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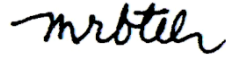
**The Digital Library Professionals' Learning Culture:
A Study on Digital Libraries' Community of Practice
in Europe**

Supervisor: Sirje Virkus

Master Thesis
International Master in Digital Library Learning
2011

DECLARATION

I certify that all material in this dissertation which is not my own work has been identified and that no material is included for which a degree has previously been conferred upon me.

A handwritten signature in black ink, appearing to read 'mr batila', written in a cursive style.

Marcial R. Batiancila

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ABSTRACT

In the context of knowledge management (KM) in the field of digital libraries (DL), communities of practice (CoPs) is one of the unexplored areas of interests for research, as compared with those in the fields of business and management, education, engineering and medical sciences. Greater importance is being placed on those communities on their ability to share knowledge, facilitate knowledge transfer and most importantly in providing the proper context for learning to take place. Thus, this research sought to: (1) find out the defining characteristics of CoPs in the field of DL, (2) examine on how CoPs' contribute to the development of a learning culture and (3) determine the success and hindering factors in the development of such learning culture.

This study was grounded on an interpretivist philosophical view. Hence, the methodological approach of this study was qualitative in nature in which experiential or context-based data were collected through semi-structured interviews. Research sampling was limited to professionals who are actively involved in DL communities. These include DL designers, system developers, system administrators, librarians, academicians in DL educational programmes, graduate students and scholars having common interests in DL and its enabling technologies. The gathered data were analyzed based on Peterson et al.'s five steps thematic analysis.

The findings of the study revealed that DL CoPs take a variety of forms, has no definite structure and their creation is always dependent on the purposes for which they are established. Furthermore, results indicated that there is a strong culture of learning among DL professionals which is characterized by the four distinct cultures of practices – knowledge sharing culture, culture of collaboration, knowledge transfer culture and the culture of innovation. However, there are also critical success factors in creating a culture of learning as follows: human behaviour, organizational and technological factors. In contrast, the hindering factors or barriers include: attitude towards knowledge sharing, culture-related barriers or challenges, language limitation, and time.

Keywords: communities of practice, CoPs, learning culture, knowledge management, digital libraries, digital library professionals, Europe, digital librarianship

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LIST OF ABBREVIATIONS

ALA	American Library Association
CDC	Center for Disease Control and Prevention
CoP	community of practice
CoPs	communities of practice
DELOS	An EU-based association for digital libraries
DILL	Digital Library Learning Consortium
DL	digital library or digital libraries
DLF	Digital Library Federation
DLF-WG	Digital Library Federation Service Framework Working Group
DLMS	Digital Library Management System
DLS	Digital Library System
DL.org	DL.org European Project
EADTU-LLSWG	European Association of Distance Teaching Universities- Library and Learning Support Working Group
ECDL	European Conference on Digital Libraries
EDL Project	European Digital Library Project
EU	European Union
IFLA	International Federation of Library Associations and Institutions
IPR	Intellectual Property Rights
IRL	Institute for Research on Learning
KM	knowledge management
LIS	library and information science
LPP	legitimate peripheral participation
MINERVA	Ministerial Network for Valorising Activities in Digitization
OA	open access
TEI	Text Encoding Initiative
VCoPs	virtual communities of practice
VoIP	Voice-Over Internet Protocol

CHAPTER 1: INTRODUCTION

1.1. Rationale and Motivation

This study emerged from the researcher's interest on the concept of community of practice (CoP) and for his involvement in several library societies both locally and internationally. These societies seem to resemble another form of communities - the so called "communities of practice" (CoPs) in which the members informally come together either physically or virtually and share their experiences, problems, ideas and information in response to a particular circumstance or need.

For instance, the researcher has been a member of several virtual communities which provide a forum for sharing knowledge and exchanging ideas on specific topic of interest. This interest on the subject was further strengthened by his involvement in the round table discussion on *How to Link Research in Digital Libraries (DL) to Education in DL* during the DL.org seminar on *Research and Education in Digital Libraries*¹. This event provided the researcher a firsthand observation on the proceedings and on how the members of the two communities – the research community who participates in the DL.org activities and the community of Digital Library education in Europe (DL.org, 2010a) shared their ideas, knowledge and best practices.

Wenger, McDermott and Snyder (2002) argued on the reasons why people join a community:

These people don't necessarily work together every day, but they meet because they find value in their interactions. As they spend time together, they typically share information, insight, and advice. They help each other solve problems. They discuss their situations, their

¹ Held on 9th of November 2010 in Bibliotheca Civica, Parma, Italy.

aspirations, and their needs. They ponder common issues, explore ideas, and act as sounding boards. They may create tools, standards, generic designs, manuals, and other documents – or they may simply develop a tacit understanding that they share. However they accumulate knowledge, they become informally bound by the value that they find in learning together (pp. 4-5).

The development of such communities in the realm of digital librarianship may provide a forum for discussions on specific issues related to digital libraries and also serve as an avenue for sharing knowledge, exchanging ideas of best practices and resources, thereby enhancing stakeholders' learning experience and knowledge. Thus, it provided the researcher the motivation to pursue the conduct of this research aiming to explore CoPs in the field of digital libraries and how these communities contribute to the development of a learning culture among DL professionals. This study also aims to initiate the beginning of more in-depth studies on this subject in this field.

1.2. Background and Context

The phenomenon of communities of practice (CoPs) thrives since the beginning of human history as a result of man's continued pursuit for finding meaning, identity and learning in the midst of a fast changing environment. CoPs are not a new idea as what Wenger (2000) had claimed:

...since the beginning of history, human beings have formed communities that share cultural practices reflecting their collective learning: from a tribe around a cave fire, to a medieval guild, to a group of nurses in ward, to a street gang, to a community of engineers interested in brake design. Participating in these 'communities of practice' is essential to our learning. It is at the very core of what makes us human beings capable of meaningful knowing (p. 229).

So, these communities are fundamentally created for a purpose and in broadening one's learning and knowledge sphere. This is the central idea underlying the

emergence of CoPs particularly among professional fields and disciplines. Cox (2005) noted that the concept of “CoPs have become popular in several academic fields including organizational studies (particularly the topics of knowledge management and organizational learning) and education” (p. 527). Furthermore, Fuller et al. (2005) also found that the concept of ‘CoPs’ is being embraced by a range of occupational fields. Murillo (2008), however, observes that there is a rising trend of published papers on CoPs. He further explains that the concept of CoPs was originally introduced by Jane Lave and Etienne Wenger in 1991 and developed extensively by Wenger in 1998 and has attracted increasing interest in recent years. Wenger, McDermott and Snyder (2002), experts in this field, had claimed that this growing interest in CoPs can be described in a wave of development:

The field of knowledge management had gone through a first wave of focus on technology. A second wave dealt with issues of behaviour, culture, and tacit knowledge, but mostly in the abstract. A third wave now is discovering that communities of practice are a practical way to frame the task of managing knowledge. They provide a concrete organizational infrastructure for realizing the dream of a learning organization (p. x).

Moreover, Maier (2007) had viewed that the term community has been widely used and accepted to describe a form of organizational entity which propagated as a premium instrument for knowledge sharing and management. The number of community-related terms in use shows the wide variety of forms and conceptualizations of communities that have been suggested in the literature or established recently in organizations. Examples include: community of practice, community of interest, community of knowledge practice, (informal) networks, knowledge community, strategic community, communities in cyberspace, computer-supported social network, (geographically) distributed community of practice, electronic community of practice, on-line community, virtual community, and virtual transaction community (pp. 180-181).

It has been noted that CoPs are important in the functioning of any organization and in fostering the culture of sharing and learning. Wenger (2006), however, provided a number of characteristics that explain this rush of interest in CoPs as a vehicle for developing strategic capabilities in organizations:

- CoPs enable practitioners to take collective responsibility for managing the knowledge they need, recognizing that, given the proper structure, they are in the best position to do this.
- Communities among practitioners create a direct link between learning and performance, because the same people participate in communities of practice and in teams and business units.
- Practitioners can address the tacit and dynamic aspects of knowledge creation and sharing, as well as the more explicit aspects.
- Communities are not limited by formal structures: they create connections among people across organizational and geographic boundaries. (sec.4, para. 1).

It can be seen from this perspective that the creation of new knowledge is a by-product of interaction in a community of practitioners. This interaction may be characterized by collective engagement, focused on identifying and addressing commonly held issues and initiatives. Wenger (2000) argued that CoPs are basic building blocks of social learning system because they are the social ‘containers’ of the competences that make up such system. By participating in these communities, we define with each other what constitutes competence in a given context. Earlier, Galagan (1993) opined that learning is the process of becoming a member of the CoP. The motivation to learn is the motivation to become a member. He further elucidated that a major assumption of CoPs is that learning is fundamentally situated in social, physical, and temporal settings. Learning is not simply a transfer of knowledge, but a process of building understanding.

This study is also anchored on Lave and Wenger (1991) situated learning theory which is heavily discussed on their seminal work entitled *Situated Learning: Legitimate Peripheral Participation*. It is based on the assumption that learning environments should provide the learner opportunities to learn in context (in a “situated” way, via authentic activities) and exposure to and involvement in the authentic practices and culture of a discipline while using the tools of that discipline, all supported by extended opportunities for social interaction with other practitioners. Essentially, situated learning is focused on the culture of learning rather than the learning task (Bozarth, 2008).

Therefore, this investigation was conducted in a way of finding the reason(s) if learning was the very tenets of CoPs’ engagement or “just an accidental outcome of member’s interactions” (Wenger, 2006). The concept of CoPs is also explored and on how it essentially influenced learning to takes place among its stakeholders in the case of DL professionals.

1.3. Statement of the Problem

In the context of knowledge management (KM) in the field of digital libraries, CoPs is one of the unexplored areas of interests for research as compared with those in the fields of business and management, education, engineering and medical sciences. Greater importance is being placed on CoPs on their ability to share knowledge and facilitate knowledge transfer and most importantly in providing the proper context for learning to take place. Wenger, McDermott and Snyder (2002) argued:

The community creates the social fabric of learning. A strong community fosters interactions and relationships based on mutual respect and trust. It encourages a willingness to share ideas, expose one’s ignorance, ask difficult questions, and listen carefully... (p. 28).

From the above statement, it can be seen that learning is the central tenet of any CoPs based on the inherent values shared by its stakeholders. More so, there are an increasing number of professionals, based on their shared interests who participate voluntarily in various CoPs of which provide them opportunity to learn and develop their potentials as knowledge workers (Clovis, 2010; Parboosingh, 2002). For instance, the American Library Association (ALA) has established 2819 virtual groups and 1227 member communities. These communities serve as a virtual, collaborative, online workspace where members can work together, share expertise, and exchange best practices (<http://connect.ala.org/>). Also, in the *International Federation of Library Associations and Institutions (IFLA) Strategic Plan 2010-2015* one of its goals is to advance the profession through the development of standards and the promotion of specialized knowledge within the professional practice by advancing professional knowledge through research and the activities of IFLA's CoPs (International Federation of Library Association and Institutions, 2010). Do this growing interest in CoPs among professionals hold true in this new subfield of library and information science (LIS) which is digital librarianship? Or, do these communities facilitate learning, collaboration and knowledge transfer? Thus, this investigation is carried out in the pursuit of finding answers to the problem being raised.

1.4. Research Aim, Objectives and Questions

This research sought to understand the role of CoPs in the development of a learning culture among DL professionals. This aim would be realized through the following objectives:

- To find out the defining characteristics of CoPs in the field of digital library.
- To examine on how CoPs' contribute to the development of a learning culture among DL professionals.

- To determine the success and hindering factors in the development of learning culture in DL CoPs.

Below are the research questions to help address the problem of the study:

1. What are the defining characteristics of CoPs in the field of digital librarianship?
2. How can CoPs contribute to the development of a learning culture among DL professionals?
3. What are the success *or* hindering factors in developing the learning culture in DL CoPs?

1.5. Justification of the Research

The need for research on this topic in the field of digital libraries is emergent considering the underlying value of CoPs to professional learning development and on the creation of new knowledge within and beyond the boundaries of the communities. This type of research may yield a better understanding of the role of CoPs in the learning process and offering insights on the structure of engagement, learning behaviour of DL professionals and on capturing the knowledge within these communities.

This study will also serve as one of the pioneering investigations on the concepts of CoPs and culture of learning among DL professionals.

1.6. Methodology

This study is grounded in an interpretivist philosophical view - an ontological belief that reality is socially constructed (Pickard, 2007; Creswell, 2007; Merriam, 2009). Hence, the methodological approach of this study is qualitative in nature in

which experiential/context-based data were collected through semi-structured interviews.

Research sampling was limited to professionals who are actively involved in DL communities. These include DL designers, system developers, system administrators, librarians, academicians in DL educational programmes, graduate students and scholars having common interests in digital libraries and its enabling technologies. The participants of the study included four males and eight females from the member countries of the European Union, namely Austria (1), Croatia (1), Estonia (4), Italy (2), Romania (1), Spain (1) and United Kingdom (2). This showed a diversity of participants from all facet of DL field. The data were analyzed based on five steps thematic analysis of Peterson et al. (1994): (1) searching for individual themes, (2) developing each theme previously identified, (3) determining the significance of each theme; (4) searching for oppositions among themes and thematic hierarchies, and (5) comparing thematic hierarchies and oppositions across transcripts. A more detailed discussion of the methodology can be found in Chapter 3.

1.7. Scope and Limitation

The following are the scope and limitation of the study:

- This study is limited on the underlying role of CoPs as learning enablers and on how do these influence the creation of a learning culture in the field of DL. The participants of the study are limited only to those DL professionals residing within the countries of European Union including the countries with candidate status.
- The literature review covers only publications in English language.

1.8. Definition of Terms

The following terms are defined based on how they are used in this study:

DL professionals. In the context of this study *DL professionals* are defined as professionals in the interdisciplinary fields of information and computer studies which include digital library (DL) designers, system developers, system administrators, librarians, archivists, museum curators, academicians in the DL educational programmes, and scholars having common interests in digital libraries and its enabling technologies (Author's definition).

Community. Community is defined here as “a subclass of group, which refers to a social group of humans with shared interests” (Candela, 2010).

Community of practice. See “Communities of practice”. Both concepts are synonymous and can be used interchangeably. The usage of community of practice (CoP) denotes a single community and if referring to several communities, communities of practice (CoPs) is used.

Communities of practice. Communities of practice are defined here as “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis.” (Wenger, McDermott & Snyder, 2002, p. 4).

Domain. Domain refers to “a [body] of knowledge which define ‘a set of issues’, ‘creates common ground’ and ‘a sense of common identity’ (Wenger, McDermott, & Snyder, 2002).

Learning culture. Learning culture is defined here as an embodiment of or a set of beliefs, norms and behaviours of individuals and groups in a community of

practitioners which nurtures learning through collective discovery, sharing and application of knowledge (Author's definition). Since there is no precise definition of the concept, thus, the above mentioned definition is provided. The given definition is based on the notion or essence of community life among DL professionals who are collectively learning in the context of CoPs.

Learning organization. Learning organization is defined here as an “organization where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together” (Senge, 1990, p. 3).

Practice. Practice is referring to *activities* that community members negotiate and mutually perform, drawing on community resources with the purpose of furthering shared goals (Wenger, 1998a).

Stakeholder. Stakeholder is a person, group or organization that has direct or indirect stake in an organization because it can affect or be affected by the organization's actions, objectives, and policies (Stakeholder, 2011).

1.9. Outline of the Study

This study consists of five chapters which delineate the major parts of this research endeavour. Chapter I present the rationale and motivation of the research, followed by the background and context, statement of the problem, research aim, objectives, research questions, justification of the research and methodology. The definition of core terms, limitation and scope of the study, thesis outline and conclusion are presented.

Chapter 2 presents the review of the related literature and studies. This chapter provides a background and overview of the concept of CoPs, its dimensions and scope and also explores the existence of CoPs in DL field. The review also links CoPs to knowledge management, its culture of learning, learning environment and provides its theoretical foundations.

Chapter 3 outlines the methodology used in this research project. The data collection and analysis methods are described. This chapter further provides the details on how the data analysis was made. In Chapter 4 the data analysis and discussion of the main findings of the study are presented.

Lastly, Chapter 5 presents the summary, conclusions and implications of the study. It also offers suggestions for areas of further research. References and appendices are also included.

1.10. Conclusion

This chapter provided an overview and background information of this research and also presented the rationale and motivation for the study. The research problem and justifications on the conduct of the study were also provided. The methodology was briefly described and limitations as they apply to this study were addressed. The chapter ended with an outline on how the study is structured.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

This chapter aims to provide a general overview of communities of practice (CoPs) as it relates to the development of a learning culture. CoPs have gained popularity since the early 1990s and have been the subject of many studies in several fields and disciplines. The discussion of the reviewed literature and studies are divided into six major themes as follows: (1) communities of practice: its dimensions and scope; (2) CoPs in the field of DL; (3) knowledge management and CoPs; (4) learning culture; (5) CoPs' learning environment: from face-to-face to virtual; and (6) learning in CoPs: its theoretical foundations.

