

Investigating the appropriateness of the theory of organisational knowledge creation as a management model for practice-led research

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Note:

This article was written as part of, and functions within the scope of a larger research project entitled *Transgressions and boundaries of the page: A transdisciplinary exploration of a practice-based research project by means of the artist's book* conducted by the subject groups Graphic Design, Creative Writing and Art History at the Potchefstroom Campus of the North-West University, South Africa.

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This article explores ways in which current practice of conducting multipractitioner practice-led research projects in the creative disciplines (Graphic Design, History of Art and Creative Writing) at the North-West University, Potchefstroom Campus, may benefit from the application of a specific managerial theory which focuses on knowledge creation. To this end, the concepts propounded in the theory of organisational knowledge creation, as conceptualised by Nonaka and colleagues, are investigated and a number of compatible and complementary aspects shared by this theory and practice-led research are highlighted. Guiding this article was the argument that the conceptualisation of knowledge as a subjective and socially constructed phenomenon is central to both this theory and research mode. Furthermore, I argue that an integration of tacit and explicit knowledge provides for a holistic view of knowledge that would not be possible if one were to view knowledge in reductively scientific terms. Consequently, the transdisciplinary practice-based research project, *Transgressions and boundaries of the page* is analysed in terms of the socialisation, externalisation, combination and internalisation (SECI) knowledge conversion modes, which are the driving force, facilitating the move from tacit to explicit knowledge by means of social interaction. The aim of the *Transgressions and boundaries of the page* project was to create an exhibition of artists' books, which would form the beginning of a knowledge creation cycle. Forty artists were invited to create artists' books for exhibitions held in Stellenbosch, Potchefstroom and Johannesburg in 2010. Those artists involved were selected from various fields of arts as well as related fields. It is concluded that the utilisation of knowledge management in multipractitioner practice-led research projects such as this one, within the creative disciplines at the North-West University, Potchefstroom Campus, will facilitate a better understanding of knowledge management and will yield more effective knowledge creation in that both tacit and explicit knowledge is utilised optimally.

Die gepastheid van die teorie van organisatoriese kenniskepping as bestuursmodel vir praktykgeleide navorsing. Hierdie artikel bied 'n ondersoek na die wyse waarop praktykgeleide navorsingsprojekte met veelvuldige deelnemende praktisyns in die skeppende dissiplines (Grafiese Ontwerp, Kunstgeskiedenis en Skryfkuns) soos dit tans onderneem word by die Noordwes-Universiteit se Potchefstroomkampus voordeel kan trek uit die toepassing van 'n spesifieke bestuursteorie wat gerig is op die skep van kennis. Om hierdie rede word ondersoek ingestel na die teorie van organisatoriese kenniskepping soos gekonseptualiseer deur Nonaka en sy kollegas. Die ondersoek is verder begaan daarmee om ooreenstemmende en gemene aspekte van praktykgeleide navorsing en die teorie van organisatoriese kenniskepping te identifiseer. Die argument wat in hierdie artikel aan die hand gedoen word, is dat die konseptualisering van kennis as 'n subjektiewe en sosiaal-gekonstrueerde fenomeen sentraal staan tot beide praktykgeleide navorsing en die teorie van organisatoriese kenniskepping. Verder word aangevoer dat die integrasie van ingebedde en eksplisiete kennis 'n holistiese beskouing van kennis moontlik maak, wat nie bereik sou kon word indien kennis in reduktiewe wetenskaplike terme beskou sou word nie. Voorts word die transdissiplinêre praktykgeleide navorsingsprojek, *Oor die einders van die bladsy*, ontleed in terme van die SECI kennisgesprekmodusse. Die SECI-model is die rigtinggewende dryfkrag wat die oorgang vanaf ingebedde na eksplisiete kennis bewerkstellig, spesifiek deur sosiale interaksie. Die doel van die *Oor die einders van die bladsy*-projek was om 'n uitstalling van kunstenaarsboeke van stapel te stuur – dit sou die beginpunt wees van 'n kennisproduksieproses. Veertig kunstenaars is genooi om kunstenaarsboeke te skep vir die uitstallings wat in 2010 gehou is te Stellenbosch, Potchefstroom en Johannesburg. Die betrokke kunstenaars is gekies uit verskeie kunste asook verwante velde. Daar word tot die slotsom gekom dat die gebruik van kennisbestuur in praktykgeleide navorsingsprojekte met veelvuldige deelnemende praktisyns soos hierdie een, binne die skeppende dissiplines by die Noordwes-Universiteit se Potchefstroomkampus 'n beter begrip van kennisbestuur moontlik sal maak, en daarom ook sal lei daartoe dat kenniskepping op meer doelmatige wyse plaasvind omdat beide eksplisiete en ingebedde kennis optimaal gebruik word.

