisors and senior university managers" was to squeeze the definition of the research question into the first three to six months of study, instead of the 12 to 18 months that had been accepted. The impact was a change in character of students. They needed to be better prepared before entering doctoral studies, often doing much of the reading that had previously been part of the process before formally commencing their studies. Others needed to take leaves of absence, in effect, stopping the clock. The clock needed to be stopped because someone, somewhere was keeping time. Moreover, recruitment focused more on students with English as a mother tongue, and on full-time students, a practice that tended to exclude students who were older, female and studying in professional disciplines, creating implicit, systematic discrimination on age and gender. "As a result, it could be expected that a number of well-motivated and appropriately qualified applicants were being denied the opportunity of studying for a doctoral degree" (Neumann, 2007, p. 471).

Neumann also finds that supervisors push for narrow, manageable research topics. The "days of the 'blockbuster thesis' are over" and in the sciences and engineering "the trend is also to 'downsize' projects and make them 'significantly less significant'" (2007, p. 465). The implication is that more narrowly focused subjects increase the degree of specialization, keep students within defined disciplines, and lead to narrow rather than broad knowledge, a rather different social outcome than the one Aristotle achieved by spending 20 years under supervision in Plato's Academy. Moreover, Neumann reported that greater reliance on industry funding in engineering meant that more research questions arose in area relevant to industry rather than from the discipline; topics were "more circumscribed and less risky" (2007, p. 467).

The sometimes shrill voices in these critiques of the perceived industrialization of supervision may overstate the case. In studies undertaken when the supervisor and the student are together, we hear the "craft" voice repeatedly; managerialism is in evidence more in process phases like recruitment, topic selection and the reporting processes associated with monitoring and control. That suggests a third logic emerging in practice, combining the personalized interaction of craft with the stronger standards, and greater efficiency and replicability: the profession.

Supervision as profession

Historically the stage between the individual craftsperson and factory was the profession. Self-organized and self-regulating, the traditional professions of law, accountancy and medicine created legitimacy in the eyes of the public and the authorities by enforcing standards for admission to and continuing membership of the

profession. An important close associate of these professions was the university professoriate (Krause, 1996).

The norms through which they traditionally work involve standards coupled with discretion to make exceptions. Compliance is important but not final. Krause's book argues that the professions have long been under attack from the combination of the market forces of capitalism and the arrogation of regulatory power by the state, though not always with great success. During Margaret Thatcher's period as prime minister, for example, the abolition of tenure in British universities and the decision to challenge greater resources to the industry-oriented polytechnics met resistance from the polys themselves, where academic staff – many of whom had come through the system of old universities – "argued that practical training is not the function of a university or a polytechnic" (Krause, 1996, p. 115). These polytechnics became what the UK now calls "new" or "post-1992" universities".

The term "professional" has another, perhaps contradictory meaning in the context of higher education. Neumann (2007), for example, writes of the increasing use of the "professional" doctorate in areas outside the traditional professions. Drennan and Clarke (2009) discuss how continuing education requirements, from the traditional professions and disciplines seeking to be "professional" have led to growth of "professional" Master's programmes. In the context of supervision, however, the professionalism that figures strongly in the literature is an aspect of university education relatively far removed from the modularization of taught courses and development of seminars of 25 students in the place of tutorials for a handful or even

aspects of a research project aimed at the more practical application of knowledge of a Doctor of Business Administration.

Supervision is still largely one-to-one in the case of PhD studies, or even two- or three-to-one, with the weight on the side of the supervisors, not the students. Parker (2009, p. 46) says the "focus on scholarly writing is justified given its central role in the professional development of academics". Through attention to their writing research students are brought into the community of the profession; research and authorship is what distinguished the academic from the mere teacher. The work of the scholarly writing groups she discusses builds the community and supports the work of supervision.

Halse and Malfroy (2010, p. 79) are among the most explicit in theorizing supervision as professional work, arguing that it "comprises five facets: the learning alliance, habits of mind, scholarly expertise, *technê* and contextual expertise". In discussing the reflections of doctoral supervisors on how life used to be in the 1970s, they recall the warning of Tierney (2003, p. 372) about the "romanticization of the past as a kind of golden age". Both observations suggest an approach to supervision that moves beyond craft but not towards the factory. Halse and Malfroy say that while some supervisors in their study yearned for those bygone days, all those interviewed said their current practice was significantly different from their former experiences. The supervisors "reported carefully managing their interactions with students, and drawing clear boundaries between their professional work as doctoral supervisors and their personal interaction with students" (2010, p. 80). One supervisor told the

writers it was easier to "keep it professional and it's cleaner as well. I'm not here to be friends" (2010, p. 82).

