

LEARNING EXPERIENCES FOR SOUTH AFRICAN SMES: INTERACTIONS WITH ESTABLISHED CONTRACTORS

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Knowledge is key to the economic survival of any organization. For small emerging companies to achieve stability in their development knowledge is crucial and has to be acquired. Using an organizational learning approach a series of cases studies of Small and Medium Enterprises (SMEs) and their interactions with large established companies were conducted. Interactions were mapped against the learning experiences of the SMEs that resulted. The findings showed that the nature of the relationships between the companies shape knowledge acquisition. Typical mechanisms of knowledge acquisition through interaction with established companies exist, and are content and context dependent. In order to foster learning, tailor-made learning environments using relations with other actors in the industry can be created.

Keywords: development, knowledge transfer, mentorship, organizational learning.

INTRODUCTION

In an analysis of entrepreneurship in his book ‘The age of discontinuity’ Peter Drucker (1969) noted the importance for entrepreneurs ‘to know how to convert their technical work into economic performance’. Whilst Drucker focused on the management affairs of large, complex companies, the same requirement also applies to small companies. For companies to survive in competitive environments knowledge and the ability to translate this knowledge into profit or at least sustainable practice is key (March 1991). The ability of a company to use knowledge and create new knowledge are strategic assets (Senge 1990). For small companies with limited resources, the need to develop their knowledge base in order to become, and remain, competitive, is arguably more compelling than for larger firms.

As in all construction industries, in South Africa many small and micro companies, often only established in the recent past, exist. These companies fall in the category of Small Medium Enterprises (SMEs) or more precisely in the category of Small Micro Medium Enterprises (SMMEs) as defined in the National Small Business Act (South Africa 2003a). Uniquely in South Africa, the bulk of these construction companies are further categorized as ‘emerging’ companies, indicating that their ownership and management is usually held by individuals of specific racial groups or women labelled Historically Disadvantaged Individuals (HDIs), who were discriminated against

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during Apartheid (CIDB 2008). To address some of the wrongs of the past the South African government implemented the broad-based black economic empowerment policies (South Africa 2003b) which encourages the direction of economic opportunities, particularly in the public sector, towards formally disadvantaged individuals. Benefactors of these policies, such as Preferential Procurement policies (South Africa 2000), are also referred to as emerging contractors. However the high level of business failure within this particular class of contractors, particularly amongst micro and small businesses, has been observed (CIDB and CETA 2005). This suggests that many of these entrepreneurs who have entered the construction market to benefit from the public procurement policies and practices, are either not succeeding in converting these business opportunities (and the knowledge arising from these opportunities) into sustainable economic performance, or that core knowledge essential for running a construction enterprise may be lacking.

The South Africa government has recognized the problem of under-performance and has implemented various programmes to empower and to address the short-comings of emerging contractors; The Vuku'phile contractor learnership programme or the Emerging Contractor Development Programme, are examples of programmes where emerging contractors can attend seminars and workshops in a bid to increase their knowledge base.

These policies, and in particular the existing public procurement policies, have also encourage established companies to work with emerging companies and emerging contractors who now frequently operate as subcontractors for established companies. This working relationship creates an opportunity for emerging companies to learn from their established partners. Such subcontracting arrangements thus are a way to not only economically empower HDI owned and managed companies, but also to transfer these skills and knowledge these companies need to manage their businesses and projects.

However not all subcontracting arrangements between established and emerging companies can be expected to automatically result in knowledge gains to the emerging partner. Argote and Ingram (2000) define knowledge transfers as 'the process through which one unit ... is affected by the experienced of another'. For such transfers to occur the contexts need to be suitable (Darr and Kurtzberg 2000), and the content dependency of knowledge transfers also needs to be addressed (Carrillo 1996). Any attempt to capitalize on subcontracting practices in order to maximize the knowledge gains for emerging contractors, requires a description of currently occurring knowledge transfers. It is only through documenting and understanding current practices, mapping the links between organizations and role-players, and identifying the content of subsequent knowledge transfers, that the factors supporting or hindering knowledge transfers can be determined.

