Establishing a community of practice in the information technology departments of South African higher education institutions: Developing Information Technology Capacity in Higher Education's ITIL programme 2007 - 2009

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Abstract

Communities of practice have been described as supportive environments where knowledge creation, knowledge sharing, learning and problem resolution takes place (Hildreth and Kimble, 2002; Wenger, 1998a; Zhang and Watts, 2008). The literature points to the use of community of practice in organisations to leverage knowledge held by individuals for competitive advantage.

Wenger (1998b) developed the Practice and Identity' framework as a measure of whether a group could be called a community of practice.

The 'Developing information technology capacity in higher education' (DITCHE) project rolled out the Information Technology Infrastructure Library (ITIL) service management programme as part of the brief to provide interventions beneficial to South African higher education institutions. Staff from the information technology departments attended the training over the period 2007 to 2009.

This study examined the actions and outputs of the group which attended the ITIL service management training against the Wengerian 'Practice and Identity' framework to determine whether this group could be considered a community of practice.

Research questions arising from the stated problem are:

- Do the DITCHE ITIL groups meet the definition of community of practice as defined by Wenger's 'Practice and Identity' framework?
- What factors are required for the formation and sustaining of a community of practice?
- What value is to be found in successful DITCHE ITIL communities of practice?

The research design consisted of phases which included a survey of the literature to determine the most recent theories on this subject matter and definitions of key concepts. The concept of communities of practice is not singular. Cox (2001) pointed to four works which he considered seminal to the discussion about the concept of community of practice. He suggested that these be used as markers in the discussion on the conceptualization of community of practice. Each of these works could be used as frameworks for determining the existence of communities of practice as he noted the lack of overlap of elements in the different frameworks. The physical separation of participants of the study across South Africa necessitating the use of information and communication technologies made the Wenger 'Practice and Identity' framework the most suitable choice against which to frame the study as the elements of collocation and situated learning are not absolute requirements.

Data were collected from participants of this study using questionnaires and interviews and the output was viewed against the components of the Wengerian framework viz. mutual engagement, shared repertoire and joint enterprise. The study found that while evidence existed for a match to these elements, it was insufficient to deem the DITCHE ITIL group a community of practice in the discourse of the 1998 framework. This group meets the description of an online community of practice where infrequent but intense discourse takes place when a problem needs to be resolved.

Factors contributing to the arrival of this conclusion were identified. Motivations and barriers to the formation of communities of practice were identified. Further recommendations for continued community building such as further active leadership and the use of social networking tools are included. The study concluded that the potential existed for South African public higher education institutions to derive benefit from communities of practice and the DITCHE programme.

Keywords

Community of practice
Knowledge management
Knowledge
Collaboration
Participation
Identity
Wenger
Practice and Identity Framework
Higher education
Developing IT capacity in higher education (DITCHE)
Information technology infrastructure library (ITIL)

Declaration

I declare that *Establishing a community of practice in the information technology departments of South African higher education institutions: Developing Information Technology Capacity in Higher Education's ITIL programme 2007 – 2009* is my own work, that it has not been submitted before for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged as complete references.

Nicolette Antoninia Crowster

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Signed: . . . . . .

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List of Abbreviations and Acronyms

ASAUDIT	Association of South African University Directors of Information Technology
CHE	Council on Higher Education (South Africa)
DITCHE	Development of Information Technology capacity in Higher Education
DCoP	Distributed community of practice
DCoPs	Distributed communities of practice
HE	Higher education
ICT	Information and communication technology
ICTs	Information and communication technologies
ITIL	Information Technology Infrastructure Library
ITSMF	IT Service Management Forum

Chapter 1: Introduction

1.1 Background

Notwithstanding the transition to a democratic government in the Republic of South Africa in 1994, the legacy of apartheid education had left a huge need for redress. According to the Council on Higher Education (CHE) (2006), 'the process of the reconstruction and development of higher education in South Africa is part of the wider process of political democratization, economic reconstruction and development, and social redistribution'.

The South African government had addressed this need in various ways such as the National Plan for Higher Education published in 2001 by the Ministry of Education. This plan contained the following elements relevant to this study:

- The acknowledgement of the integrative and enabling roles of information and communication technologies (ICTs) in the global socio-politico-economic situation
- The assignment of critical and central roles to higher education to make a contribution in terms of both skills development and research to the development of an information society in South Africa

The CHE report (Czerniewicz, Ravjee Mlitwa, 2006), raised issues related to information and communication technology (ICT) in higher education institutions as:

- The relationship between ICTs and South African higher education is not completely formed.
- There has been a great deal of growth – largely even and driven by individuals - in the take-up of ICTs in higher education.
- There is currently no consensus on the fundamental issues of the value of ICT in South African higher education.

- The role and impact of ICT on change in higher education institutions has not been clarified.

Notwithstanding the varied approaches and uptake of ICT in South African higher education institutions, the importance of ICTs and their impact on universities are recognized.

Czerniewicz and Brown (2005:1) reflect on the value of ICT in higher education as expounded in the above CHE document and other policy documents issued by the South African government. The authors refer to 'The National Research and Development Strategy' (2002), the 'National Research and Technology Foresight ICT Report' (2000), and the 'White Paper on e-Education' (2003). The beneficial impact of ICT is anticipated in the teaching, learning and administrative components within universities positioning these and their students in the network society. Information technology underpins the network society. It offers new ways of working and communicating, taking away physical and temporal barriers. Castells (1996) noted the contribution of ICTs to the shift of society to a knowledge-based economy.

MacGregor (2009) reports on the content of an address at the University of the Western Cape in 2009. At this occasion, Castells, renowned social scientist and pioneer of the concept of the network society placed universities, providers of human and intellectual resources, centrally in the maelstrom of the knowledge society. He noted that knowledge production, a key factor in the knowledge society, is a core business aspect of a university. Castells noted further that at times the impact of ICTs on universities go unnoticed.

For a university to engage in its core business, a solid support infrastructure including the information technology component is required. With the modern view of information technology as a strategic component of a successful business, universities have to become concerned with the issues of information technology efficiencies,

service delivery, customer satisfaction, leveraging competitive advantage, governance frameworks and compliance with IT best practices and quality.

The Tertiary Education and Research Network (TENET) provides agency services to South African public higher education and research institutions for internet access and related services. The donor-funded programme 'Developing Information Technology Capacity in Higher Education' (DITCHE) resides within TENET. The focus of the DITCHE programme is to improve the information technology capacity of staff in public higher education institutions so they in turn could offer improved quality of services to customers (TENET, n.d.a).

DITCHE has identified 'information technology professionals, scholars and academics committed to using information technology for educational and research purposes and library and affiliated information professionals' as the three key areas within South African public higher education in which they could provide focused development of capacity (TENET, n.d.a).

The DITCHE philosophy supports the concept of community of practice in which shared learning takes place, a sense of common identity is formed and support is provided for problem solving in a supportive environment (TENET, n.d.a). Growing and sustaining communities of practice in South African public higher education is a DITCHE objective.

TENET provided funding via the DITCHE programme for the three-year programme for Information Technology Infrastructure Library (ITIL) service management certification of the staff working in information technology departments in public higher education from 2007 to 2009 (TENET, n.d.b).

> *ITIL is the most widely accepted approach to IT service management in the world. ITIL provides a cohesive set of best practice, drawn from the public and private sectors internationally* (ITIL Home, 2009).

TENET and DITCHE viewed this training process as a contribution to the betterment of public higher education through the building of information technology skills in these institutions. Benefits to be had included uniformity of information technology practice which might contribute to good practice and reduce or cut across institutional inter-departmental and inter-institutional groupings.

Strategic reasons for adopting ITIL include a scalable framework for good information technology practice across the organization, reduction of operating cost attributed to information technology, improved service provision and the improvement of user productivity (Center for Maximum Public Performance, n.d.).

This study examined the responses of the DITCHE ITIL group in the light of the elements of Wenger's 'Practice and Identity' framework (1998b). The extent of congruence between the practices and attitudes of the group with the elements of the Wengerian framework would determine whether the group could be considered a community of practice.

The documented benefits of communities of practice listed by Johnson (2001) are adding value to the learning environment; developing stocks of knowledge within the community of practice while simultaneously adding to the knowledge held by the individual community member; and receiving tutelage from experts outside of the formal learning environment.

1.2 Problem statement

The problem being investigated was whether the DITCHE ITIL service management group could be regarded as a community of practice within the framework of the 1998 Practice and Identity framework described by Etienne Wenger.

1.3 Aims and objectives

The aim was to ascertain to what extent intra- and inter-institutional knowledge sharing add to the intangible assets of public higher education institutions; and whether benefits could be derived from communities of practice to these institutions. The contribution from the DITCHE programme is studied.

The objectives of the study were:

1. To review the notion of communities of practice.
2. To determine whether the DITCHE ITIL service management programme participants had formed communities of practice when framed within the Wenger 1998 'Practice and Identity' model.
3. To identify contributing factors for the findings in point 2 above.
4. To determine the impact of the role players in the delivery of this programme on the formation of a community of practice.

1.4 Justification

The DITCHE position is that through interventions such as training events, bringing practitioners together in workshops and conferences and providing access to physical materials, it provides the environment in which communities of practice could develop (TENET, n.d.a). The DITCHE ITIL 2007 – 2009 service management training programme was a manifestation of this position. TENET and thus the sub-project DITCHE is positioned in service to South African higher education.

The literature indicates the value of communities of practice to organisations is found in the growth of knowledge store which leads to the fostering of innovation which in turn leads to competitive advantage. The process of knowledge transfer across internal organisational structures; and boundaries of space and time; and between organisations has a reciprocal benefit with increased knowledge in both the individual and the community of practice.

ITIL encourages the 'best practice' approach and with certification in public higher education institutions, developing homogeneity of superior methods to carry out IT service management can only lead to the improvement of institutional performance.

The study would comment on whether communities of practice have formed out of the DITCHE interventions of (i) ITIL certification and (ii) providing supportive environments to foster knowledge sharing, knowledge creation and problem solving. Then by extension, one would be able to deduce whether higher education institutions are deriving benefit from the DITCHE programme and communities of practice.

1.5 Significance

Communities of practice have been touted as ways of transferring skills outside formal training programmes. With information technology staff having similar skill sets and attitudes, for example, the ITIL best practice approach to service management, South African public higher education broadly benefits from inter-institutional collaboration and cost-saving if sharing further training initiatives.

ITIL is a framework for best practice. Building on a common understanding of this framework through initiatives such as the DITCHE intervention could lead to a national position on good practices in service management in the information technology sector of South African public higher education.

Established communities of practice have stocks of knowledge and social capital. New staff joining the information technology departments of public higher education institutions could join the community of practice, participate in the knowledge creation and knowledge sharing activities, draw on, and contribute to the social capital. While this would not mitigate the need for appropriate training in the home institution, the individual would benefit from being a member of the community. There is the belief that the learning curve for new staff is shortened when they join communities of practice (Salopek, 2008:25). In their study of the effects of communities of practice on organizational performance, Lesser and Storck (2001) found similarly that the learning curve for new employees was less steep when they participated in communities of practice.

The delivery of capacity development for information technology staff in higher education, as per the brief of the DITCHE programme, dovetails with the role assigned to higher education in the National Plan for Higher Education.

This study focused on how interventions such as the DITCHE ITIL service management programme have been a response to the CHE concerns about the need for recognition of the role and impact of ICT on change in higher education institutions and for the formation of a relationship between ICT and South African public higher education.

The study could be replicated by investigating community of practice activities of other departments in South African higher education institutions. Such studies could further prove or disprove the theories of the value of community of practice and knowledge sharing practices.

Limitations of this study include using the IT departments and in so doing leaning towards online or virtual communities of practice in environments where IT infrastructure is of varying quality.

1.6 Framework of the research

This study is framed by Etienne Wenger's (1998b) 'Practice and Identity' viewpoint, which is located within the concept of community of practice. Knowledge management is the overarching paradigm or school of thought that posits that the knowledge held by individuals could be harnessed using techniques, practices and processes.

Hildreth and Kimble (2002) present the concept of community of practice as a method to transfer tacit knowledge that they claim cannot be codified. Knowledge creation and sharing becomes embedded in the culture of an organisation. Others such as Wilson (2002) claim the transfer of knowledge is not possible at all. Within a community of practice, through interaction, observation and participation, knowledge is created and transferred in a manner similar to the knowledge transfer process such as the apprentice-master examples used by Choo (1998) and the knowledge conversion or SECI model proposed by Nonaka and Takeuchi (1995). A brief description of a knowledge conversion model follows.

The Nonaka and Takeuchi (1995) model of knowledge conversion commonly known as the SECI model or knowledge spiral model is a cyclical process, starting at any point of four quadrants labeled Socialization, Externalization, Combination and Internalization. The model depicts the inter-relatedness of tacit and explicit knowledge. In this process of knowledge transfer, knowledge is acquired via observation and from the codification of personal knowledge of others. Likewise, the individual shares his knowledge via teaching and codification of his knowledge. There is also the aspect of the internalization of knowledge from documents into the individual's consciousness.

The tacit quadrant describes activities of Socialization, shared experiences, observation – face-to-face, master-apprentice type relations. In this type of relationship, there is more observation leading Hildreth and Kimble to state that the tacit knowledge is shared by action (master) and observation (apprentice) and less through articulation or externalization. According to Nonaka and Takeuchi's model, externalization has codification and modeling components.

The Wengerian 'Practice and Identity' framework (Wenger 1998b) defines the activities of members (practice) and their roles (identity) within the community of practice. Practice takes place in three areas namely mutual engagement, joint enterprise and shared repertoire. A community develops through continued and sustained mutual engagement. Group identity forms from the shared goals and interests of the group. According to Murillo (2008) and Zhang and Watts (2008), Wenger puts forth that a new identity is created specific to the community of practice in which the person participates.

In South African higher education, the staff skill sets both within individual institutions and between institutions are unevenly developed in part due to the history of apartheid education in this country. Communities of practice are viewed as one way of transferring embedded institutional knowledge between staff members and between institutions. In this way, the staffing skills are increased and historic redress is effected. The institution will derive benefit from a more trained workforce and enhanced service delivery is an anticipated outcome. Students and other institutional customers are beneficiaries-in-waiting.

1.7 Research questions

The following research questions were investigated to inform the aim of the study:

- Do the DITCHE ITIL programme attendees meet the definition of community of practice when compared to Wenger's 1998 'Practice and Identity' framework?
- What factors are required for the formation and sustaining of a community of practice?
- What are the barriers to the formation and sustaining of a community of practice?