Introduction

In recent years, interdisciplinary multipractitioner practice-led research projects have been conceptualised and conducted within the creative disciplines (Graphic Design, History of Art and Creative Writing) at the Potchefstroom Campus of the North-West University (NWU). The aims of these projects are to stimulate both creative practice and research within these disciplines and also to develop research capacity amongst the individual group members with a view to establishing a research niche. These projects are regarded as collaborative group efforts which have encouraged, promoted and facilitated both creative practice and research. *Tracking creative creatures* (2007–2009), an interdisciplinary investigation into the creative process was the first of these projects. The second project of this nature is *Transgressions and boundaries of the page*, a transdisciplinary exploration of a practice-led research project by means of an exhibition of 40 artists' books. This project was launched in 2009 and will be the focus of this article. Both these projects have been conceptualised to be managed in three-year cycles, which began with creative practice and culminated in the publication of research findings.

Although these projects have been initiated and intuitively managed as research projects (and, by implication, as knowledge-generating activities), they were not managed with a specific management theory or approach in mind. Rather, the managerial approach was aligned with the aims of the projects and a number of guiding principles were established. This does not mean that these projects were not successful; on the contrary, *Tracking creative creatures* delivered substantial formal and creative research outputs, which included an exhibition at the Aardklop Arts Festival in 2008 and nine articles in peer-reviewed journals over the course of 2009, as well as a more profound understanding of the nature of practice-led research. Additionally, this project was the impetus behind the process of developing a research niche for the creative disciplines at the NWU.¹

However, it is my contention that managing projects of this nature by means of a management structure and theory specifically aimed at creating new knowledge would benefit these projects and will, concomitantly, deliver more focused research outputs. One such theory which focuses specifically on the creation of knowledge is the theory of organisational knowledge creation conceptualised by Nonaka and colleagues (Nonaka 1994; Nonaka & Konno 1998; Nonaka & Takeuchi 1995; Nonaka, Toyama & Konno 2000; Nonaka, Von Krogh & Voelpel 2006). This theory was selected for two reasons. Firstly, it focuses specifically on knowledge conversion and knowledge creation and, secondly, it is considered to be the most influential perspective in its field – it has already been used to conceptualise a framework for managing individual practice-led research (Niedderer & Imani 2008:9). It should

be noted that the arguments presented in this article offer a variation on the views presented by Niedderer and Imani (2008) in that the present article focuses on the application of the theory specifically to a collaborative multipractitioner practice-led research project, as opposed to applying it to model aimed at research conducted by individuals. Niedderer and Imani (2008) have, themselves, identified the notion of collaborative projects as an area for further research:

Thus the framework provides a tool, which researchers can use to interrogate their own research process, to determine the role and choice of their research methods. Future research may be concerned with a further analysis of methods in relation to the framework, and with the application of the SECI model at the macro level (*organisational level*) of research. (p. 18)

As such, the aim of the current article is to analyse the *Transgressions and boundaries of the page* project in the light of this managerial theory and, furthermore, to identify commonalities and shortcomings in this regard, with the purpose of improving the management of future projects.

As one of the project leaders and managers (the other two who made significant managerial and creative contributions were Franci Greyling and Louisemarié Combrink), I was involved collaboratively in the conceptualisation and management of the projects as well as in the role of creative practitioner. Therefore, my role was multifaceted and I participated in all three activities that have been identified by Gray and Malins (2004:20), namely that of creative practitioner (this implies participating in the production of creative work and research material) in the first instance; secondly, that of self-observer who engages in reflection in and on action, both individually and through social interaction with others and, finally and most importantly, in the case of collaborative research projects also that of co-researcher, facilitator and manager.

This article is therefore situated, chronologically speaking, within the post-project reflection stage during which the notions of lived experience and the insider perspective are regarded as a valid research approach (Gray & Malins 2004:22; McIntyre 2006:4; Sullivan 2005:61). According to Sullivan (2005:61), knowledge-constructing activities, such as reflection, memory and subjectivity in combination with textual critique, can reveal types of insight that would not be attainable by means of traditional research. Additionally, reflection as a source of valuable information en route to knowledge creation is also emphasised in the theory of organisational knowledge creation (Nonaka & Takeuchi 1995:232).

The research question that will be addressed in this article is: how can the theory of organisational knowledge creation be conceptualised as a viable management model for interdisciplinary, multipractitioner practice-led research projects? This question will be answered by exploring similarities and compatible concepts emerging from the fields of practice-led research and the theory of organisational knowledge creation; whilst so doing, a number of relevant aspects related to this theory will also be identified as these emerged in the *Transgressions and boundaries of the page* project.

¹For more details concerning the nature of the project and its contribution to practice-led research, see Greyling and Marley (2009:1–30) and Combrink and Marley (2009:177–205), respectively.

This article is structured as follows: firstly, practice-led research and the way in which knowledge is conceptualised within this research approach are discussed, secondly, the theory of organisational knowledge creation is unpacked in terms of the conceptualisation and conversion of knowledge and, thirdly, the *Transgressions and boundaries of the page* project is discussed. In this last step, the research activities that have been conducted in the course of the project are categorised according to the theory's knowledge conversion modes. The purpose of this section will be to establish whether there are sufficient commonalities between practice-based research and the theory of organisational knowledge creation to apply these in a complementary fashion towards managing an interdisciplinary creative practice-led research project.