Literature search on the subject has been carried-out using various scientific databases such as SAGE, EBSCO, ACM, Emerald, E-LIS, JSTOR, Science Direct, IEEE Computer Society Digital Library and Google Scholar. The search terms used are as follows and were used in a variety of combinations: community(ies) of practice *or* CoP/CoPs, digital libraries' communities of practice (DL-CoPs), learning organization *or* learning communities, learning culture *or* culture of learning, professional networks, organizational learning, knowledge networks, and learning as a social concepts.

2.2. Communities of Practice: Its Dimensions and Scope

2.2.1. CoPs' Defined

There has been a considerable amount of literature trying to define the concept of communities of practice (CoPs) and it has been understood by scholars differently based on how the concept is embedded in their fields or disciplines. The concept of CoPs was originally introduced by Lave and Wenger in 1991 and developed

extensively by Wenger in 1998 (Fuller, Hodkinson & Hodkinson, 2005) and has been popularized by Brown and Duguid since 1996, following their analysis of Orr's ethnographic study of Xerox technicians (Hara, Shachaf & Stoerger, 2009). Since then, an increasing interest on the concept has been observed.

Arguably, the term "community" is a "sociological construct" which implies interactions among members based on shared expectations, values, beliefs and meanings between individuals. However, the term "CoP" as what Barab, MaKinster and Scheckler (2004) discussed:

...[it] highlights the centrality of practice in defining the community and of communities in legitimizing and supporting individual practices. This is because it is through participating in community-recognized practices that members become part of the larger community. It is in this way that participation reflects both action and connection and that participation is both personal and social (p.66).

In the World Bank (n.d.) they defined the term CoP as "an informal group of practitioners that share knowledge on common development problems while pursuing joint solutions" (p.2). This community in particular not only facilitate problem-solving among individual members but also stimulate learning, promote professional development, address individual questions, and generate the type of knowledge that members need in their daily work. Lessser and Stork (2001) offer another definition defining CoP as "a group whose members regularly engage in sharing and learning, based on their common interests". They explain further:

One might think of a community of practice as a group of people playing in a field defined by the domain of skills and techniques over which the members of the group interact. Being on the field provides members with a sense of identity—both in the individual sense and in a contextual sense, that is, how the individual relates to the community as a whole (p. 831).

In addition, Barab et al. (2004) defined a CoP as "a persistent, sustained social network of individuals who share and develop an overlapping knowledge base, set

of beliefs, values, history and experiences focused on a common practice and/or mutual enterprise” (p. 55). Their definition is largely based on the notion characterizing an online professional development community.

Moreover, Manville and Foote (as cited in Jackson, 1999) define it as "a group of professionals informally bound to one another through exposure to a common class of problems, common pursuit of solutions, and thereby themselves embodying a store of knowledge" (p. 28). In addition, Hara (2007) defines CoPs as informal networks that support professional practitioners to develop a shared meaning and engage in knowledge building among the members. He asserted further that his definition of the concept is based on Wenger's four (4) traits that define CoPs as (a) a social way of learning, (b) negotiating meaning, preserving and creating knowledge; (c) spreading information; and (d) being a home for identities.

The given definitions are closely related to Wenger, McDermott and Snyder’s (2002) definition of CoPs as “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis (p. 4). Though the following definitions differ slightly in terms of jargon used and on the purpose of which such communities are being established but the common thing that linked them is the notion of “a group of people”, “a network of individuals” or “a group of professional practitioners” truly engaging in and having almost the same concerns, “sharing knowledge” based on their “common interest and needs”.

2.2.2. Structure and Characteristics of CoPs

Like any other social organization, CoPs emerge in the social space and take a variety of forms. CoPs are formed by people who engage in a process of collective learning in a shared domain of human endeavour. It starts as a loose

network of practitioners then eventually forming a community where sharing and learning takes place. Though CoPs take a variety of forms, they share a basic structure – unique combinations of three fundamental elements: a domain of knowledge, which defines a set of issues; a community of people who care about this domain; and the shared practice that they are developing to be effective in their domain (Wenger, McDermott & Snyder, 2002). These three important elements distinguish CoPs from other groups and members of a community which are informally bound by what they do together – from engaging in lunch discussions to solve difficult problems – and by what they have learned through their mutual engagement in these activities. CoPs are different from a community of interest or a geographical community, neither of which implies a shared practice (Wenger, 1998b). More so, Johnson (2001) states:

CoPs comprise social arrangements in which individuals learn by participating in activities. They include the members, which consist of both experts and novices. In addition, CoPs also include the artefacts, which are the products, technology, media, and processes that are created by its members (p. 51).

So, in this case, DL CoPs may represent a variety of backgrounds and organizations which consist of experts in the interdisciplinary fields of information and computer science; for example, DL designers, system developers, system administrators, librarians, archivists, museum curators, academicians, and scholars having common interests in digital libraries and its enabling technologies.

2.2.2.1. Domain

A *domain* may refer to a field of study or discipline, for instance, the field of DL. Wenger et al. (2002) explained:

The domain creates common ground and a sense of common identity. Then, having a well-defined domain legitimizes the community by affirming its purpose and value to members and other stakeholders. The domain is what inspires members to contribute and participate, guiding their learning and giving meaning to their actions. Knowing the boundaries and the leading edge of the domain allows members to decide exactly what knowledge is worth sharing, how to present their ideas, and which activities to pursue (pp. 27-28).

Similarly, the Digital Library Federation Service Framework Working Group (DLF-WG) understands a domain to be a social organization of shared practices and perspectives and can also be thought of as 'knowledge interchange communities', or in other words, communities which attend the same conferences (Dempsey & Lavoie, 2005). They have also assumed that the group operated within the library domain, but variably participate in other domains of primary importance, such as e-learning, e-research, e-archives and e-records managers, publishing, enterprise systems, personal users, search engines and other open web services (appen. A, para. 6).

The DL.org publication entitled *The Digital Library Reference Model* introduces the main notions characterizing the whole DL domain which corresponds to the three distinct elements of DL universe: Digital Library (DL), Digital Library System (DLS), and Digital Library Management System (DLMS) (Candela, 2010). This universe is divided into two main classes: DL resource domain and complementary domain.

- (1) The DL resource domain contains elements identified as 'first class citizens' in modelling the DL universe and each of which focuses on particular aspects of a DL systems. This domain include the following:
 - a. *Content domain*. It represents all the entities related to the information that DL 'systems' manage in order to satisfy the information needs of their users (p. 36);

- b. *User domain*. It represents all the entities that interact with any DL ‘system’ that is humans and inanimate entities such as software programs or physical instruments. Thus all the three DL ‘systems’ are conceived to serve the different needs of the entities belonging to the user domain (p. 40);
 - c. *Functionality domain*. It represents one of the richest and most open-ended dimension of the world of DLs, as it captures all processing that can occur on resources and activities that can be observed by actors in a DL (p. 42);
 - d. *Policy domain*. It represents the set of conditions, rules, terms or regulations governing the operation of any Digital Library ‘system’, i.e. DL, DLS and DLMS. In fact, this domain is very broad and dynamic by nature (p. 48);
 - e. *Quality domain*. It represents the aspects that permit considering digital library systems from a quality point of view, with the goal of judging and evaluating them with respect to specific facets. Any DL ‘system’ tenders a certain level of quality to its actors (p. 50); and
 - f. *Architecture domain*. It includes concepts and relationships characterizing the two software systems playing an active role in the DL universe, i.e. DLSs and DLMSs (p. 52).
- (2) *The complementary domain* contains all the other domains, which, although they do not constitute the focus of the digital libraries and can be inherited from existing models, are nevertheless needed to represent the systems. This concept serves as a placeholder for domains different from those identified as ‘first class citizens’ and as a hook for future extensions of the model. It includes concepts such as time domain, space domain, and language domain (p. 35).

It can be seen here, that the creation of these set of domains within this field is a precursor of a continuous exploration, discourse, interactions and communications among various players acting in the DL universe. The domain of DL is a highly multidisciplinary which has attracted researchers from a wide area of expertise, e.g. databases, networking, information and library science, human computer interaction, high performance computing, archiving, and education (Liu, Bollen, Nelson & Van de Sompel, 2005). Wenger et al. (2002) had noted that “a shared domain creates a sense of accountability to the body of knowledge and therefore to the development of a practice” and the “domain of a CoP can range from mundane know-how to highly specialized professional expertise” (p. 30).

2.2.2.2. Community

DL.org defines community as a subclass of group, which refers to a social group of humans with shared interests (Candela, 2010). These communities can be a “pre-existing group of people with shared interests”, “a group gathered together by the DL” or “a group that is formed as actors in the DL” and that “interacts with the library’s contents or with other actors” (p. 93). This community within the field of DL resembles a social structure of individuals working cooperatively and sharing knowledge with the goal of accomplishing their mission. Similarly, Wenger et al. (2002) defined a community as a group of people who engage in joint learning activities, build relationships, and help each other regularly in pursuing their interest in the domain and in the process they develop a sense of belonging, identity, and commitment. They further claimed:

The community creates the social fabric of learning. A strong community fosters interactions and relationships based on mutual respect and trust. It encourages a willingness to share ideas, expose one’s ignorance, ask difficult questions, and listen carefully. Community is an important element because learning is a matter of belonging as well as an intellectual process, involving the heart as well as the head (pp.28-29).

It is strongly noted here that the community is an important element of any domain of knowledge which mobilizes individuals collectively to respond promptly and efficiently to changing needs and draws their creativity and willingness to share their experiences. However, member's participation in a community varies in many ways - they have different purposes, they engage with different frequencies and levels, they take on different roles, and they use tools differently (Wenger, White & Smith, 2009).

2.2.2.3. Practice

A *practice* is defined as a set of frameworks, ideas, tools, information, styles, language, stories and documents that community members share and it also denotes the specific knowledge the community develops, shares, and maintains (Wenger et al., 2002). Thus, in this case, DL professionals share a common understanding on the body of knowledge within the DL domain. Any community with sustained interactions and communications within a domain will develop some kind of practice that reflects the community's dynamism, shared interests and intellectual expertise among its members and other stakeholders. Detailed discussion on this can be found in Section 2.5.4.

2.2.3. Benefits, Challenges and Success Factors in Building CoPs

This sub-section presents benefits, challenges and critical success factors in building CoPs as discussed in the literature.

2.2.3.1. Benefits

There are several benefits of building CoPs as evidenced in the literature being reviewed. Harris (2006) has noted that effective CoPs provide the backbone for the successful organization and she also identified some of the benefits which

include increased organizational flexibility, organizational learning, innovation, and personal benefits. Consequently, in the World Bank (n.d.), they consider CoPs as important for many reasons: (1) CoPs are the “heart” and “soul” of knowledge sharing in the organization due to wealth of experiences, insights, and perspectives; and (2) they also play a leading role in the organization's overall strategy in creating, sharing, and applying knowledge. More specifically, CoPs are critical because:

- (1) they serve as an ongoing learning venue for the staff and outside practitioners who share similar goals, interests, problems, and approaches;
- (2) they respond rapidly to individual inquiries from members and clients with specific answers;
- (3) they develop, capture, and transfer best practices on specific topics, by stimulating the active sharing of knowledge;
- (4) they influence development outcomes by promoting greater and better informed dialogue;
- (5) they link a diverse groups of practitioners from different disciplines; and
- (6) they promote innovative approaches to address specific development challenges (p.4).

According to Cambridge, Kaplan and Suter (2005) CoPs provide a new model for connecting people in the spirit of learning, knowledge sharing, and collaboration as well as individuals, groups, and organizational development. They assert that CoPs are important because they:

- (1) Connect people who might not otherwise have the opportunity to interact, either as frequently or at all.
- (2) Provide a shared context for people to communicate and share information, stories, and personal experiences in a way that builds understanding and insight.

- (3) Enable dialogue between people who come together to explore new possibilities, solve challenging problems, and create new, mutually beneficial opportunities.
- (4) Stimulate learning by serving as a vehicle for authentic communication, mentoring, coaching, and self-reflection.
- (5) Capture and diffuse existing knowledge to help people improve their practice by providing a forum to identify solutions to common problems and a process to collect and evaluate best practices.
- (6) Introduce collaborative processes to groups and organizations as well as between organizations to encourage the free flow of ideas and exchange of information.
- (7) Help people organize around purposeful actions that deliver tangible results.
- (8) Generate new knowledge to help people transform their practice to accommodate changes in needs and technologies. (sec. 2, para, 2).

Through participation in CoPs it has benefited the organization, the individuals as well as the community itself. At individual level, the community enables individuals to: (1) continue learning and develop professionally; (2) access expertise; (3) improve communication with peers; (4) increase productivity and quality of work; (5) having a network that keeps you updated in the field; (6) develop a sense of professional identity; and (7) enhance professional reputation. Moreover, at the organizational level, the benefits include: (1) reducing time/cost to retrieve information; (2) reducing learning curves; (3) improving knowledge sharing and distribution; (4) enhancing coordination, standardization and synergies across organizational units; (4) reducing rework and reinvention; (5) enabling innovation; and (6) building alliances (CDC Public Health Information Network, 2008). This clearly indicates that there are benefits to be derived from sharing and learning within CoPs.

It is also noted that CoPs play a vital role in keeping the synergy of KM alive in the organizational setting. In addition, Fontaine and Millen conducted a research in 2002 aiming to identify the benefits gained from participation in CoPs. These include: organizational, community and individual benefits.

- (1) *Individual benefits.* That participation in the community and their use of community resources and activities increased individual skills and know-how, and they felt that they were more productive or had saved time in their job and has improved their sense of belonging in the organization.
- (2) *Community benefits.* That participation in community activities resulted in greater sharing of expertise, knowledge and resources between members – as result there is strong sense collaboration.
- (3) *Organization benefits.* That participation in the community increased operational efficiency, leading to improved cost savings and some believe that participation in the community has improved employee retention (Fontaine & Millen, 2004, pp. 5-8).

Lesser and Storck (2001) opined that CoPs appear to be an effective way for organizations to handle unstructured problems and to share knowledge outside of the traditional structural boundaries. They continued further:

...the community concept is acknowledged to be a means of developing and maintaining long-term organizational memory. These outcomes are an important, yet often unrecognized, supplement to the value that individual members of a community obtain in the form of enriched learning and higher motivation to apply what they learn (p. 832).

2.2.3.2. Success Factors

In the research conducted by Retna and Ng (2011) three success factors that have contributed to nurturing CoPs are identified: (1) leadership; (2) organizational culture; and (3) individual motivation to learn. However, Hara and Hew (2006)

have identified some of the critical success factors that have helped sustain the community: (1) self-selection type of membership, (2) a need to ask questions and validate one's practice with others who shared a similar working situation, (3) a need to continually keep up with the current knowledge and best practices in the field, (4) a non competitive environment, (5) the asynchronicity nature of the online communication medium, and (6) the role of the listserv moderator. They also suggested that future research be conducted to verify and/or modify these factors.

The successful functioning of a knowledge-sharing CoPs is impossible without an active participation of a substantial part (ideally, all) of its members. Or, one of the critical factors determining CoPs' success is its members' motivation to actively participate in community knowledge generation and sharing activities (Ardichvili, Page & Wentling, 2003). In addition, Gray (2004) explains, the motivations to participate included an opportunity to learn new skills and work practices, a means of social and professional connection to colleagues, and a mechanism to reduce the isolation that was inherent in the job function and geographical location. Here, it is important to note that member's motivation play a critical role in keeping and in sustaining the community spirit.

2.2.3.2. Challenges and Barriers

In spite of the success factors, there are also some factors that hindered the creation of knowledge sharing communities and studies revealed that a human factor is the major barrier. Ardichvili, Page and Wentling (2003) found in their study that members hesitate to contribute because of fear of criticism, or of misleading the community members (not being sure that their contributions are important, or completely accurate, or relevant to a specific discussion). They also suggested that to remove the identified barriers, there is a need for developing various types of trust, ranging from the knowledge-based to the institution-based

trust. In addition, Retna and Ng (2011) also identified some concerns or issues on facilitation, commitment and time management.

Cross, Parker, Prusak and Borgatti (as cited in Lesser & Fontaine, 2004) suggest that there are four features that determine knowledge sharing effectiveness. These include: (1) knowing what another person knows and thus when to turn to them; (2) being able to gain timely access to that person; (3) willingness of the person sought out to engage in problem solving rather than dump information; and (4) a degree of safety in the relationship that promoted learning and creativity. However, Lesser and Fontaine (2004) based on their experience with many organizations in nurturing and supporting communities, have modified features proposed by Cross et al. to highlight four common barriers to knowledge sharing that CoPs could help overcome:

- (1) *Awareness*: Making seekers and sources aware of their respective knowledge.
- (2) *Access*: Providing the time and space for seekers and sources to connect with one another.
- (3) *Application*: Ensuring that the knowledge seeker and source have a common content and understanding necessary to share their insights.
- (4) *Perception*: Creating an atmosphere where knowledge sharing behaviours between seekers and sources are respected and valued (p. 16).

Furthermore, Lesser and Fontaine (2004) also highlighted five general guidelines that can be applied to community efforts in the organization:

- (1) Provide a central place where individuals new to the organization or discipline can quickly find others (p. 21).
- (2) Maintain directory of community participants, their key skills and interests (p. 21).

- (3) Evaluate submissions to a repository to ensure that the explicit knowledge base is current and contains relevant material for practitioners (p. 21).
- (4) Foster an environment where practitioners feel comfortable to test ideas without fear of being ridiculed or misappropriation (p. 22).
- (5) Use communication and recognition vehicles to increase visibility of member contributions and reuse (p. 22).