1.8 Research design

The study adopted a quantitative approach with elements of qualitative methodology. This research used a similar design to investigations undertaken by Murillo (2008) and Zhang and Watts (2008). Groups were identified and their practices, in both cases, email correspondence of the group were analyzed using the Wenger 1998 'Practice and Identity' framework. This framework is shaped by the attributes identified by Wenger (1998b) as mutual engagement, shared repertoire, joint enterprise, identity formation, and community and learning.

The research used different data collection methods. Data were collected from the research participants via questionnaire and interviews. The questionnaire was sent to the thirty three persons who had participated in the DITCHE ITIL service management programme. These are employees in the information technology (IT) departments of South African public higher education institutions. In addition, the DITCHE programme manager and two ITIL trainers participated in the study providing data to inform this study via interviews.

Step one:

- A literature review was undertaken as indicated by Mouton (2001) to review existing scholarship, to prevent duplication of studies, to determine the most recent theories and to establish the accepted definitions of key concepts. This

literature review was framed within the Cox (2005) view of the Wenger (1998) 'Practice and Identity' framework.

- Evidence of DITCHE artifacts to drive and support communities of practice was sought.

Step two:

- A web-based questionnaire was designed to bring forth data to be used as comparison to the Wenger framework. Both quantitative questions to obtain tangible data for example frequency of actions; and qualitative questions to gather intangible data for example opinions were used. The questionnaire was the data collection tool of choice from the members of the DITCHE ITIL group because these members are distributed in public higher education institutions across South Africa. The members of this group were identified by the DITCHE programme manager after he notified them of the study and sought their assistance with the study. The access details of the web-based questionnaire were distributed to the DITCHE ITIL group via email.
- A face-to-face interview with the DITCHE programme manager was arranged. The purpose of the interview was to add to the data gathered from the questionnaire, to inform point two of the research question: What factors are required for the formation and sustaining of a community of practice? The semi-structured interview format was used. This technique was applied in order to obtain both qualitative data namely opinion and quantitative data such as processes and procedures. An interview framework which contained broad questions related to point two of the research question was prepared. The questions were open-ended which allowed the interviewees to expand on their responses and the interviewer to probe the responses while remaining in the theme of the research question.
- Semi-structured telephonic interviews were arranged for data collection from the two ITIL service management programme trainers. The purpose of interviewing these subjects was to inform point two of the research questions: What factors are

required for the formation and sustaining of a community of practice? As above, an interview framework containing open-ended questions related to the research questions was developed.

Step three:

- Data received from the abovementioned sources were captured by online survey software and by transcription.

Step four:

- Data received from the indicated sources were examined for a match to the elements in the Wenger framework and other aspects of the research questions such as barriers or enablers to the formation of communities of practice.
- These data were interpreted to arrive at a response to the research questions.

Step five:

- A conclusion was developed to address the research questions.

1.9 Data collection

1.9.1 Literature review

The purpose of the literature review was to identify pertinent issues within the topic being studied by scanning the related body of literature. Each work was evaluated critically in the context of the topic being studied (UCSC, 2005). The literature review provided the theoretical framework for the research and detailed the connections between the literature and the topic (Boote and Beile, 2005:1).

1.9.2 Survey

A survey is a process of gathering data. There are different types of surveys with different applications of use dependent on the type of data to be gathered, the types of objects of study, their availability and location. The two types of surveys used in this

research study were questionnaires and interviews. The former was self-administered and the latter administered by the researcher.

1.9.2.1 Questionnaire

A questionnaire could be described as a formal, written, set of questions asked of every respondent in the study. Brace (2004:7) described a questionnaire as a tool for the researcher to obtain information from the objects of the study.

1.9.2.2 Interviews

Interviews are a type of survey where the data are gathered directly from the object of study in real time by an interviewer either in face-to-face settings or via communication media such as the telephone. Gorman and Clayton (1997:45) indicate the advantage of using interviews is realized in the gain of increased understanding of the issues and thus the dimensions of the study. This is achieved through interaction with the interviewee and probing the responses for new insights into the situation. Probing answers from respondents and considering their perspectives could result in the researcher making previously unforeseen links.

1.10 Chapter outline

1.10.1 Chapter 1: Introduction, problem statement, conceptual framework and tools

This chapter:

- Introduces the topic, the relationship between the topic and the study; and the structure of the mini-thesis.
- Discusses the conceptual framework.
- Describes the theory underpinning the choice and design of the data collection techniques and tools used. Explanations are offered for the types and structure of questions used in the data collection phase.
- Describes the data analysis methodology employed.

1.10.2 Chapter 2: Literature review

This chapter:

- Describes the literature review undertaken to set the context of the study from a theoretical view.
- Explores the concept of knowledge management.
- Describes the concept of communities of practice.
- Describes how the concept of community of practice relates to the discipline of knowledge management.
- Reviews the theoretical framework to be used in this study for the evaluation of community of practice.
- Explores the finer aspects of the discussion around communities of practice such as the evidence for the existence of virtual communities of practice.

1.10.3 Chapter3: Research design

This chapter:

- Describes the methodology and method of gathering data.
- Describes the recording of data received.

1.10.4 Chapter 4: Data analysis, interpretation and findings

This chapter:

- Describes the methodology employed for data analysis.
- Presents the arrangement of the data to facilitate analysis.
- Explains the basis for the interpretation of the data.
- Gives an interpretation of the data.

1.10.5 Chapter 5: Conclusion and recommendations

This chapter:

- Summarizes the findings of the study.
- Discusses the findings of the study in relation to the stated problem and the theoretical framework.
- Makes concluding remarks.
- Makes recommendations regarding the ongoing research in this area.

1.11 Conclusion

This chapter outlined the purpose of the study, the plan of how this will be achieved including a description of the procedures and instruments to be deployed.

Chapter 2: Literature Review

2.1 Introduction

This chapter sets the context for this study which examined communities of practice. It reviews the concepts of communities of practice and the divergence of opinions about the nature of these. It focuses on the theories of Etienne Wenger acknowledged as a luminary and visionary in this field. It examines the impact of information and communications technologies on communities of practice and the concomitant rise of online communities of practice.

Communities of practice have been described as supportive environments where knowledge creation, knowledge sharing, learning and problem resolution takes place (Hildreth and Kimble, 2002; Wenger, 1998a; Zhang and Watts, 2008).

2.2 Theoretical frameworks for communities of practice

In the resource-based view of an organisation the knowledge held by employees is viewed a resource and should be considered an organisational asset albeit intangible (Teece, 1998). The term ‘human capital’ is used in this discussion.

The knowledge which resides with the individual is described by terms such as ‘tacit’ knowledge, insight and experience (Nonaka and Takeuchi, 1995; Choo, 1998). This unique organisational knowledge could be mobilized and leveraged to create innovation, which would distinguish the organisation from competitors. This knowledge increases in value when ‘externalized’ and made ‘explicit’ and shared in different forms within the organisation.

Organisations grapple with the issue of how to leverage this resource for innovation and competitive advantage. Identified actions include the need to transfer tacit knowledge from the holder and share with relevant persons in the organisation; to build on this knowledge; and to retain this job-related knowledge (Irick, 2007).

Organisations recognize the value of communities of practice as a way to manage their knowledge assets strategically (Wenger, McDermott and Snyder, 2002:21) and as a place where tacit knowledge could be made explicit (Davenport and Hall, 2002: 209; Preece, 2003).

Hemmasi and Csanda (2009:263) indicate that organisations look to communities of practice to bring out the information sharing and knowledge transmission components of knowledge management undertakings and to provide a solution to the transient nature of the environment driven by continuously evolving ICTs. They note the use of communities of practice as tools to both leverage and retain tacit knowledge through knowledge sharing and codification in groups which have the same interests and knowledge needs.

There are contrasting views that tacit knowledge cannot be transferred (Wilson, 2002) or only with limited success (Hildreth and Kimble, 2002).

Hildreth and Kimble (2002) noted the view from literature that knowledge was of dichotomous nature. Knowledge resided with the individual as well as being outwardly manifested such as in documents. Hildreth and Kimble (2002) furthermore note this bilateralism abound, citing authors and descriptions such as ‘formal/informal’ from Conklin (1996), Kogut and Zander’s (1992) ‘information/know-how’ and ‘know-what’/‘know-how’ of Seely Brown and Duguid (1998).

The terms ‘tacit/explicit’ knowledge, are more common although contentious according to Hildreth and Kimble. ‘Know-how’ and ‘tacit’ knowledge is defined as the internalized individual knowledge which is difficult to express and which Polanyi (1967) as quoted by Wenger et.al. (2002:24) indicated ‘we know more than we can tell’. The ‘know-what’ and ‘explicit’ aspects represent an externalization of the knowledge translated in action being carried out. For example, the knowledge of how a task is deployed is captured through codification in procedure and training manuals.

In a community of practice, social capital is the collective knowledge held by the group; is intangible and is built up through trust, understanding and empathy. Communities of practice rich in social capital are more likely to remain in existence (Preece, 2003).

It seems from the literature that there is no single meaning for the term social capital; rather, many definitions abound (Definitions of social capital, n.d.). Common elements that could be gleaned from the various lists include the concepts of the aggregation of actual and potential connections between people in networks; the benefits to be gained by both individuals and group; the accumulation of actual and intangible resources; and the tapping of these for personal and economic gain. In some ways, social capital represents an externalization of tacit knowledge as the trading of skills and knowledge takes place in networks.

Through social capital, organisations are able to add to their stock of knowledge from sources not affiliated with the organisation but reside within relevant communities of practice.

Johnson (2001:49) notes that Gherardi & Nicolini (2000) stated that the output of communities of practice is greater than the sum of the individual contributions made. The knowledge held by the community is greater than the knowledge of each individual all added up.

Communities of practice cut across organisational structures and may even occur completely within or outside of organisations (Wenger et. al, 2002). Several types of relationships abound in communities of practice such as peer-to-peer and apprentice-to-expert (Johnson, 2001). An expert from industry may contribute to the learning of a neophyte from a different organisation.

2.2.1 Concepts of communities of practice

The concept of community of practice differs widely. Cox (2005) believes this to be due to the ambiguity of the respective words 'community' and 'practice'.

He identified four works that he considers seminal within the concept of community of practice. These are by Lave and Wenger (1991), Brown and Duguid (1991), Wenger (1998) and Wenger, McDermott and Snyder (2002). Cox points out that these common views are the local and social construction of meaning and the centrality of identity in the learning activity. These works diverge in their conceptual analysis of the term community of practice. There is no overlap in the elements within the different concepts which Cox (2005: 528) identified as community, learning, power, change, formality and diversity.

The researcher tabulates below a summary of the four works as described by Cox in Figure 1 below. He suggests that any use of the concept of community of practice should be set within the context of these works.

Figure 1: Seminal works on the concept of community of practice

Creators / Originators	Works on the concept of Communities of practice
Lave and Wenger (1991)	Situated structured learning informal and virtual
Brown and Duguid (1991)	Informal groups within an organisation solve problems
Wenger (1998)	Mutual engagement, shared repertoire and social identity
Wenger, McDermott and Snyder (2002)	Community of practice used as a management tool

Lave and Wenger's work (1991) focused on informal interaction and learning in situ by observation, peripheral participation and from others for example in a master-apprentice relationship. This model contained the descriptive elements legitimacy, participation and peripheral. Newcomers were admitted to the group and were socialized into the group (legitimate); were assigned sub-tasks in the beginning (peripheral); yet were active in the group assisting with the creation and continuation of organisational knowledge (participation) (Hildreth and Kimble, 2002). The key words include situated, structured learning, informal and virtual.

Cox notes that the concept of community marks the difference in focus between the works of Brown and Duguid (1991) and Lave and Wenger (1991). While the latter had a hierarchical community of masters and apprentices, there is equality in the former. The key words include situated, collaborative and collective.

Cox indicates that the first 'clear definition' of the concept of community of practice is supplied by Wenger in 1998. 'Practice' and 'identity' are the key elements in this work on communities of practice.

Three dimensions named mutual engagement; shared repertoire and joint enterprise are indicators of how practice shapes the community which in turn shapes the practice. Within the community, the identities of both the individual and the group as a whole are shaped by practice. The key words include co-located, not clearly bound, purposive and voluntary.

The work by Wenger, McDermott and Snyder (2002) is seen as a major shift in the perspective of the idea of community of practice, focusing on communities of practice as a management tool. Keywords are passion, informality and diversity (Cox, 2005: 534).

2.2.2 Community of practice models

In 1991, Lave and Wenger defined a model called 'LPP' (legitimacy, participation and peripheral) to describe communities of practice. In this model, the elements 'legitimacy' represented permitted access to the group; peripheral implied being assigned sub-tasks at the start of the relationship and 'participation' indicated being fully functioning in the group and assisting with the creation and continuation of organisational knowledge (Lave and Wenger, 1991). Newcomers are 'socialized' into the group which has a particular code of behaviour. Co-location and situated learning were elements critical to the success of the community of practice in this model.

In 1998, Wenger reconsidered some of the definitions of community of practice and posited the theoretical 'Practice and Identity' framework (Wenger, 1998b). This framework shifted the focus to the processes of participation which manifested in key elements of mutual engagement, joint enterprise, shared repertoire and identity and reification (Zhang and Watts, 2008).

With less emphasis on co-location in this Wenger model, Lueg, 2000; Cox, 2005; Murillo, 2008; and Salopek, 2008 argued that groups, which interacted online due to the members being in distributed locations could be called communities of practice.

Due to the virtual component of the interaction and distribution of locality, the term 'virtual communities of practice' was used.

2.2.3 Practice and Identity framework

This study is rooted in the Wengerian concept of community of practice which is self-defined in the range of 'what it is about' joint enterprise, 'how it functions' mutual engagement and 'what capability it has produced' shared repertoire (Wenger, 1998a).

Joint enterprise refers to the actions of bargaining, discussing and reinventing to arrive at a common understanding of the purpose and direction of the group. Mutual engagement maintains the links between the groups through a shared understanding of what the group is about professionally. Shared repertoire represents the output of the group's interaction. Moule (2006:134) lists these three as key components of community called '…learning as belonging' which together with meaning '…negotiated experience and participation', practice 'learning as doing' and identity 'learning as becoming' form the quartet of Wenger's 1998 framework.

Zhang and Watts (2008:57) quote the Thompson (2005) statement: 'The practice-and-identity framework [of Wenger 1998] can be used to examine a certain social structure and identify whether it constitutes a CoP or not…'

Zhang and Watts (2008:57) indicate that although Wenger's (1998b) work is one of many definitions of the concept of communities of practice, they view this work as 'the most systematic and comprehensive description'. Cox (2005:531) feels that this work provides 'clear definition'.

