

The Dynamics between Tacit and Explicit Knowledge in Mauritian Business using Knowledge Creation Taxonomy

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Abstract: This research paper analyses the impact of knowledge creation process on Mauritian business from a case study perspective. The knowledge creation process is a dynamic one since it comes from diverse areas. Firstly, the university or any training institution develops business courses that would help students benefit from job opportunities in firms which expected them to apply their knowledge at work. On the other hand, the knowledge creation process might come from the firm that urges the graduate to develop his knowledge and capabilities that should directly impact on the business. There is also a new approach whereby the university develops courses by integrating the student with the industry in a programme tailor-made for the organisation. This paper states that knowledge creation process should be developed in a dynamic way that integrates and addresses business needs in today's fast changing environment. Through a case study approach in three selected situations, using Nanoko's Taxonomy of knowledge creation as a framework, it reveals that the knowledge creation process is a two-fold dynamic practice and that its success depends on the inter-relationship between tacit and explicit knowledge.

Keywords: Knowledge creation, case analyses, tacit and explicit knowledge, dynamics

INTRODUCTION

It is important to consider the relevance of knowledge creation to the Mauritian business environment. Businesses can only survive when knowledge is constantly developed, reviewed and adapted to their needs. This comes in various forms but can be broadly categorised as tacit and explicit. Firstly, educational institutions are expected to provide ready-to-work graduates for the immediate needs of the job. In this context, they are expected to develop knowledge that applies to the job needs. There is then the need for businesses to develop knowledge from their part based on the technologies and work environment that has prompted change in them. In this regards, knowledge creation comes from the other way. The dominant view of organisational knowledge is that it exists in the form of routines resulting from an accumulation of past experience that guide future behaviour [1]. However, the dynamic relationship of university and society starts with the economic exploitation of research results, with the intention, on the one hand, to safeguard the equilibrium of financial resources to support academic activity on the other hand with the intention to sustain society and more specifically stakeholders' interests [2]. This research paper sets the framework whereby it states that knowledge creation is a two-way process and is dynamic in the sense that the interactions of the two

types of knowledge—tacit and explicit—should be developed both in the firm and the training institutions, or university in this particular context, to ensure the competitiveness and survival of Mauritian businesses.

PURPOSE OF THE STUDY

The study 'A case evaluation of the impact of knowledge creation process on Mauritian business' firstly aims at defining the concept of the knowledge creation process in business in the local context. Three case scenarios have been developed to better understand dynamic relationship between tacit and explicit knowledge that form part of knowledge creation. This research sets the Nonaka model [3] as a framework for study by extrapolating the relationship between tacit and explicit knowledge in three cases at the Université des Mascareignes, UdM, a public-funded university in Mauritius.

In the first scenario, the research identifies the creation of business knowledge in a university by explaining how such an institution develops business curricula by relying on current business literature, business trends and the economic environment. It then questions whether the knowledge created in learning impacts positively or not on businesses and vice-versa.

There might be, in this case, a mismatch between job skills and qualifications offered by the university.

A second situation explains the knowledge creation that needs to be addressed by the learner at the time when he is recruited and adjusts himself to the needs and requirements of the job. The case establishes how tacit and explicit knowledge apply both to the learner and the organisation where he will spend his first years at work.

Further, a novel approach in knowledge creation in Mauritius is the existence of tailor-made collaborative training through focused knowledge that the firm needs by requesting the university to provide such training for the immediate needs of the industry. This has been achieved by the UDM in 2015 and it was right time to see how the knowledge creation process was achieved under such collaboration.

SIGNIFICANCE OF THE STUDY

The process of knowledge creation in business is often overlooked in Mauritius because the market needs employable people that it expects to have from the university. Training or learning institutions do offer trained graduates to the job market in a knowledge creation process of their own but do these match the industry needs or are they adequate in fostering competitiveness? Further, what about knowledge creation when the industry itself inducts the graduate at work? Where does such knowledge creation come from and how is it internalised? Finally, is it sufficient to say that tailor-made learning provided under industry-university collaboration offers significant knowledge creation? What are its benefits?