UNDERSTANDING OCCURRING KNOWLEDGE TRANSFERS

Knowledge creation within emerging companies arising through knowledge transfers with established firms was the focus of this research. Emerging companies are characterized by the central role of their owner/manager, however, despite their often micro size, the framework developed by Katz and Gartner (1988) can be used to determine whether a company can be regarded as in its infancy as these enterprises exhibit the characteristics of organizations even when the enterprise and the entrepreneur are effectively one and the same. However, it does require thought as to whether it is appropriate to investigate knowledge transfers from either a

psychological individual-based point of view, or from an organizational point of view. In a psychological individual-based point of view learning can be described along four lines: behaviourism, cognitive learning, knowledge construction, and social practice (cf. Reynolds, Caley and Mason 2002). From an organizational perspective, Schwandt and Marquardt (2000) define organizational learning as ‘...a presentation of the dynamic processes required to increase the cognitive capacity of the total organization’. From this definition it becomes clear that the role of humans within organizations is central to the question of organizational learning, with humans entangled in (organizational) learning processes. The link between individuals and organizational learning is also well elaborated upon elsewhere (e.g. Fiol and Lyles 1985, Easterby-Smith and Araujo 1999). It can be argued that particularly in small and micro emerging companies the core-individual (owner/manager) plays a central role to all activities in the company, including those of learning and knowledge creation.

In order to bridge the requirement to consider both individuals and organizations when investigating knowledge transfers, the knowledge creation theory of Nonaka (1991, 1994) later further expanded by Nonaka and Konno (1998), which accommodates both individual and organizational learning were adopted as a theoretical framework for the research. Although other organizational theories; e.g. loop-learning (Argyris 1977) or learning by experience (Levitt and March, 1988), also acknowledge the role of the individual, the model developed by Nonaka and colleagues highlights certain aspects around the role of the individual. In the work of Nonaka and Konno (1998) the position of individuals against and within collectives, such as groups and organizations are described and related to the processes of knowledge creation.

Nonaka’s widely adopted model depicts knowledge creation as a spiral of four sequential stages: Socialization, Externalization, Combination, Internalization; the SECI model. Central to this model is a differentiation in the nature of knowledge processed during the respective stages. Nonaka builds on the philosophical work of Polanyi (1966), differentiating between tacit and explicit knowledge. Nonaka and Konno (1998) developed the SECI original model further to include consideration of the circumstances where knowledge is traded. By introducing the concept of Ba’s (Japanese for ‘places’) to describe the context of each of the various stages, the role of the individuals in the knowledge creation process was also further developed; making this extended SECI model even more appropriate to this study.

The first stage, Socialization, is concerned with experiencing circumstances, ideas or values. Knowledge traded here is tacit. Physical proximity and the role of interacting individuals are essential (Nonaka and Konno 1998) with Socialization occurring in the ‘Originating Ba’ (Nonaka and Konno 1998).

Externalization is concerned with making tacit knowledge explicit. It is supported by two factors, namely: articulation of tacit knowledge and the translation of tacit knowledge. Externalizations happens in the ‘Interacting Ba’ (Nonaka and Konno 1998). For example, telling (personal) anecdotes about processes or events with their implied deeper (tacit) message are ways to communicate meaning from one individual to another individual or group. The receiving individual or group can extract the embedded message, which then later can be captured.

Combination refers to capturing and editing the articulated explicit knowledge. This then enables the group to disseminate knowledge along formal lines of communication. Explicit knowledge is integrated into the group. Combination

happens in the 'Cyber Ba' (Nonaka and Konno 1998), in which groups gain knowledge.

The final stage through which knowledge runs is the Internalization stage. At this stage the new knowledge is internalized by the group members (individuals). For example continuous repetition of documented procedures lead to such internalization and new working patterns are entrenched in organizational behaviour and made tacit on an individual level again. The corresponding Ba is called the 'Exercising Ba' (Nonaka and Konno 1998). Following this a stage of Socialization comes again, individuals working alongside each other and assimilating their knowledge, and thus the SECI spiral continues.

Organizational learning theories are typically applied to single organizations for investigations into innovations or quality improvement mechanisms. In the context of this study organizations had a dual meaning. Firstly is the permanent enterprise of the emerging contractor. The investigation focused on how these companies learn from other parties. However, these learning events are situated in the temporary multi-organization of the project, a product of the contractor and subcontractor arrangements. In the words of Nonaka and Konno this level of organizational interaction can be described as the Basho – the greater place in which learning happens. As the boundaries of such temporary organizations often appear blurred, the theoretical position taken in this study is that organizations active within their own SECI spiral, may at any point absorb and adapt knowledge from outside. It thus offers an extension of the SECI model to use it as an analytical tool for determining at which stage of the SECI spiral knowledge transfuses from the Basho to a Ba.