In this work, Wenger lists 'domain', 'community' and 'practice' as the main components of a community of practice. There has to be a shared interest and commitment by the members to the domain of interest.

Members of the community of practice are practitioners and in so doing create a process of reification which is the manifestation of the practice and experiences of the community of practice. The community is the group of members and not the infrastructure (Wenger, 1998b; Salopek, 2008).

Murillo (2008) interpreted from Wenger's work that mutual engagement was considered key to the concept of community of practice because through sustained application thereof, communities of practice will form. Mutual engagement represents the collaboration of members to resolve problems, discuss issues in the shared domain and create artifacts. Joint enterprise brings the community together, identifies the groups and provides a framework for operation. Shared repertoire represents the physical evidence of the group's activity being communal resources, tools and artifacts that manifest because of sustained mutual engagement.

Learning or identity acquisition is treated by Wenger as a byproduct of the knowledge acquisition within the group and the member. Identity is embedded in practice, cannot be bestowed but is 'lived' and experienced by community members.

Moule (2006) studied whether health students formed a community of practice while involved in online study. The author concluded that while evidence of the Wenger 1998 elements of community of practice emerged, this was uneven. Some of the reasons for this were attributed to the online format of the engagement and recommendations for remedial actions such as the development of IT skills were made.

Zhang and Watts (2008) conducted a study of the email correspondence within a Chinese travel agency to determine whether a case could be made for the existence of a community of practice. The study was framed within Wenger's (1998b) practice and identification framework.

Practice was detailed into ‘participation’, which indicates the need for sustained intervention for the continuation of the community and building ties between participants and ‘reification’, a manifestation of the experiences of the community into tangible entities such as, for example, logos.

2.2.3.1Examples from the practice

In their study of communities of practice and information technology, Hara and Kling (2002) based their definition of community of practice on the elements of the Wenger ‘Practice and Identity’ framework. They found in their study echoes of the Wenger framework in which mutual engagement is intertwined with identity (2002:6). Group identities are formed through mutual engagement.

Furthermore, the authors support the Wenger 1998 framework in their study finding that professional identity was a vital part of a community of practice. The community of practice is strengthened with a group identity.

Hara and Kling touch on the importance of reification by noting the value of the common listserv found their second case study. They point out that the listserv provides a learning, teaching and discussion space where information is both sought and imparted and profession-related discussions occur. They note that a ‘sense of community’ is formed (2002:10). It is pointed out though that in addition to a common purpose, common job functions are needed to develop a shared vision.

Andrew, Ferguson, Wilkie, Corcoran and Simpson (2009) reported on the 2008 ‘iCoP’ project undertaken at Glasgow Caledonian University, School of Nursing, Midwifery and Community Health. This project brought together academics with varying levels of expertise from several different countries. The participating discourse centered on clinicians transitioning to academia and developing an academic identity.

The multinational group occupying different physical and temporal spaces interacted with each other virtually. The project highlighted points from Wenger's (1998) framework the cogent ones being the socialization of members into a coherent group with a specific identity and that participation could be passive with observers on the fringes of the interaction.

While knowledge transfer takes place in communities of practice interaction, the value of the knowledge being circulated could be questioned. Andrew, Tolson, and Ferguson (2008:249) note that outdated modes of practice for example in the nursing profession which is their object of study could be challenged and revisited through discussion. Communities of practice provide the space for ongoing discussions about the profession.

In their article, Andrew, Tolson, and Ferguson (2008:251) noted that communities of practice are useful for higher education as it moves from an individual perspective to engagement with broader society allowing for the consumption of the knowledge of each by the other for mutual benefit. Elements of Wenger's community of practice framework (1998) most notably practice; identity and mutual engagement are beneficial to the nursing profession. It then follows that communities of practice are of value to higher education.

2.2.4 Mode of knowing – types of communities of practice

Amin and Roberts (2008:353) take issue with what they consider the umbrella use of the term ‘community of practice’ which they name ‘knowing in action. They criticize the growing practice of using communities of practice as a solution to all the aspects of knowledge and learning challenges. They feel that the original elements of ‘context, process, social interaction, material practices, ambiguity, disagreement…’ said to be cogent to communities of practice have been watered down or changed to fit a particular form because of overzealous attempts to derive business successes from the perceived benefits of communities of practice.

The authors enter the fray of discussion about the situational aspects of communities of practice arguing that relationships could be built up across the continuum of space. This point feeds into the latter discussion of online communities of practice.

Having reviewed a large body of literature on communities of practice, the authors offer different modes of knowing in action; this in contrast to what they perceive as the mounting use of the term 'communities of practice' as an all encompassing solution for learning, knowledge transmission and knowledge creation (Amin and Roberts, 2008:356). These modes are *craft or task-based knowing, epistemic or high creativity knowing; professional knowing; and virtual knowing*. Each of these modes is measured against four dimensions determined by the authors to be meaningful to the creation and production of knowledge:

- The knowledge used and produced.
- The nature of social interaction.
- The kind of innovation undertaken.
- The organisational dynamic of interaction.

2.2.4.1 Craft or task-based knowing

In this type of interaction, knowledge is both embedded in documents and the minds of community members. The transfer of the tacit knowledge requires mentoring in a master-apprentice relationship and takes place over time during which constant practice is applied. There is focus on preserving knowledge.

2.2.4.2 Professional knowing

These communities and the craft/task-based communities share the common characteristics of having dual aspects of tacit and explicit knowledge available; and having specific jargon and recognized modes of behaviour. In contrast, though, there is a cross-over of professional interaction between the practitioners and those in related areas.

Professional associations appear as a feature of this type of community of practice. While these associations look after the interests of practitioners and observe the practices of the profession, regulations could become a barrier to community of practice if found to be constraining.

2.2.4.3 Epistemic or high creativity knowing

This type of community is characterized by the high energy interaction of knowledge generation practitioners of both creative and scientific ilk. Amin and Roberts (2008:361) refer to Creplet, Dupouet, Kern, Mehmanpazir and Munier (2001) who indicate that in this community, new knowledge is created from the association of non-homogeneous elements using 'variety, ambiguity, and uncertainty'. Collaboration under these conditions and the high levels of self-autonomy and egos of participants could lean more towards the negative. However, elements of a strong ethical drive resulting in commitment to the group; the attraction of peer recognition; and the freedom from traditional work schedules are aspects that tie the group together and make collaboration work. It is noted that the ties between individuals in this type of group are weak and as short-lived as the duration of the work that brought them together.

2.2.4.4 Virtual knowing

This type of environment was until recently not considered fertile for knowledge generation. In general, online groups are diverse and the interaction generally takes place erratically and there is little direction and control. Building trust and finding mutual engagement takes longer than in physical communities. Amin and Roberts (2008:363) point out that notwithstanding this, the motivation for online collaboration include the expectation of returns such as a solution to a problem and for altruistic reasons such as the desire to help and maintain standards in the profession.

2.2.5 Online communities of practice

The subjects of the proposed study are distributed across South Africa and therefore attention needs to be focused on the views in the literature regarding online communities of practice.

Because of globalization, structures of organisations have become distributed across geographic spaces. With the continued proliferation of information and communication technologies, there has been an increased use of the internet and online tools to facilitate communication, collaboration and knowledge sharing within and between organisations and members of communities of practice. Thus, the concept of online communities of practice has come about.

There are contenders both for and against the concept of online communities of practice. The main objection is the reference to the Lave and Wenger (1991) requirement for collocation. Murillo (2008) indicated that online or virtual communities of practice were not previously recognized due to the requisite context of situated learning in the Lave and Wenger (1991) work.

There is an acknowledgement that company distribution, driven in part by burgeoning ICTs and economic imperatives is a present day reality cancelling collocation and situated learning yet knowledge creation, sharing and distribution needs to continue. ICTs are harnessed for this purpose in the forms of telephone use, electronic mail and web-enabled and social networking tools.

There are varied uses in the literature to describe communities of practice whose members are physically spread apart and who use ICT tools for practice and engagement. The terms ‘virtual communities of practice’ and ‘online communities of practice’ are used interchangeably.

Couros (2006) noted that the concepts of Virtual Learning Communities (VLCs) in which *shared learning* is pursued, and distributed communities of practice (DCoPs) characterized by the members engaging in *shared expertise, interests* and *work*, are connected with virtual communities of practice as both interact in cyberspace. The strength of the connections between the members of each type is another distinguishing factor; these being flimsy in the case of the VLCs whereas more substantial and stable in the case of distributed communities of practice (2006:49).

Couros (2006:50) noted the work of Daniel, Schwier and McCalla (2003) in which the listed key features of DCoPs included shared interests, common identity, shared information and knowledge. These elements find resonance with the elements of the Wenger 1998 Practice and Identity framework providing further strength to the position that communities of practice could exist in an online environment.

Studies by Cox (2008), Johnson (2001), Murillo (2008) and Zhang and Watts (2008) determined that distributed or online groups could be considered communities of practice because they met the factors cogent to the concept of practice. In the case of Murillo (2008); and Zhang and Watts (2008), these were mutual engagement, shared repertoire and joint interests, the elements of the 1998 Wengerian 'Practice and Identity' framework.

Murillo (2008) added the further dimensions of community and identity and concluded that a successful *listserv-based* community of practice existed. Johnson (2001:56) noted that a virtual group could be called a community of practice when *task-based learning* occurs.

Kimble, Hildreth and Wright (2001) studied online, distributed communities, measuring these against the elements defined in the Wenger and Lave (1991) model. They determined that evidence could be drawn from the literature to support the existence of virtual communities of practice.

They emphasized the importance of face-to-face meetings raising evidence from the literature by mentioning the works of Li and Williams (1999) and Ishaya and Macaulay (1999). This view is echoed in the literature, for example, notwithstanding the successful virtual interaction at the more than fifty virtual communities of practice created by the Canadian civil service's Center of Expertise in Communities of Practice that face-to-face meetings are considered an important part of the connections between members and are held on a quarterly basis (Salopek, 2008). It arose from the study by Vavasseur and MacGregor (2008:532) that collaboration amongst a group of teachers was enhanced when professional development activities were supplemented by online interaction. Sobrero and Craycraft (2008) stated that notwithstanding the emerging successes of the online communities of practice, value is to be found in episodic face-to-face meetings to focus the community, strengthen trust relationships and partnerships.

2.2.6 Functions of communities of practice

Wenger (1998a) indicated the functions of communities of practice in relation to knowledge creation, knowledge assets and knowledge sharing in organisations. These include:

- Communities of practice being nodes for the exchange and interpretation of knowledge. A community of practice channels and diffuses knowledge throughout the organisation and across boundaries.
- Communities of practice are responsive to local situations unlike a static environment that occurs once tacit knowledge has been codified in, for example, a training manual.
- Communities of practice steward competencies by being at the forefront of developments in their areas of interest and expertise (domain) and sharing these through shared interest and mutual engagement.

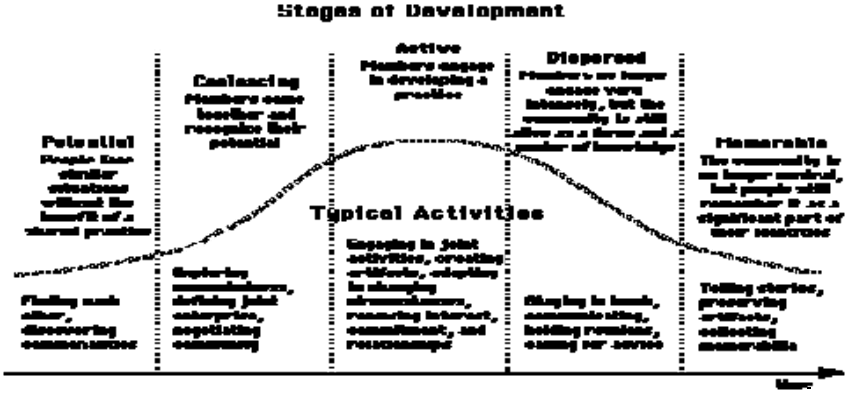
- Communities of practice create identities that ground the group in their specific areas of interest and participation. The outward manifestation of this identity is in physical artifacts such as logos or group specific jargon. Wenger (1998b) calls this 'reification'.

2.2.7 Formation and facilitation of communities of practice

In figure 2 below, Wenger (1998) depicts the 5 stages of development of communities of practice. In the 'Potential phase', there is recognition that there are shared joint interests and common needs amongst people and that benefit could be gained from working together.

In the next 'Coalescing phase' the community forms. Through negotiation the purpose of the community and the joint enterprise are developed. The 'Active phase' sees the community at its most productive, the identity of the community of practice is fully formed, trust relationships amongst members are fully established, outputs are documented and the community of practice is fully engaged. Strong ties between community members are most evident at this phase. There is commitment and a sense of responsibility to the group shared by all individuals. This phase determines the success of the community of practice.

Figure 2: Wenger's community of practice - stages of development



In their work, Wenger, McDermott and Snyder (2002) indicated the need for synergy between the community of practice and the member. The member has to have the need, interest and the resources to match the objectives of the community. The authors identified actions contributing to the development of communities of practice.

While the focus of the Tarmiz, de Vreede and Zigurs (2006) study was on identifying challenges for facilitators in communities of practice, those challenges somewhat relate to the success of the actual communities of practice. From lists drawn up by these authors (2006:2), Mitchell, Young and McKenna (2007) and Wenger, McDermott and Snyder (2002) respectively, the items listed below are deemed relevant to communities of practice. These elements are directives for nurturing the community.

- Design the community to evolve naturally.
- Create opportunities for open dialog within and with outside perspectives.
- Welcome and allow different levels of participation.
- Develop both public and private community spaces.
- Focus on the value of the community.
- Combine familiarity and excitement.
- Find and nurture a regular rhythm for the community.
    - Establishing communities of practice.
    - Building relationships in the community.
    - Creating trust within the community.
    - Developing a sense of identity.
    - Removing the barriers among members to facilitate knowledge sharing activities.
    - Retaining the participation of members.
    - Maintaining communities of practice.
- Communities of practice could be dysfunctional.

- Note organisation barriers.

2.2.8 The role of the individual and the organisation in a community of practice

From respondents' feedback in their study on why people participate in knowledge sharing, Cabrera, Collins and Salgado (2006:258) identified three contributing factors namely, 'psychological variables', the personal view of the organisation and a personal judgment of the value of the knowledge management systems in place.