Contextualising practice-led research

Practice-led research is based on and characterised by the exploration of issues and interests through the production of the artefact. This notion suggests, by implication, that artistic activity and creative outputs are regarded as research (Scrivener & Chapman 2004:2–3). However, whether the artefact can stand on its own, and thus make a contribution to research without a textual explication of the specific work, is a problematic issue that has been much debated. On the one hand, Haseman (2006:6) argues in his 'Manifesto for performative research' for a new, distinct research paradigm (called 'performative research'), which is different from quantitative and qualitative research in that it recognises creative outputs as the *embodiment* of the research finding, and which therefore needs no textual explanation or contextualisation. Douglas, Scopa and Gray (2000:3), on the other hand, offer a less radical and more pragmatic approach which allows for a variety of options within this mode of research – each with specific characteristics. The three categories of research that they propose are 'personal research', 'research as critical practice' and 'formal research'.

Personal research is considered to be a private or personal unpublished investigation by means of creative practice. The knowledge or research is also believed to be embedded in the work and is often explained by means of professional practice, such as exhibitions, rather than by traditional modes of research (Douglas *et al.* 2000:3).

Research as critical practice is associated with the conduct of most successful contemporary artists who produce work that is embedded and informed by a body of critical theory and advances the thinking in their field. Often the artist writes critically about his or her work and, as such, the impact and accountability of the work in terms of the discipline are easier to ascertain. This type of work, although frequently motivated in textual terms, is presented – as in the case of personal research – within the conventions of professional practice such as exhibitions or project-based initiatives.

The motive underpinning these types of projects is to challenge the profession to adopt fresh approaches to creativity, which are critical and experimental in nature. Both

types cited emerge out of the need to develop appropriate ways of both working within a culture of change and reassessing its systems of value. This changing culture forms the context in which critical issues are identified, framed and modelled within projects through a self-conscious and negotiated process. The research content is evidenced through the practitioner's own explicit articulation of these issues and the way in which they underpin their practice (Douglas *et al.* 2000:4).

Formal research, the third and last category of practice-led research, is that which is conducted within the arena of academia and is undertaken as part of a formal qualification or as a peer-reviewed research output. As such, the mechanisms of academic validation and justification are applied in order to evaluate and validate such work. This type of research needs to make a contribution to the body of knowledge within the field or discipline and, consequently, is subjected to more formalised research methodologies and outcomes. Here, the artefact is a necessary part of the research outcomes but must be supported by a textual document to explicate and contextualise the concept, argument or proposition (Douglas *et al.* 2000:5).

In the *Transgressions and boundaries of the page* project, room was made for all three of the above-mentioned researched approaches, but the focus was on integrating the artefact and the textual explanation or exploration thereof in order to contribute to practice-led research in the university context. Accordingly, the artefacts that have been created served as sources or embodiments of knowledge from which understanding and research could be gleaned. Mäkelä and Routarinne (2006:24) suggest that in the academic context, the artefact is considered to be mute and therefore the results of an investigation must be explicated in order to allow validation of the outcomes. Biggs (2002:23) concurs and argues that it is in the combination of artefact and knowledge, embedded in the artefact and the critical exegesis thereof, that both knowledge and understanding are advanced. In this sense, the artefact is seen as a form of *tacit* knowledge and the exegesis thereof constitutes *explicit* knowledge.

Tacit knowledge is regarded as the dimension of knowledge that is difficult to express in words and includes aspects such as personal experiences, which are rooted in individual actions and informed by ideals, values, subjective insight, intuitions and hunches (experiential knowledge). Additionally, the notion of 'knowing how' (or skills-based knowledge) is of equal importance and is also linked to bodily experience (procedural knowledge) (Biggs 2004:7; Nonaka & Takeuchi 1995:8). Explicit knowledge, on the other hand, is the proverbial tip of the knowledge iceberg and can be communicated and transmitted fairly easily by the codified systems of language. It is recorded in textual and numerical formats, such as articles, reports, manuals and books, and stored in libraries, archives and digital database systems – which makes it easily accessible and transferable. (Nonaka 1994:17; Nonaka *et al.* 2000:7)

These two dimensions of knowledge are, however, never mutually exclusive. Rather, they are different sides of the same coin or different ways of seeing and approaching the same thing. This idea is of particular importance in the creative arts, where explicit knowledge does not – and often cannot – provide the full scope of the knowledge that is generated. In such cases, knowledge transfer can only be achieved by a combination of both knowledge dimensions. Tacit knowledge is what Polanyi (1966:16–17) considers to be the personal aspect of any explicit knowledge and is essential in order to gain a holistic understanding of the knowledge with which one is concerned. In other words, these dimensions represent different ways of comprehending and are complementary instead of oppositional. Therefore, whilst managing a multipractitioner, practice-led research project, an understanding of both knowledge dimensions is required in order to utilise fully the knowledge potential created in such a project. Accordingly, the projects that we have conducted thus far started with the creation of the artefacts, which, in turn, gave rise to more formal research possibilities. This process suggests that these projects are knowledge-generating activities in which knowledge is converted from a tacit dimension into an explicit dimension in order to clarify and explicate understanding. This, in turn, correlates with the notion of knowledge generation (in this instance tacit knowledge), knowledge communication and knowledge dissemination (explicit knowledge).