Summarily, Lesser and Fontaine (2004) have outlined how CoPs can help organizations break through the barriers that impede effective knowledge sharing. They have noted that communities, through their ability to foster the development of connections, relationships and common context between knowledge seekers and sources, can help eliminate many of the common knowledge sharing barriers that plague even the most successful organizations.

On the other hand, McDermott (2000) identified four key challenges in starting and supporting communities capable of sharing tacit knowledge and thinking together. These are:

- (1) The management challenge is to communicate that the organization truly values sharing knowledge. To address this challenge, management should:
 - (a) focus on topics important to the business and community members;
 - (b) find a well-respected community member to coordinate the community;
 - (c) make sure people have time and encourage to participate;
 - and (d) build on the core values of the organization.
- (2) The community challenge is to create real value for community members and insure that the community shares cutting edge thinking, rather than sophisticated copying. To address this challenge, management should: (a) get key thought leaders involved; (b) build personal relationships among community members; (c) develop an active passionate core group; and (d)

create forums for thinking together as well as systems for sharing information.

- (3) The technical challenge is to design human and information systems that not only make information available but help community members think together. This can be made possible by making it easy to contribute and access the community's knowledge and practices.
- (4) And the personal challenge is to be open to the ideas of others and maintain a thirst for developing the community's practice. Or, create real dialogue about cutting edge issues.

These challenges are critical to the success of CoPs and as what McDermott (2000) had said "without them, communities tend to flounder or fail". CoPs evolve and have the potential in unleashing the creative power of its members.

2.3. CoPs in the Field of Digital Libraries

The notion of CoPs in the field of digital libraries is rarely considered as an area of research interests and there were only few studies found about the subject. These studies have focussed on social aspects of DL (Bishop et al., 2000, 2003), decision-making process (Oguz, 2007), collaboration (Oguz, Marsh & Landis, 2010), and community building (Worrall, 2010). Oguz citing Borgman (1999) and Marchioni (1998) notes that the role of the CoPs has not been a focus of DL research even though some influential researchers in the field have addressed this concept directly or indirectly in discussions of DLs. She identified a number of groups and organizations operating in the field of DL which can be characterized as CoPs as outlined below:

- some of them refer to themselves as CoPs (i.e. Semantic Interoperability (XML Web Services) Community of Practice);

- others prefer to call themselves communities with an interest to specific aspect of the field though their goal and activities fit the description of a CoP (i.e. Z39.50 International Next Generation (ZING) Forum and Digital Library Federation (DLF));
- some have well-defined domain but itself is a network that aims to integrate and coordinate the DL research efforts carried out by the major digital library research teams (i.e. The Network of Excellence on Digital Libraries (DELOS)); and
- others play an important role both in building and cultivating the CoPs in the DL field, and such meetings serve as a breeding ground for future collaboration in DL development efforts (i.e. Association for Computing Machinery (ACM)) (p. 51).

Furthermore, Bishop et al. (2000) consider DL both social as well as technological entities for which its purpose is to help people to do knowledge work, to carry knowledge processes across space and time. Effective DLs must be designed and evaluated with sensitivity to how knowledge is created and understood, and work is done, in a context of knowledge communities, which share practices and tools.

There is a growing community of researchers investigating the social aspects of DLs. Fostering the development of this community is one of the lasting contributions of the DL initiatives (Bishop, Van House & Buttenfield, 2003). In particular, Star, Bowker and Neumann (2003) and Van House (2003) focus most explicitly on CoPs, which share work practices, understandings, language, values, and orientations as well as information and which shape their members' understandings and even identity. In addition, Worrall (2010) asserts that DL should improve their support of social interactions, especially the building of communities around and within themselves, to integrate better with social groups and communities across boundaries. His research into community building in

LibraryThing and digital libraries contribute to the important tasks of learning more about and improving support for the social contexts of digital libraries. Likewise, Oguz, Marsh and Landis (2010) explain the role of CoPs:

...as an informal communication mechanism in initiating, improving, and fostering collaboration in the digital age. CoPs play a critical role in the management of shared knowledge and create value for both their members and organizations (p. 18).

They further stress that CoPs provide their members a rich and creative learning environment where they are able to gain considerably from diverse skills, ideas, and perspectives available in the community. Engaging in collaborative activities and knowledge sharing are essential to meet organizational goals (p. 28). Oguz (2007) also found that CoPs played an important role in enabling staff members to access up-to-date and experienced-based knowledge, provided a distributed problem-solving and learning environment, facilitated informal communication and collaborative activities, and informed the decision-making process.

Oguz (2007) also noted that the nature of DL development efforts suggest the existence of CoP-like structures. From Wallace's *Knowledge Management: Historical and Cross-Disciplinary Themes* (2007) review of existing literature on the origin and emergence of the CoPs, he found that "the concept has been prevalent in medicine, law, psychology, education, and theology for quite some time as early as 1864... it is quite clear that the expression was widely used long before Lave and Wenger adopted it" (p. 38). From this perspective, can all DL organizations be considered as 'communities of practice'? Raitt (2000) observed that:

There are quite a large number of activities being undertaken in European countries with respect to digital libraries - some on a European level, some on a national level, and others on a much more local level. Some activities cover subject areas (such as economics or the humanities), others cover types of material (such as periodicals, rare

books, or images), while still others focus on the issues and challenges surrounding digital libraries (such as intellectual property, digitization techniques, or management). (para. 2)

This development in the field of DL has dramatically increased collaboration, exchange of information, shared practices and expertise among DL professionals in Europe. For instance, DELOS a European network of excellence in digital libraries aims to provide an open context in which an international research agenda for future research activities in the DLs domain is described. In a report by Peters (2000), she wrote:

The Network, stimulating the exchange of experiences and know-how in this multidisciplinary domain, and will also establish[es] close contacts with relevant application communities (para. 2).

...the activities of the Network will be organized under Forums and will be open to the European DL research world and the relevant application communities (electronic publishing, libraries, cultural heritage, archives, etc.) (para. 3).

Also, DL.org in its recently concluded workshop on *Digital Libraries and Open Access: Interoperability Strategies*² has focused on creating new connections and partnerships, and exploring ways for a closer cooperation between DLs and Open Access Repositories communities (DL.org, 2011). DL.org is a vibrant community mobilizing DL designers, developers, end-users and researchers from diverse domains in the drive towards interoperability, best practices and modelling foundations for the enhanced development of next-generation DL systems (DL.org, 2010b). Batiandila in an interview conducted by Parker and Biro (2010) has said that, “DL.org is a good example of CoPs which its core values are grounded in close cooperation and openness to share knowledge and learning among [its] stakeholders” (para. 6).

² Held on 4 February 2011 at the British Academy in London, UK.

Another interesting example is the Ministerial Network for Valorising Activities in Digitization (MINERVA) project which is expected to stimulate decision makers and implementers to carry out their initiatives of content enrichment, in creating the conditions to improve the quality of content and services as well as enhancing accessibility of digital content (Minerva Project, 2008). In carrying out its objectives, Minerva project has created a number of focused working groups within the overall consortium. Each working group is made up of several project partners, working together on a particular aspect of the project objectives. Some remarkable results include the development of a good practice handbook, sharing of good practices and lessons learned on digitization initiatives around European Union (Minerva Project, 2007).

Van House (2003) argued that DL CoPs are not just those that use and contribute content but also those that build and operate a DL. Despite of the complexity of the DL world, the existence of CoPs proves that DL professionals are actively collaborating, sharing, and learning in a socially-embedded process of CoPs.

2.4. Knowledge Management and CoPs

Knowledge management (KM) emerged as a scientific discipline in early 1990s (Knowledge management, 2011) and its basic purpose is to enable an organization to leverage the knowledge and in turn improve productivity. The concept of CoPs has added an important dimension to organizational development, especially in the area of KM, which hails knowledge as an organization's critical and strategic asset (Drucker, 1993, 1995; Davenport and Prusak, 2000; Edvinsson and Malone, 1997; Nonaka and Takeuchi, 1995 as cited in Retna & Ng, 2011). KM is a cross-disciplinary subject in which this concept is not limited to the business world but its development has been embedded in the processes across domains and disciplines (Wallace, 2007). Some authors call CoPs as "the killer knowledge

management application” (Rumizen, 2002) and as a “management tool” in fostering collaboration (Awad & Ghaziri, 1996).

The *Encyclopedia of Communities of Practice in Information and Knowledge Management* (Coakes & Clarke, 2006) provides varied definitions of KM and comprehensively examined all facets of CoPs in the area of information and knowledge management in societies and organizations. KM is defined as

...the processes necessary to capture, codify, and transfer knowledge across the organization to achieve competitive advantage (Archer, 2006, p. 29).

...a combination of management awareness, attitudes, processes, and practices for creating, acquiring, capturing, sharing, and using knowledge to enhance learning and performance in organizations (Bellarby & Orange, 2006, p. 306).

CoPs lie at the core of a successful knowledge management system where informal exchanges of knowledge take place. Allee (2000) puts it this way:

Knowledge cannot be separated from the communities that create it, use it, and transform it. In all types of knowledge work, even where technology is very helpful, people require conversation, experimentation, and shared experiences with other people who do what they do. Especially as people move beyond routine processes into more complex challenges they rely heavily on their community of practice as their primary knowledge resource (p.5).

Retna and Ng (2011) in their recent work explored the dynamics and key success factors in the development of CoPs and include a discussion on how it facilitates knowledge sharing and transfer that has positive impact on organizational effectiveness in learning and KM (pp. 41-42). They have also noted that KM requires a social approach to capture tacit knowledge. Furthermore, Wenger (1998a) asserts:

CoPs serve as nodes for the exchange and interpretation of information. As a consequence, a community of practice that spreads throughout an organization is an ideal channel for moving information, such as best practices, tips, or feedback, across organizational boundaries. It preserves the tacit aspects of knowledge that formal systems cannot capture. This collaborative inquiry makes membership valuable, because people invest their professional identities in being part of a dynamic, forward-looking community. They provide homes for identities and having a sense of identity is a crucial aspect of learning in organizations (pp. 5-6).

Proponents of knowledge organizations believe that CoPs as major contributors to the dissemination of information in the organization, often form the backbone of every KM program (Bergeron, 2003). In addition, Andrew, Tolson and Ferguson (2008) claimed that CoPs as tools for KM can provide a platform for collaborative workplace learning, leading to practice development and the creation, management and dissemination of new knowledge. They added “as a vehicle for the creation and management of knowledge systems, CoPs have the potential to release the creativity of practitioners and allow the sponsoring organization to harvest and disseminate the knowledge they produce” (p. 251). Hence, CoPs is an important management tool through which KM takes place.

2.5. Learning Culture

In developing a learning culture within the domain of DL entails an understanding of the concept of learning in the organization *vis-à-vis* the learning practices and tools. Also, the concept of a “learning culture” or “culture of learning” is defined here.

2.5.1. Learning Culture Defined

Learning is a social process – a by-product of man’s interaction and participation in a certain social environment. Wenger (1998b) opined that learning entails both a process and a place. It entails a process of transforming knowledge as well as a

context in which to define an identity of participation. As a consequence, to support learning is not only to support the process of acquiring knowledge but also to offer a place where new ways of knowing can be realized in the form of such an identity. Moreover, he defined learning as “interplay between social competence and personal experience” (Wenger, 2000, p. 225). Here, he stressed that, “it is a dynamic, two-way relationship between people and the social learning systems in which they participate” (p. 226). In this perspective, learning occurs not inside the mind of the individuals, but rather in the fields of social interaction between people (Hanks, 1991 cited in Coburn & Stein, 2006).

Botcheva, White and Huffman (2002) considered a learning culture as beliefs and attitudes that support the systematic and ongoing use of knowledge and information for improvement. They emphasized that a learning culture fosters risk taking, learning from mistakes, and a climate of trust and courage. Rogers (2000), however, said that a learning community is a cohesive community of which embodies a culture of learning in which everyone is involved in a collective effort of understanding. According to the Australian training.com (What is learning culture? , 2011),

To become a learning organization is to accept a set of attitudes, values and practices that support the process of continuous learning within the organization... Through learning, individuals can re-interpret their world and their relationship to it. A true learning culture continuously challenges its own methods and ways of doing things. This ensures continuous improvement and the capacity to change (para. 1).

From the given definitions, a learning culture can be defined as an embodiment of or a set of beliefs, norms, and behaviours of individuals and groups in a community of practitioners which nurtures learning through collective discovery, sharing, and application of knowledge.

2.5.2. Organizational Learning and CoPs' Learning Culture

Several studies have highlighted the notion of learning culture and its importance in community building. This idea chiefly evolves in the context of formal organizations but in some way can be applied to the informal context of CoPs. Why it is necessary to develop a culture of learning? Does it profit individuals and the organization as a whole? It has been noted earlier that the promotion of a learning culture in CoPs or making learning a part of everyday working life significantly enhances work performance and provides sustainable competitive advantage both at individual and at organizational levels. Conner and Clawson (2004) provide in their book *Creating a Learning Culture* insightful essays from industry observers and revealing case studies of prominent corporations. This book revolves around creating an environment where learning takes place each day, all day, fundamentally changing the way we think about how, what, and when we learn, and how we can apply learning to practice. Such interest is built upon on the fundamental idea of a learning organization as described by Senge (1990). According to Senge learning organisations are:

...organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together (Senge, 1990, p. 3).

Conner and Clawson (2002) explicitly describe the importance of creating a culture of learning within the organization:

The beautiful by-product of an organization whose entire culture focuses on learning is that it inspires ordinary people to flourish in an increasingly turbulent world... Learning cultures also offer a source of sustainable competitive advantage... The decision to invest in learning is defined by a set of values, expectations, and behaviours related to actively managing organizational learning. The learning-oriented corporate culture sets the context of everything the organization does... learning cultures thrive on large, free, safe networks of experts and

every organization has the potential to develop a learning culture (para. 1-43)

In a similar way Maccoby (2003) asserted that:

In a learning culture, people take responsibility and support one another". They share experience and learn from mistakes as well as successes. Good ideas are heard, acted on and rewarded (p. 60).

Moreover, the Institute for Research on Learning (IRL) has developed seven principles of learning that provide important signposts for organizations. These include: (1) learning is fundamentally social; (2) knowledge is integrated in the life of communities; (3) learning is an act of participation; (4) knowing depends on engagement in practice; (5) engagement is inseparable from empowerment; (6) failure to learn is often the result of exclusion from participation; and (7) that we are all natural lifelong learners (Henschel, 2001, sec. 3). These principles help us understand how individuals are learning from their engagement in CoPs. Over time, CoPs develop their own culture, and they can transform an organization's culture through their collective influence on members and on other CoPs with whom they interact (Wenger, McDermott & Snyder, 2002). However, Frost (2010) sees learning in CoPs as a social process of becoming a practitioner:

... as it gives the individual a social context of being an integrated part of a community. The social construction of identity shapes each person's view and interpretation of the world. Learning and the creation of new knowledge can then take place within the context dependent forum of the community, and can be shared through social practice (sec. 2, para. 1).

CoPs are valuable to a learning organization for some respects and they differ from traditional structures in the following way: (1) CoPs thrive on personal energies and relationships of members; (2) it is passion that drives people to share and advance their collective knowledge; (3) CoPs count on internal leaders and community organizers; (4) CoPs leverage the strategic role of communities in the

knowledge economy (Wenger & Snyder, 2000). These CoPs synergy is not only grounded in the conditions of a learning organization but it puts the organizations into a new perspective. Wenger (1998a) notes:

Communities of practice structure an organization's learning potential in two ways: through the knowledge they develop at their core and through interactions at their boundaries... For while the core is the center of expertise, radically new insights often arise at the boundary between communities. Communities of practice truly become organizational assets when their core and their boundaries are active in complementary ways (p. 6).

Moreover, Wenger (1998b) has identified a set of general guidelines in leveraging learning both for the newcomers and for the community itself:

- (1) Construe learning as a process of participation, whether for newcomers or old-timers.
- (2) Place the emphasis on learning, rather than teaching, by finding leverage points to build on learning opportunities offered by practice.
- (3) Engage communities in the design of their practice as a place of learning.
- (4) Give communities access to the resources they need to negotiate their connections with other practices and their relation with the organization (p. 249).

Here, Wenger tends to give an emphasis on the centrality of learning in any communities and in which learning is a by-product of such participation or engagement. In this sense a culture of learning is developed as what he describes as “results in practices that reflect both the pursuit of our enterprises and the attendant social relations” (Wenger, 1998b, p. 45). Such communities with a strong learning culture empower its stakeholders to seek new ideas, learn beyond the structure of formal learning and apply what they have learned from an informal learning interaction in the performance of their job. A true learning

culture leverages the knowledge, skills and expertise of individuals in order to achieve both the individual and organizational goal.

2.5.3. CoPs' Learning Practices: Mirroring a Culture of Learning

The recently concluded *Bersin & Associates' High-Impact Learning Culture* study (Mallon, 2010) found that there are 40 defining practices that have a high-impact on learning culture and which are directly related to how the business operates. These 40 practices fall into six categories: (1) building trust; (2) encouraging reflection; (3) demonstrating learning's value; (4) enabling knowledge sharing; (5) empowering employees; and (6) formalizing learning as a process (p. 5). These high-impact practices are the result of surrounding the process of learning within the organizational environment. Wenger (1998b) asserted that:

...What is shared by a community of practice – what makes it a community - is its practice. The concept of practice connotes doing, but not just doing in and of itself. It is doing in a historical and social context that gives structure and meaning to what we do (p. 47).