Self belief in own abilities and strong morale are part of the psychological variables important for knowledge sharing and if not present could be developed by the organisation; organisation has a coaching role and to encourage communication. Cabrera et al (2006:259) list the adaptability of the individual called 'openness to change' as an indicator to a strong knowledge sharing mindset.

Cabrera et al (2006:260) noted that when the individual perceives himself to be in a positive and support knowledge sharing environment, he is encouraged to participate. This is a further pointer to the importance of the role of the organisation as facilitator, supporter and leader in the knowledge sharing endeavours such as communities of practice.

Of the triad of factors lifted from the study, the knowledge management system in use was not one that could be used to predict whether individuals would participate in knowledge sharing activities (2006:261). The 'if you build it, he will come' (Field of Dreams, 1989) mindset will not result in participation and knowledge transfer. Again, the leadership is required from the organisation.

Ardichvili, Page and Wentling (2003:70) found similar results from a study of the reasons for practice or reluctance to participate in a virtual community of practice.

They point out reasons for lowered participation and knowledge sharing due to psychological and organisational factors. These include fear of ridicule and lack of self-esteem; and excessive bureaucracy, protection of proprietary information and lack of recognition of communities of practice.

2.2.9 Leadership in communities of practice

Sobrero and Craycraft (2008) noted that *defined leadership* was found amongst the factors for the success of the community of practice studied. Wenger (1998a:6) listed leadership roles within a community of practice:

- The inspirational leadership provided by thought leaders and recognized experts.
- The day-to-day leadership provided by those who organize activities.
- The classificatory leadership provided by those who collect and organize information in order to document practices.
- The interpersonal leadership provided by those who weave the community's social fabric.
- The boundary leadership provided by those who connect the community to other communities.
- The institutional leadership provided by those who maintain links with other organizational constituencies, in particular the official hierarchy.
- The cutting-edge leadership provided by those who shepherd "out-of-the-box" initiatives.

Wenger notes that these roles which could be informally assigned but must be accepted by the participants are critical to the development of a community of practice. Wenger warns that the spontaneity and thrust of communities of practice should not be curtailed by external stewardship.

Bourhis, Dubé and Jacob (2005:32) draw from their study the indication that having a fulltime leader is beneficial to a virtual community of practice. The community gains more when the person is skillful, enthusiastic and proficient in IT.
The leader pays attention to the needs of the community; attends to needs for coaching and troubleshooting; and addresses organisational barriers.

2.2.10 Why communities of practice succeed

Probst and Borzillo (2008:339) undertook an empirical study of fifty seven communities of practice on both sides of the Atlantic Ocean. This study led to the creation of lists of reasons why communities of practice succeed or fail. The ten indicators of success called 'Ten Commandments of COP governance' by the authors are related to issues of management and leadership and are listed below.

- Stick to strategic objectives.
- Divide objectives into sub-topics.
- Form governance committees with sponsors and community of practice leaders.
- Have a sponsor and community of practice leader who are 'best practice' control agents.
- Regularly feed the community of practice with external expertise.
- Promote access to other intra- and inter-organizational networks.
- The community of practice leader must have a driver and promoter role.
- Overcome hierarchy-related pressures.
- Provide the sponsor with measurable performance.
- Illustrate results for community of practice members.

These factors for success all point to acts of deliberate intervention by the organisation to foster and bolster communities of practice. This is at odds with Lave and Wenger's (1991) characterization of communities of practice being spontaneous and non-managed. Since then, Wenger (1998a) noted the need for leadership from inside the organisation as core to the development of a community of practice.

The Probst and Borzillo (2008) success indicators point to the role of the organisation as a driver of communities of practice. Other studies for example Yu (2009) point out that organisational support and behaviour could make or break a community of practice.

Studies such as the one by Vavasseur and MacGregor (2008) found evidence that participants welcomed regular focused discussions and the supply of content relevant to the community of practice. The authors listed mediated support, reminding, stimulating conversations, clearing up issues as ways of building up an online community of practice (2008:531).

2.2.11 Why communities of practice fail

Highly bureaucratic, rigid organisations are an anathema to communities of practice which are flexible and require high levels of self-autonomy. This is illustrated in the epistemic or high creativity knowing type of community of practice described by Amin and Roberts in 2.2.4 above, Other organisational problems negatively affecting communities of practice include focuses on the individual performance thus no incentive to share knowledge and short-term tangible results; office politics and an anti-learning organisational culture (Wenger, McDermott and Snyder, 2002:155).

Probst and Borzillo (2008:343) noted that communities of practice fail under the following conditions:

- Lack of a core group. A core group of practitioners develops from early on and is the source of new ideas. Work pressures are given as the main reason in their study.
- Low level of one-to-one interaction between members. The role of the organisation is once again highlighted. The authors noted in their findings that when the organisation withdrew support, the sharing and thus cross-fertilization of ideas dried up.
- Rigidity of competences. The development or sustaining of communities of practice is served a death knell when organisation operations result in departmental silos which compete for resources for example budget. The motivations change from notions of sharing and public good to self-interest. The nature of communities of practice is to transcend internal and external organisational structures.
- Lack of identification with the community of practice. When communities of practice are not viewed as relevant to daily operations and thus sources of support, these will fail. Concomitantly, the opportunity to learn from peers or experts is not taken up.
- Practice intangibility. The authors note this as the use of inappropriate tools for example the use of documentation rather than observation on how to dig a well (2008:343).

From the literature, there is the weight of evidence of the pivotal role of organisations in the formation, development and sustaining of communities of practice.

Barriers created by communities of practice

Wenger, McDermott and Snyder (2002:139) warn that communities of practice should not be idealized as the solution to all problems. These could be barriers to learning and hoarders of information as the authors illustrate occasions from history such as when women were excluded from membership to guilds. Communities of practice or their members could claim dominance over a domain of knowledge expecting to be recognized as experts in the field. They could create barriers to entry to the integration of newcomers one of the perceived benefits of a community of practice. In general the community would decline if not open to new sources of knowledge and practice.

Community dysfunction

When communities of practice become dysfunctional, the benefits turn into the exact opposites; for example, facilitated learning now becomes a barrier to learning. Causes for dysfunction include lack of passion, failure to develop trust and a sense of identity; these could lead to stagnancy which the authors feel is worse than not having a community of practice (Wenger, McDermott and Snyder (2002:156).

2.3 Conclusion

The literature is rich with references to and interpretations of the works on communities of practice of most notably Etienne Wenger and others who devised concepts of communities of practice.

Four concepts have been highlighted and notwithstanding subsequent formulations, each remains as pertinent points of discussion. For example, even though this study uses the Wenger 1998 ‘Practice and Identity’ framework as a theoretical underpinning, the elements of co-location and situated learning – from the previous Lave and Wenger 1991 work – is relevant to the discussion. The conversation about communities of practice is ongoing.

The literature also abounds with applications of these concepts in the forms of, for example, case studies. The overlap with education and learning theory for one, and across sectors from higher education to health practitioners is evidence of the richness and depth of the topic of community of practice. The research has attempted to focus on the resources in this vast pool knowledge on the works cogent to the research question.

The researcher would like to highlight what she sees as the common elements in the discussion in this study. A successful community of practice requires nurturing from an organisation and the members of the practice. Barriers such as fear and mistrust; and bureaucratic rigidity have to be overcome to ensure the flow of knowledge. The community flourishes with continuous participation and from the diversity within the group framed within a shared context of interests, goals and practice. A common identity defines both the group and the individual. Through practice, common styles, behaviours, and physical representations of the community's activity emerge. The prevalence of the use of ICT and web-based tools is not an indication in itself of a community of practice; rather, an online community of practice is defined in terms of evidence of the elements above while utilizing information technologies.

Chapter 3: Research design

3.1 Introduction

This chapter follows from the review of the literature on communities of practice and introduces the empirical part of this study.

This study originated with the position that a group of information technology professionals from South African public higher education institutions who participated in the DITCHE ITIL Service Management programme had formed a community of practice. It followed that to test this position, the behaviour and output of the group in this context had to be examined against the theoretical framework of a community of practice.

The concept of community of practice has been through several stages of development. Of the four works identified by Cox (2005) as cogent to the subject of communities of practice, the 1998 Wenger 'Practice and Identity' framework was determined most suitable for this study. This framework is able to accommodate the effect of expansive and pervasive developments in the information and communications technology fields and the resultant geographical distribution of organisations and the use of online communication tools in the social, business and academic spheres. As mentioned by Cox, previous descriptions of communities of practice required the practitioners to be in the same physical space during their engagement.

The purpose of this study was to determine whether an identified group could be described as a community of practice when measured against the 1998 Wenger 'Practice and Identity' framework.

The methodology employed to address this question followed the Zhang and Watts (2008) approach in their study which determined whether an online Chinese travel company could be described as a community of practice using the mentioned Wengerian framework. These authors compared the primary data gathered against the elements of the Wenger framework and deduced from this whether the group could be called a community of practice.

Zhang and Watts examined the email output of the studied group. This study differed from this as the primary data were sourced directly from the group being studied and related persons.

3.2 Data collection

A research strategy was employed to obtain both quantitative and qualitative data. The data were collected using online survey questionnaires, face-to-face and telephonic interviews.

3.2.1 Data sources

The sources of data for this study were:

- The members of the DITCHE ITIL Service Management programme
- The DITCHE programme manager
- The trainers delivering the ITIL Service Management programme

The members of the DITCHE ITIL Service Management programme provided the source data to address the research question which asked whether this group could be called a community of practice.

The survey was sent to thirty three potential respondents, identified by the DITCHE programme manager who had secured their participation in the study. These respondents represented a common pool of people employed in the information technology departments of South African public higher education institutions who had completed the DITCHE ITIL service management programme or were in the process of completing this. The ITIL Service Management programme consisted of two separate contact sessions, one two-day pre-exam refresher course and two three-hour exams on two consecutive days. The contact sessions were spread over one calendar year generally with the exam being taken towards the end of that year. Not all participants passed the exam the first time. Certification was awarded on passing the ITIL service management exam.

Those who were in the process of completing the ITIL Service Manager programme fall into two groups largely, which were those who have completed the contact sessions and were due to write or rewrite the exams and those who were in the contact sessions phase of the programme. This meant that some of the respondents had been involved in the DITCHE ITIL Service management programme for a longer time. The relevancy of this to the study was examined during the data analysis phase.

The DITCHE programme manager

An aspect of the research question asks for the identification of factors contributing to or preventing the formation of the community of practice. The data used to inform this aspect were obtained from interviews with the DITCHE programme manager; the trainers of the ITIL Service Manager; and the DITCHE ITIL group respectively.

The purpose of the DITCHE programme is to build capacity in the information technology departments of South African public higher education institutions. The development of communities of practice is viewed as tools to help this purpose along.

The interview explored with the DITCHE programme manager how DITCHE builds communities of practice; which techniques and measures are used to sustain the groups; what evidence exists of physical output such as documentation and artifacts; and the identification of barriers to practice.

The two trainers of the ITIL Service Management programme were interviewed to collect data to determine whether evidence existed that these trainers contributed to the development of a community of practice.

The lists of questions used in the interviews are found in Appendix 2c.

3.2.2 Data collection tools

Data needed to provide the input for the comparison to the Wengerian framework were collected in the following ways:

- A questionnaire was developed and circulated to the identified group.
- A semi-structured face-to-face interview with pre-planned questions was held with the DITCHE programme manager.
- Semi-structured telephonic interviews with pre-planned questions were held with the trainers delivering the ITIL Service Management programme.

3.2.2.1 The questionnaire

Some of the advantages listed by Walonick (2004) of questionnaires as a data collection tool in comparison to interviews included the ease of employing software for data analysis; the respondent is able to complete the questionnaire at his own pace; a reduction of bias as the same information was requested of all participants; and the researcher was not in contact with the respondent. This lack of contact could be a disadvantage as the researcher would not be able to follow up or clarify responses.

As the members of the group being studied worked in the information technology departments of institutions located across South Africa, it followed that an online questionnaire would be a suitable data collection tool. Online questionnaires have an advantage over paper questionnaires as the respondent's compliance to the requirements could be enforced by the tool. For example, where a response is mandatory, the questionnaire will not be accepted as complete and the shortcoming brought to the attention of the respondent (Day, n.d). Responses received could be processed automatically by software and exported to statistical programmes. This assists with reducing data input errors and reduced effort.

The use of online surveys saves the researcher time as the Internet is a more immediate conduit than physical methods of distribution. Electronic distribution while not completely free does not have the cost of consumables and postage incurred when distributing print (Wright, 2005).

A low response rate is one of the possible disadvantages encountered when using an online questionnaire as the links to the survey could be stored and forgotten. To increase the response rate, the researcher was assisted by the DITCHE programme manager who requested the cooperation of the DITCHE ITIL group in this study. The correspondence is found at Appendix 2a.

The researcher used the subscription option 'SurveyExtra' of the software 'FreeOnlineSurvey.com'. This software provided templates for questionnaire design; no limitations on questions and responses collected, stored and analyzed; offered options for display of data received; email delivery of each completed form; and options for personalized customisation. The survey software ensured only one response per computer address as a measure of control in the study. The computer address of each recipient was not recorded thus ensuring anonymity of the respondent. This measure did not prevent the possibility of multiple responses from the same respondent from different computers.

As the responses would emanate from a small group of people from which individuals could be identified with reasonable ease, the respondents were assured of confidentiality in the covering letter sent via email. The correspondence explained the purpose of the study; requested the completion of the questionnaire; provided a link to the online questionnaire and the password to gain access; and a due date for the response. The password control was employed to prevent discovery of the website by persons not related to the study. Although not explicitly stated, the researcher was contactable for questions via the email address from which the letter had been sent. See Appendix 2b.

The questionnaire was designed to collect evidence of the opinion, attitude, and responses of the respondents to communities of practice in general and whether the DITCHE ITIL group was a community of practice; and whether there was evidence of the formation of a group identity. Further questions sought motivations and barriers to participation. This evidence was used to determine the extent of alignment of the DITCHE ITIL group with the Wenger framework.

In the questionnaire, the Likert scale used provided quantitative data while the text boxes provided for explanation of choice or specific or broad comments yielded the qualitative aspect. Both types of questions, close-ended and open-ended, were used.

Close-ended questions were used to foster a common understanding. In each question, respondents were presented with ranges of options which were derived from the literature review. They were either able to choose a single answer from a range of options or in another case, they were able to choose all options they thought relevant. In both cases, an ‘Other’ option was available together with a text box requesting explanation, expansion or alternative options from the respondent.