METHODOLOGY

The study set out to describe how knowledge transfers are currently occurring between emerging and established companies in the civil engineering contracting sector in South Africa. As the boundaries between the phenomena under investigation and its context is blurred, an in-depth understanding of the factors involved needed to be developed and a case study approach was selected as the most appropriate methodology. Case studies enable a better understanding of the interconnection of the phenomena and its context (Mayring 2002, Yin 2003). As the contexts and contents of knowledge transfers were deemed to be unique for each case study, a multiple case study approach was adopted. Guided by theory, nine cases across South Africa were then purposefully selected to achieve literal and theoretical replication. The unit of analysis was the emerging contractor with a particular emphasis on the perimeter of the organization and how it interacted in the Basho.

The data required to draw up the rich picture informed the data access and collection strategy. Access to case studies was sought via client bodies (e.g. municipalities and public departments) and their agents. A description of the intended research as well as selection criteria (e.g. subcontractors, emerging company) for case studies was provided to these parties, enabling them to identify suitable candidates. Proposed candidates for case studies were then scrutinized and consent for participation was achieved prior to the fieldwork. The main data collection method used was semi-structured interviews, which were later transcribed verbatim for analysis using the NVivo7 software application. Interviews for each case were held with the owner/managers of the emerging companies, main contact person in the respective established contractors' organizations, as well as project client representatives (client as well as appointed agents, i.e. engineers). A total of 18 interviews, some of them

group interviews with various interview partners, were recorded and transcribed. A total of 44 respondents / interview partners were heard. Using the various points of view represented by the interview partners a fuller picture of the wider context of possible knowledge transfers, but also into inner workings of the subcontracting arrangements was explored.

In addition to the interviews, documentation pertaining to the companies, the specific construction projects, subcontracting agreements, as well as procurement policies were collected and analysed to assist in a better understanding of the framework within which the actors connected. This data also assisted in validating data collected during the interviews.

For the analysis of the data, which aimed to connect knowledge transfers to the emerging contractors' SECI spiral, particular attention was given to descriptions of knowledge transfers, their inner setting as well as people involved, including their general relation to each other. The data was thus analysed using the points given by Nonaka and Konno (1998) on the role of individuals in the Ba, as well as on the type of knowledge traded (tacit vs. explicit). The analysis of the data was thus guided by previously established concepts, looking for the emergence of related themes.

DESCRIPTIONS OF KNOWLEDGE TRANSFERS

Case studies overview

Nine case studies were conducted across South Africa. The majority of the emerging contractors identified as suitable case studies had only become active construction companies within four years prior the research, and could readily be described as emerging. They generally lacked resources, yet the owners had clear intentions for the development of their companies. They ranged in number of employees between zero and forty permanent staff, and had annual turnovers ranging from ZAR 0.1mil (GBP 9k) to ZAR 8mil (GBP 750k). At the time of the fieldwork all of the case studies were engaged as subcontractors to established companies, all but one of which were nationally active in South Africa. The scope of the subcontracts in which the emerging contractors were engaged in were mostly concerned with pavements works or storm water works for roads.

The overall relationships with the emerging contractors' main contractors varied too. Some case studies were conducted in contexts where emerging contractors had never worked with the main contractor before; others had a history of frequent prior interactions. This history was reflected in the strength and depth of personal relationships between the emerging and established companies. The existence of frequent prior interactions appeared to result in closer contacts of individuals across companies. In particular in cases where prior interactions existed the general impression of the quality of the cross-company relationship was good. In cases where client bodies introduced subcontractors to the main contractors, combined with no previous encountered interactions, relationships were viewed to be of a poorer quality.

The owner/managers had a variety of prior experience in the construction industry. Their training and work life varied from previous unemployment without any related training, to an owner with a university level diploma in civil engineering and related work experience. Most owner/managers had, however, started their companies with a very low level of prior knowledge, some of them building up knowledge through short courses over time.

Nature of knowledge

Interviews with the various stakeholders captured past situations where knowledge was transferred from the established to the emerging contractor. In all of the case studies situations were mentioned where the emerging contractor had ‘learnt’. The knowledge transfers reported hinged around three main knowledge fields; knowledge about financial matters, general managerial matters, and technical matters. A further breakdown within these knowledge areas and overview is shown in Table 1.