Wenger, White and Smith (2009) identified a range of activities that CoPs have been known to engage. These learning activities are derived from the stakeholders' interaction either within or beyond the boundaries of the community of which learning takes place in the following manner:

- (1) Learning from and with each other. Community members learn from each other's day-to-day experience. They share stories, personal experiences and tips. They also learn with each other and help each other.
- (2) Learning through formal as well as informal activities. In most cases, learning activities are mostly informal: spontaneous exchanges of stories and tips. Questions and answers, discussions of hot topics. But there are

also some formal activities. These may include, for example, collection of the most important exchanges such as topical summaries on its website.

- (3) Learning from sources outside as well as inside the community. These activities may include peer-to-peer exchanges which provide a window onto the wealth of available information from outside sources such as scientific journals, websites, and relevant news stories (pp. 7-8).

Furthermore, Wenger et al. (2009) also identified nine different orientations and have noted that “communities learn together in different ways – some meet regularly, some converse online, some work together, some share documents, some develop deep bonds, and some are driven by mission they serve” (p. 69). Here, they defined orientation as a “typical pattern of activities and connections through which members experience being a community” (p. 69). These orientations are summarily presented here as follows:

- (1) *Meetings*. Communities have placed a great emphasis on regular meetings where members engage in shared activities for a specific time. The main variants of this orientation include: face-to-face or blended, online synchronous and online asynchronous interactions (pp. 72-75).
- (2) *Open-ended conversations*. Open-ended conversations are common when a community is co-located and people keep the conversation going as they “bump” into each other. For online communities, the main variants of this orientation include: single-stream discussions, multi-topic conversation systems, and distributed conversations (pp. 76-78).
- (3) *Projects*. Members want to focus on particular topics, go deep, and collaborate on projects to solve problems and produce useful artefacts. The main variants of this orientation include: co-authoring, practice groups, project teams and instructions (pp. 79-80).
- (4) *Content*. Primarily interested in creating, sharing, and providing access to documents, tools, and other content. The main variants of this orientation

include: library, structured self-publishing, open self-publishing, and content integration (pp. 81-84).

- (5) *Access to expertise*. Create value by providing focused and timely access to expertise in the community's domain. The main variants of this orientation include: access via questions and requests, direct access to explicitly designated experts, shared problem solving, knowledge validation, and apprenticeship (p. 84-86).
- (6) *Relationships*. The focus is on relationship building among members as the basis for both ongoing learning and being available for each other. This orientation emphasizes the interpersonal aspect of learning together built upon the value of knowing each other personally, give emphasis on networking, trust building, and mutual discovery. The main variants of this orientation include: connecting, knowing about people, and interacting informally (p. 86-88).
- (7) *Individual participation*. Members' participation in a community varies in many ways – they have different purposes, they engage with different frequencies and levels, they take on different roles, and they use tools differently. Here, members have to take active control of their participation, and make individual differences part of the life of the community. The main variants of this orientation include: varying and selective participation, personalization, individual development, and multimembership to several CoPs (pp. 89-93).
- (8) *Community cultivation*. Their concerns are to reflect on the effectiveness and health of the community to make things better, and a willingness to work on it. Here, the notion of a leader is important – the leadership should facilitate conversation, convene meetings, organize activities, collect, edit, or produce resources, connect members, keep pulse on the health of the community, and encourage it along developmental path. The

main variants of this orientation include: democratic governance, strong core group, internal coordination, and external facilitation (p. 93-96).

(9) *Serving a context*. Serving a specific context becomes central to the community's identity and the way they operate. The main variant of this orientation to context include: organization as context, cross-organizational context, constellation of related communities, and public mission (p. 96-99).

The above-mentioned learning activities and pattern of activities once legitimize will become an embodiment of or a set of beliefs, norms, and behaviours of individuals and groups within a community that reflects a culture of learning.

2.6. The CoPs' Learning Environment: From Face-to-Face to Virtual

CoPs have been considered as dynamic learning environments where groups of people come together to share and to learn from one another both in face-to-face and virtual settings (Hubert, Newhouse & Vestal, 2001). Historically, CoPs' operations were defined by face-to-face meetings in specific locals (Serrat, 2008). Kwok, Pratt, Anderson and Stigter (2006) have also noted that majority of the successful CoPs reported in the literature are face-to-face communities. In addition, Johnson (2001) has analysed current research on online CoPs and found that: (a) face-to-face contacts have been important especially for initial contacts between community members, (b) face-to-face contact is essential for rapport, (c) makes a case for multimodal learning, that is, face-to-face mixed with asynchronous learning, and (d) collaboration was actually richer because the participants actually knew each other.

Serrat (2008) argued that an appropriate communication platform is critical to the success of CoPs. He reiterated that the communication platform would:

- (1) Serve as an ongoing learning venue for practitioners who share similar goals, interests, and concerns.
- (2) Help connect members to the right people and provide a platform for rapid responses to individual inquiries from members.
- (3) Provide news of community activities and events to members.
- (4) Develop, capture, and transfer good practices on specific topics by stimulating active sharing of knowledge.
- (5) Promote partnership arrangements with interested knowledge hubs and other networks.
- (6) Influence the development of outcomes by promoting greater and better-informed dialogue.
- (7) Promote innovative approaches to address specific challenges (p. 4).

It has been noted that technology shapes the communication mode of CoPs stakeholders – they are communicating with duality – employing both physical and virtual tools. Hence, they communicate either face-to-face or online using Internet-based technologies for meeting, debating, sharing, collecting or building meaning about their professional practices (Daele, Deschryver, Gorga & Künzel, 2007). Petter, Reich and Helling (2007) had observed that “the concept of face-to-face community interaction has been further enriched by virtual interaction” (p.3). Interaction in this virtual environment happens instantaneously and is possible with new communication tools. This technological development had facilitated the existence of the so-called virtual CoPs (Dube, Bouhis & Jacob, 2005; Hara & Hew, 2006; Murillo, 2008). Wenger, White and Smith (2009) had noted that “since 2001, technology-enabled CoPs have proliferated, and the field of technology for communities has exploded” (p. xi). More organizations are adopting now “virtual” organizational forms that operate more independently of time and space resulting to an increasing interests among professionals – working together primarily through computer-mediated communication (Robey, Khoo & Powers, 2000).

Moreover, Conner and Clawson (2002) also found that technology enhances CoPs' communication process as well as learning:

Technology does have the ability to augment what active learners can learn. It can help them gather information and generate new insights. In a vibrant learning culture, in which people are responsible for their own learning and for helping one another learn, well-planned and well-delivered technology enhances everyone's experience (para. 3).

However, Wenger et al. (2009) refer to a new literacy and language to describe the practice of stewarding technology for communities. Digital tools are now part of most communities' habitats. The authors propose four perspectives on the technology involved:

- (1) *Tool perspective*. These are identifiable piece of technology that supports a discrete activity in a community (e.g. discussion board that supports online conversations) or bridges different types of activities (e.g. recording a phone conversation for later use) (pp. 39-40).
- (2) *Platform perspective*. Platforms offer communities a simple entry into using a set of tools. For instance, Skype as a voice-over IP (VoIP) which has distinct tools for one-to-one calls, text chats, instant messages, personal and global directories. The platform perspective is the building block of the habitat or virtual environment (pp. 40-42).
- (3) *Feature perspective*. A characteristic that makes a tool or platform usable for specific purposes. For instance, a phone without a microphone is not a phone, but a mute button is an element that adds functionality. The features of tools or platforms determine its usability for a given community (pp. 43-44).
- (4) *Configuration perspective*. This refers to the overall set of technologies that serve a substrate for a community's habitat at a given point in time –

whether tools belong to a single platform, to multiple platforms, or are free-standing (pp. 45-47).

The construction of the communities' digital environment or habitat has placed CoPs to new heights making it as places where stakeholders access information and interacting with colleagues at anytime and almost instantaneously without leaving their workplaces. This technology integration in the life of the community is significantly creating fluidity in the transmission of information and enhances the interaction process within the community. The notions of physical and virtual communities are both learning enablers and are making more possibilities to connect people from diverse origins bringing them together in one habitat where learning takes place. Although technology can enable and support a variety of activities within a community, the members still count more valuable because they are the ones that create, disseminate, and apply knowledge – technology only enhances such processes.

2.7. Learning in CoPs: Its Theoretical Foundations

This section presents the theoretical foundations of the study. It has been noted that the prevailing learning theories (for instance, connectivism, networked learning, activity theory and problem-based learning) are based on the primacy of experience and interpersonal exchange as the vehicle of learning. There are three main categories or philosophical frameworks under which learning theories fall: behaviorism, cognitivism, and constructivism (Learning theory (education), 2011). Behaviorism focuses only on the objectively observable aspects of learning. Cognitive theories look beyond behavior to explain brain-based learning. However, the theoretical foundation of this study is based on a constructivist perspective that views learning as a process in which the learner actively constructs or builds new ideas or concepts. Thus, in a community setting,

learning takes place in the situatedness of the performance of one's tasks or learning as a result of social interaction:

Communities of practice presents a theory of learning that starts with this assumption: engagement in social practice is the fundamental process by which we learn and so become who we are. The primary unit of analysis is neither the individual nor social institutions but rather the informal 'communities of practice' that people form as they pursue shared enterprises over time.... The result is a broad conceptual framework for thinking about learning as a process of social participation. (Wenger, 1998b, colophon)

However, this study is grounded not on the general notion of what a community is but rather on situatedness of learning that takes place in CoPs as the fundamental theory behind it. Luden (2009) reiterated on the foundation of situated learning theory:

Building on the theoretical foundation that was laid by the work of Bandura, Vygotsky, and others³, Lave (1988), however, extended the work on social learning theory by advancing the notion that the majority of adult learning (cognition) is "situated" in the activity, context, and culture in which it occurs (p. 22).

For these theorists, learning is situated that it takes place and is embedded within the context of doing or in the performance of one's tasks. Situated learning contributes to the growing body of research in human sciences that explores the situated character of human understanding and communication (Hanks, 1991). Johnson (2001) also asserted that CoPs differ from traditional learning environments because the learning takes place in the actual situation, including the social environment. Thus, novices and experts, as well as novices movement to expertise, are important aspects of the communities. In 1991, Lave and Wenger expounded their theoretical perspective that learning is situated and occurs by means of legitimate peripheral participation within CoPs. The emphasis

³ see also Akers, Krohn, Lanza-Kaduce, & Rodosevich, 1979; Miller & Dollard, 1941; Piaget, 1969; Sears, 1951

on “peripheral,” implies that learners first exist on the outer rings of existing communities of practitioners and gradually work their way into full participation. They explained on what they mean by legitimate peripheral participation (LPP):

By this [referring to LPP] we mean to draw attention to the point that learners inevitably participate in communities of practitioners and that the mastery of knowledge and skill requires newcomers to move toward full participation in the socio-cultural practices of a community. “Legitimate peripheral participation” provides a way to speak about the relations between newcomers and old-timers, and about activities, identities, artefacts, and communities of knowledge and practice. (p. 29)

Wallace (2007) commented that Lave and Wenger’s exposition on CoPs is grounded in the principles of situated learning, which is a form of experiential learning. They note “the role played by these concepts is sufficiently significant that understanding communities of practice is, if not dependent on understanding the other concepts, augmented by understanding them” (p. 38). Thus, participation in the community life is critical to individual as well as to group learning. It is by participation that learning occurs in the context of CoPs. Situated learning is closely linked to situated cognition, which emerged in the literature of psychology and artificial intelligence in the 1980s (Wallace, 2007). For Brown, Collins and Duguid (1989) situated cognition is a new paradigm of learning, emphasizes apprenticeship, coaching, collaboration, multiple practices, articulation of learning skills, stories, and technology. They asserted that, "in a significant way, learning is, we believe, a process of enculturation" (p. 33).

Barab and Roth (2006) noted that many theorists⁴ have further emphasized the reciprocal character of the interaction in which individuals, as well as cognition and meaning, are considered socially and culturally constructed. Therefore, situated learning theory serve as an analytical lens for understanding the social

⁴ see Heidegger, 1996; Lave, 1993; Lemke, 1997; Leont'ev, 1978; Walkerdine, 1997; Wenger, 1998.

structure of the learning process in CoPs in which learning cannot be separated from the context within which learning takes place.

2.8. Conclusion

This chapter reviewed relevant literature and studies on CoPs and its relationship to the development of a learning culture. The concept of CoPs has been defined with differing perspective in terms of jargon used and on the purpose of which such communities are being established. The common element in all these definitions is “a group of people”, “a network of individuals” or “a group of professional practitioners” who are truly engaged and have the same concerns, and “share knowledge” based on their “common interest and needs”. It is also noted that CoPs take a variety of forms but they share a basic structure - a unique combination of three fundamental elements: domain, community and practice. However, building CoPs have considerable benefits, challenges as well as success factors. But what is critical here, is the human factor that shapes it - knowledge-sharing in CoPs is impossible without an active participation of a substantial part (ideally, all) of its members.

The role of the CoPs has not been a focus of DL research. Some researchers in the DL field have addressed this phenomenon directly or indirectly in discussions of DLs. However, it is claimed that the nature of DL development efforts suggest the existence of CoP-like structures. Thus, some leading DL communities in Europe have been explored, for instance, DELOS, DL.org and MINERVA.

Some authors refer to CoPs as “the killer knowledge management application” and as a “management tool” in fostering collaboration. CoPs lie at the core of a successful KM system where informal exchanges of knowledge take place. Proponents of knowledge organizations believe that CoPs are major contributors

to the dissemination of information in the organization and often form the backbone for KM program.

In developing a learning culture within the domain of DL entails an understanding of the concept of learning in the organization and the learning practices and tools. A learning culture is defined as an embodiment of or a set of beliefs, norms, and behaviours of individuals and groups in a community of practitioners which nurture learning through collective discovery, sharing, and application of knowledge. Several studies have highlighted the notion of learning culture and its importance in a community building. On the other hand, any community with sustained interactions in a domain will develop some kind of practice over time. This idea of practice is mirroring a culture of learning. Any community with a strong learning culture empowers its stakeholders to seek new ideas, learn beyond the structure of formal learning and apply what they have learned from an informal learning interaction in the performance of their job.

The idea of learning environment is also explored here as an important avenue where learning takes place. The notion of physical and virtual communities are both considered as learning enablers and making more possibilities to connect people from diverse origins bringing them together in one habitat where learning takes place. Although technology can enable and support a variety of activities within a community, the members still are more valuable because they are the ones that create, disseminate, and apply knowledge – technology only enhances such processes.

This chapter also presented the theoretical foundations of the study which are grounded on a constructivist perspective that views learning as a process in which the learner actively constructs or builds new ideas or concepts. Hence, this study is founded on situated learning theory which serves as an analytical lens for

understanding the social structure of the learning process in CoPs in which learning cannot be separated from the context within which learning takes place.

CHAPTER 3: METHODOLOGY

3.1. Introduction

This chapter describes the methodology used in this research. The research philosophy, data collection and analysis methods are discussed. The chapter also addresses issues of ethical considerations and trustworthiness of the research.

3.2. Research Paradigm

The philosophical assumption underlying this research comes from an interpretivist position based on a relativist view – an ontological belief that reality is socially constructed (Pickard, 2007; Creswell, 2007; Merriam, 2009). This epistemological position is concerned with approaches to the understanding of reality and asserting that all such knowledge is necessarily a social construction and thus subjective (Walsham, 1993, p. 5). Easterby-Smith, Thorpe and Lowe (1991) pointed out that having an epistemological perspective is important for several reasons: (1) it can help to clarify issues of research design; and (2) having a knowledge of research philosophy will help the researcher to recognize which designs will work (for a given set of objectives) and which will not.

Merriam (2009) notes that “interpretive research...assumes that reality is socially constructed, that there is no single, observable reality...there are multiple realities or interpretations, of single event” (p. 8). Furthermore, Creswell (2007) opined that “evidence of multiple realities includes the use of multiple quotes based on the actual words of different individuals and presenting different perspectives from different individuals” (p. 18). In reality, every person is playing different roles and interprets an event or situation in particular way or very differently in accordance with the set of meanings they have created. Under this paradigm, these multiple realities would be the interviewees’ expressed views, opinions, and stories on their learning experiences

derived from their social and/or professional interaction in DL-related CoPs. Finally, the aforementioned philosophical belief would largely shape the conduct of this research. Details on the research approach are further elaborated in the next section.

3.3. Research Design

This research utilized a qualitative research – a philosophical approach that overarches many different ways of collecting and analyzing the data (Munhall, 2007). Creswell (2007) notes that “qualitative research begins with assumptions, a worldview, the possible use of a theoretical lens, and the study of research problems inquiring in the meaning individuals or groups ascribe to a social or human problem” (p. 53). Merriam (2009) refer to Van Maanen’s definition of qualitative research as “an umbrella term covering an array of interpretive techniques which seek to describe, decode, translate, and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomenon in the social world” (p. 13).