Collaboration is an important and widely used practice in interdisciplinary practice-led research projects. According to Mäkelä and Routarinne (2006:19), ‘research at art universities depends for its progress upon interdisciplinary as well as exchange and interaction between research and art’. Additionally, Gray and Malins (2004:104) argue that it is almost impossible to engage in practice-led research without working with others to some degree. This type of collaboration often involves several people with different roles and skills sets, and results in both theoretical and practical outcomes. These outcomes typically entail practical outcomes as well as textual contextualisations of these (Mafe & Brown 2006:16). Furthermore, collaboration often involves the transference of skills and a clearer understanding of both theory and practice. In this regard, Brown and Sorensen (2009:156) are of the opinion that research partnerships help to bridge the gap between theory and practice by providing complementary skills. Regardless of the model or mode of collaboration applied to practice-led projects, certain specific conditions facilitate successful collaboration. These include a common knowledge vision or understanding of the creative vision, shared language and open and honest exploratory (‘what if?’) dialogue (Edmunds *et al.* 2005:467; John-Steiner 2000:204).

From the above discussion, it can be concluded that the practice of creating the artefact within an academic context needs to be contextualised within this knowledge context. To this end, practice-led research needs to participate in the validation processes akin to the conventions of academia if it is to be considered ‘formal research’. However – and this is important – explicit knowledge should not take precedence

over the tacit dimensions of knowledge. Knowledge in this context should be seen as a holistic concept and both the tacit and explicit dimensions need to be considered during project management. The projects that we have driven – *Tracking creative creatures* and *Transgressions and boundaries of the page* – have been planned as knowledge-generating activities, starting with the creation of artefacts (tacit knowledge). This knowledge is then converted to textual documents, explicating certain aspects pertaining to these artefacts and the related creative processes. In these processes, the emphasis on collaboration is believed to promote social interaction, which can result in bridging the gap between practice and theory and can result in the transferral of skills between participants.

The theory of organisational knowledge creation

As noted above, the theory of organisational knowledge creation was developed by Nonaka and colleagues (Nonaka 1994; Nonaka & Konno 1998; Nonaka & Takeuchi 1995; Nonaka *et al.* 2000; Nonaka *et al.* 2006). This theory was derived primarily from hands-on research and practical experience gained whilst working with Japanese businesses and firms. Furthermore, the development of the theory was prompted by the fact that we find ourselves today in a knowledge society and therefore the ability to create knowledge was seen as a competitive advantage which needed to be utilised.

The premise of the theory is that tacit knowledge held by individuals can be amplified, enriched and converted into explicit knowledge through social interaction and shared on an organisational and societal level. This implies a symbiotic relationship between individual and organisational knowledge. The aim of this theory is to facilitate a process of knowledge creation that transcends ‘economic rationality’, which was the focus of earlier Western managerial models and theories (Nonaka 1994:14). Concomitantly, a further aim is to develop a more ‘humanistic’ notion of knowledge creation, which includes aspects such as human experience, emotion and skills level (Nonaka 1994:34). In this sense, the organisation is seen as a living organism rather than an information-processing machine (Nonaka & Takeuchi 1995:9). The thinking associated with this theory departs from the dominant Western paradigm of information *processing* and rather focuses on knowledge *creation*. Information processing is seen as a problem-solving activity, which centres on information ‘input and output’ in order to solve problems. In other words, information processing is concerned with how to use information in order to solve a problem as opposed to how to create knowledge.

The fundamental point of departure of the proposed approach is that organisational knowledge is created by means of continuous dialogue between tacit and explicit knowledge (Nonaka 1994:14). This notion correlates with the relationship between tacit and explicit knowledge as discussed in the previous section. It should also be noted that the definitions of tacit and explicit knowledge suggested by literature in the field of practice-based research theory and the

literature on the theory of organisational knowledge creation are similar. In terms of the notion of knowledge, Nonaka (1994:26) adopted the definition of knowledge as 'justified true belief'. However, the emphasis for Nonaka is not on truth or truthfulness (which is normally quantified in absolute, static and non-human forms), but rather on 'justification'. As such, the focus is on the desire and aspiration to understand and justify personal belief as truthful knowledge. This focus on the subjective nature of knowledge is deeply rooted in the value-systems of the individual (Nonaka 1994:5). Similarly, the justification of experiential feeling and experience is also an essential part of practice-led research, as research questions and problems in the creative disciplines often arise from intuitive hunches and from working processes (Biggs 2004:14). In Nonaka's theory, as is the case with practice-led research, the tacit and explicit dimensions are considered to be complementary dimensions and together they form a holistic picture of knowledge (Niedderer 2008:27; Nonaka & Takeuchi 1995:237–238). The theory of organisational knowledge creation, however, provides a mechanism by means of which the conversion from tacit to explicit knowledge can be managed.