Open-ended questions were used to elicit opinions from respondents using text boxes to explain their feedback.

The Colorado state university website (2009) lists the advantages of close-ended versus open-ended questions. Close-ended questions are more easily analyzed quantitatively using automated tools in comparison to open-ended questions which may lose meaning when subjected to this process. Open-ended questions may become lengthy when the opinions of respondents are polled. These types of questions do not limit the opinions of the respondents and could provide richer sources of data in this type of feedback which could be used for future secondary data analysis.

3.2.2.2 The Interviews

Gorman and Clayton (1997:124) list immediacy, personal contact and the speed of responses as the advantages of interviews as a data collection tool. Amongst the drawbacks are the time needed for the interview process – setup, execute, record, and report and potential pitfalls to be avoided by a skillful interviewer who needs to remain impartial and keep the interview relevant to its purpose.

A face-to-face interview was set up with the DITCHE programme manager who was available for this type of interaction. The interview was semi-structured as the researcher had prepared a list of questions but the researcher was able to diverge from this to follow up on responses. The interview protocol is included in Appendix 2c. The questions were framed within the context of the study which was introduced at the start of the interview. Permission was received to record the interview.

Telephonic interviews were deemed sufficient and a suitable tool for data collection from the two ITIL trainers who were less physically accessible. In both cases, date, time and venue were pre-arranged with the respondents and permission was obtained to record the session. The interviews were semi-structured which allowed for further probing and examination of responses while having a prepared list of questions. Again, the purpose of this study was introduced at the start of the interviews. The interview protocol is included in Appendix 2c.

3.2.3 Data recording

As the questionnaires were completed online, the survey software computated the quantitative responses and separately listed the qualitative data of comments, opinions and explanations.

Gorman and Clayton (1997:135) warn that recording interviews may inhibit the responses of the interviewees. An attempt to address this was made by seeking permission from the respondents to record the interview at the onset of the contact, a repeat of this request before the interview started. An offer of a copy of the recording was made together with the opportunity to withdraw from the process at any time. All the respondents agreed to the recording. The three telephonic interviews were transcribed to ensure that the responses were correctly understood.

3.3 Conclusion

It is important to follow a proper methodology in the research design phase of a study as this provides a framework for the subsequent data analysis and deductions. The methodology employed influences the data analysis of the conclusions drawn and further recommendations for the study.

Chapter 4: Data analysis, interpretation and findings

The data were analyzed and interpreted within the framework of the research questions:

- Do the DITCHE ITIL programme attendees meet the definition of community of practice when compared against Wenger's 1998 'Practice and Identity' framework? If not a Wengerian community of practice, then could another model be identified?
- What factors are required for the formation and sustaining of a community of practice?
- What are the barriers to the formation and sustaining of a community of practice?

4.1 Methodology employed for data analysis

The data sourced from the survey and the interviews were mapped to the elements of the Wenger 'Practice and Identity' framework and along the lines of the Zhang and Watts (2008) case study of online communities of practice to address Research question 1. The elements were *mutual engagement*, *joint enterprise*, *shared repertoire*, *participation* and *identity*. In addition, evidence was sought for the existence of the psychological and organisational factors highlighted in the literature review chapter to address research question 2 and research question 3.

4.2 The survey

4.2.1 Identifying the job function of the respondents

The DITCHE ITIL programme includes the intention to increase the level of knowledge and knowledge-sharing in and amongst information technology (IT) departments of South African public higher education institutions. The job functions provided in the survey are indicative of the spread of functions within IT departments.

The responses were separated into the groups – both having the traditional view of the general functions of management being planning, leading, organizing and control as quoted in South African Human Resource Management (2003:4) but, within which, could be further differentiated into strategic, technical and services. Each of these represents a different type of IT function which could have its own community of practice. ITIL v3, published in May 2007 has five sections:

1. Service Strategy

Management positions supplied from respondents for example, Campus IT Manager, Computer systems manager, Deputy Director ICT responsible for project management and ICT development, IT Manager, Deputy Director related to the strategic components of IT functions and Deputy Director ICT.

2. Service Design

Positions supplied to match this component were for example, IT Consultant in the Service Delivery division of the IT dept, Business analyst and Technical specialist IT Manager: Communications and Information Security.

3. Service Transition

For this section, job functions provided included Change Manager.

4. Service Operation

Applications Manager, LAN Administrator, Head IT Help Desk, manager IT helpdesk, Manager: Services and Production Support, Manager: Services and Production Support were all job functions that could be placed in this category.

5. Continual Service Improvement

The job function Quality Management could be categorized here.

The responses were used to determine whether certain job functions were better positioned in terms of attitude, belief, available time and types of problem to recognize and be committed to the value of participating in a community of practice.

These responses also create a theoretical base for the joint enterprise element of the Wenger framework. The respondents have a shared interest namely information technology services and the common interest of the delivery of these services. It follows that the opportunity for mutual engagement around ITIL matters is present.

4.2.2 ITIL service management programme

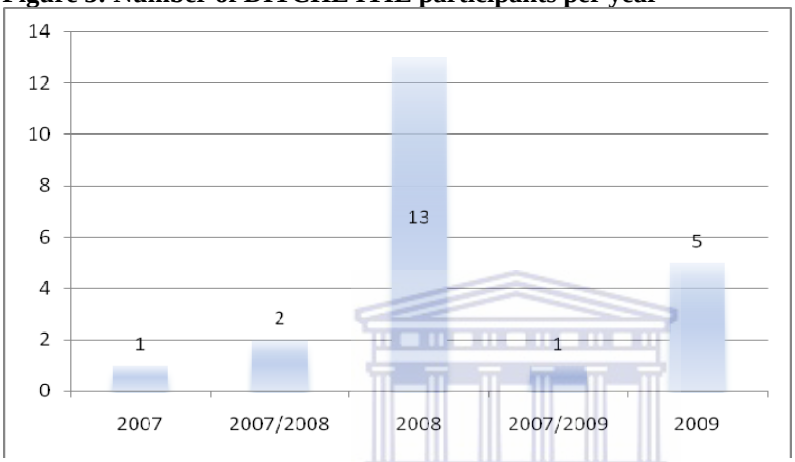
The respondents were asked to indicate the timeframe of their involvement in the DITCHE ITIL service management programme. The results are tabulated in the chart at figure 3 below. Thirteen of the twenty two polled respondents (59%) participated in the programme in 2008. The indication from 2 other participants (9%) of an overlap of 2007 and 2008 meant that this value could be increased to fifteen participants (68%).

This high number suggests that the greatest opportunity for participation and practice was available in 2008 given the involvement of a large number of people from the same domain (higher education information technology) with the same interest (ITIL service management). However, from subsequent responses indicate that this opportunity was not availed.

Another purpose of this question was to determine whether being involved with ITIL for a longer time would lead to the practice of involvement in a community of practice.

The evidence from the telephonic interview with ITIL trainer 2 indicated that the involvement with ITIL community of practice (IT Service Management Forum (ITSMF)) – not the DITCHE ITIL community of practice – seems to arise when institutions were implementing ITIL. The ITSMF is a non-affiliated non-profit group which ascribes to the principles of quality IT services and service management.

Figure 3: Number of DITCHE ITIL participants per year



4.2.3 Setting the scene

The next set of questions was designed to find out what the respondents' understanding of the concept of community of practice was because the opinion of the respondent whether the DITCHE ITIL group was a community of practice would follow. This latter question would provide data to inform the aspect of the research question which asked for reasons whether or not a DITCHE ITIL community of practice existed.

When asked for a definition of community of practice, 59% of the responses received contained the words 'share' or 'sharing' in relation to 'experience', 'expertise', 'goals and interests', 'information', 'knowledge' and 'work experience'. In two other cases (9%) where this word does not appear, the word 'collaborate' is used to explain the definition of community of practice although the description does not contain the purpose of the collaboration.

One response (4.5%) references common interest and working together formally while another (4.5%) uses ‘participating’ and the phrase ‘learn from each other’.

Cumulatively from the above, 77% of the respondents have used descriptors for definition of community of practice as found in the literature. This result seemed to point to a broader understanding by the respondents of the intentions of communities of practice.

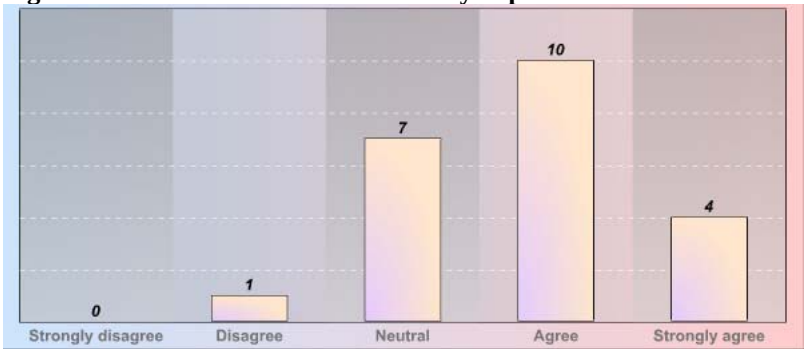
Three further cases (14%) refer to ‘quality’ in their definition which does not feature explicitly in the Wenger definition of community of practice. Two other respective responses (9%) seem to indicate that these respondents were not familiar with the definition of community of practice. So of the total, 23% of the respondents were not explicitly familiar with the concept of community of practice found in the literature.

Of all the responses, only one response (4.5%) contained sufficient elements to meet Wenger's definition of a community of practice. However, in this study, the proximity of synonyms or the oft-used interchange of the terms information and knowledge points to the use of less formal description of community of practice than found in the literature, rather than a lack of understanding of this concept.

In response to the statement, ‘I am a member of a community of practice’, 63.5% of the respondents agreed in various strengths indicating their involvement with a community of practice as in figure 4. Thirty two percent of the respondents seemed not to have an opinion on this matter and chose to be neutral.

One respondent (4.5%) disagreed. Looking at the rest of the contributions in the questionnaire from this respondent, it was noted that the definition of community of practice submitted was deemed not suitable not having commonalities with Wenger's description.

Figure 4: I am a member of a community of practice



Moving to more specific questioning, the responses on whether the ITIL group was considered a community of practice returned a result (see Figure 5) at odds with the previous question. Again, one person disagreed (4.5%), the number of neutral responses changed dropping by 18% and the number of respondents agreeing rose by 23% and those strongly agreeing dropping by 4.5%.

While 18.5% of the respondents had indicated in various degrees the opinion that they did not belong to a community of practice, 81.5% of the respondents agreed that the DITCHE ITIL group was a community of practice. This implied that non-participation in the DITCHE ITIL group was not due to a lack of recognition or knowledge of its existence.

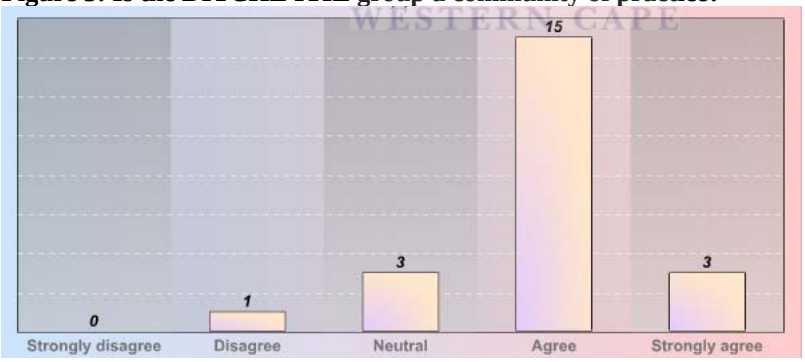
Looking into the responses where there was an 'agree' response to the DITCHE community of practice but a 'disagree' and 'neutral' responses to membership of a community of practice returned the following insights. One respondent did not seem to understand the concept of community of practice but indicated that the DITCHE group '…share common problems, goals and experiences and can learn from and support each other'.

Another respondent although not a member of a community of practice, agrees that the DITCHE group is a community of practice '…and this makes it easy to contact the others on what they have done in specific situations'. Another respondent shares similar sentiments 'The potential exists for it to become one'. Both these comments seemed to point to the potential of the DITCHE group as community of practice rather than an existing entity.

Amin and Roberts (2008:363) pointed out that availability of the community when the need arises is a typical trait of an online community of practice. In these types of communities, frequencies of interaction are less useful determinants of the existence than in non-virtual communities.

The input from the other two respondents was off track in respect of this study's definition of community of practice, referencing the ITIL framework as a community of practice.

Figure 5: Is the DITCHE ITIL group a community of practice?

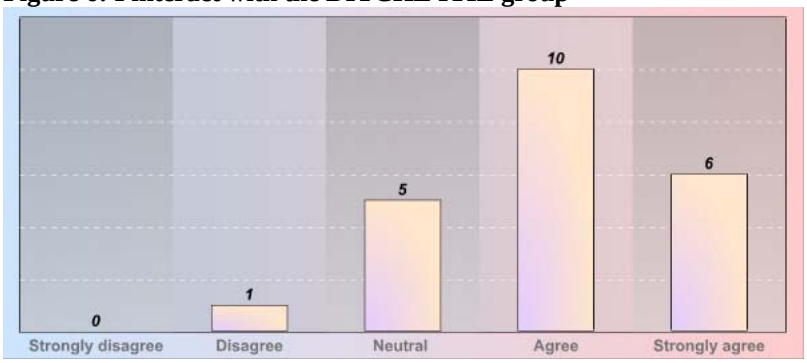


4.2.4 Participation and mutual engagement

The next set of questions was designed to elicit responses related to participation and mutual engagement which flows from active participation in the group and relations with others therein. A history of participation forms part of the shared repertoire component of the practice.

Identity, the other leg of the 1998 framework, emanates from practice. Sixteen (72.5%) of the responses received affirmed in the positive that they interact with the DITCHE ITIL group. This seems to build evidence of participation.

Figure 6: I interact with the DITCHE ITIL group



0% 4.5% 23% 45.5% 27%

The follow-up question about the methods employed to interact with the group (see Figure 7) netted a range of responses. The question provided options and the respondents were invited to check all applicable options. Email contact received the highest number of responses closely followed by telephone use from the options on offer. Other types of interaction submitted by the respondents were 'Web', 'conferences', 'meetings' and 'Facebook'.

Figure 7: Communication tools used in the DITCHE ITIL group

	Responses
ITIL listserv	8
Mailing list (email)	13
Telephone	12
Skype	2
Web	2
Conferences	3
Meetings	4
Facebook	1

The variety of the responses led to the thinking that while interaction and communication takes place between the respondents this contact, it is not an indication of an active community especially as the DITCHE ITIL group does not have an email list. Thus the contact is between persons who have shared an experience namely the DITCHE ITIL Service Management programme and less evidence of a group behaving as a Wengerian community of practice.