Qualitative research explores attitudes, behaviour and experiences using such methods as interviews or focus group interviews. It attempts to get an in-depth opinion from participants (Dawson, 2002). Stake (2010) wrote:

Qualitative research is sometimes defined as interpretive research. All research requires interpretations, and, in fact, human behaviour requires interpretation minute by minute...Their interpretations are not only what they think after they have stopped to think about it but are part of the seeing. The perceptions we have of objects and events and relationships are simultaneously interpretive. They get continuing reinterpretation. Qualitative research draws heavily on interpreting by researchers – and also on interpreting by the people they study and by the readers of the research reports (p. 36-37).

In sum, qualitative research explores attitudes, behaviour and experiences of individuals or groups within the context of their social environment. Qualitative

approach therefore was suitable approach for this study. Patton (2001) explained that qualitative research uses “a naturalistic approach that seeks to understand phenomena in context-specific settings, such as real world setting where the researcher does not attempt to manipulate the phenomenon of interest” (p.39). Thus, for this research, DL professionals’ experiences in their social interaction in CoPs are critical in achieving the goal of this endeavour.

3.4. Sampling Strategy

For this study, non-probability sampling method was used, specifically purposive sampling which provides in-depth understanding and extensive information about the experience of the participants on the phenomenon being investigated. According to Pickard (2007) there are two approaches to purposive sampling: “a priori sampling, which establishes a sample framework before sampling begins; and a snowball sampling, which takes an inductive approach to ‘growing’ the sample as the research progresses” (p. 64).

In this case, the participants of the interview were identified from any DL-related communities in Europe which include DELOS, DL.org European Project, Europeana Foundation, MINERVA, European Digital Library Project (EDL Project), EADTU - Library and Learning Support Working Group, European Conference on Digital Libraries (ECDL) and Digital Library Learning (DILL) Consortium. From the websites of the above mentioned communities members’ information such as names, institutional affiliations and e-mail addresses were extracted and if their e-mails were not available, online search was undertaken in order to find their contact details. Then, a request was sent to them seeking for their participation in the study. However, only few responded to the request and additional efforts were made in identifying more interview participants (for example, asking suggestions from people who were involved in the field of DL and contacting these potential participants). Also, to identify more participants, snowball sampling was used in which the first

three interviewees were asked to identify subsequent participants who according to their knowledge have been involved in DL-related CoPs. Table 1 presents the demographic profile of the participants in terms of gender and country of origin.

Table 1. Demographic Profile of the Participants

Gender	Frequency	Country of Origin	Frequency
Male	4	Austria	1
Female	8	Croatia	1
<i>Total</i>	12	Estonia	4
		Italy	2
		Romania	1
		Spain	1
		United Kingdom	2
		<i>Total</i>	12

In total, twelve DL professionals participated in the research. They were DL practitioners acting as digital library (DL) designers, system developers, system administrators, librarians, academicians, graduate students and scholars having common interests in digital libraries and its enabling technologies. This number of participants was deemed sufficient. Houser (2008) suggested: “The ideal sample for qualitative research is purposively selected based on selection criteria and saturation” (p. 229). Therefore, the bases for the selection of the participants were the following: the breadth and depth of their engagement in DL-related CoPs, are residence of EU countries and on their willingness to be contacted at agreed time.

3.5. Data Collection Method

This investigation used a qualitative approach in collecting the data and to systematically collect information about the object of the study through interviews. Details on the steps and activities involved in data collection are described below.

3.5.1. Interviews

The purpose of interviewing is to draw valuable insights and ideas in the context of the phenomenon being investigated. Seidman (2006) opined that "...interviewing provides access to the context of people's behaviour and thereby provides a way for researchers to understand the meaning of that behaviour" (p.10). In addition, the purpose of an interview is to access what was in, and on, the interviewee's mind (Stenhouse, 1984 as cited in Pickard, 2007). Furthermore, Pickard (2007) expressed that, "interviews are appropriate when the purpose of the researcher is to gain individual views, beliefs and feelings about a subject, when questions are too complex to be asked in a straightforward way and more depth is required from the answers (p.181). This was the reason why interviews were selected as data collection methods for this research.

A semi-structured interview was used which has sequence of themes to be covered, as well as suggested questions. At the same time there is openness to changes of sequence and forms of questions, in case of a follow-up based on the answers given by the subjects (Kvale, 1996). However, Patton (as cited in Pickard, 2007) describes two approaches to conducting unstructured interviewing: the informal conversation and the general interview guide (commonly called a guided interview). In this study, the guided interview approach was used in order not to lose focus on the phenomenon being investigated. The researcher was also free to explore, probe and ask questions not previously specified when something interested him. Thus, a basic checklist was prepared and organized based on the following themes: (a) respondents' understanding of the concept of CoPs; (b) CoPs' membership and defining characteristics; (c) respondents' motivation in CoPs' participation; and (d) learning culture: norms, behaviours, practices, challenges and success factors (*see Appendix 1*).

To proceed with the investigation, the participants of the interview were identified from the existing DL communities as described earlier. Though the preferred

interview mode was face-to-face, but for some circumstances⁵, the following were also employed – Skype interview, IP-based Voice over Internet Protocol (VOIP) phone interview, and an electronic mail (e-mail) interview. Denzin and Lincoln (2000) note that “the latest trends in interviewing have come some distance from structured questions; we have reached the point of interview as negotiated text” (p. 663). Twelve people were interviewed in total – five of them were interviewed face-to-face, three via digital media (Skype, VoIP and videoconferencing system) and four who requested to have the interviews through emails. All voice-based interviews were recorded digitally and were complimented with written notes in case of some problem with the recording. The interviews lasted approximately for about an hour. This amount of time seemed adequate for capturing interviewees’ rich description of their contextual-based sharing of experiences related to the phenomena being investigated.

3.5.2. Pilot Study

The interview questions were piloted with two DILL students (non-participants of the main study) aiming to identify ambiguities, clarify the wording of questions and detection of problem-questions that needed to be revised or omitted. Piloting of the interview questions also served as a process of practicing and mastering the art of interviewing. Also, the pilot enabled the testing of the recording device in order to ensure accurate and reliable functionality and quality of the output. Then, the recorded information was transcribed and analyzed (the data analysis is described in section 3.7). However, based on the results of the pilot study some of the questions were reworded or modified, conflicting and repetitive questions were eliminated. For example, question like this: Do you think CoP stakeholders rely on one another and share resources and expertise, thereby, learning from one another? This question was

⁵Circumstances may refer to some limitations such as distance, visa regulation on the part of the researcher and on the availability of the participant for a face-to-face interview as well as technical problem such as Internet connection and the availability of appropriate technology for computer-mediated interviews.

deleted because it seemed to suggest what the answer should be – either the interviewees would answer 'yes' or 'no' and probably 'yes' just to please the interviewer. The interview guide was also reorganized. Questions related to the interviewees' understanding and conceptions about CoPs were asked first – this was to warm-up the interviewee and put them more in the picture. Then, followed by questions related to their participation, motivations, and their CoPs' learning culture (see section 3.5.1 for the checklist of interview themes).

3.6. Ethical Considerations

With utmost respect to the rights of the individuals involved in this investigation, highest degree of data protection was observed in accordance with Tallinn University research regulations.

Prior to the conduct of the interviews, informed consents were obtained from the participants and it was explained to them that taking part in the interview was absolutely voluntary and they could withdraw at any time in the process. The participants were also assured that all information obtained would be treated as confidential and only the researcher could access to it. Furthermore, to protect anonymity in both recording and the reporting of the research, codes were used ensuring not to divulge the personal identity of the participants of the study.

3.7. Data Analysis and Interpretation

Data analysis is a process in which raw data is organized and analyzed so that useful information can be extracted from it. Hence, the purpose of qualitative data analysis is to examine the meaningful and symbolic content of qualitative data. There are three broad analytical approaches for qualitative data: thematic analysis, grounded theory, and framework approach. However, thematic analysis is the approach used for this research of which the “researcher groups the data into themes, and examines

all the cases in the study to make sure that all the manifestations of each theme have been accounted for and compared” (Pope, Ziebland & Mays, 2000, p. 70). This type of analysis is highly inductive, where the “findings emerge out of the data, through the analyst’s interactions with the data” (Patton, 2002).

The initial phase of the process was the transcription of interviews. Each recordings were transcribed ‘as is’ or according to the utterances by the interviewees. The purpose of this process was to have a record or transcript of what was said. Transcribing the interviews was a time consuming activity in which it took a span of two weeks to transcribe all the recordings. Bryman (2001) claimed that for “one hour of tape takes five to six hours to transcribe. Then, the transcript was edited and formatted in Microsoft Word with two columns – the first column for the transcribed data and the second column for the codes and the extracted texts. This is supported by La Pelle (2004) as she claimed that:

Microsoft Word can be used for coding and retrieving, semi-automated coding and inspection, creating hierarchies of code categories via indexing, global editing of theme codes, coding of “face-sheet” data, exploring relationships between face-sheet codes and conceptual codes, quantifying the frequency of code instances, and annotating text” (p. 85).

It is worth nothing here that the transcript is an important document which embodies the raw data for the analysis phase. Once the transcript was verified for its accuracy, the thematic analysis began. Ryan and Bernard (2000) briefly explained how the method works:

The process starts when the analyst begins to notice, and look for, patterns of meaning and issues of potential interest in the data – this may be during data collection. The endpoint is the reporting of the content and meaning of patterns (themes) in the data, where ‘themes are abstract (and often fuzzy) constructs the investigators identify before, during, and after analysis (p. 780).

However, for this research five steps thematic analysis of Peterson et al. (1994) was used. The steps were as follows:

Searching or identifying for individual themes. The analysis began with the examination of transcribed utterances. The notion of searching for themes here involves coding. According to Taylor and Gibbs (2010), this coding process enables researchers quickly to retrieve and collect together all the text and other data that they have associated with some thematic idea so that they can be examined together and different cases can be compared in that respect. However, the overall purpose sought here is to identify the potential meanings of each utterance in the transcript and to determine the intensive relations, or potential implications of each utterance.

Developing each theme previously identified. In this stage, the logical relationships both within and between utterances were explored. Here, each of the themes identified was examined as to relationship between codes, between themes, and between different levels of themes.

Determining the significance of each theme. The step required to begin judging the relative significance of the themes identified. At this point the focus of attention shifted from the transcripts and towards the themes that were developing. After eliminating redundant observations, those remaining themes were grouped into preliminary conceptual categories.

Searching for oppositions among themes and thematic categories. Here texts were compared across transcripts and within category classes, and identifying the linkages across category classes and oppositions that were represented by themes within thematic categories. Oppositional principles, which represented conflict within ideology and constituted the choices people made concerning that conflict, were identified. Themes were defined as concepts that provided patterns with both a focus,

and nucleus around which the informants explained the essence of what was being sought in this research.

Searching for relationships among thematic categories and grouping related thematic categories in broader classes. After transforming the interview transcripts into a set of thematic hierarchy, analysts compared and contrasted the themes identified in each interview to determine those significant to the social group as a whole.

This technique is hierarchal in nature where units of texts were grouped according to the identified theme categories. Then, each category was further divided into subcategories. From this analytical process, all what was said by the participants was extracted verbatim and organized thematically, analyzed, and is discussed in chapter four. A good qualitative analysis is able to document its claim to reflect some of the truth of a phenomenon by reference to systematically gathered data (Fielding, 1993).

3.8. Trustworthiness of the Research Strategy

In order to ensure reliability in qualitative research, examination of trustworthiness is crucial (Golafshani, 2003, p. 602). However, Siegle (2002a) argued that qualitative researchers do not use the terms validity and reliability. Instead they are concerned about the trustworthiness of their research. Trustworthiness is defined as the conceptual soundness of the research results and is influenced by the notions of credibility, transferability, dependability and confirmability (Lincoln & Guba, 1985). The criteria are summarily presented below:

- Credibility, referring to the issue that inquirer ensures that the respondents' view fit with the inquirer's reconstruction and representation.
- Transferability, referring to the issue that the inquirer should provide the reader with sufficient case information so that s/he could make generalizations, in terms of case-to-case transfer.

- Dependability, referring to the issue that the inquirer should ensure that the research process is logical, traceable and documented.
- Confirmability, referring to the issue that data and interpretations are not figments⁶ of the inquirer's imagination.

Valid inquiry in any sphere must demonstrate its truth value, provide the basis for applying it and allow for external judgments to be made about the consistence of its procedures and the neutrality of its findings or decisions (Siegle, 2002b). Thus, the analysis of this study was confined within the context of the phenomenon being investigated using a defined analytical tools and objectivity was highly observed in order to avoid the personal biases of the researcher.

In addition, an audit trail which consisted of a detailed documentation of the methods and the collection and analysis of data was also maintained. As a result, an audit was also made in order to determine if conclusions, interpretations, and recommendations could be traced to their sources and if they were supported by the inquiry (Siegle, 2002b). This will be done by the researcher's supervisor and the panel of examiners.

3.9. Conclusion

This chapter outlined the methodology and the philosophical foundations of the study. It was grounded in an interpretivist perspective and utilized a qualitative methodology. A justification was provided explaining the purpose of adopting such research design. The data collection methods, sampling strategy, ethical considerations, data analysis and trustworthiness of the research strategy were discussed.

⁶ Figment is defined here as something invented, made up, or fabricated.

CHAPTER 4: DATA ANALYSIS AND DISCUSSIONS

This chapter is structured in two parts. The first part is the presentation and analysis of obtained data organized thematically and large part of the interviews were cited verbatim presenting the participants point of views on the topic being investigated. The second part is the discussion of the finding, which attempted to explain the emergence of those themes with reference to existing literature presented in Chapter 2.

4.1. Data Analysis

This section describes and explains each of the six themes that emerged from the data based on how the interviewees viewed the phenomenon being investigated: (1) drivers in CoPs' creation, (2) CoPs' conceptualization, (3) CoPs' structural dimension and forms of participations or memberships, (4) communication in CoPs, (5) CoPs' culture of learning, and (6) success and hindering factors in creating a culture of learning.

4.1.1. Drivers and Purposes of CoPs' Creation

There are several reasons why CoPs are built and for what reasons or purposes. Based on the interviewees' responses the following are the major reasons for the creation of DL CoPs: (1) building knowledge repositories, (2) building linkages, (3) common interests, (4) establishing a common understanding about DL concept, (5) supporting community of users, (6) knowledge/information sharing, (7) need for DL education and training, and (8) DL initiatives around EU countries.

One interviewee commented when asked about the drivers in building CoPs: "I belong to a virtual community where a group of experts continues to contribute to a

Wiki with the objectives of updating information and resources of common interest” [DLP6]. The objectives, however, aim on managing intellectual capital and intellectual assets, thereby, tacit knowledge is systematically captured, organized and explicitly recorded in the system. Here, in this case a Wiki is used. One interviewee also expressed that their CoPs were created purposely for sharing information; he noted, “we share links to conferences, links to relevant research findings of our research interests, and also about social issues...” [DLP2].

The results showed that CoPs are formed for collaborative purposes – linking individual members to resources or repositories of information either inside or outside the boundaries of their CoPs. Not only that but also linking them to other professionals having common interests and who want to share knowledge.

[...] I think that the drivers of the communities of practice are the common interest on a particular area...professional or theoretical studies. I mean it's not just connection of professional people but they have to have a common interest. [DLP3]

This is a clear indication that CoPs are community of people with common interests in particular domain of knowledge. There is a synergy among members to share their knowledge, tools and expertise either for professional development or for solving a particular issues or problems.

“...we share knowledge, try to solve international problems related to the practice of the profession, and we are working to realize common activities. [DLP6]

In general, I think the driving force behind CoPs is the need for information and other related resources including technologies and expertise. [DLP2]

[...] for example those who used DSpace or PEDORA have formed a community of practice where they collaboratively address problems and share their experiences in using the program [referring to the software]... [DLP3]

In addition, one interviewee illustrated why communities are built with the objectives of supporting community of users:

Let me take DROPAL for example... I belong to this community of practice because I participated in a project that uses DROPAL as a platform. So the purpose of this community of practice is twofold... actually one is to support the developers... software developers where they share ideas on how to develop the software. And the other purpose is to support the community of users. [DLP3]

This CoP seems to address issues related to the development of the software but also trying to address or support users' needs. As observed, there are several software that have been developed for building DL that are available for free and software developers have been establishing online communities that support the needs of the user community. However, some CoPs in the DL field exist because of the need to have a common understanding of what the DL concept meant to them as expressed by one interviewee.

...but the need actually in my opinion came because there are so many different understanding of the concept of digital libraries [...] if you think about digital libraries...then it seems to me that there was a need to find out somehow what the concept of digital libraries is... I think this is one of the drivers of CoPs creation. [DLP4]

More so, building such communities may somehow address this particular issue and to have a common definition of what the DL is. It has been noted that there are differing perspectives on the concept of DL among librarians, computer scientists, and communication experts. Each group had a different conceptualization of what DL is and this has created confusion among DL practitioners.

Some interviewees also stressed that creation of CoPs is basically for improving learning and research in the field of DLs as well as in addressing some needs, for instance, the need for DL education and training.