Their five facets of supervision highlight what Halse and Malfroy mean by professionalism. The learning alliance they see in supervision is not a meeting of equals; nor is it democratic. Supervision involves discipline and structure, with clear milestones and deliverables. Habits of mind involve "Aristotle's intellectual virtue of *phronesis*, or practical intelligence and wisdom", not just *technê* (2010, p. 85), though that – craft – is part of their model of professionalism, too. Scholarly expertise, they write, "is akin to Aristotle's notion of *episteme*, which is commonly translated as theoretical knowledge acquired through reflection and thinking" (2010, p. 86), while contextual expertise involves an understanding of the "institutional and disciplinary context of doctoral study" (2010, p. 87). In this phrase, "institutional" may involve both the "institution" of higher learning and the forces discussed in the literature of institutional theory. Those forces arise as much from intellectual and functional disciplines, that is, the "new" institutionalism of Powell and DiMaggio (1991) as from the "old", organization-focused institutionalism arising from Durkheim (1895/1982) and Weber (1922/1947).

Whether through craft, factory or profession, the purpose of supervision and indeed of research is, however, to make a contribution to knowledge. The literature on supervision also provides evidence of how supervisors understand the processes of knowledge creation.

Knowledge creation through supervision

The craft mode of supervision we see in the literature has a strong element of the tacit-to-tacit knowledge transfers in the work of Nonaka and his collaborators (Nonaka, 1991; Nonaka & Takeuchi, 1995; Nonaka, et al., 2000). Supervisors pass along their knowledge on a one-to-one basis without exploiting the leverage that comes from making that knowledge explicit.

Publication of student work, including articles, conference papers and monographs deriving from the thesis, represents a case of externalization in Nonaka's terms, of tacit-to-explicit transfers. We can see a response to the pressure from the side of government and the universities for greater outcomes from research in the interest in using scholarly writing groups (Parker, 2009), greater use of students work for articles and conference papers (Waghid, 2006) and PhDs by published work (Alison Lee & Kamler, 2008). This pressure arises at least in part from the desire of universities to demonstrate the productivity of research supervision and from the desire of students to establish a record of publication so as to meet the criteria for employment increasingly demanded by the universities. This concern for "throughput" resonates with the factory logic of supervision as well as with the knowledge efficiency that Nonaka highlights.

Pressure to use and reuse datasets in different ways to answer different but related research questions recalls elements the combination phase of explicit-to-explicit knowledge transfer in Nonaka, the only phase in the SECI model that involves more than knowledge recycling. The parallels suggest reasons why the original SECI model proved unsatisfactory as an explanation of what we think of as knowledge

creation in the field of knowledge management and as "contribution" in research and research supervision.

Moreover, the narrowing of the subject matter of doctoral inquiries, which both Newmann (2007) and Firth and Martens (2008) describe, suggests that more attention is being paid to the volume of output and less to the discover of new knowledge. In terms used by Collinson and Wilson (2006) and Nordberg (2007), less attention may be given to tapping the latent knowledge that might be found through regular and close interaction between student and supervisor, one of the themes identified in the literature as related to what Tierney (2003) and Halse and Malfroy (2010) refer to as the romanticized golden age of intellectual life.

The process of research degrees then begins for the next student with the final stage of the SECI model of Nonaka, the process they call internalization and research supervisors and students know as the literature review, when explicit knowledge is accumulated and made tacit. The culmination of that process provides the launch pad for the creation of new knowledge, for a contribution.

The theme of supervision as profession, however, adopts elements of both craft and factory approaches, the former for its close interaction between student and supervisor, its tacit-to-tacit exchanges and its occasional dips into latent knowledge; the latter for its standards and effort to achieve external legitimacy. The tension between craft and factory approaches and their (partial) resolution in a professional approach point to the institutional character, with its combination of isomorphism and resistance to change, and in conflict of logics scope for individual agency, for

discretion, by supervisors seeking to find their own way for the supervision process, as we explore in the next section.

Institutional logics and discretion in supervision

The tacit-to-tacit knowledge exchanges identified in the literature with the craft of research have an institutional character, which appears in the literature in the references to supervisors' recalling their own experiences of being supervised and in the practice of having experienced supervisors team up with novices to introduce them to ways of working. This is what DiMaggio and Powell (1983) call mimetic isomorphism, in which practices pass through master to journeyman as much as to apprentices. Such craft does not transfer completely or perfectly, but rather becomes individualized and therefore evolves over time. Mimetic isomorphism is less of the "iron cage" that Weber (1922/1947) identified in bureaucratic systems because of its highly personal interaction and interpretations. As institutional logic, this craft orientation comes with symbols, myths, rituals and routines that reinforce the legitimacy of the approaches adopted and then adapted by the novice.