The literature on community of practice points to the importance of face-to-face communication even for online groups. The use of the telephone for communication could be seen as a substitute for this given that distance separates the members of this group.

The participation element of the Wenger framework is manifested through mutual engagement and is exhibited by relations with others in the group. Respondents were asked to choose all applicable options to the question: 'When problem-solving, I turn for assistance to:' The responses in Figure 8 indicate that members turn largely to colleagues in their own institutions when problem-solving and then individuals who had participated in the DITCHE ITIL service management programme.

Figure 8: Sources for problem solving

	Responses
The ITIL group	6
Individual members within the ITIL group	16
Colleagues in my organisation	18
Engage with the group to solve the problem	1
Usergroup, Web	2
Email	1
Known Error Database	1
Practices on the internet	1

Other responses relate to general interaction with internet resources such as ‘Practices on the internet’ and ‘web'. There were three possible indications of mutual engagement with references to ‘Usergroup’ (two instances) and ‘engage with the group to solve the problem’. There is no evidence that this is specifically the DITCHE ITIL group. The disadvantage of a questionnaire survey is demonstrated here as the researcher is not able to clarify the response.

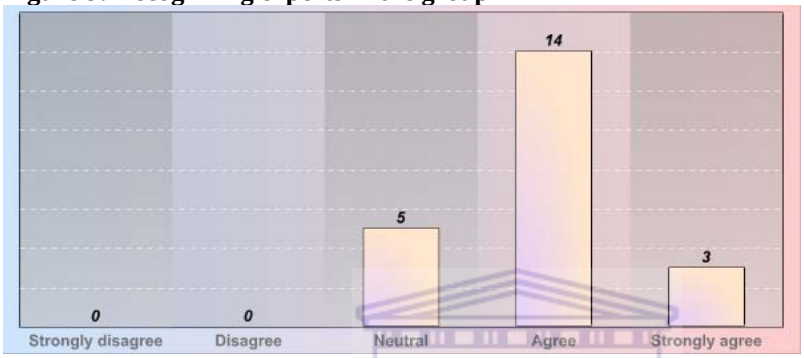
A ‘Known Error Database’ was mentioned in the survey responses. This could be construed as an example of ‘reification’ i.e. the outward manifestation of practice. However, this is not related to the DITCHE ITIL group. In the interview with the DITCHE programme manager, no mention was made of such a resource. There is no opportunity seemingly for the development of a common history either as a group memory or in a physical form. An example of this would be a mailing list archive, blog or any common space where the activities of the group could be stored.

Communities of practice have received acknowledgement as devices for knowledge creation, sharing and transfer through processes of interaction. Previous references were made by Amin and Roberts (2008); Choo (1998) and Hildreth and Kimble (2002) to the master-apprentice model of knowledge transfer. Wenger (1998a:6) opined that the presence of recognized experts sanctioned knowledge creation and sharing within a community.

In Figure 9 below, seventy seven percent of the respondents indicate their recognition of experts within the DITCHE ITIL group. The DITCHE ITIL programme manager had indicated in the interview that DITCHE recognizes experts and champions in the field. He identified these as people who participated by volunteering their time, for example, giving presentations at events (another method of knowledge transfer) and helping with programme arrangements, and are usually willing to assist with technical questions that may arise.

In the interview, the DITCHE ITIL programme manager acknowledged that DITCHE could be seen to wield influence over the recognition of experts. The DITCHE office was a point of contact and source of information for the identification of experts. It appears that the identification of experts was more likely to be driven by DITCHE than by a spontaneous agreement amongst participants.

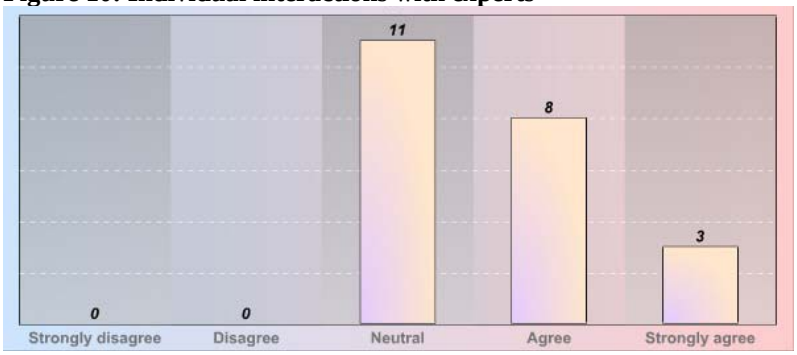
Figure 9: Recognizing experts in the group



0% 0% 23% 63.5% 13.5%

Continuing on the investigation whether the respondents are partaking in a master-apprentice relationship, in Figure 10 below, fifty percent indicated their individual interaction with experts in the DITCHE ITIL group. One could deduce that knowledge sharing and knowledge transfer is taking place.

Figure 10: Individual interactions with experts



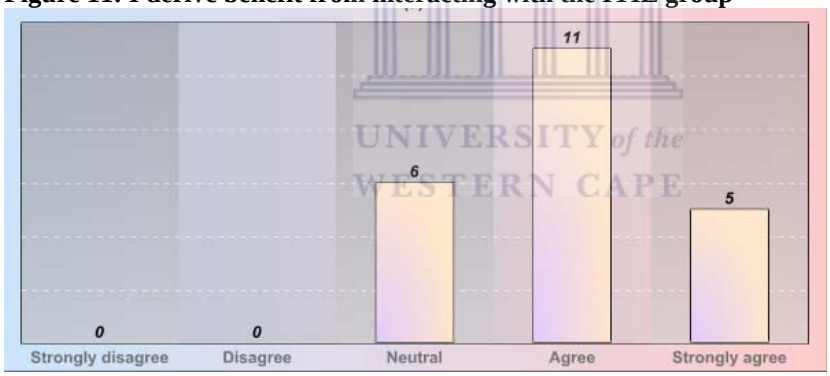
0% 0% 50% 36.5% 13.5%

More respondents seem to know who the experts are (77% in Figure 9) than those interacting with experts (50% in Figure 10).

Figures 8 and 10 seem to indicate that when respondents have a problem, they are more likely engage in singular rather than group interaction for problem solving. They either seek help from within their organisation or interact on a one-to-one basis with DITCHE experts. This seems to indicate that less mutual engagement takes place in the DITCHE ITIL group.

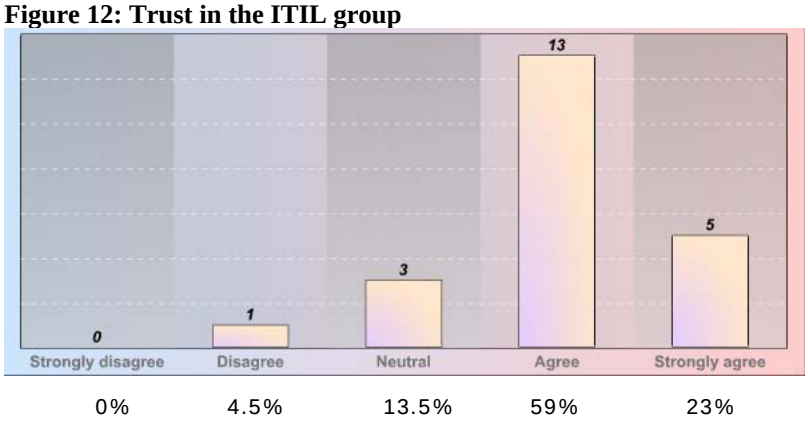
There is a depth of literature on the benefits of communities of practice and seventy three percent of the respondents surveyed agreed as illustrated in Figure 11 that they gained personally from the interactions.

Figure 11: I derive benefit from interacting with the ITIL group



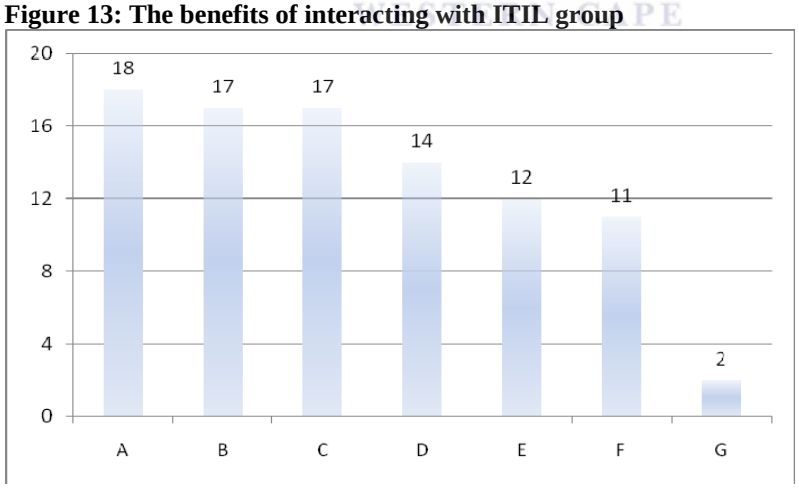
The literature raised the issue of trust as an important component of relationships in communities of practice (Ardichvili et al, 2003:64). Knowledge transfer is facilitated with a trusting relationship as this gives validity to the information being received and acceptance of new knowledge being exhibited in the group. Eighty two percent of the respondents indicated their trust in the ITIL group as seen in Figure 12. This could be viewed as an indication that the barriers to participation such as psychological fears of ridicule and so on, as raised by Cabrera et al (2006:258), were less of an issue in this study.

Figure 12: Trust in the ITIL group



Ninety two responses related to the benefits of interacting with the ITIL group were received from the survey. As seen in Figure 13, the three categories 'Assistance with problem solving', 'Improving job performance' and 'Growing professional knowledge' received the largest numbers of responses. These are competency related factors and seem to point to the belief that participation delivers gains. These also relate to the psychological determinants such as self-esteem listed above by authors such as Cabrera et al (2006).

Figure 13: The benefits of interacting with ITIL group



A) Helping me with problem solving (18)

B) Improving my job performance (17)

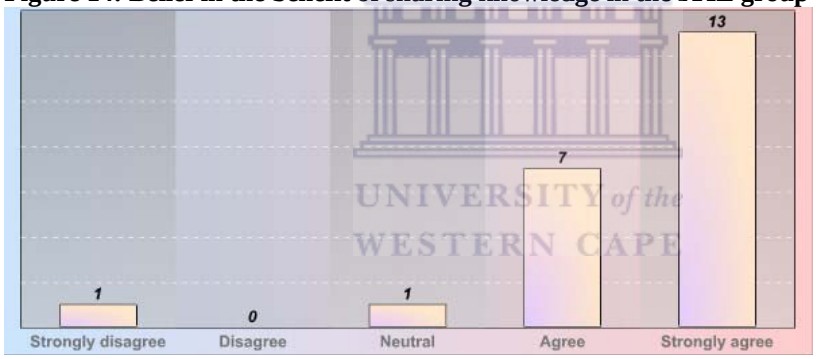
C) Growing my knowledge in the IT arena (17)

D) Building a list of contacts which I can call on (14)

E) Becoming recognized as a knowledgeable professional by the IT community (12)
F) Improving the reputation of my organisation (11)
G) Other (2) - “To reduce costs”; “Beneficial - I know some of their statuses and problems that they are experiencing -often very similar to ours”

Ninety one percent of the respondents affirmed their positive belief in the beneficial sharing of knowledge (Figure 14). Ardichvili et al (2003:69) noted one requirement of a successful virtual community of practice is the recognition of this group as a source of new knowledge. Should the DITCHE ITIL group be deemed not a community of practice when measured against the Wenger community of practice framework, the potential exists to form one from this group of respondents.

Figure 14: Belief in the benefit of sharing knowledge in the ITIL group



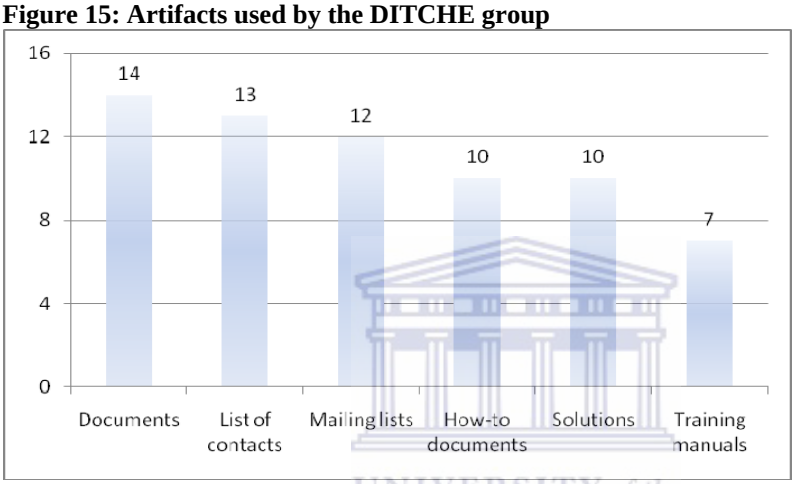
4.2.5 Reification

Reification is the outward indications of a community of practice. Representation could be tangible for example, badges, logos, documentation and databases; and the intangible such as jargon. In the Zhang and Watts (2008) study, the email output studied was a form of reification.

The questionnaire presented the respondents with a non-exhaustive list of options of output from the DITCHE ITIL group and an 'Other' category for further examples in the question: 'The ITIL group has resources which I can access'.

Figure 15 reflects the seemingly high number of physical representations such as documents and training solutions.

Figure 15: Artifacts used by the DITCHE group



Documents (14)

List of contacts (13)

Mailing lists (12)

How-to documents (10)

Solutions (10)

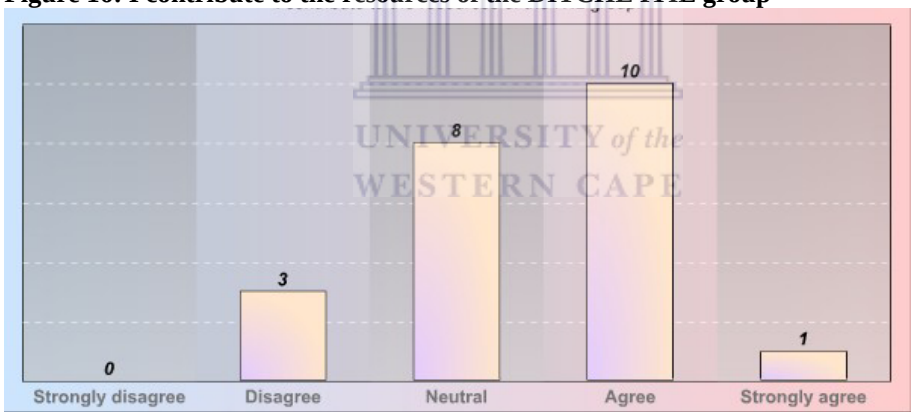
Training manuals (7)

In the interview, the DITCHE programme manager listed the DITCHE support structures as the skills database which lists the expertise generated from DITCHE programme interventions including DITCHE ITIL Service Management programme; and the workspace on the learning management system. It is likely that the respondents are referring to material supplied on the ITIL training programme because this was distributed by DITCHE.