Table 1: Overview reported content vs. case studies

		Case study								
		1	2	3	4	5	6	7	8	9
Financial	tendering	✓		✓						
	cash flow	✓	✓		✓				✓	
Managerial	resources			✓	✓	✓	✓	✓	✓	
	acumen	✓				✓	✓		✓	
	H & S		✓	✓	✓		✓			✓
	supply chain	✓	✓				✓			
Technical	basic tasks		✓		✓				✓	
	insights	✓		✓			✓	✓		

The description of the transferred knowledge allowed for an initial classification of the nature of the knowledge into being either explicit or tacit – albeit a simplification of the knowledge itself. This simplification is justified in the light of the SECI model’s underlying premise of knowledge as being converted from explicit to tacit and back within the SECI spiral. For example; the reports on knowledge gains by the emerging contractors relating to business acumen can be regarded as highly tacit in nature. Acumen is difficult to teach using explicit terms, as it requires an interaction utilizing a variety of communication channels compared to knowledge relating to the implementation of documented Health and Safety standards, which is predominantly explicit in nature. Considering the nature of knowledge a closer look into the Ba are thus warranted.

Learning and the Ba’s as points of transfers

Although the collected data from the various case studies did not necessarily allow for one homogenous description of the way a particular knowledge was transferred, some observations on typical transfer content and settings can be distilled out of the data. Using the SECI model with its Ba’s and considering also the broader Basho, some knowledge transfers are presented below.

In respect of transferring learning content relating to financial matters, semi-formal settings dominated. Typically actors would sit around a table with pen and paper, making sense of either progress payment claims or tenders and the building up of rates. In two case studies the emerging contractors frequently sought the assistance of the contracts manager of the established contractor with regards to building up rates and tendering. In both case studies the actors knew each other from previous engagements, and expressed their respect of the others’ work and knowledge. The owner/managers of the emerging company also had track records in construction, having worked in the industry for many years prior to becoming business owners. For the emerging contractors to derive a more accurate costing for particular works, they would frequently ask their established partner for input. Descriptions provided

independently during interviews suggest a process of joint enquiry. On an individual basis, in almost intimate face-to-face interactions, the established contractor would give pointers to the emerging partner, which the emerging contractors would then try to accommodate in their understanding of the matter. As an established partner put it: "I have a couple of instances where he [the emerging contractor] came to me pricing jobs, doing quantities, bills, but he's actually come to me to ask me to help with a tender. Then I'll sit down with him and I'll help him [how to] do the tender." However, a basic understanding of each other's approach was a prerequisite for such transfers to take place. The link of individuals aiming to jointly making sense out of a piece of documentation (e.g. tender document) where each party was based in their own cognitive setting most clearly describes an Originating Ba (Nonaka and Konn, (1998). The knowledge traded in these discussions is best described as concepts which can only be partially sketched; a high level of tacitness can be observed which further points to interactions in the Socialization stage based in the Originating Ba.

Where knowledge transfer related to progress payments, these were more formal in their setting. Parties without much prior contact would negotiate by means of an introduction given by the established partner into the process by which claims for progress payments are made. In one case involving a long-term contract the established partner first gave the emerging contractor an introductory course on the entire operation. When the first claim for progress payment came due, the established contractor then used his standard documentation and a formula sheet to explain to the emerging partner how to derive quantities and claim. In cases of discrepancies of later claims the emerging subcontractor and staff from the accounts department of the main contractor would then often clarify errors (read: create a better understanding and knowledge) via the phone, both having a copy of the same documentation at hand. Overall these knowledge transfers were less bound to individuals, as the contact person for the emerging contractor at the established company changed over time; yet the matter/process remained the same. The forms used in the claims documentation were semi-complete and the explicit tools were used to come to the same understanding by means of instructions. Here the knowledge transfer depicted can be said to be entering the emerging contractors SECI spiral between the Externalization and Combination stage, between the Interacting Ba and the Cyber Ba.

Where knowledge transfers related to managerial knowledge two examples are worth elaborating on: Business Acumen and Health and Safety matters. Business acumen related to knowledge received by the emerging contractors that assisted them in approaching their business dealings differently. A quote by one emerging contractor serves as an example for the actual content learnt in this category: "What I learned from him was to stay calm, sometimes I used to over-react".

A high level of assimilation between the individual actors was apparent for transfers relating to business acumen, typically arising out of a long-term relationship. Furthermore these transfers appeared to be mostly happening where the actors had a similar cognitive level, expressed in their work experience or training levels; the use of the same home language and sharing the same ethnic/cultural background was evident too. The emerging contractors contact person within the established company would function as a role-model, with the emerging contractor recognizing the benefits of some portrayed traits, beliefs and ideas – all highly tacit multi-levelled concepts. These close personal relationships accompanying the knowledge transfer point to interactions in the Originating Ba.