Learning by each other was the stimulus. At the beginning of digitization [initiatives], very few have had education and training but learning by doing and sharing experiences or good practices is important in a community of practice. [DLP6]

I think that our goal is to develop this digital library education master program... [DLP4]

However, in Europe, the creation of CoPs particularly in DL field is a by-product of European Commission's initiatives of building a digital Europe and the need to align their practices with the Commission as described below:

In my opinion, one important factor in creation of CoPs in DL is the European Commission digital library initiative... Therefore each country has to align their practices... apply those recommendations. Another factor is the constant need of sharing experiences and developing skills and abilities to learn, so far each European country has its own practices (approaches to) in DL field and new digital libraries initiatives need to link themselves with the most experienced ones. [DLP1]

The purpose is to protect and make available the most valuable items that belong to the corpora of national written heritage and the initiative [referring to the establishment of a CoP] came out as a result of the decision to submit the proposal of such a project to the National Science Foundation in my country...[DLP11]

The emergence of such CoPs in Europe evidently reflects the members' need to address issues pertaining to DL development and creating mechanisms to protect and preserve cultural heritage collections. Evidently, these CoPs have been built for the purpose of sharing information, efforts, and on what they describe, "shared practice of common practice" [DLP10]. Also, to work closely with different agencies in addressing emerging challenges and issues related to DL development in Europe.

4.1.2. CoPs Conceptualization

This section presents the interviewees' conceptualization what COPs are in terms of familiarity and on how they defined the concept. Other terms referring to CoPs that emerged from the interviews are also presented.

4.1.2.1. Defining CoPs

The interviewees were asked if they are familiar with the concept of CoPs or what does the term meant to them. Majority of interviewees have shown familiarity of what CoPs are. For instance, one interviewee defined CoPs as “group of people having the same professional interest that is joined together to share, understand and make use of the developments in a particular field” [DLP1]. Another interviewee expressed, “in relation to digital libraries it means different professional groups that are concerned with organization, maintenance and ways of using the DLs” [DLP11]. Collectively, the interviewees have defined CoPs as groups of people having the same professional interest in a common theme or domain, concerns, topics, projects or endeavours who are joined together to share, cooperate or collaborate, perform, understand and make use of the development in a particular field. The interviewees had provided a clear definition of what CoPs are. It also indicates the existence of more vibrant CoPs in the field of DL.

4.1.2.3. Variants: CoPs Differing Terms

The data analysis showed that there were varied understandings of what CoPs are. The following concepts emerged as variant terms for CoPs: (1) community of experts [DLP3], (2) a networking organization [DLP4]; (3) professional community [DLP5], (4) community of specialists [DLP5], (5) group of interests [DLP6], (6) community of interested people [DLP8], (7) community of exchange of ideas [DLP8], (8) a learning organization [DLP8], (9) community of a real practice [DLP8]. This implies that

CoPs are not called as that in various organizations. Summarily, the participants has been calling CoPs with different names and for them it is a group, a network and a community that embodies an assemblage of people having common interests on something as reiterated earlier.

4.1.3. CoPs' Structural Dimension

This section outlines the interviewees' rich descriptions on CoPs' structural dimension in terms of structural characteristics and forms of participations or memberships.

4.1.3.1. Structure

CoPs take a variety of forms – some are formal or informal, local or global, traditional or virtual, and practice-based or project-based and others. This categorization is described in details below.

4.1.3.1.1. Formal and Informal CoPs

The most common forms of CoPs can be categorized as formal and informal. When the interviewees were asked to describe the defining characteristics of their CoPs in terms of structure, two of them responded that their CoPs are formal.

It was formal because it is something instituted and it was recognized by the administration and we are allowed to attend meetings. In that sense, it is formal... [DLP12]

Yes, I think Europeana is now more a formal organization. It's a community of experts from information science, computer science... though they have formal regulations and even an office but it's a community of practice [...] [DLP3]

Formal CoPs are usually an organization-based instituted community while informal one is usually formed informally by a group of people either within or outside the boundaries of the formal organization. With this, seven interviewees expressed that they belong to an informal CoPs. Some of the answers are highlighted below:

But usually the communities of practice I belong to are *not hierarchical*. Yes, because they don't have...the rules are not formally established. People can participate and give ideas at a given time maybe coordinate something but this is not fixed. There is no boss in this communities of practice that I will obey... it's more on... I think flat... it's a network... [DLP3]

...it's difficult to explain but this is kind of common understanding... we even don't have any rules to follow in doing things... there are some kind of understanding...what we do just talk about issues or concerns very informally... [DLP4]

It can be seen here that CoPs' members are loosely cooperating, no hierarchy that defined their relationship, no rules that govern them and no fixed coordination among members but there is a common understanding. This further indicates that CoPs' members are working or interacting very informally. More so, it is the members' interest on a domain, topic or project that binds them together. However, some interviewees also claimed that they belong to both formal and informal CoPs. For instance, one interviewee described his CoPs hierarchically based on the structural relationship among members and the informalities of doing some tasks:

I think it is both... because if we take the formal aspect there is really the project description and there are responsible persons... there is a structure... there is the coordinator – the local coordinators and the administrative coordinator and this is the formal part... And besides this formal part we are working continuously not taking account the hierarchy of the project... so for me it's a very nice way to work because we know that there is a formal aspect, of course there is... but still we are working on a different tasks which are not formal. [DLP4]

4.1.3.1.2. Local and Global/International CoPs

Some interviewees also answered that their CoPs can be described as global or international ones based on the objectives for which these are formed and the membership is not limited to one particular country but can be international in scope. To illustrate, some answers of the interviewees' are highlighted below:

My CoPs are mostly related to the digital libraries field and represent communities in various parts of the world (UK, Southeast Europe) and one local community of libraries where sometimes DL topics are discussed. [DLP1]

It was a network of people from different countries around Europe working for several aims, one of this is preservation, and, that was more about a reference model for a digital library which is perhaps most important output of that project. But if this all serves as a project, all certainly helping to form a common understanding on what we are talking about in Europe and internationally. I think especially in Europe because they've been funded by the European Commission...[DLP8]

Furthermore, the findings illustrate that CoPs are not limited in terms of boundaries but can also exist in the global or international arena depending on the nature of the project and cooperation. For instance, Europeana Europe-wide communities of practice compose of over 180 heritage and knowledge organizations and IT experts. It is a mutually supportive community, sharing ideas, models and business opportunities and helping each other to maximize its impact and sustainability.

4.1.3.1.3. Practice-Based and Project-based CoPs

One interviewee commented that her CoPs are practice-based and an "interdisciplinary character is its main feature...". She adds; "we learn from each other since we come from different fields - LIS, linguistics, psychology, philosophy, medieval studies, etc." [DLP11]. It denotes the interdisciplinary nature of the DL

field and the establishment of CoPs in this regard is influencing common practice and understanding of the concepts of DL from different perspectives.

On the other hand, some interviewees claimed that they belong to project-based CoPs. These CoPs are formed as an offshoot of a particular project or projects and to illustrate this, some of the interviewees' answers are highlighted below:

I think, as I have said before that there are many different communities of practice to which I belong, or have belonged – some are linked to a particular project and I guess that most communities of practice in digital library are a bit like that. [DLP7]

I belong to a university project-based community of practice... we split the community into three different sub-communities: (1) tutorials, (2) system configuration, and (3) interface. In this case, I and my colleague are leading the system configuration group [DLP12]

Europeana, for instance, it is a project-based community made up of many different national libraries [...] until it became a formal group. I mean now that they have an office – more formal. This community of practice is made up of national libraries [...] I think this is also a community of practice in the area of research in digital libraries. [DLP3]

The establishment of these communities facilitates the exchange of ideas, standardizes practices, synergize the creativity of the members, creating opportunities to address project-related issues at the community level and advancing knowledge. Though at some point, some communities can also be categorized as both formal and international CoPs, for instance the case of Europeana and DILL Consortium.

4.1.3.1.4. Traditional and Virtual CoPs

CoPs also take the non-traditional form as a result of the rapidly changing technological environment. The Internet in particular made possible the emergence of the so-called virtual CoPs. Some of the interviewees had indicated that they belong to these communities and in most cases they are communicating virtually either through

online discussion groups [DLP1; DLP2, DLP3], mailing lists [DLP2; DLP7], video conferencing [DLP8] and others. Here, it is worth noting that technology or communication tools play a great role in making CoPs work in a virtual space.

However, one interviewee opined that, “there is no form of any online environment in our group... we do not employ Web 2.0 technology such as Google site and Skype...” [DLP5]. The interviewee has recognized the presence of Web 2.0 technology but their community does not use it to enhance interaction and communication among members in a virtual space. As noted, Web 2.0 technology is one of the emerging tools used by several CoPs which formed the so-called virtual communities of practice. These communities employ a range of communication media such as forums, discussion groups, mailing lists, blogs, wikis, podcasts, teleconferencing and other social networking tools.

4.1.3.3. Forms of Participation or Membership

This sub-section outlines some of the reasons or motivations and benefits for joining CoPs. It also presents the role played by the members within CoPs as well some of the reasons why other DL professionals are not interested in joining the communities.

4.1.3.3.1. Motivations for Joining CoPs

The interviewees were asked about their motivation in participating or joining CoPs. Based on the result of the study, the major reasons or motivations why they joined CoPs are as follows: (1) international exposure, (2) keeping abreast and updated with the field, (3) knowledge sharing and acquisition and (4) learning through collaboration.

One interviewee commented that he joined because of the innovative and international nature of the CoPs. He expressed, “I find the idea of this program great

and wonderful because it is in some degree innovative and important [...] then what I like very much is – it is an the international cooperation” [DLP10]. This also indicates that some CoPs are international in scope and its membership is not limited to one geographical area. He further illustrated, “in a meeting I meet people from Norway, from Estonia, from Croatia, from Spain, from Italy, so, it’s a wonderful and the international character of the program what I like most” [DLP10]. The interviewee clearly expresses his enthusiasm and eagerness to be part of the community of people who are similarly motivated to participate in such project.

As noted, the field of DL is greatly shaped by the rapid development of communication and information technology. Hence, DL technologies are changing the way how people work and on how libraries are distributing or delivering information to its stakeholders. For these reasons, keeping oneself abreast or updated with the field is crucial in developing new form of DL products and services. Some of the interviewees commented:

Digital library is comparatively new area and only a small group of people are interested in [...] keeping up-to-date with the current development and actively involved in the research community... [DLP7]

...as part of my job I tried to stay attune to news and ‘hottest’ discussions [about the] topics [referring to DL] [DLP1]

Unless one participates in CoPs, it is difficult to stay informed about current developments in one’s field and research interests. So the motivation in short is to get abreast on current developments. [DLP2]

On the other hand, some interviewees expressed the view that gaining or acquiring new knowledge have motivated them to join CoPs. It seems that some participants developed a sort of confidence in carrying out their duties and responsibilities as DL professionals. Knowledge sharing in some way fills in the knowledge gaps and provides opportunities for members to share something. For instance, one interviewee expressed that, “the fact that I can gain new information, find new challenges in my

field motivates me” [DLP1]. However, another interviewee commented that what motivates him was the idea of contributing something and to actively participate on discussions about relevant issues in the field of DL [DLP8]. Also, one interviewee expressed that she was stimulated and challenged in working with experts from other disciplines.

I am aware of the fact that DLs’ field has to be looked at from different perspectives and I want to learn from my colleagues from other fields and in some way help them to understand the nature of my field. Working with experts from different disciplines is stimulating and challenging. [DLP11]

The results of the study indicated that one of the motivations for joining CoPs was learning through collaboration. The interviewees also acknowledged that learning is not confined within the boundaries of personal learning sphere but rather within the boundaries of the CoPs. Learning with significant others – knowing or learning the different perspectives of DL through working collaboratively with others. This collaboration stimulates the creation of new knowledge and in expanding one’s learning sphere.

4.1.3.3.2. Benefits Gained in Joining CoPs

The interviewees were also asked if joining or participating in CoPs have benefited them and what kind of benefits do they get. From the responses, the benefits gained from joining CoPs are categorized into two: (1) personal/professional benefits and (2) organizational benefits. However, at personal/professional level, the benefits are a combination of the following: (1) gaining new knowledge and (2) building relationship, (3) keeping abreast on the current trends and development, and (4) professional development.

One interviewee claimed that “the experience of working in a group is the biggest benefit and to experience something new makes you learn something” [DLP12].

Similarly, other interviewees also expressed their views that they are able to share their understandings on a particular field, it helps them to become a better person and a better worker and provides them the opportunity of knowing other people.

The main benefit, of course, I know new people who are very active and whom I like very much and whom I would not know otherwise [DLP10].

...because this is something what I'm interested in ... this is where I can see the benefit of working with different people, from different countries... with different attitudes... with [the] possibility to share knowledge... share our understanding in our field... which is in our case again the digital libraries and the formal education... [DLP4]

Well as I told you the main gain of this experience was from an intellectual point of view, to work with a different background, having a different point of view... somehow it helps you, how to become a better person and a better worker in my field but its more useful not only to my job but to myself too. [DLP12]

However, other interviewees claimed that their participation in CoPs provide them the opportunity to get updated on the current trends and development in the field and therefore they gained new knowledge and they grow professionally. DLP2 commented that it provided him some resources such as research articles, project reports, facts and data. This indicates that CoPs are rich sources of information and in gaining new knowledge. One interviewee from Romania claimed that, "in terms of knowledge gained, I can say I did... the fact that I can gain new information, find new challenges in my field" [DLP1]. The field of DL is developing rapidly and one must keep updated in order not to be left behind on current development.

Yes, of course. I learn, for example, how to use TEI⁷ standards which I did not know before. I also learn that it is important to follow all new movements and trends since the DLs field is developing rapidly and one can't afford not to follow them. [DLP11]

⁷ Text Encoding Initiative

Yes, I have benefited. I could not have had the experience of all kind of digital libraries as I had [participated] in European and national group. [DLP6]

Professionally, so I'm a little bit aware now on the different aspects of digital libraries. This is the main benefit. [DLP10]

It is worth noting that participation in CoPs had provided many opportunities for members to grow professionally, to expand their knowledge networks, to get involved in discussions with fellow members and leading experts and even keeping current with the latest trends and innovative ideas in the field. Moreover, the organizations are also gaining some benefits from the stakeholder's experiences. This means that it enables organizations to align all organizational processes with the current practices in the field and also in implementing innovative developments. To illustrate comment from one interviewee is highlighted here:

I get confidence that the initiatives and processes in our library are moving in the right direction. I can share tips and best practices and get same from colleagues from other libraries. [DLP5]

4.1.3.3.3. Roles Played

It has been noted that CoPs are membership-based and there would not be CoPs without any members. Members of CoPs play a crucial role for its continuing existence. Thus, the participants were asked to describe their participation or involvement in CoPs and on what role did they play. Majority of the participants answered that they are playing the role of a member (9) and only few answered that they are playing the role of a community facilitator, builder, moderator and leader (3). For instance, one interviewee commented, "I am a member. In this community, I share my experiences related with the administration and management of online databases and resources" [DLP5]. Another interviewee claimed that he was a community builder,

By nature I am just sort of, who likes to initiate new things... keep things going or think of something new and move on to something new, then create a project from it and then move on to the next interesting and to stay there to keep something running but I try to think of a more innovative ideas more than to keep it, the existing idea running. [DLP8]

Structurally in terms of membership, CoPs take no formal structure and in some cases leaders/facilitators just emerged from the community based on the degree of their involvement or participation. However, the findings revealed that in terms of the degree of participation, some interviewees are claiming that they are active and sometimes they are passive members.

My role was/is a passive [member], meaning that I read most of their messages, when it is something very relevant to what I do at work... I forward the discussions to my colleagues and then we talk about that or if something new was brought up I tried to familiarize myself with the notion and have a good understanding of it. [DLP1]

Most of the time, I am a reader rather than a contributor but sometimes I also contribute to such discussions. [DLP2]

Based on the nature of my work as a consultant... I need to be connected to various networks or devote a portion of my time working with this sort of community of practice... I would say that I'm an active member in several of them. I'm not necessarily leading all of them but I think I'm having quite a significant let's say intellectual input into all of them... [DLP8]

The findings showed that the degree of participation depends on some factors such as the degree of interest on the topic, relevance of the information and its applicability to their work or projects that the members are involved in. In the case of active participation, the members are not contented on just reading messages or participating marginally but rather they are heavily involved in the discussions or in the activities of the communities. One interviewee shared his observation on the type of members CoPs have as described below:

The defining property or characteristic is that people are driven to actively participate... If you think, for instance, an email discussion list or a group in

some social networks...LinkedIn for example where professional groups including digital library has been created. What you have there are people who are quite, or silent, or just listening in, and never really, or hardly contributing to. Maybe there are people in communities of practice who are just following the whole thing...there are some who are talking and some just get being advised by people who communicate. It's the communication and the sharing of ideas that takes the world and the work forward...so, in a way, the community of practice is also being shaped by those people who are saying something... [DLP8]

The quotation above illustrates the importance of active participation that gives life to the community and in sustaining its continuing existence. Active members are shapers and movers of CoPs. They are the people who initiate discussions, facilitating knowledge sharing, exchanging best practices and maintaining the community processes.

4.1.3.3.4. Some Reasons Why Other DL Professionals are not Joining CoPs

The interviewees identified some of the reasons why other DL professionals are not actively joining and participating in CoPs. They said that they are not motivated to get involved, feel inferior, fear of losing their knowledge, have language limitations/problems, find COPs' membership not rewarding activity and has no time.

Two of the interviewees said that some "people do not want to get involved because they cannot find [any] motivation to know more" [DLP1] and for some, "... maybe because they are lazy, or they don't think they can take advantage of it... some people are not willing to learn – not willing to adapt change, afraid to have some difficulty or don't have the will to do certain tasks" [DLP12]. The following quotations seem to indicate that they do not find any motivation to get involved or they stick to their job and do not want to get updated on the current development in the field.