Structural theories of organisational behaviour propose that if the right conditions are put in place, the desired behaviours are more likely to occur" [4]. Knowledge creation in business remains a two-way process. On the one hand, the potential employee brings his learnt behaviour (tacit and explicit knowledge) from the university to the work environment. The organisation benefits from academic learning offered by the university to develop human capital at work. Secondly, the organisation, in turn, expects the employee to develop knowledge that it requires, say, from its own background so that the employee becomes an asset of the firm.

Brief literature on Knowledge creation

Nonaka *et al* proposed the theory of organisational knowledge creation, which they defined as the process that organisationally amplifies the knowledge created by individuals and crystallises it as part of the knowledge system of an organisation. They stated that the process is a never-ending spiral of tacit and explicit knowledge through four modes of knowledge conversion: i.e., socialisation, externalisation tacit, combination, and internalisation.

At a later stage, it was argued that while new knowledge is developed by individuals, organisations play a critical role in articulating and amplifying that knowledge [5].

Tsai *et al* consolidated research based from Nonaka's theory of knowledge creation where they examined the role of knowledge creation process in the relationship between new venture strategy and firm performance. Their findings suggested the need for consideration of knowledge creation process as a mediator in the relationship between new venture strategy and firm performance [6].

Choi *et al* commented that knowledge must be considered as valuable strategic assets that can provide proprietary competitive advantages. Without a constant creation of knowledge, a business is condemned to poor performance [7]. Bathelt *et al* questioned the view that tacit knowledge transfer was confined to local milieus whereas codified knowledge might roam the globe almost smoothly. They investigated the conditions under which both tacit and codified knowledge could be exchanged locally and globally [8].

Kotnour *et al* focused on reviewing and extending the current literature on impact assessment of training systems. Their research contributed a model of training system assessment that considered organisational aspects of the training system, the life cycle of training systems, and the different stakeholders of training systems [9].

A suggested model of knowledge creation dynamics

From what current literature on knowledge creation provided, it became possible to recall certain key ideas and develop a sort of mind map. It was clear from Nonaka's model (1994) that knowledge creation depended on the relationship between tacit and implicit knowledge. Seen from the UDM perspective, it could be evidenced that knowledge creation was a two-way process.

The current debate encompassing the concepts of tacit and explicit knowledge focuses on whether these are separate and distinct entities [2] or if, in fact, they 'are not totally separate but mutually complementary entities' as per Nonaka and Takeuchi [10] and others [11,12].

Firstly, the university in a general sense creates learning in both forms: tacit, namely from the values, norms, culture, etc. developed within the university and explicit knowledge that the university provides in the form of tailor-made training to its students. Both terms are explained below.

Tacit knowledge is incommunicable, intuitive, and unarticulated as Polanyi states: 'We can know more than we can tell.' [13] It can best be understood as

knowledge that has not yet been abstracted from practice in that the acquisition of knowledge takes place largely independently of conscious attempts to learn and largely in the absence of explicit knowledge about what was acquired [14,15].