Managing Health and Safety matters in construction projects were a further area in which emerging contractors gained knowledge through interactions with their established partners. Reported knowledge gains typically related to production of the correct Health and Safety documentation (required in terms of national Health and Safety regulations). An extract from an interview with an emerging contractor illustrates this: "More with the management, also with the safety etc. They [established partner] have got a Safety Officer that comes and shows us what to do, he's gone through the safety files [saying]: Please you need this and this and this, and, and." Whilst good relations between the owner/manager of the emerging companies and the Health and Safety officers of the established companies, were generally reported upon, the actual knowledge traded appeared to be explicit, as the documentation required the completion of standardized forms – typically supplied by the established company. The actual person involved in the knowledge transfer thus also appeared to be of less importance, as the knowledge was highly codified and already within the domain of a larger group of people, ready for transfer to the emerging contractor. The role and low importance of the individuals involved on the side of the established company together with the explicit nature of the knowledge traded point to a knowledge transfer into the emerging contractor's SECI spiral in the early phase of the Cyber Ba, enabling Combination of knowledge.

For knowledge transfers with a technical content, two levels of knowledge were identified. Some reports related to inductions on simple tasks on site, while others related to improvement of tasks or activities and thus required a higher level of understanding. In the reported scenarios where knowledge regarding technical basics was transferred, the setting was often marked by the owner/manager together with a staff member interacting with a representative of the established partner. A quote by an emerging contractor illustrates this: "He [the main contractor's surveyor] did show me with my operator...how to swing those things safely so nobody can get injured". The knowledge traded appears simple, and the emerging contractors' receiving side consisted of more than one individual, whereas the individual representing the transferring party could vary. The knowledge traded appeared to be independent from the individuals involved as the activity itself appeared to be a standard procedure for skilled groups. However the knowledge traded related to a set of skills that in itself has tacit and explicit content. The transfer thus appeared to be occurring in the early phase of the Cyber Ba within which explicit parts of knowledge can be combined with existing sets of knowledge by interactions of groups.

Instances of higher-level knowledge transfers, labelled 'technical insights', were also captured. Here existing on-site routines were improved upon after interventions by the established contractor. Good underlying relations between the individuals accompanied such interventions, possibly building upon a high level of prior socialization. However the on-site interactions that resulted in an improved understanding of existing routines by the emerging contractor were marked by the presence of clear instructions – mostly explicit in nature. The actors were typically a group of the emerging contractors' staff, led by the owner/manager, and a technical manager of the established company. The nature of relationship, the type of knowledge, and the interactions reported upon place this knowledge transfer in the Interacting Ba – with prior socialization being a prerequisite.

CONCLUSIONS

Small and micro contractors in South Africa, often owned and managed by HDIs, require a variety of knowledge to develop into sustainable businesses. Subcontracting for established contractors provides the opportunity for many of these SMMEs to gain knowledge from the senior partners, knowledge that can be absorbed and made economically usable. Using the extended SECI model with its Ba, as developed by Nonaka and Konno (1998) as a tool to analyse interactions, based on the role of individuals in interactions and the nature of knowledge traded, patterns of knowledge transfers into the emerging contractor's own SECI spiral have been uncovered.

A range of transfers of knowledge with varying degrees of tacit/explicit knowledge content were analysed relating to financial, technical and managerial matters. By considering the nature of the relationships of the actors of the knowledge transfers some typical settings of knowledge transfers were presented. Knowledge transfers containing soft tacit knowledge was typically accompanied by good relations between the actors and individual face-to-face contacts. Hard explicit knowledge was traded amongst individuals and groups, often using paper as a media, without requiring prior shared histories.

The use of the SECI spiral and its Ba's for an analysis of knowledge transfers into the actual SECI spiral of emerging contractors proved to be an appropriate tool. By combining the SECI model with this external knowledge input, considerations of previous contact points and resulting relations between the various parties can be allowed for. As knowledge has tacit and explicit components and is often seen to be a product of socialization, knowledge transfers cannot be seen as isolated events unconnected to its overall setting. This suggests that the settings and circumstances for knowledge transfers from established to emerging contractors can be purposefully designed to facilitate the maximum transfer of knowledge. Programmes aimed at fostering learning as experienced by emerging contractor however will have to consider the importance of the relationship between actors. Certain knowledge will require particular settings and relations between actors to be effectively and openly traded.

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