ITIL trainers 1 and 2 indicated the mentored approach to learning which has been recognized as necessary but not implemented in the ITIL service management programme. Both the DITCHE programme manager and ITIL trainer 2 indicated that lapel pins indicating the certified level of ITIL proficiency are available. These are however symbols of ITIL and not DITCHE.

Continuing the investigation into reification, Figure 16 illustrates that 50% of the respondents agreed that they contributed to the resources of the ITIL group. This is not physically evident in terms of reification or outward manifestation as discussed previously. Willingness on the part of members to contribute resources either tangible e.g. documents or intangible e.g. opinions or advice is an indication of the potential vibrancy in a community of practice

Figure 16: I contribute to the resources of the DITCHE ITIL group



4.2.6 Reasons for participation

As illustrated in Figure 17 below, the reasons for participating in the DITCHE ITIL group are overwhelmingly in favour of personal development through learning, senses of obligation to payback for opportunities received and the desire to share knowledge. These are pointers according to Cabrera et al (2006:260) and Ardichvili et al (2003:69) of a successful community of practice. Personal rewards are not main motivators and the knowledge held by individuals is viewed as public good.

Figure 17: Reasons for participation

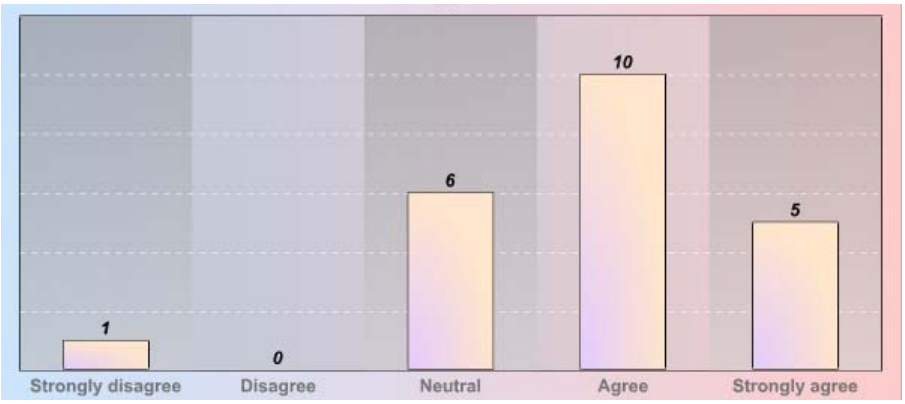
	Responses
I learn from interacting with the ITIL group	17
I wish to reciprocate the opportunities received from DITCHE	17
I wish to reciprocate the opportunities received from my organisation	16
I wish to share my knowledge with the ITIL group	14
I wish to improve the reputation of my organisation	11
I feel an obligation to participate in the ITIL group	10
I seek recognition as a knowledgeable professional by the IT community	3

4.2.7 Motivation and barriers to participation

Motivation

Fifteen (68.5%) respondents indicated positive encouragement from their institutions to participate in the ITIL group as indicated in Figure 18 below; six respondents representing 27% chose a neutral stance while one person (4.5%) disagreed strongly. This respondent linked their non-participation in the DITCHE ITIL group to a lack of institutional support. Thus, organizational support in favour of participation in a community of practice was largely encountered in this study.

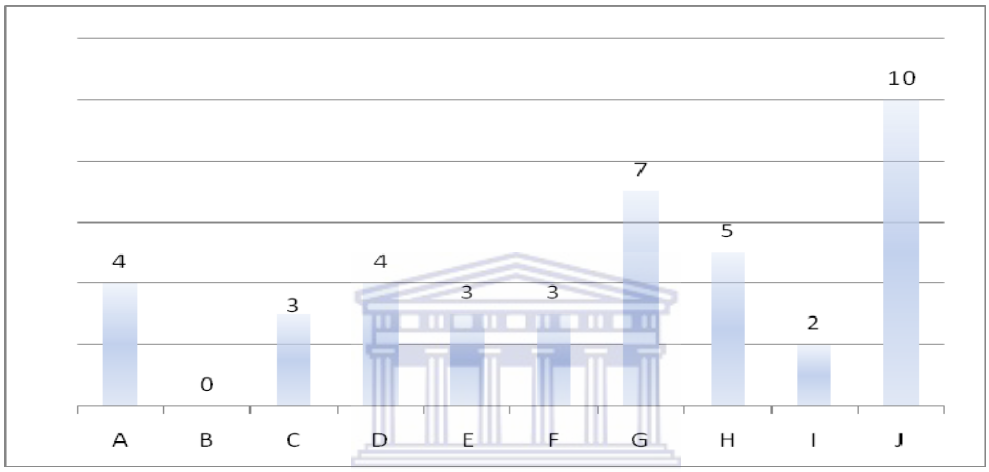
Figure 18: Institutional support for participation



Barriers

The responses to the reasons for not participating in the ITIL group were widespread as listed in Figure 19 below. The options were developed from the literature on the barriers to participation in a community of practice as listed by Probst and Borzillo (2008); Wenger, McDermott and Snyder (2002); and Yu (2009).

Figure 19: Reasons given for not participating



A) I have too much work to do (4)

B) I see no benefit in participating in the ITIL group (0)

C) I do not have the time in my working day to participate (3)

D) My management is not supportive of my participating in the ITIL group (4)

E) My organisation does not support the ITIL framework (3)

F) I prefer to interact with certain colleagues only from the ITIL group (3)

G) I prefer to interact with colleagues in my organisation (7)

H) I get the information I need from other sources (5)

I) I get the information I need from listservs (2)

J) Other (10)

The largest number of responses was received from the options G ‘I prefer to interact in colleagues in my organisation’ and J. ‘Other’. This category netted eleven reasons.

Two reasons given were that the respondents were not aware of the DITCHE ITIL group. Two responses belonged to category (H); another belonged to category (A). Another response spanned both categories (A) and (H). The other feedback pointed out that these respondents do participate implicitly in the DITCHE ITIL group.

When invited to indicate the kind of encouragement would cause their participation, the free text responses received were arranged in Figure 20 below under the bulleted headings:

- Requests for coordination and leadership
- Requests for information
- Requests for evidence or action of the group
- Organisational support
- Perceived gain
- Support for the ITIL group

Figure 20: Motivation indicators

- Requests for coordination and leadership

‘coordinated function to ‘create lists, put resources together, …arrange for meetings or webinars etc. I will participate in ini9tiatives [sic], but have too little time/resources to organise’

‘Some co-ordination is required to create lists, put resources together,’

‘…If the group were more active in organised events/sessions/activities/meetings etc it may induce life in the group’

‘Invite from group’

‘TENET to arrange more interactuve [sic] session for ITIL Managers’

‘…To be effective and efficient and not to reinvent the wheel.’

- Requests for information

‘More information on the activities of the group - regular email reminders that the listerv [sic] exits’

‘Better promotion of the group amongst members’

‘Information of how to get in contact with the ITIL group’

- Requests for evidence or action of the group

‘If it is an active group’

‘The group is not very active. …’

- Organisational support

  ‘Senior management acknowledgement of the group’

  ‘My organisation to set aside time specifically for this’

- Perceived gain

‘Sharing of knowledge and problem sovlving [sic] techniques.’

- Support for the ITIL group

‘we need to get this going becs [sic] are going throughause [sic] group of minds are better than one and to understand the challenges other’

‘It will definitely afford me the opportunity to learn from other institutions and what they have done in similar implementations.’

‘Two heads are better than one.’

‘I am already committed to ITIL best practices and got a passion for it.’

These responses exhibit the motivations for participation and the actions required to form and sustain a community of practice as expounded in the literature. After starting an initiative such as a community of practice, it is necessary to sustain this through leadership and participation; and the continuous interaction of these. In the present day, work pressures prevail together with the ubiquitous information overload.

Although commitment to participation is evident from the respondents, deliberate and continual interventions are needed to convert this to a functional community of practice and sustain it in the future. Further indications of commitment and interest are borne out by the feedback in the question asking for general comments and suggestions seen below in Figure 21.

The suggestions of the respondents are in tune with findings in the literature. They touch on the benefits of community of practice to organisations, the need to sustain community of practice after formation and tools to offset the spatial differences of participants. There is a call for a greater leadership role from DITCHE, the need to raise awareness in the organisations and amongst management structures such as the Association of SA University Directors of IT (ASAUDIT) and University Principals, the creating of forums and opportunities for more interaction.

Figure 21: Additional pointers to further action

- No man is an island, the sharing of experiences in the communities of practice is invaluable
- Great initiative from the DITCHE program. Webinars or similar could probably contribute much to promote collaboration [sic] and information sharing, while overcoming possibly the greatest contraints [sic]of time and distance. SANREN network developments will facilitate the development of communities of practice.
- It is a way of living, doing and practicing what is best for your company.
- To better the quality of IT services and service for the all the stakeholders.
- Possibly create a [sic] ITIL-forum/consortium and meet quarterly to discuss communal IT-issues.
- Please inform me how to get in contact with the ITIL group.
- A community of practice is such a good idea, I would like to be part of it.
- Everyone should get ITIL Training, Esp IT directors and Vice Chancellors

- Hi there, I think you will get better particpation [sic] if you market the group better. I think people are not aware of this group thus it might be good idea to send an email to all IT Directors or to ASAUDIT to promote it.
- We need to get this going and be serious about it if we intend to be relevant and add value to our various organisation
- As we come from difference institutions, I would like to see TENET drive the COP
- It has changed the way we talk in terms of IT - a commom [sic] language. It also shifts the way we operate and function as a unit within the university.
- I think this group can play a much larger role in promoting best practices throughout the universities.
- To get together more often and to have like pier [sic] audits of what we are doing in our organisation

4.3 The interviews

The DITCHE programme manager and the ITIL service management programme trainers were seen as sources of information to find out to what extent their actions contributed to the formation of a community of practice by the DITCHE ITIL service management programme participants.

The response from both the ITIL service management trainers was clear that neither had directly gone about facilitating or encouraging a community of practice. It was noted that during the contact sessions, the ITSMF, its operations and the resources it provides was pointed out. According to trainer 2, this forum is an existing community of practice and the programme participants were directed to the problem-solving areas. There was some confusion amongst the survey respondents between DITCHE ITIL service management group and the ITSMF.

ITIL service management trainer 2 has raised the notion of continuous mentorship in the ITIL service management programme. This course is intensive, it is difficult to cover the course material in the contact time and the primary focus is on passing the exam. There is little opportunity during the face-to-face sessions for the specific development of a DITCHE ITIL community of practice. However, the direct contact would have created familiarity and built trust amongst the group and identification of experts. The trainers avail themselves for consultation between the contact periods thus furthering the perception of a master-apprentice relationship and access to expertise.

The interviewees referred to ‘a rite of passage’ experience on the DITCHE ITIL service management programme. The intensity of the course fused the participants into a group and created a shared awareness. This does not seem to have carried over into a community of practice although from the survey, the connections are evident. It is likely that the advice from the literature comes into play, namely that community of practice require nurturing after formation.

The DITCHE programme manager noted the political and hierarchical organisational barriers which were impediments to participation. There were addressed through communication where possible.

4.4 Findings

Following the narrative in the above section, herewith a summary of the findings follows.

The data collected suggest that the DITCHE ITIL group does not match all the criteria of a community of practice defined the Wenger 1998 ‘Practice and Identity’ framework. This group is exhibiting factors aligned with an online community of practice albeit rather unevenly.

Mutual engagement

While the respondents indicated engagement with the DITCHE ITIL group via mainly telephony and email, the evidence for this is lacking in the absence of a common database such as a DITCHE ITIL listserv. It is more likely that engagement for problem-solving and knowledge creation takes place between single members of the group or within the member's institution. ITIL support via the ITSMF has to be acknowledged as it provides a source of expertise and established community.

DITCHE annual events are the manifestation of urging in the literature for physical interaction albeit not often as in the case highlighted by Vavasseur and Macgregor (2008). The study indicated that the survey respondents network and communicate at these events creating new links and unpinning those extant. These links speak to the Wenger elements of mutual engagement and shared repertoire but on a broader DITCHE level rather than DITCHE ITIL.

Joint enterprise

Joint enterprise is established through employment as the group being surveyed are all members of the public HE IT departments. They were all registered for the ITIL service management programme facilitated by DITCHE. They attend DITCHE events as part of the DITCHE HE IT group. This seems at odds with the notion in the literature of communities of practice developing unpremeditated but is in keeping with other views that organisational leadership and nurturing is mutually beneficial to communities of practice.

Shared repertoire

Again, this group has an inherent shared repertoire when this refers to jargon and styles of behaviour. These respondents have all been immersed in the IT jargon and modes of behaviour in addition to that of the ITIL programme. The respondents pointed out documents and solutions which as aspects of shared repertoire (Zhang and Watts, 2008:62).

The ITSMF provides access via the ITIL site to articles, reviews and other current information. There is little evidence of DITCHE-specific ITIL documents.

Reification

The DITCHE resources such as the skills database, the provision of learning materials, the source of information via the DITCHE programme manager are artifacts and manifestations of reification of the overarching DITCHE programme rather than the output of a DITCHE ITIL service management community of practice.

Identity

The DITCHE ITIL service management group has several shared identities. They are for one, staff working in the information technology departments of public higher education institutions and attendees to the DITCHE ITIL service management programme. In many cases, with the successful passing of the exam, the addition of accreditation is another identity which is shared with the international ITIL community. It is not completely clear that the surveyed group have formed a DITCHE ITIL identity. There was confusion whether DITCHE ITIL meant just that or whether it referred to the ITIL programme. The majority of the respondents agree that the DITCHE ITIL group is a community of practice but when surveyed about their membership, the number drops. This indicates that even if a community of practice exists, many of the respondents are not participants and do not share a DITCHE ITIL identity.

Practice

Wenger claimed that identity and practice are inter-related sustaining each other in a spiral of growth. It is not sufficient to have a unique group identity without practice.