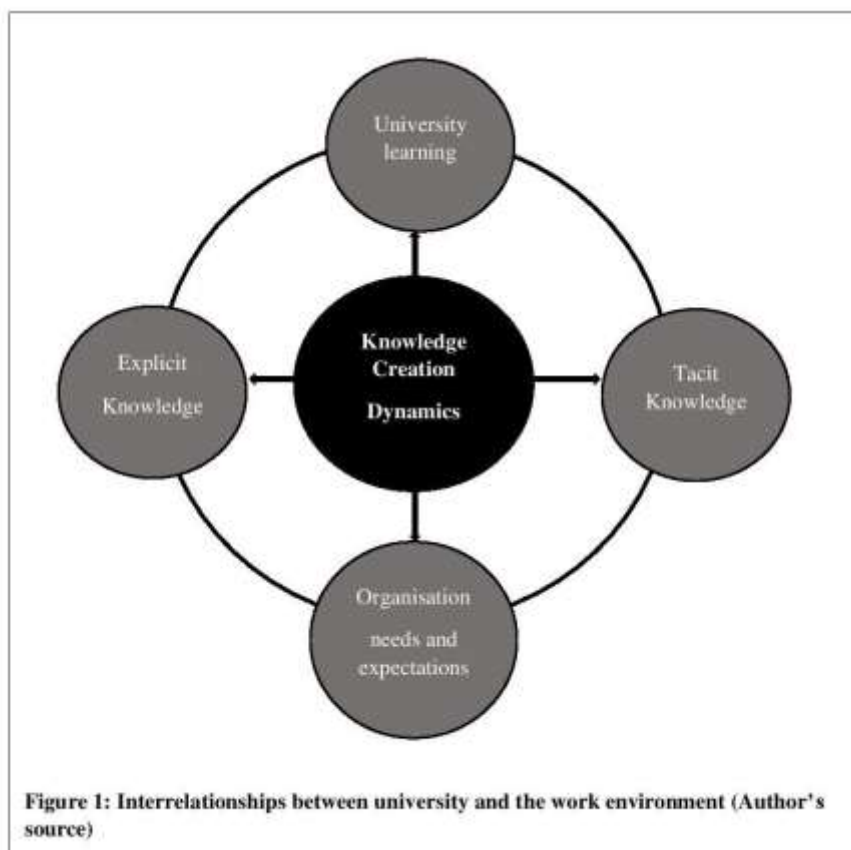
Explicit knowledge is knowledge that can be readily articulated, codified, accessed and verbalised [16]. It can be easily transmitted to others. Most forms of explicit knowledge can be stored in certain media. The information contained in encyclopedias and textbooks are good examples of explicit knowledge.

The other way is the organisation that employs the student looks like another channel of knowledge creation. The business expects tacit knowledge from its employees which relate to its internal culture while it benefits from explicit knowledge found both in the business environment and the student's or potential employee's background.

In their seminal work on tacit and explicit knowledge creation debates, Evans and Easterby-Smith comment that both individual and group knowledge are separate, distinct and of equal importance as are tacit

and explicit forms of knowledge [16]. They propose an alternative conceptualisation of the process of knowledge creation, which they refer to as the 'generative dance' [17]. The generative dance refers to a dynamic process of shaping and reshaping knowledge through interactions with the world around us. It suggests that individuals and groups apply their tacit and explicit knowledge as part of action and in so doing create new knowledge.

Hurley and Green state that the transfer of tacit knowledge into explicit knowledge—within the individual—and the transfer of explicit knowledge between people—within or between organisations—are the two actions underlying knowledge management theory [18]. To this extent, knowledge creation is a two-way and dynamic process with various combinations as explained by Nanoko and a model is presented in Figure 1 to briefly explain the dynamics of the interrelationships between the university, the business and knowledge creation. The researcher has adapted the different concepts learnt through literature and developed a model that could be reproduced at the UdM and the firm through the dynamics of knowledge creation.



RESEARCH QUESTIONS

Research questions were developed to test the interrelationships between tacit and explicit knowledge. This questions were addressed to the different targets

identified in the research sample in order to gauge the effectiveness of knowledge creation in business.

- Is there knowledge creation in the Mauritian business environment?
- Does a university develop knowledge creation in business?
- What are the types of knowledge creation in business in a tertiary institution?
- Is business knowledge creation internalised by the learner?
- Is business knowledge creation externalised by the learner?
- Does knowledge creation act as a link between firm strategy and performance?

RESEARCH METHODOLOGY

The research focused on tertiary level students, studying at the Université des Mascareignes, who were about to leave the university or were already in their initial years at work. A sample of 30 students was considered as it was classified in three groups of equal size. Firstly, university students were interviewed regarding their perception of knowledge creation at the university. Secondly, a selection of ten graduates already working were asked to comment on the knowledge creation process while being at work. Thirdly, a sample of students following a joint UdM and MEXA programme were asked on the reliability and effectiveness of knowledge creation through their training. In this particular case, feedback was also obtained from the lecturers involved as well as quotes from newspapers on the part of the MEXA. The research questions were handed to the students and information was collected and synthesized according to each group. This was in line with Strauss and Corbin's technique where each interview was audio-recorded and transcribed so that the data could be analysed and sorted using a structured approach to grounded theory [19]. In the present case, audio-recording was replaced by transcription of information.