Knowledge conversion modes

In the socialisation, externalisation, combination and internalisation (SECI) model, tacit and explicit knowledge interact in four different ways or modes. These modes or processes, together, constitute the mechanism that facilitates conversion of existing knowledge into new knowledge. Social interaction is the driving force of this model. The premise that new knowledge can be created by means of conversions between tacit and explicit knowledge brought about the postulation of the following modes: socialisation (tacit to tacit conversion), externalisation (tacit to explicit conversion), combination (explicit to explicit conversion) and internalisation (explicit to tacit conversion), which together make up the SECI model (Nonaka 1994:18; Nonaka *et al.* 2006:1182).

The spiral of knowledge creation requires a constant dialogue between the four knowledge conversion modes and, by implication, between tacit and explicit knowledge. Therefore, whilst each mode generates new knowledge independently, organisational knowledge creation hinges on the interaction of the four modes and the utilisation thereof. Organisational knowledge management occurs when all four modes are managed to form a continuous cycle. The cycle is characterised by shifts between the different knowledge conversion modes and triggers are used to bring about this shift.

Socialisation (tacit to tacit conversion)

Socialisation is the process of utilising shared experience between individuals and converting this into tacit knowledge. Tacit knowledge can be transferred without language by means of apprenticeships, mentoring programmes, on-the-job training, observation and the like. Experience is the primary driver of this form of knowledge conversion. Without shared

experience it is difficult for people to understand the tacit dimensions of knowledge. In other words, thinking needs to be informed by hands-on experience. This type of knowledge is related to the notion of 'knowing how' (Nonaka 1994:18). One form of knowledge that is created in this mode is what Nonaka refers to as 'sympathetic' knowledge; this includes the notion of mental models and technical skills (Nonaka & Takeuchi 1995:238).

In terms of socialisation, the first trigger is to build a team or a field of interaction. This process helps to formalise the relationship between people from different backgrounds, perspectives and skills levels. The team provides a shared context of experience and trust whilst focusing members on the task at hand (Nonaka 1994:19).

Externalisation (tacit into explicit conversion)

In essence, the process of externalisation entails the conversion of tacit knowledge into explicit knowing. This is necessary in order to make tacit knowledge transferable to others and to make it useful and applicable in a wider context. In other words, tacit knowledge needs to be codified in this process and should therefore be converted into an understandable format such as words or images. This is often coupled with the notion of reflection in and on action. Knowledge created in this phase is such that one can begin to use it in the justification cycle.

Constructive, meaningful dialogue, during which concepts are interrogated and reconceptualised, is the trigger of this process. All participants are encouraged to contribute equally to the listening and learning process. Deductive, inductive or adductive reasoning may be utilised in order to reach the required result (Nonaka & Konno 1998:43). Metaphors are often used to help articulate the tacit, personal perspective into more understandable terms. The move from tacit to explicit knowledge in terms of the team context can be facilitated by means of utilising external knowledge. This mode delivers 'conceptual' knowledge, as practice and theory interact in clarifying ideas (Nonaka & Takeuchi 1995:238).

Combination (explicit to explicit conversion)

Combination refers to the process of converting different bodies of explicit knowledge into new forms of explicit knowledge. This conversion involves the use of social activities such as meetings, dialogue sessions and colloquia. During these sessions, knowledge is shared, reconfigured and recombined in order to create new insights or possibilities, thus converting existing explicit knowledge into new explicit knowledge (Nonaka 1994:18). This conversion process works with information and knowledge that have already been codified as text or data and which is facilitated by means of dialogue.

The three important phases of the conversion process are: capturing and integration, dissemination, and editing and processing. Capturing and integration involves collecting essential data from both internal and external sources and

combining the data or knowledge. During dissemination, new knowledge is spread and shared amongst members. This can be achieved in various ways, for example in meetings or presentations. In the editing and processing phase, the knowledge that has been created is made explicit in the form of documentation, which is then put through a process of justification. In order for knowledge to be justified, it needs to correlate with the knowledge vision of the institutions. This basically entails the process of making information concrete and useful (Nonaka & Konno 1998:44). One of the knowledge dimensions generated here is considered 'systematic' knowledge, as this type of knowledge can be stored and reconfigured in data systems (Nonaka & Takeuchi 1995:238).

The combination of external and internal knowledge can be facilitated or triggered by coordinating teams and their activities, as well as by means of the documentation of existing knowledge. This knowledge needs to be free-flowing, without constraints regarding its usability.

Internalisation (explicit to tacit conversion)

Internalisation involves the conversion of explicit knowledge into tacit knowledge that can be shared on an organisational level. This implies that individuals identify and acquire explicit knowledge created during the externalisation and combination phases. This knowledge is then explored by means of practice and, as such, individuals acquire and understand the tacit dimension of this knowledge.