Culturally some professionals from smaller countries feel inferior compared to those practitioners in the bigger countries. Some participant when asked of the reason why

other DL professionals are not participating in CoPs because they feel that what they are doing in their respective countries (professional from small countries) are not innovative and not comparable to those initiatives in bigger countries. Somehow, this culturally imposed inferiority complex is affecting the professional outlook of some practitioners and to some degree depriving them on things that they ought to learn or know from their involvement in CoPs. There are a lot of innovative ideas that are just hidden in the minds of few individuals. The challenge here is how to correct this inferiority and to convince them to get involved. In some cases, “people need to be convinced to share and most of them fear to lose their knowledge if they communicate” [DLP6]. This is also another pathetic situation in which for some they feel of losing their intelligence by sharing their knowledge with others.

However, some participants commented that other reasons why they are not participating are connected with language skills. They found that language is a hindering factor in communicating with colleagues.

Then, of course, if you have a different understanding of the topic and it's quite difficult to speak in the same language...English language. This is probably difficult in connection with an international cooperation not only for digital library projects in particular. [DLP10]

I think one of these is language, language abilities. [...] I know a lot of people, who have lot of good ideas but who are really shy to share their ideas because they can't express themselves very well in other languages. I'm sure it also has, if you think in Europe... in the Mediterranean countries, the Romanic languages are Italian, Spanish, French...they are often not really proficient in English. And they just don't speak up because they don't feel comfortable in English. So, language is...it is an inhibitor. [DLP8]

Language is a fundamental element in communication but sometimes it is also an inhibitor for some reasons: the language used by the community is not the language of those who want to be part and these language differences are leading to diversification and miscommunication. So, the findings seem to indicate that

language plays a crucial role in facilitating communication and in fostering understanding among members of CoPs.

On the other hand, one interviewee commented that, "...one has to be really motivated on the topic and have ideas for doing the projects or have willingness to participate in projects that maybe don't give them a formal reward" [DLP3]. In this case, people may find their participation not a rewarding activity or they are just wasting their time as what some interviewees have shared:

The time you invest in CoPs is not paid and people are bind by contracts to spend their office time at work hence CoPs are not encouraged by most supervisors and bosses. [DLP2]

And, one big problem is... all persons participating are on some degree specialists in their own subject field and usually don't have so much time. For instance, if there is necessary to find a new time for meetings this is very difficult because it's merely impossible to get all people at the same time and so this is one problem. Another problem is coordination. This is very common on how we can synchronize all the activities as planned. [DLP10]

The results indicate that time is a major reason on why other DL professionals are not participating due to the nature and demand from their respective jobs and with that they don't find time for involvement. They are too busy and CoPs' membership demands some set of time and interest in the domain.

4.1.4. Communication and Interaction Mode in CoPs

In CoPs some communication and interaction takes place in the physical world and some in the virtual space. Thus, the participants were asked about their preferences in communicating within their communities either using face-to-face or online/virtual communication mode. The results are presented below.

Only three interviewees answered that they prefer face-to-face communication more than virtual and they valued the physical presence of the person.

[I prefer] face-to-face of course because the virtual for example can't really put people close to each other. It's very good just to exchange information... but the main gain – the experience gained and the presence of the person is very important. [DLP12]

You are becoming familiar with others while an important breakthrough was attained while sitting in the same room. We communicate via conference system, it's not as effective thing as we would communicate face-to-face... much of the communication and interaction takes place informally having a cup of coffee together, having common dinner in the evening and so on.... I think, this is probably one of the most important aspects that you cannot replace by means of computer and any communication tool. So, I think this one is the most important. [DLP10]

However, a moderate number of interviewees claimed that they prefer to communicate virtually or online. It was also found that some CoPs have online communication platforms that facilitate communication or interaction among their members.

We are sharing the common platform, we are using the virtual learning environment IVA and for our community of practice...it means that some of our documents are [deposited] there... ...so it also helps us to use it as a repository of the business documents... [DLP4]

We use Wiki... for updating information and resources of common interest. [DLP6]

Other reasons, however, are related to economic and geographic limitations. One interviewee commented that he prefers to have online or virtual interaction because for him travelling from country to another is costly and consume much time [DLP2]. Also, another participant claimed that he finds working through virtual channels as a very productive one:

Most of the interactions these days are virtual... I find working through virtual channels can be very productive. I have some colleagues I work with for five years but we haven't met face-to-face... I've seen them and communicating with them via Skype... Our country is more at the outskirts of Europe, so to travel from here usually takes quite a long time, so if you are busy; it is much easier to participate in something without having to leave in your office... It doesn't mean that face-to-face doesn't work, but I know that some people don't like to talk over Skype or things like that or they didn't feel that it's getting them anywhere. I'm not one of these. I think that you can actually work with virtual channels. [DLP8]

The rest of the interviewees indicated that they prefer both communication modes, communicating with colleagues either physically or virtually. Their reasons for having both modes are: (1) in terms of physical/face-to-face meeting – they valued the significance of physical presence, activities are done in most cases in physical world and becoming familiar with each other; (2) in terms of virtual communication – to make cooperation better with stable information infrastructure, for cost savings, for saving time, interactions takes place at anytime, and stakeholders need not to travel for face-to-face interactions.. Some comments of the interviewees' are highlighted below:

Personally, I like virtual, but some of my colleagues do not. I have to admit that face-to-face is still needed and most of the activities to be done are realized in presence. [DLP6]

I prefer online communication with the international CoPs, due to the geographical location... with the local CoPs we communicate virtually and also in person, during conferences and workshops. [DLP1]

I prefer both of them... I think that in communication with colleagues – face-to-face contact provides a basis for greater trust. However, it is not difficult to meet with other colleagues because our country is a small country and we meet regularly during professional meetings. Of course, this is possible in the case when they want actively participate in professional community. [DLP5]

Of course in some level you can also make cooperation easier by means of a more stable information technology. For instance, from now we are on the stage to finish the proposal and how can we organize that everybody can

make changes so that these changes are incorporated... so we created some kind of cooperation tool where we really can work together at the same track without losing any changes, to some degree also taking some technological solutions we can try to see for ourselves. To some degree also information technology makes cooperation easier. As to my preference, of course, face-to-face, but it depends. In an international level if you meet all the time face-to-face... I think first of all it is costly and secondly it takes a lot of time. So you have to do a combination of both but my preference is face to face, but in order to save time and in order save cost we have to find the right balance. [DLP10]

The findings of the study illustrate the significant contribution of communication in facilitating interaction within the community. Majority of the participants have acknowledged the significance of face-to-face and virtual communication. The result seems to imply that physical presence is still needed and CoPs have to integrate technology-mediated communications to enhance or facilitate the exchange of ideas and information. Finding balance between both communication modes is crucial in nurturing a knowledge sharing environment and integrating them will define the new communication process within and beyond the boundaries of CoPs.

4.1.5. CoPs' Culture of Learning

The key concepts that interviewees identified as factors that may inhibit a culture of learning in CoPs are presented here. The result are presented in the following order: (1) CoPs as learning organization's culture of learning, (2) issues and problems addressed by CoPs; (3) learning climate; (4) CoPs' practices that foster a culture of learning – knowledge sharing culture, collaborative learning culture, culture of knowledge transfer and culture of innovation.

4.1.5.1. CoPs as Learning Organizations

The interviewees were asked: "Given the notion of community of practice as a learning organization, how can you characterize or describe your community of

practice's culture of learning?" They indicated that it provides many learning opportunities through sharing of documents, knowledge, understanding and meaning. Thus, CoPs enable them to apply whatever learning they need to have in their workplaces.

My CoP can be viewed as a learning organization and therefore I can say that there is an implied culture of learning. Documents might be shared in that space but I think it is the responsibility of the participant to read/make use of that, as there is no evaluation for that learning process. To some extent this might reflect in the way the participant applies that to the working environment. [DLP1]

I think it is related to sharing... sharing of meanings... probably sharing of understanding on what could be important for all of us... [DLP4]

Since this is a self-organized group so we share knowledge in multiple ways. [DLP5]

However, one interviewee commented that, "knowledge is built inside the community... since members of communities of practice share information and best practices, thus, they create new knowledge by themselves" [DLP3]. Hence, CoPs are learning organizations that create or build knowledge within its boundaries.

The findings indicate that their CoPs have a culture that encourages knowledge sharing and transmission of knowledge to workplace environment. Knowledge sharing can also be seen as a social process that entails exchange of ideas, experiences, meaning, and expertise within the context of CoPs. It creates a knowledge network.

4.1.5.2. Issues and Problems Being Addressed by CoPs

This sub-section presents some of the issues or problems that CoPs are trying to address. The findings revealed that DL CoPs tackled many issues in DL field. Two

interviewees indicated that their CoPs are focusing on specific issues pertaining to DL initiatives, structure, core competencies, copyright issues, and others. For example, the interviewees noted:

The discussion topics were related to national initiatives for digital libraries, the orphan works issue was analyzed and discussed, some of them were East European events and news, core competencies in digital humanities, online environments' structure, digital reading, digital ecosystems... [DLP1]

The IPR⁸ issue, with related opportunity of promoting OA⁹; the absence of financial support or/of a clear politicians administrators strategy for DL; interoperability issues; capabilities of using DL and of course education for DL. [DLP6]

Some CoPs are focusing on developing projects, for instance on DL education, while others are developing new initiatives in line with the European Commission's DL agenda.

Well, if I'm thinking of issues, for me it is two things... one thing is what we are doing right now is to develop this master program further to the doctoral program... Other thing is based on our communities output as a master course; we are also trying to renew this programme that means we are somehow focusing again to the master level. [DLP4]

So, when you do things in Europe, you're always bound to look at what is happening in European level, in other words what the European Commission is doing - what sort of projects it is funding. So, in digital cultural heritage area, particularly in digital preservation where we always have to do something... What are the interests of my own organization and its priorities or preferences? What the European Commission is expecting from us. So, what we are trying to do, we must relate it to what is happening at European level. [DLP8]

Other emerging issue that CoPs are trying to address is on DL interoperability issues due to various metadata standard adapted by libraries. So, there is no common standard being used. One interviewee commented, "I think it's the problem of

⁸ Intellectual Property Rights

⁹ Open Access

standards... we should use the same international standards... so, we have to arrive at the consensus of what standard [we] are going to use” [DLP9]. This is also supported by the other interviewee:

Standardization issues... I think Europeana... their main focus is on the applications of semantic web on digital libraries, digitization projects and metadata standards for digital libraries, and they created metadata standards for digital objects coming from different national libraries. [DLP3]

Moreover, other interviewees have claimed that the issues or problems that their communities are addressing are: technology development, technology application and innovation.

[...] development of information and communication technology, preservation of our cultural and historical heritage resources... integration. [DLP5]

But most of the time these are things that have more to do with applying new types of technology or new ways or methods of organizing informational things like that. Some years ago you could think about folksonomy, tagging, clouds and lots of things and serious alternatives to old traditional structure metadata, catalogue approach. These seem like necessarily useful and interesting way of organizing description although there are lots of it, people looking in that area and not necessarily to replace the catalogues but to augment them... [DLP8]

Well, for instance, in the DROPAL community of practice... some people have focus on the applications of content management systems to libraries. And so there are some groups in developing metadata and there is some discussion on adopt the content management system for libraries. Yes, we even created some groups for applications in adopting topic maps to digital libraries... [DLP3]

The findings indicate that the ultimate purpose of CoPs is to address issues or problems in a particular domain. People are participating in these communities in the hope of learning collaboratively, acquiring new knowledge, finding solutions and even developing new applications or technologies to enhance existing system or processes.

4.1.5.3. Modes of Learning in CoPs

This section presents the different modes of learning in CoPs. Two ways of learning were mentioned by interviewees: formal learning and informal learning.

4.1.5.3.1. Formal Learning

In terms of formal learning, the findings revealed that it includes joint summer schools, workshops, mentorships, conferences and formal meetings. They also indicated that these activities are dependent on the availability of the budget and usually done once a year.

Yes, they have a mentorship program. Then you can register and then they assign you a mentor...like a guide. [DLP3]

Every year we meet and we are organizing a joint-summer school. [DLP5].

These depend mostly upon the availability of funds, but we tend to organize workshops to get more knowledge or skills when needed... [DLP11]

From these interviews, it appeared that formal learning is important in legitimizing the culture of learning within CoPs and in strengthening the culture of knowledge sharing among its members.

4.1.5.3.2. Informal Learning

Learning in CoPs usually occurs informally and primarily through information sharing, e-mail discussion lists, exchanging best practices, study tours, online discussions as well as face-to-face discussions.

E-mail discussion lists... The e-mail discussion lists intended as a forum for librarians and for database administrators – are essential tools for communication and dissemination of information and experiences... [DLP5]

[...] Exchanging of experiences and study tours in neighbouring countries. [DLP5]

I know from the community of practice I belong to...there are different kinds of opportunities for learning. May I say one which is... you ask something and somebody would answer. And the other one is recommendations. They recommend something...oh, look at this resource or look at this project... things like this. [DLP3]

So, it's actually some kind of mix of different activities like sharing best practices, having face-to-face discussions on some of development... some learning or we are also working using our mailing list...[DLP4]

The underlying drivers behind this informal learning are the members' desire to get updated with the current development in the field, acquiring new knowledge and developing their skills or competencies required at work.

4.1.5.4. Learning Climate in CoPs

The interviewees were asked to describe the learning climate of their CoPs. They indicated that there is a positive, friendly, collaborative, very accessible, open atmosphere, a relaxed and not a competitive environment.

[...] positive, friendly and collaborative, as far as I can tell. Mostly librarians are open and friendly as you may know... [DLP2]

Has a relaxed learning environment. It's not competitive. Usually in a formal academic environment you have to compete for grades or for passing the requirements...but in a community of practice you don't have to feel any task. I mean you do but it's not mandatory and you don't get formal grades, things like this, so learning is open. [DLP3]

Generally, there's an opportunity to learn. [DLP7]

I think it's the mode of collaboration or a discussion is most important... a fruitful discussion. [DLP8]

One interviewee, however, commented that the climate is going better after a certain period when people have learnt how to work together to get best of the teamwork.

The findings indicated that the creation of a good learning climate in CoPs is a critical factor that affects all the learning process. Hence, having good learning climate in CoPs provide a positive atmosphere wherein all members can feel a sense of belongingness, respected, supported, appreciated and valued. It is also grounded on a strong knowledge sharing culture that encourages collaborative learning.

4.1.5.5. CoPs' Practices that Foster a Learning Culture

This sub-section presents the interview results which indicate how CoPs foster a culture of learning such as knowledge sharing, collaborative learning, knowledge transfer and innovation.

4.1.5.5.1. Knowledge Sharing Culture

The interviewees described their knowledge sharing behaviour which fosters a culture of learning. One interviewee found that knowledge sharing behaviour is important because it creates a good spirit or practice of open sharing.

I think the most important is that there's a common interest and as I said before open climate for knowledge sharing. Very important is that it must be positively favoured by everybody to bring in knowledge, so yes, what else. It makes things easier going, if there are few members of the community who are very hectic... somehow create a good spirit, or a good practice of open sharing. [DLP10]

Some interviewees indicated that “what defines CoPs is the presence of high level professionals that are willing to share their experience” [DLP1] and it provide an added value to community life – a sense of belongingness.

Knowledge sharing is at the core of community of practice – when everybody puts their own skills and experience together on the ground, that's winning point and added value of the group project and in the community. I don't really believe in training I believe in working together. I believe in the community and the group work as a way to achieve result... so in some way, I mean you learn while doing. [DLP12]

Two interviewees gave importance on documenting experiences and best practices and suggested to develop knowledge-learning models. They commented that CoPs should documents their experiences and learning outcomes. Here, the notion of documenting or converting tacit knowledge into explicit knowledge is given importance in the context of learning in CoPs. One interviewee commented, “if nobody will document this, it will be lost and difficult to retrieve again in the future” [DLP3].

It can be seen here that knowledge sharing behaviour reflects a culture that is grounded on the attitudes of the members, to their actions (e.g. sharing information and best practices) and to their motivations in sharing their knowledge to the community. This behaviour, however, may facilitate the development of a practice that reflects a vibrant culture of learning. Also, this behaviour relates to one of the critical success factors in building a culture of learning in CoPs found in sub-section 4.1.6.1.1.

4.1.5.5.2. Collaborative Culture

The interviewees were also asked if CoPs facilitate collaboration that may facilitate to the creation of a culture of learning. “CoPs are one of the many ways of getting together [all] professionals to share information, exchange best practice... it could be used as a social space” [DLP2]. In addition, one interviewee opined that what brought CoPs’ members together is their interest on common activities and on gaining new learning experience through mutual engagement.