FINDINGS

Knowledge creation at the Université des Mascareignes

In the case of knowledge creation at the Udm, knowledge creation has been essentially explicit. There have been illustrations where tacit knowledge has been transmitted. The following case illustrated how such a concept has developed within the university.

Case 1: Knowledge transfer between the Udm and students

The Udm operates as most universities namely as the provider of tertiary education to its students since its creation. In 1995, while operating as a polytechnic, the university developed tailor-made courses for its students based on the programme of study developed by Singapore Polytechnic. This was a major assistance to a new institution where the learning outcomes, course curricula and syllabi were franchised from the Singapore partner. For instruction purposes, books and prepared lecture notes were sent to local lecturers.

Explicit knowledge

Explicit knowledge was the main form of knowledge creation at the Udm. Since education might be viewed as a 'jug mug' process, the university could provide formal learning through the setting up and development of course materials for the needs of its students. The main type of knowledge created came from recommended textbooks and teaching guides that lecturers created in the university. Teaching was evaluated in the form of assessments and examinations taken during and after the semestral courses.

Tacit Knowledge

This was developed within the university premises where lecturers conducted classes with students. Face-to-face learning was amplified through case presentations, role play and classroom activities conducted in groups that allowed students communicate with lecturers. This practice developed skills like overcoming fear and communication difficulties in communication. It also addressed the development of fluency in communication.

Socialisation (Tacit to Tacit)

Students learned while sharing information among themselves namely through activities that concerned the group.

Illustrations

'We could arrange ourselves in groups and decide upon the topic that we wanted to discuss. In group presentations, roles were allocated to each student. We learned to grasp information by enacting. Sometimes learning from acronyms helped us grasp key information.'

Externalisation (Tacit to Explicit)

This was mainly provided by the lecturers to promote the development of knowledge creation.

Illustrations

'This was mainly dependent upon the lecturer's ability to transfer knowledge. It depended much on the facilitator's background and experience. The more experienced and committed to teaching the lecturer was, the better externalisation was achieved in the class.'

Combination (Explicit to Explicit)

This was mainly provided by lecturers within the university.

Illustrations

'This was a bit complex within the university. Formal learning had to be developed from instruction in recommended textbooks. The whole book could not be assimilated. So lecturers chose the essential topics to teach us. They sometimes stated that grey areas of the syllabus might not be covered.'

Internalisation (Explicit to Tacit)

Once again, this was more of a lecturer's involvement at work.

Illustrations

'How to make learning become practical was the challenge of the lecturer. This could mainly come from the economics or business area where terminology used in real life situations had to be facilitated to learning. For instance, currency movements like depreciation or appreciation could be explained using charts to simplify understanding.'

Knowledge creation from students in the students' first years at work

The second case considered a group of students already in their initial years of work. A sample was interviewed to see the types of knowledge creation in their situation.

Case 2: Knowledge creation process between UDM students and the firm

Students in their first years at work need to transfer what they have learnt at the university to the work environment. Although this is a general perception, little can be said of a real transfer of knowledge vice versa. Ideally, it looked like knowledge transfer came more from the organization to the student.

Explicit knowledge

Explicit knowledge was in this case the type of formal knowledge developed both in the firm and from the student's perspective. Generally, companies will look for suitably qualified students in a particular field in that they have a sound theoretical knowledge of the activity that they will undertake. The firm, from its part, provides a certain formal instruction during induction.

Tacit Knowledge

This was developed while the student was working in the organisation. Role play, role identity, company culture, norms at work, components of attitudes, etc. were expected to be learnt and practiced at work. An important tacit knowledge came from ethics and etiquette developed in the organisation.

Socialisation (Tacit to Tacit)

Students learned while sharing information among themselves namely through activities that concerned the company in question.