This conversion occurs over two steps. Firstly, explicit knowledge has to be identified, explored and embodied through action and practice. This process of internalising explicit knowledge allows for the understanding of methods, strategy, processes and innovations. This type of knowledge is often transferred by means of workshops and or training sessions. Secondly, the embodiment process is triggered by using simulations or experiments to initiate learning by doing in virtual situations. Such situations allow the individual to transcend the level of the personal (or the self) and to benefit from the larger organisational context (Nonaka & Konno 1998:45). In this sense, one of the knowledge dimensions generated is 'operational' knowledge (Nonaka & Takeuchi 1995:238). Concepts and theories are concretised by means of an iterative process of trial and error. This type of experimentation, in turn, triggers the internalisation process by means of 'learning by doing' or by testing the theory. The notion of theory testing and application will, more often than not, have a practical dimension which will facilitate the flow from the explicit back to the tacit and vice versa.

The purpose of the next section, wherein I provide a brief overview of the *Transgressions and boundaries of the page* project and relate it to the SECI conversion modes, is to identify which parts of the project fit into which mode, in order to gain a clearer understanding of the intuitive management approach which was applied. This insight will assist in the knowledge management of future projects.

Contextual overview of *Transgressions and boundaries of the page*

Transgressions and boundaries of the page: A transdisciplinary exploration of a practice-based research project by means of the artist's book is a research project situated within the Research Unit for Languages and Literature in the South African Context at the Potchefstroom Campus of the North-West University. The basic idea of the project was to invite 40 artists to create artists' books for exhibitions to be held at the Stellenbosch Word Festival (01 March 2010 – 06 March 2010), the North-West University in Potchefstroom (15 April 2010 – 13 May 2010) and at the FADA Gallery at the University of Johannesburg (12 July 2010 – 30 July 2010). Participants included established and upcoming artists who practice within the fields of visual arts (fine artists, graphic designers, illustrators), creative writing (poets, novelists, children's book authors), as well as related fields of architecture and language technology. To address the community development aspect of the project, the Tambani community project (based in Venda) and a creative writing and bookmaking workshop in the local community (Karos & Kambro) were included. Researchers who might have wanted to make a contribution to the project were also included in all the activities and communication. Other tertiary institutions that were involved through the participation of artists and researchers were the University of Johannesburg, the University of Pretoria, the University of the Free State, Tshwane University of Technology and Vega, the Brand Communication School (in Johannesburg).

Artists' books were chosen specifically for this project as this art form allows for the creative interplay between image and text, and also because artists' books function outside the constraints of the publishing industry and therefore tend to be based on individual artistic vision, conceptualisation and execution. It was therefore the ideal medium for involving artists from diverse disciplines through playful exploration and discovery of the possibilities and boundaries of the book. The aim of this project was thus to provide a space for practitioners to pursue their creativity, resulting in creative outputs which would eventually facilitate the production of formal research outputs. In this way, the project made provision for:

- artists who wanted to pursue their creativity by making an artist's book (personal research)
- artists who wanted to conduct research on their own creative practice (research as critical practice or formal research)
- researchers who wanted to reflect on the creative process, concepts and results (research as critical practice or formal research)
- collaboration between artists and researchers to the mutual benefit of both (research as critical practice or formal research).

Additionally, the project aimed to establish an accommodating and trusting research culture amongst members of the

participating disciplines at the North-West University. The specific research objectives were:

- to create a space for creative practice across disciplines that could serve as practice-led research or research data from which formal research can be conducted
- to utilise the creative group dynamics of such a project in order to stimulate interdisciplinary research practice
- to enable practitioners to understand the notion of practice-led research and formalise their practice more purposefully as research
- to allow for critical reflection and evaluation of the research approach and structure, also with a view to producing formal research outputs in the form of accredited journal articles
- to contribute to the current discourse on practice-led research with its diverse approaches and applications, and to enhance participants' understanding of the ways in which research can be conceptualised, with a view to contributing to the national and international debate on the status and nature of practice-led research.

General management and research context

As stated earlier, projects such as *Transgressions and boundaries of the page* are conceptualised, conducted and managed in three-year cycles at the North-West University, starting with the project preparation (which included aspects such as funding application and preparatory theoretical understanding, identification and invitation of the participants and the project launch). During this first phase (the first year of the project was 2009), tacit knowledge was created in the form of experience and the creation of artefacts. This can be regarded as the *knowledge generation* phase and the type of research conducted here either was personal research or research as critical practice.

The second year and phase (2010) of the project was, for the most part, dedicated to the various exhibitions; a number of walkabouts and dialogue sessions were arranged whilst the exhibitions were on display. Here tacit knowledge was created by means of interacting both socially and individually with the artefact. Artworks were also extensively documented and a webpage and Facebook group were established. This was conducted in order to keep participants informed about the development of the project and the subsequent data were used to create digital and print catalogues. In terms of research, this phase is seen as *knowledge dissemination* and is also the transition phase between tacit and explicit knowledge.

The third year (2011) was dedicated to the formalisation of the research project by means of research through post-project reflection in the form of workshops and conference papers, colloquia, and writing and publishing research articles. During this phase, explicit knowledge became the focus and formal research was conducted.