With its focus on outputs and efficiency, what this paper identifies as a "factory" approach to supervision represents a series of institutional norms. It requires of supervisors explicit, measured and verifiable statements concerning the process, and measurements like the number and percentage on-time completions of research studies. It also increasingly requires of supervisors and students the generation of explicit knowledge, as measured by published outputs and even PhDs by published work, as a step towards employability if not perhaps tenure. The institutional pressure

to meet the numbers predisposes organizations (that is, universities) to accept only manageable project, which Neumann (2007) saw in the end of the "blockbuster thesis". Imposed by outside authorities and adopted and enforced by the organizations that receive the authorities' funding, these practices often meet with resistance from the incumbent master craftsmen in the professoriate. That they attract derisive labels like "managerialist", "consumerist" and "market-driven" is a sign of the resistance that their imposition has stirred. This reaction suggests that the isomorphism associated with this new institutional logic is coercive, introduced through overt and covert exercises of power (DiMaggio & Powell, 1983). Whether this approach can achieve the moral or pragmatic legitimacy that Greenwood and his colleagues (2002) see as necessary for a new institutional logic to take hold is, on the evidence of this literature review, open to considerable question.

The middle ground is a professional logic for the institution of research supervision. Its invocation in the literature, in particular in the discipline and structure mentioned by Halse and Malfroy (2010), recognize the need for attention to generation of explicit knowledge and verifiable results. It involves the introduction of norms and standards, not just the symbols of mimetic isomorphism or the commands of the coercive variety. The normative isomorphism of professionalism is signified, among other places, in the development of training programmes on research supervision within universities, which create "formal education and ... legitimation in a cognitive base", and in the "growth and elaboration of professional networks that span organizations", as described by DiMaggio and Powell (1983, p. 152).

The literature in this review shows a yearning for a golden age (Tierney, 2003), in the practices this paper describes as craft, and a rejection of the factory, as when Waghid (2006, p. 427), writing in the context of the racial divide in South Africa, makes an impassioned case for friendship and freedom through the supervision process, while arguing against what he sees as a "consumer, market-driven 'logic'." The alternative logic is of profession, which shares with the craft its occasional forays in the realm of latent knowledge and with the factory its concern for explicit, verifiable knowledge meeting explicit, verified standards. The persistence of institutions suggests that the old, remembered practices of the scholars who learned their craft at even older universities will not soon die out without a precipitating jolt (Greenwood, et al., 2002) from, say, the withdrawal or substantial reduction of government funding. The "profession" of supervision seems more likely than the "factory" to incite the moral and pragmatic legitimacy needed to achieve the cognitive legitimacy of a re-institutionalized condition (Greenwood, et al., 2002). It helps resolve the tensions between the competing logics through a blending of their characteristics (Glynn & Lounsbury, 2005).

Conclusions: Legitimacy and accountability

The discussion of these institutional forces affecting knowledge creation helps us understand the less-than-complete embrace of the demands for accountability and efficiency in research supervision. But it begs questions of the role of power in the relationship between the student and supervisor, and between the supervisor and the organizational field of higher education. Further studies might explore the extent to which the supervisors and the supervision process are squeezed between the consumerization of the student experience and the factory-like pressures arising from

organizational imperatives. The discussion above suggests that insofar as research students are initially engaged in craft-like relationships with supervisors, whether in the long-term craft relationship or in the early phases of the professionalization of their work, considerable power rests with the supervisor. But the literature reviewed here points towards a reduction in the degree of discretion that supervisors have with respect to the requirements of the university for upwards accountability towards its paymasters, by in large in government. A further review of the literature and additional empirical work would help us understand the relationship between these institutional forces and the exercise of power in the processes of knowledge creation.

This review offers glimpses of another important and related theme: Accountability recurs in the discussions in the literature on supervision along two dimensions. Within the logic of the craft, the literature suggests that supervisor and student are accountable to each other for passing on, receiving and developing the knowledge. This internal, mutual accountability is based on trust and respect, for each other and for pursuit of knowledge that brings them together, much as opening the Johari window (Luft, 1984; Luft & Ingham, 1955) to uncover the knowledge hidden and unknown – latent – in group interactions follow the development of trust and respect between group members. In the logic of the factory, accountability is upwards to the authority (the source of funding, often the public purse), passing through the hierarchy of those who adhere to its logics and enforce its standards – the university. In the logic of the profession, accountability moves in both directions, and perhaps more explicitly upwards towards an authority higher than the source of funding, towards the profession of scholarship.

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