Illustrations

'In a banking environment, tacit knowledge was essential. For instance, we learnt about grooming and communication at work. Courtesy, resilience and secrecy requirements were essential during our first years. We learnt all these to ensure that we develop

company culture from the outset. Such learning was essential and achievable.'

Externalisation (Tacit to Explicit)

This was mainly provided by the firm and external organisations to promote the development of knowledge creation.

Illustrations

'This was provided within the organisation by team leaders. During training, we learnt more about translating tacit to explicit knowledge. For example, dealing with queries, responding to customer complaints, etc. were formally recorded. Training from universities and employers-sponsored training also facilitated such type of learning.'

Combination (Explicit to Explicit)

This was mainly limited when students were at work.

Illustrations

'In organisations, such possibilities do not exist. Generally, other processes of knowledge creation exist but formal to formal learning transfer was rare or insignificant. This could apply to understanding and applying legislation.'

Internalisation (Explicit to Tacit)

This possibility existed at work.

Illustrations

'Training had to be applied at work in the form of translating tutored learning in practice. For example, performance management, the Balanced Scorecard, Management by Objectives, Principles of Six Sigma learned during training had to be internalised. An important concept was Customer Charter provided by the State and the need to apply it at work.'

Knowledge creation during training while working

The third case assessed knowledge creation while students were working on a collaborative project with the MEXA (Mauritius Export Association). The curriculum proposed by the MEXA allowed students enrolled at the Technician Diploma in Electrical and Mechanical Engineering to follow a special training. Under the aegis of the Dual Training Programme MEXA aimed to provide young people with the skills and experience required in a company, through a curriculum designed to meet the needs of the manufacturing sector. The goal, Phil Ryle said in his speech, is also to allow the young people to undertake studies that they might not otherwise have been able to afford [20].

For the Ministry of employment, Soodesh Callichurn, this technician's degree is 'an answer to the problem of "skills mismatch" found on the market while enabling to create a pool of professionals.'

Students might be retained at the end of their studies in the company where they have completed their internship [21].

Case 3: Knowledge creation process between UdM students and MEXA under a collaborative learning process

Students were enrolled in a tailor-made Dual Training Technician Diploma programme offered by the UdM and the MEXA in 2015. This was more in the form of a ‘Licence Professionnelle’—LP— ready to prepare the student to the world of work.

Explicit knowledge

Explicit knowledge was in this case the education needed at work in the form of skills and training expected from the MEXA. This had to be more of an outside-in approach expecting the UdM to align its curriculum with the needs of the job market.

Tacit Knowledge

This was developed while the student was working in the organisation. This would comprise soft skills developed among colleagues and trainers at work. It would also depend on the work culture developed by the students during the ‘Dual Training Programme’.

Socialisation (Tacit to Tacit)

Students learned while sharing information among themselves namely through activities that they had during the training.

Illustrations

‘Developing work culture was essential to the Dual-Training Programme. Activities linked with Graphic Design, Micromechanics, Systems maintenance, etc. require deep knowledge of customer and user expectations, security, work ethics that must be commonly shared among individuals.’

Externalisation (Tacit to Explicit)

This was mainly provided by the firm and external organisations to promote the development of knowledge creation.

Illustrations

‘Learning on-the-job prepared us to be able to apply knowledge to the work environment. This required us to become competitive and work-focused. This was a challenge but the tailor-made training made it possible to apply theory to practice.’

Combination (Explicit to Explicit)

This was mainly a little relevant in the ‘Dual Training Programme’.

Illustrations

‘New knowledge that adds on to the existing knowledge is relevant. The Dual Training programme developed both hard and soft skills. Trained students were capable of adding new knowledge to existing ones. These are evident in the form of innovation that the industry needs in Mauritius (UdM Lecturer).’

Internalisation (Explicit to Tacit)

This possibility also existed in the ‘Dual training Programme’.

Illustrations

‘What the organisation expects from us is what we need to learn. For example, industrial placement under the supervision of a mentor encourages students to better understand difficulties encountered at the workplace and to find out possible solutions to them.’ [21].