SECI conversion modes

It should be noted, however, that the transition between the four SECI modes is never a clear-cut affair and often more than one knowledge spiral is activated at any given time. It should also be borne in mind that the research conducted, together with the knowledge and experience gained whilst executing and managing the previous project (*Tracking creative creatures*), was instrumental in understanding the management context of *Transgressions and boundaries of the page*. In other words, this experience was *internalised* and informed the planning and execution of the next project.

Internalisation mode

As is the case with any research project, research proposals had to be written; this included a contextualisation of the project, as well as the clarification of aims and objectives. As noted above, explicit knowledge created whilst working on the *Tracking creative creatures* project informed this process. As such, the understanding and experience gained during the previous project regarding practice-led research and project management were internalised; this allowed for a profound understanding of requirements in terms of methods, strategy and processes. It also informed the knowledge vision for the upcoming project. Knowledge vision defines what kind of knowledge will be prioritised by the organisation. Even the title of the project put the knowledge vision into effect, as it allows implicitly for creative exploration beyond the normative codex of the book. The knowledge vision gives direction to the knowledge creation process and determines how it will evolve (Nonaka *et al.* 2000:24). This is evident in the following decisions that were made at the outset:

- Research goals and objectives were more specifically refined and focused on exploring the notion of practice-led research.
- A more diverse group of participants was invited in order to facilitate interdisciplinary research. This involved including the more theoretically orientated disciplines such as History of Art from the outset.
- Specialists from other institutions were invited, for example David Paton (Head of Department, Visual Arts at the University of Johannesburg), who is a prominent authority on artists' books.
- A graphic and multimedia designer who was able to craft the visual communication and manage data according to the knowledge vision was appointed.

This process can be considered as the internalisation phase, because the knowledge gained during *Tracking creative creatures* can be considered operational knowledge and the implementation thereof as theory testing (Nonaka & Takeuchi 1995:238; Nonaka *et al.* 2000:11).

Socialisation mode

The first step in the socialisation phase comprises building a team or field of interaction; such a team should have an appropriate degree of flexibility, which allows for imaginative thinking, problem searching and problem-solving. The

purpose of a field is to create a place and social context in which personal perspectives and knowledge can be articulated and conflicts are resolved and reconceptualised into higher-order concepts. An organisation must specifically decide how to use teams and create them for specific purposes. The ideal group or team size is between 10 and 30. It should be noted that as the group size increases, the amount of personal interaction decreases. There are generally four to five core members who have multiple job experiences. The core members form the organisational centre and act as links between other members (Nonaka 1994:23).

The *Transgressions and boundaries of the page* project team consisted of 40 members who participated in different ways, either as artists, researchers or a combination of the two. All the artists were involved in generating research in the form of artworks. This mix of creative practitioners included those who generally engage in both personal research and research as critical practice. However, it was a group of 10 artists and researchers (primarily those situated at NWU) who would participate in all aspects of the project. Each project leader represented different disciplines and experiences and had been involved in the previous project. As such, a large part of the team would create knowledge which would then be explored by a smaller, more focused group. Participation, however, was open and voluntary.

The project launch (March 2009) was conceptualised and conducted as a social activity at which artists and researchers met and exchanged ideas. Additionally, a shared context was created by explaining the knowledge vision and framing the project within the notion of practice-led research. Various lectures were presented on aspects, such as the history of the book by John Gouws and the artist's book by David Paton as contextual background. Lunch was also provided at this event, which gave the opportunity to interact on a social level and share ideas and concepts and set up collaborations. Thus, this was the beginning of the tacit knowledge exchange.

During June 2009, Stephan Erasmus (one of South Africa's leading book artists) conducted a two-day workshop on book-binding. Participants were shown a variety of book-binding techniques and were assisted in producing their own books. This also provided an ideal opportunity to exchange ideas and gain tacit knowledge before producing the artists' books. For some artists, this had a definite influence on their book production. Additionally, a creative writing and bookmaking workshop was presented for the members of Karos & Kambro (a community development programme) during September 2009. This project was presented by Flip Hattingh, Annaretha Combrink and Franci Greyling to 20 previously disadvantaged teenagers. The bookmaking process served as a vehicle for self-expression and to stimulate creativity as well as to develop technical skills.

For most of the participants, the remainder of 2009 was used to produce their artists' books. The tacit knowledge gained here included both individual production and collaborative efforts, and occurred in various ways. One collaboration

was the Tambani project, in which women belonging to the Tambani project embroidered pictures relating local folk narratives under the guidance of Jaco Kruger and Ina le Roux in order to create a short animated film under the direction of Wessie van der Westhuizen, a multimedia designer. This process is explained in the article entitled 'The Tambani embroidery project' (Kruger & Van der Westhuizen 2011:31–33). Furthermore, artists such as Cashandra Willemse and myself worked with the laser cutter at the NWU Fablab and this tacit knowledge informed our book productions. These skills were imparted to other artists, such as Jaco Burger and Marina Herbst, and the acquisition of the new skills had a bearing on work. This process is explained in the article entitled 'Will *Fin.* ever be finished?' (Marley 2011:45).