There is little evidence of practice amongst the DITCHE ITIL group rather, the potential of the contacts unleashed as the need occurs. Respondents indicated their awareness of the experts in the group although not necessarily engaging with them.

The potential of connections is counted as social capital. In the literature, this is related to the concept of social identity and more in keeping with the theories on online or virtual communities of practice.

Motivations and barriers to participation

There is much evidence of willingness to share, the recognition of the benefits of communities of practice, the commitment to the profession (IT) and other practitioners.

It was found that bureaucratic organisational structures are the main barriers to participation. These have been overcome through communication between DITCHE and the relevant party. The biggest challenge it seems to calling the DITCHE ITIL community of practice is the lack of definition and context within which to operate given that there is another overlapping community, namely, the ITIL forum.

4.5 Conclusion

This chapter has reviewed the data received in the context of the research questions framed by the literature review and a particular concept of communities of practice. The data were examined in the light of the elements of the framework to determine the extent of the match between the two. The next chapter will conclude the study and recommend a further course of action.

Chapter 5: Conclusion and recommendations

5.1 Addressing the research questions

The literature has identified communities of practice as enablers in the knowledge generation process. The value of knowledge to the individual and the organization has been examined. The study undertaken has shown that while the DITCHE ITIL group does not exhibit sufficient elements to be deemed a community of practice as described by the Wengerian 1998 'Practice and Identity' framework, the evidence suggests the emergence of a community of practice. The links between the participants of the DITCHE ITIL group and the nurturing of this by the DITCHE programme office has to be acknowledged.

Wenger (1998a:3) sketched the stages of development in communities of practice and from the analysis of the evidence, it appears that the DITCHE ITIL service management group falls between the first two stages of this model namely 'Potential phase ' and 'Coalescing phase'. The groundwork of recognizing commonality and identifying the benefits of working together has been done by the officers of DITCHE. Their intention of nurturing communities of practice in higher education is documented. The DITCHE ITIL service management programme was set up to build equal capacity amongst a homogenous group of IT professionals work in the academic sector. The responses from the surveyed participants indicate the growing sense of common purpose and responsibility to this endeavour. However, there is not yet common identity nor a shared sense of common goals.

Taking into account the spatial distance, the difference of organisational approaches to ITIL, the different levels of uptake in the public higher education institutions, and the other challenges facing IT departmental staff, one has to look to a different view of the concepts of community of practice as the DITCHE ITIL service management group does not meet the Wengerian 1998 view and consider that the DITCHE ITIL service management group is an emerging online community of practice.

The formation of the community of practice is due to the tacit and implicit agreement by members to participate in a symbiotic relationship where knowledge sharing develops into a spiral of knowledge creation. The participants share a belief in a resultant synergy which has an output beneficial to all parties and to higher education through knowledge-sharing. This viewpoint is drawn from comments received from the survey such as ‘group of minds are better than one’ and ‘it will definitely afford me the opportunity to learn from other institutions and what they have done in similar implementations.’ The barriers of organisational rigidity that has been highlighted were addressed through collegiality and discussion.

Based on the reasons offered below, the view is drawn from the investigation that the DITCHE programme has made an impact in the public higher education institutions:

- Staff have been accredited with an internationally recognized qualification and through this, become part of a global community.
- Staff have been exposed to best practice thinking.
- Links have been forged between the IT departments of public higher education institutions in South Africa.
- There is continuous learning and networking through DITCHE events and training opportunities.
- The DITCHE office provides continuous leadership.

5.2 Recommendations and concluding remarks

The positive impact of the DITCHE programme and the benefits to higher education could be magnified with the guiding of the DITCHE ITIL service management group to a vibrant community of practice.

Sobrero and Craycraft (2008) noted the proficiency in technologies such as instant messaging is required to spur on growth in the community of practice. A more focused subset of the DITCHE resources is suggested.

Examples of these could be a wiki or blogs related to ITIL service management. These could be considered a chapter within the broader ITIL service management context. Social networking tools could be used to grow both participation and identity. Facebook, twitter, YouTube (a video-sharing website), Flickr (image and video-sharing website) and LinkedIn (business-focused social network website) are some of today's ubiquitous instruments used for social connectedness. Technologies to support in part human contact for example Skype (voice over internet telephony) could be harnessed.

Leadership could be more actively fostered amongst the DITCHE ITIL programme attendees. Wenger (1998a) described the different forms of leadership roles in a community of practice. The evidence gathered speaks to the shared sense of responsibility, obligation and desire to reciprocate opportunities received. The potential exists to harness this goodwill into action. For example, the baton for relevant content to be disseminated regularly to the group to start discussions or for general interest could be passed around as a type of assignment of leadership roles.

This study was framed against the 1998 'Practice and Identity' framework. Further research could be undertaken on DITCHE communities of practice and communities of practice in HE institutions framed against other theoretical frameworks (Cox, 2005) to draw forth more advantages from these collaborations.

Is higher education the beneficiaries of communities of practice? The researcher concludes from the evidence presented both from the literature and from the empirical study that a case for this exists. Communities of practice are tools which institutions could harness operationally and strategically. The role of DITCHE in developing and nurturing communities of practice and thus contributing to South African public higher education is noted.

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Appendices

Appendix 1

Questionnaire: Establishing communities of practice in South African higher education: a case

This questionnaire is a tool to collect data to inform the mini-thesis, "Establishing communities of practice in South African higher education: a case", a partial fulfillment to the degree M.Bibl (Information Studies). The survey takes 20 minutes to complete. Please answer all the questions. Participation is completely voluntary. All responses will be treated with complete confidentiality.

1) What is your job function in your organisation?

2) When did you attend the ITIL Managers course *(Include all sessions)*?

3) My definition of a community of practice is:

4) I am a member of a community of practice					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

5) Please explain your answer in Question 4 above.

6) I consider the ITIL group a community of practice					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

7) Please explain your answer in Question 6 above.

8) I interact with the ITIL group.					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

9) I interact with the ITIL group via *(Choose all that apply)*:	
ITIL listserv	
Mailing list (email)	

Telephone	
Skype	
Other (Please specify in the box below)	
Please specify	

10) When problem-solving, I turn for assistance to *(Choose all that apply):*	
The ITIL group	
Individual members within the ITIL group	
Colleagues in my organisation	
Other (Please list in the box below)	
Please list:	

11) There are members of the ITIL group whom I recognize as experts in our field.					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

12) I interact with these experts on an individual basis.					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

13) I direct specific work related questions to specific persons in the ITIL group.					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

14) I derive benefit from interacting with the ITIL group.					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

15) I interact with the ITIL group because I trust the members of the ITIL group.					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

16) I consider the benefits of interacting in the ITIL group to be *(Choose all that apply):*	
Helping me with problem solving	
Improving my job performance	
Growing my knowledge in the IT arena	
Building a list of contacts which I can call on	

Becoming recognized as a knowledgeable professional by the IT community	
Improving the reputation of my organisation	
Other (Please list below)	
Benefits:	

17) I believe that sharing knowledge in the ITIL group will be of benefit to everyone.					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

18) The ITIL group has resources which I can access *(Choose all that apply):*	
Documents	
Mailing lists	
Training manuals	
How-to documents	
Solutions	
List of contacts	
Other (Please specify in the box below)	
Please specify	

19) I contribute to the resources of the ITIL group.					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

20) My reasons for participating in this community is *(Choose all that apply)*:	
I learn from interacting with the ITIL group	
I feel an obligation to to participate in the ITIL group	
I wish to share my knowledge with the ITIL group	
I seek recognition as a knowledgeable professional by the IT community	
I wish to improve the reputation of my organisation	
I wish to reciprocate the opportunities received from DITCHE	
I wish to to reciprocate the opportunities received from my organisation	
Other (Please explain in box below)	
Please explain	

21) My organisation encourages me to participate in the ITIL group.					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

22) My reasons for not participating in the ITIL group *(Choose all that apply):*	
I have too much work to do	
I see no benefit in participating in the ITIL group	
I do not have the time in my working day to participate	
My management is not supportive of my participating in the ITIL GROUP	
My organisation does not support the ITIL framework	
I prefer to interact with certain colleagues only from the ITIL group (Please explain in the box below)	
I prefer to interact with colleagues in my organisation	
I get the information I need from other sources (Please list in the box below)	
I get the information I need from listservs	
Other (Please explain in the box below)	
Please explain / list	

23) What would encourage me to participate in this ITIL group? Answer in the box below:

24) I would like to make the following comments and/or suggestions about *(Choose all that apply and complete in the box below)*:	
The ITIL group	
Communities of Practice	
Question (indicate number) above	
Comments / Suggestions	

Appendix 2a

>>> "Geoff Hoy" <ghoy@tenet.ac.za> 28/08/2009 11:10 >>>

Greetings,
You have in the past attended an ITIL Managers course through the DITCHE Program and I am requesting you to assist a colleague of mine who is completing a master degree.

Her name is Nikki Crowster and she works for the CALICO Library Consortium in the Western Cape - a consortium of Cape Peninsula University of Technology , Stellenbosch University, University of the Western Cape, University of Cape Town. Her research topic is Community of Practice (CoP) and struck me that in some way you form such a community. Not only have you participated in the course but some of you attended a course with just fellow members of the higher education community. Others were on courses in which members from industry were present. So the degree to which you feel that you are a member of the higher education CoP might depend on which course you were on and who was with you. This makes for an interesting research topic and turns you into objects of research J .

I request your co operation in completing and returning any questionnaire that Nikki may send you. I am sure it will not take much time out of your day. When Nikki has completed her research I will work with you to try and develop this CoP further.

FYI this mail has been sent to 43 participants some of whom will shortly be attending courses.

Many thanks
Geoff

~~~~~~
Geoff Hoy
Executive Officer:
Project Management
Capacity Development Program Manager
FRENIA program

Appendix 2b

From: Nikki Crowster
Sent: 22 September 2009 09:34 AM
Subject: Community of Practice research
Importance: High

Dear Colleague

Following Geoff Hoy's introduction on 28 August 2009 (below), kindly note my request for assistance with the research component of my Masters degree.

I am undertaking a study which examines the potential and delivered benefits of communities of practice in higher education in South Africa. More specifically, the study focuses on the interactions of the recipients of the DITCHE ITIL managers training
~~~~~~

programme and the extent to which communities of practice have developed amongst training recipients. You are being asked to share your experience and views about the development of communities of practice in the DITCHE ITIL managers programme group.

In the online survey
http://FreeOnlineSurveys.com/rendersurvey.asp?sid=m0n930q3nenacvw643703
(password: xxxxxxxxx) your input is required to 24 questions which are interspersed with requests for comments or further explanation. The survey should take about fifteen minutes.

Confidentiality is assured as the survey software tracks neither the source of the response nor your email address.

To ensure the integrity of the data collection component of the research process, a cookie has been set up to receive one response per computer. Likewise, password access (password: xxxxxxxxx) has been setup to ensure that responses are received from only the designated group of study.

I would appreciate your response to the online survey by 17h00 on **Thursday 1 October 2009**.

Participation in this survey is voluntary. Thank you for your contribution to and willingness to assist with this study. The findings will be available in 2010, contact me for a copy.

Click here to continue to the survey (password: xxxxxxx)

Yours sincerely
Nikki Crowster

M.Bibl (Information Studies)
Department of Library and Information Science
University of the Western Cape

22 September 2009

Appendix 2c

Interview Protocol

A: DITCHE programme manager – DITCHE ITIL service management programme

Name:

1. G Hoy

Date: 06 October 2009

Interviewer: N Crowster

Introduction:

My name is Nikki Crowster. I am reading for the degree M. Bibl (Information Studies) at the University of the Western Cape. A mini-thesis research report forms 50% of the course requirement.

The research question of the report is: 'Do the DITCHE ITIL service management group meet the definition of a community of practice as described by Etienne Wenger's 1998 'Practice and Identity' framework'.

This framework comprises of two aspects viz. Practice and Identity each of which manifests in the other to a greater or lesser extent. The Identity component also has a physical output e.g. jargon, documentation, artifacts such as logos or symbols.

Further research questions ask 'what factors contribute to the success or failure of this group to form a community of practice' and whether the trainers in the ITIL course

have influenced or had an influence on the group causing it to form a community of practice.

I would like to explore these questions with you.

Interview:

1. Do you consider the ITIL service management group a community of practice? Explain
2. What was the thinking or intention behind establishing a DITCHE community of practice?
3. What are the motivations for forming a community of practice?
4. What are the barriers to formation of a community of practice?
5. What are your determinants (the criteria) for a successful community of practice?
6. Other than DITCHE, what drives the formation of a community of practice?
7. What do staff collaborate and participate in a community of practice?
8. What improvements or will be done differently in the different DITCHE ITIL service management programme?
9. Summarise DITCHE's view of community of practice?
10. What is your role / job function in respect of community of practice in DITCHE?

Thanks

B: Trainers of the DITCHE ITIL service management programme

Name:

1. J Halse
2. P Brooks

Date: 15 October 2009

Interviewer: N Crowster

Introduction:

My name is Nikki Crowster. I am reading for the degree M. Bibl (Information Studies) at the University of the Western Cape. A mini-thesis research report forms 50% of the course requirement.

The research question of the report is: 'Do the DITCHE ITIL service management group meet the definition of a community of practice as described by Etienne Wenger's 1998 'Practice and Identity' framework'.

This framework comprises of two aspects viz. Practice and Identity each of which manifests in the other to a greater or lesser extent. The Identity component also has a physical output e.g. jargon, documentation, artifacts such as logos or symbols.

Further research questions ask 'what factors contribute to the success or failure of this group to form a community of practice' and whether the trainers in the ITIL course have influenced or had an influence on the group causing it to form a community of practice.

I would like to explore these questions with you.

Interview:

1. What is your background and experience?
2. What is your definition of a community of practice?
3. How have you influenced groups to form communities of practice?
4. How, do you think, your teaching methods contribute to the formation of communities of practice?
5. Does the DITCHE ITIL service management group meet the definition of a community of practice?
6. Does the DITCHE ITIL service management group meet the definition of a community of practice as described by Etienne Wenger's 1998 ‘Practice and Identity’ framework?
7. Has the trainer of the ITIL service management course influenced or had an influence on the DITCHE group causing them to form a community of practice?
8. Follow-up on responses from interviewee
9. Rite of passage of members in the group
10. Continuous mentorship concept raised by another DITCHE ITIL service management trainer
11. The focus of the attendees viz. focus on passing exams
12. Any last thoughts or comments?

Thanks