DISCUSSION

From the findings, it became important to synthesise the information while at the same time interpret the results. Figure 2 below shows how knowledge creation was developed within the Nanoko model from the information gathered. The range was as follows: Weak, Moderate, High.

Table 1: An assessment of scores regarding knowledge creation in the four taxonomies developed by Nanoko [3]

Case under investigation- Knowledge creation	Tacit to tacit Socialisation	Tacit to Explicit Externalisation	Explicit to Tacit Internalisation	Explicit to Explicit Combination
UdM providing academic training to students	High	Moderate	Weak	High
Students in their initial years at work	Moderate	Moderate	Moderate	Moderate
Dual Training programme between UdM and MEXA	High	High	High	Moderate

Assuming that the evaluation is subjective and it pertains to a single university in question, the following outcomes were found out.

Firstly, knowledge creation from within the university remains limited. Although universities are purveyors of knowledge, they are more concerned with

explicit knowledge. They lack both internalisation and externalisation since they have little to do with the practical application of knowledge so long as they are limited to teaching and learning with examinations and assessment.

In Case 2 where the student was confronted to the world of work in his initial years, knowledge creation was deemed moderate. There was the difficulty of applying knowledge in the most effective manner. This represented better a learning phase where greater knowledge creation would exist in the longer run.

In the third case, following a dual training programme, knowledge creation was optimised and this

could also be aligned with Choi’s perspective where knowledge created valuable assets creating competitiveness. Dual training under partnership enhanced the learning mechanism where constant creation of knowledge would lead to better performance [7].

A simplistic interpretation of knowledge creation could be summed up in the diagram below.

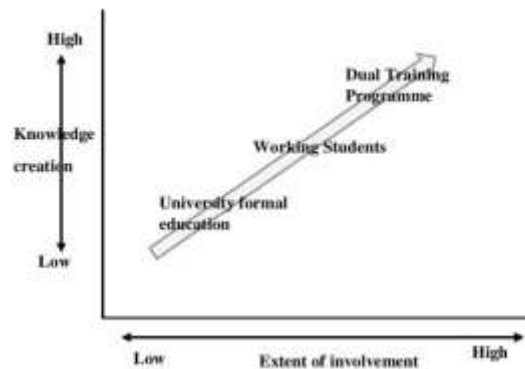


Fig-2: Interpretation of knowledge creation within the research frame

From the research undertaken, it is seen that knowledge creation grows incrementally from university training to dual training programme between the UdM and a partnering organisation, MEXA.

CONCLUSIONS

Universities have been put to stake regarding what they produce—a heap of graduates that exceed the demand by industries and who are not too well-equipped for work. Knowledge creation is the process where students must acquire the right knowledge and skills that put them directly on the job with quick adaptation. This research focused on the classic model of knowledge creation developed by Nanoko and that has become a taxonomy in evaluating knowledge creation in business. The four forms were identified namely tacit to tacit (Socialisation) which was fairly well developed in the three cases identified for the research. Secondly, externalisation (tacit to explicit) was better established when students could apply their knowledge to concrete business experiences. These were more exemplified in dual training programmes. Thirdly, internalisation (explicit to tacit) was fairly well developed within the university as well as student’s experience at work and collaborative training. Finally, combination under explicit to explicit knowledge transfer was a limited opportunity but still favoured more the dual training programme.

It is seen here that knowledge creation is more substantive when the workplace develops learning curricula alongside with the university in question. Student’s experience at work is suitable in creating knowledge because there is both evidence of

internalisation and externalisation. Finally, universities create lesser knowledge since this is still not really validated both tacitly and explicitly where the ratings were weak.

To sum up, organisational knowledge creation is ‘mobilised’ through four modes of knowledge conversion in a spiral process from the individual to the group and eventually the organisation as reflected in the following quote [4]:

“... knowledge is created only by individuals. An organisation cannot create knowledge without individuals. The organisation supports creative individuals or provides contexts for them to create knowledge. Organisational knowledge creation, therefore, should be understood as a process that ‘organisationally’ amplifies the knowledge created by individuals and crystallises it as part of the knowledge network of the organisation.”

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