Year two (2010) of the project was mainly dedicated to the documentation of artworks, the exhibitions and other events relating to the exhibitions. As such, the artefacts formed the starting points of activities such as walkabouts and discussions between artists, members of the public and design students from Stellenbosch University and the NWU. These activities have been placed in this section, as they were firstly about experiencing the books and then engaging in discussions as the concepts and ideas embedded within these. These discussions involved issues of concept, process and the intertextual relationships between books. In addition to the exhibition at the Word Festival, five artists participated in a round-table discussion about the project, the artworks and how each approached the challenge posed by the theme of the project. Participants in the discussion were Franci Greyling, the poet Danie Marais, the artist Strijdom van der Merwe, the cultural journalist Kabous Meiring, and myself, Ian Marley.

In a separate discussion, Franci Greyling and I discussed the challenges and possibilities of practice-led research. Aspects such as creative group dynamics, project structure and project management were dealt with and practical tips were shared. It was hoped that this project would stimulate broader discussion of practice as research and that approaches such as this one will fuel further projects that can open up avenues within which an expanded view of art making and academic work can develop.

These activities are considered as socialisation because a team was involved in shared social interaction and hands-on experience during which tacit knowledge surfaced. In terms of a holistic conception of knowledge, these can be considered the knowledge generation and dissemination phases of the project.

Externalisation mode

The externalisation mode corresponds roughly with the third and final year of the project (2011). This mode was planned as a series of steps that would guide participants towards writing articles in order to facilitate the formal research process. During the exhibition held at the NWU, a discussion session was held between members of the creative and

theoretical disciplines. The purpose of this session, which included project members and postgraduate students, was to identify possible research topics for a print catalogue. It was important to do this whilst the books were available on the exhibition, as they were the starting point of discussion. The exhibition also helped to open possible interconnecting ideas and contexts. I opened this session with a presentation which focused on the value of practice-led research and tacit knowledge as point of departure for conducting research.

The print catalogue was therefore conceptualised as a type of 'test run' for more formal articles, which we aimed to publish in the special edition of *Literator* dedicated to the project. Hereafter, we held follow-up meetings during which initial abstracts and article ideas were discussed. The purpose of this process was to establish the notion that tacit knowledge could be a valuable starting point for research. Furthermore, the process also aimed to establish meaningful dialogue and to ease participants, as it were, into the research process in a relaxed and trusting environment in which knowledge and skills transfer occurred without the initial pressure of publishing in a peer-reviewed journal.

Some of the articles produced were by artists reflecting on their own creative processes, whilst other were contributions by theorists collaborating with artists; still others were theoretical readings of the artefact. These articles thus helped to shift the tacit knowledge dimension into a more codified format and are thus considered to be on the level of conceptual knowledge (and therefore part of knowledge communication). It should be noted that the print catalogue included both photographic references of the artists' books and a digital catalogue in an attempt to preserve the tacit-explicit knowledge equation as fully as possible.

Combination mode

A series of meetings was held in order to discuss the possibility of developing the print catalogue articles and other ideas into accredited articles. Additionally, a digital database capturing all relevant information was made available to participants to use towards their research. These steps were aimed towards reconceptualising, restructuring and recombining the initial catalogue articles and ideas with other explicit knowledge to provide a more profound theoretical exploration and or explanation. A colloquium was also organised with the aim of disseminating and testing these ideas and to allow for constructive criticism from a broader forum. It should be noted that artists were also encouraged to discuss their processes and experiences alongside more formal presentations.

The editing and further processing of these ideas and concepts took place either individually or in collaboration with a view to publishing in this special edition of *Literator* and other peer-reviewed journals. These articles thus underwent the normal review and accreditation processes that typify research in an academic context. Furthermore, this conversion mode correlates with knowledge communication;

explicit knowledge gained here was added to the knowledge database and boosted the available systematic knowledge that can be applied to future projects.

Conclusion

This article investigated the ways in which multipractitioner, practice-led research projects in the creative disciplines (Graphic Design, History of Art and Creative Writing) at the North-West University, Potchefstroom Campus, could benefit from the application of a specific managerial theory which focuses on knowledge creation. The theory of organisational knowledge creation conceptualised by Nonaka and colleagues (as cited above) was identified as a useful approach as there are salient tangential points between practice-led research and the theory of organisational knowledge creation. These points include that knowledge is subjective and created through social interaction and that this subjective view of knowledge comprises both tacit and explicit knowledge (which are different but inextricable modalities of knowledge). As such, it is the interaction and utilisation of both modalities that provided a holistic view of knowledge and, consequently, of knowledge creation.

After analysing *Transgressions and boundaries of the page* in terms of the SECI knowledge conversation modes, it was established that using knowledge management in multipractitioner, practice-led research projects will facilitate a better understanding of knowledge management and creation and will therefore lead to more effective knowledge creation in the creative disciplines at the North-West University, Potchefstroom Campus.

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