CoP can facilitate collaboration via shared values and goals/objectives. CoP members are brought together by common activities and by what they have learned through their mutual engagement in these activities – our DILL consortia as CoP make us learn not only from us but from our students as well and collaboration and knowledge transfer is always there. Learning in the case of CoP in my opinion is based on collaboration and knowledge

transfer, learning is always involved if we are talking about something social like CoP... Learning is more like modifying existing knowledge and CoP are based on common understanding of something, shared beliefs, etc. [DLP4]

Another interviewee commented that “sharing is the biggest knowledge or learning enabler wherein people are working together, learn from each other” [DLP12]. Moreover, one interviewee shared some of the challenges of collaboration within CoPs. He stresses that working on particular issue, development or something will always generate a sort of positive discussion but sometime will turn to a negative side due to conflict of interests. In fact, DL CoPs are composed of different people who come from different backgrounds, fields or disciplines. For instance, as illustrated by one interviewee, they are looking at same issue or new development but because they come from different background, so, they have a very different ways of seeing it. In some cases, it creates conflicts or disagreements among CoPs’ members. Some interviewees have acknowledged that conflicts are quite common but what is essential that CoPs are able to generate discussion on relevant issues, facilitate understanding and provide avenues for addressing those issues collaboratively.

Furthermore, the findings of the study revealed that CoPs is a catalyst of turning knowledge into learning through collaboration. This practice is characterized by active collaboration, collective learning and shared practice.

4.1.5.5.3. Culture of Knowledge Transfer

Knowledge transfer is an articulation on how knowledge are captured, acquired, disseminated and transferred within the context of CoPs. In this case, the participants were asked to describe on how CoPs facilitate knowledge transfer. Majority of the interviewees believed that knowledge is embedded in all CoPs’ activities and practices, on individuals and in the community itself. To highlight how knowledge is being transferred, answer of one interviewee is fully quoted:

To illustrate how knowledge transfer takes place, you need people who feel to conceptualize the problems and the ideas for themselves. You can't just share knowledge without looking at who exactly is receiving. So, knowledge transfer in my understanding happens between people, one who knows more about something and the other who wants to know more about one thing. Knowledge transfers probably happen more easily if you discuss things in a more theoretical method perhaps... So, I guess it's more depending on a topic that the community is circling around. I think there has to be a discussion...a positive discussion not one way communication or a simple knowledge sharing of this kind that allows knowledge transfer to happen but have to move forward on generating new ideas. [DLP8]

It can be seen here that knowledge transfer is not an end to itself but rather it is a beginning on generating new ideas, creation or invention of something (DL software, technology) that be considered as an innovation. Knowledge transfer can be categorized as learning from the experiences of others.

4.1.5.5.4. Culture of Innovation

The interviewees have acknowledged that CoPs have a potential contribution in fostering innovation in DLs. This was asked for the purpose of eliciting ideas from the participants on the emergence of the culture of innovation within CoPs.

I believe that CoPs have a great potential in fostering innovation, but in the end it all resumes to the ability of others (high level management) to recognize that innovation and give the green line to implement. [DLP1]

Because I think we are doing something which is quite innovative...even if I take it to formal point of view there are no so many special programs devoted to the digital libraries all over the world and also in Europe... so this is something what we can say the passion for innovation of all the community members who are working on it... so it doesn't mean that they cannot see my everyday work also some challenges related to do new things.. but this is kind of synergy where people who want to do something... doing it together.. [DLP4]

CoPs create an environment where innovations can thrive in response to the emerging development in DL field and on sustaining competitive advantage. For instance, the case of Europeana, they are developing innovative services by leveraging knowledge. One interviewee commented,

This is very clear in the case of Europeana. It's the most innovative service in the digital library field. They are using all the knowledge from all the disciplines to be put at the service of digital libraries. So, it's innovative in the sense that they are creating new knowledge through discussions, meetings and learning together. [DLP3]

As noted, Europeana builds on the experience of national, research and university libraries working under one umbrella, to make their materials available via the Europeana digital library. It is now one of the innovative works in the field of DL particularly in Europe.

While, another interviewee stressed that their CoP is trying to inculcate a culture of innovation through development of new applications and software prototypes. For instance, one interviewee shared his experience on how their CoP has been built for the purpose of developing software prototype for digital preservation. He stressed that they were successful because they involved all members of the community who are composed of practitioners from different memory institutions. He further claimed that their community was a community of a real practice.

4.1.6. Success and Hindering Factors in Creating a Culture of Learning

This sub-section presents the finding of the study on the critical success and hindering factors in creating a culture of learning in CoPs.

4.1.6.1. Critical Success Factors

The result indicate that there are three emerging success factors in creating a learning culture in CoPs such as human behaviour-related, organizational and technological factors respectively.

4.1.6.1.1. Human Behaviour-Related Factors

The human behaviour-related factors include: attitude towards knowledge sharing such as motivation, open-mindedness and willingness to share, trust and professionalism. It is quite obvious that the interviewees strongly acknowledge the value of attitudes towards knowledge sharing as describe below.

One interviewee claimed that motivation is a critical factor that drives them to learn in an informal environment. He further stressed that as oppose to formal learning CoPs are composed of people who have interests on a topic and they do not have any formal ties and people are sharing information, best practices and experiences very informally. Other interviewees find open-mindedness and willingness to share as significant factors. Some of the comments of the interviewees are highlighted below:

Probably... the willingness to do what we are doing... readiness to learn from each other... so, this is not something... how to say an ad hoc activity that we need to do it in certain time but this is something that is part of our professional life. [DLP4]

The willingness to share knowledge to each other is very important. This means that sharing of knowledge has to be initiated by the members of the communities... they must be active and willing to share their knowledge. [DLP10]

I think that people must be willing to share information and gather information and to accept different point of view... one must be open-minded. It is attitude that counts... [DLP12]

Lastly, some of the interviewees commented that they find trust and professionalism as important factors.

Well, I think it has to be with the fact that communities of practice are self-organizing groups. So, you have to trust others. I mean that communities of practice should involve trust in the community life. In that sense, knowledge is not given, is not ready made that you deal it with others. If you think this, then you have to trust the people [...] Usually, in communities of practice people are just cooperating and then you trust each other. [DLP3]

I think the most important thing is trust... and also professionalism... if I could say in that way... meaning that people are acting as professionals... meaning the people who are part of this community are doing their best as professionals to add something to this common or shared values – what would be for us the digital library education. Why trust? As I already mentioned we are coming from different culture and different universities having different backgrounds... from different countries so it means we need to trust each other that what I or my colleague is bringing there is acceptable because we are part of the same community... [DLP4]

The results indicated the significance of trust and professionalism in building a culture of learning in CoPs. As noted, trust is the foundation in building personal or professional relationships among members. However, the concept of trust have been deem necessary for professional practice and it is also the foundation of professionalism. Professionalism denotes that members are credible and reliable or can be trusted on whatever information they shared in the community.

4.1.6.1.2. Organizational Factor

The finding of the study revealed that the following organizational factors are critical in building a culture of learning: shared vision or values, sense of belongingness and leadership. Shared vision or values is an important factor for building shared meaning and fostering shared direction in achieving the purpose of CoPs. In some way it is the driving force that binds individuals in common space for collaborative learning.

CoP can facilitate collaboration via shared values and goals/objectives. CoP members are brought together by common activities and by what they have learned through their mutual engagement in these activities. DLP5

...also very important thing is the goal that to be fulfilled... this is the mission of the community. We want to have a new program and we want to reach this goal and this is very important. [DLP10]

Some interviewees commented that they find sense of belonging is an important factor. Here, they put emphasis on the feeling that they are part of the community and their membership or engagement in CoPs was an indicator of belongingness. They also claimed that a leader plays an important role in shaping the culture of learning within CoPs. One interviewee commented, “a CoP leader should emerge from the group to start new discussions, introduce new ways of doing research and takes the responsibility to initiate action” [DLP2]. While, other interviewees are claiming that leadership skills or the capabilities of the leaders are critical to community life. The results indicated that a leader has a significant impact on the lives of the community members. Here, they put emphasis on the qualities of a leader – the one who inspires and influences people to accomplish their goals, motivates them to pursue actions and shape their CoPs’ learning culture.

4.1.6.1.3. Technological Factor

Technology has a positive impact on the way how knowledge is disseminated, shared, and acquired. Therefore, many interviewees referred to technology as an important factor within CoPs. One interviewee noted, “To some degree it makes cooperation easier” [DLP10]. It has been noted, that technology facilitates the transmission of information and makes communication faster or instantaneously. This is also related to sub-sections 4.1.3.1.4 and 4.1.4.

4.1.6.2. Barriers and Hindering Factors

The following are the barriers and hindering factors in creating a culture of learning in CoPs: attitude towards knowledge sharing, culture-related challenges, language limitation, and time. In terms of attitude towards knowledge sharing, the participants have seen that monopoly in information or knowledge sharing and passive behaviour among members are significant factors.

There are some LinkedIn groups in digital library area or not necessarily but there is only one or two people saying something and everyone else has thought arguing with them but they are not responding to them or if somebody believes very firmly that they are the smartest persons on earth. There's not much point in arguing. I think it's the mode of collaboration or a discussion is most important... a fruitful discussion. [DLP8]

I think for one of our big barriers is that only a few or one member is willing to bring things in the community and most of the other members are not proactive... So from this perspective that's greatest barrier that actually information is given or shared only by one or by few community members and then others are very passive. So, that you have programs that the active members have feeling that the others are profiting from their knowledge and they don't give anything back. [DLP10]

Another obvious barriers according to the interviewees are culture-related challenges that greatly affect how knowledge sharing takes place, thus, learning too. For instance, some interviewees have a feeling of cultural inferiority which makes them not open or a bit aloft from others and also they are not culturally closed. In the case of international CoPs, the major challenge is they are having different understanding on doing business in which creates cultural gap. One interviewee commented,

It also make me more think about the intercultural communication aspects...even if we have members from two Nordic countries and advanced countries from South Europe but still we have a kind of different understanding of doing business... Well, again...probably the cultural difference aspect might be one of those problems... and probably because from the very beginning it should be very clear where is the decision... how the decision should be made according to the common understanding of some problems ... so where is this local and global cooperation goes... so I

think we need to explain a lot of things... we have had a lot of explanations why we are doing that way or another way... [DLP4]

Also, five of the interviewees stressed that language is a major barrier for learning culture to thrive in the community. Language is the medium for communicating within and beyond the boundaries of the community and a tool for knowledge sharing. However, if one does not know the language of the community, so, it will turn-out to be a barrier.

Yes, because I personally know someone here in Spain... an expert in the field but she doesn't want to participate in community of practice [...] because her English is not so good. [...] and she never communicates with people who are doing much in the community. [...] so this is one factor. [DLP3]

What else, of course the language use in communication, if participants speak different languages not only with regards to the usage of English language but also on technical terms and on the different way of expressing themselves. Like for instance... a computer scientist who is responsible for the technical aspects of DL uses other terms while librarians or those from information science also uses other terms that pertain to the same thing... [DLP10]

Language barrier for me is a very critical, if I speak to someone I did not understand everything, then I would be very frustrated and what I am saying is not clear, I feel it's very useless. One barrier also is having different level of backgrounds either culturally and technically. [DLP12]

Lastly, some of the interviewees expressed that time are also a barrier on building a culture of learning. One interviewee commented, "...maybe also time... that the participating members are so much involved in routine work that they don't have time to actively participate [DLP10]. The result indicated that lack of time for community activities inhibits learning. Hence, time is critical for one's participation in CoPs and the amount of time spent in the community influence the amount of gained knowledge.

4.2. Discussion

This section discusses the data presented in the first part of this chapter in relation to existing literature presented in Chapter 2. The flow of the discussion is presented as follows: (1) drivers and purpose of CoPs' creation, (2) CoPs' conceptualization, (3) CoPs' structural dimension, (4) conceptual model of DL CoPs' learning culture, (5) success and hindering factors in creating a culture of learning.

4.2.1. Drivers and Reasons for CoPs' Creation

The participants of this study indicated several reasons and drivers of the creation of CoPs in the field of DL. It appeared that the major driver was based on their interests on a particular domain of knowledge. However, other reasons identified were also significant, like: due to ongoing DL initiatives around EU countries, need for DL education and training, establishing common understanding about DL concept, building linkages, supporting community of users, knowledge/information sharing and building knowledge repositories. The results further indicated that CoPs were not built for nothing but for a purpose. It is worth noting, that the interviewees were fully aware of the purposes for which their communities were being established as they indicated. Though some of the literature cited in Chapter 2 (see sub-section 2.2.1, section 2.3) does not explicitly provide the reasons on why CoPs are being established. However, several authors only provide a conceptual definition of what CoPs are and from which one can deduce the reasons why they are created.

4.2.2. CoPs' Conceptualization

Majority of interviewees showed immense familiarity of the concept of CoPs. Collectively, they defined CoPs as a group of people having the same professional interest in a common theme or domain, concern, topic, project or endeavour; they joined together to share, cooperate or collaborate, perform, understand and make use

of the development opportunities in a particular field. The interviewees provided a clear definition of what CoPs are. The given definitions are almost similar to the definitions provided by the following experts, namely: Wenger, McDermott, and Snyder (2002), MaKinster and Scheckler (2004), Lessser and Stork (2001), Barab et al. (2004), Hara (2007) and others (see sub-section 2.2.1).

On the other hand, the data also revealed several alternative terms for CoPs, like: (1) community of experts, (2) a networking organization, (3) professional community, (4) community of specialists, (5) group of interests, (6) community of interested people, (7) community of exchange of ideas, (8) a learning organization, and (9) community of a real practice. The results of the study imply that interviewees have been calling CoPs with several names and such variants emerged because they find CoPs have a resemblance of a formal or professional communities or societies. Wenger (2006) has acknowledged that CoPs are also known under various names, such as learning networks, thematic groups, or tech clubs. The findings are also supported by Maier (2007) that the term community has been widely used and accepted to describe a form of organizational entity which propagated as a premium instrument for knowledge sharing and management.

4.2.3. CoPs' Structural Dimension

This section presents the discussion on the interviewees' rich description on CoPs' structural dimension in terms of structural characteristics and forms of participations or memberships. Also, some reasons on why other DL professionals are not joining or participating in CoPs are presented.

4.2.3.1. Structure

Based on the findings of the study, CoPs take a variety of forms. Some of the emerging forms of CoPs in DL field include: formal, informal, global or international,

practice-based, project-based and virtual CoPs. So, it indicates that CoPs have no definite structure. This confirms what Wenger, McDermott and Snyder (2002) have conceptualized that CoPs take a variety of forms but they share a basic structure. It is a unique combination of three fundamental elements: a domain of knowledge; a community of people; and the shared practice (see sub-section 2.2.2).

4.2.3.2. Forms of Participation or Membership

According to Gray (2004) the motivations to participate provide an opportunity to learn new skills and work practices, means of social and professional connection to colleagues, and a mechanism to reduce the isolation that was inherent in the job function and geographical location (see section 2.2.3.1). In a similar way, the participants of this study expressed the major reasons or motivations why they joined CoPs. These include: (1) international exposure, (2) keeping abreast/updated in the field, (3) knowledge sharing and acquisition, and (4) learning through collaboration. The results seemed to reflect that learning with significant others – this collaboration stimulates the creation of new knowledge and in expanding one’s learning sphere.

In terms of the benefits gained from joining CoPs, the interviewees indicated that they were profiting from it both at personal/professional level and at organizational level. Personal/professional benefits included: (1) gaining new knowledge and (2) building relationship, (3) keeping abreast on the current trends and development, and (4) professional development. Likewise, the organizations are also benefiting from the stakeholder’s experience in which the practical knowledge they gained are applied to the workplace environment. Indeed, participation in CoPs has brought several benefits to individuals as well as to the organization. The results also mirrored on what has been described in the literature, for example, Cambridge, Kaplan and Suter (2005) and Fontaine and Millen (2002) studies (see section 2.2.3.1).

In addition, the findings also revealed that majority of the interviewees are playing the role of a member and only few are playing the role of a community facilitator, builder, moderator or leader. Though the result reflected a reality that not all were playing the role of a leader but somehow in such interaction a leader would emerge. In terms of the degree of participation, some members were claiming that they were active and sometimes passive. It is worth noting that active members were shapers and movers of CoPs – they were the people who initiated discussions, facilitated knowledge sharing and were exchanging best practices. The findings are also related to what Ardichvili, Page and Wentling (2003) have found that one of the critical factors determining CoPs' success is its members' motivation to actively participate in community knowledge generation and sharing activities.

The findings of the study also revealed the major reasons of non-participation in CoPs as follows: they were not motivated to get involved, feel inferior, fear of losing their knowledge, language limitation or problems, finding CoPs' membership not rewarding activity and having no time. This corroborates to the findings of the studies of Wasko and Faraj (2000) and Ardichvili et al. (2003). However, interviewees also found that language is a major barrier, particularly English language. Understandably, language is the major inhibitor considering that not all members of the community are English speakers and also coupled with cultural inferiority complex. Star, Bowker and Neumann (2003) and Van House (2003) explicitly reiterated that language shape their members' understandings and even identity. It can be seen here that one of the major challenge is overcoming the language barrier. One of the suggested solutions is to have multilingual communication platforms which allow the members to communicate using their own language and key messages will then be translated into different languages.

4.2.4. Conceptual Model of DL CoPs' Culture of Learning

The information derived from thematic analysis was useful for developing a conceptual model on how learning culture is formed in DL CoPs in Europe. Figure 1 presents the conceptual model of DL CoPs' learning culture. Since, learning culture is central to this study, thus, it is placed in the centre of the model. The process begins when there is an expressed need, concern, issue and/or problem that the community has to address. Then, it will be communicated to the community either through face-to-face or virtual/online interaction modes. The community will then address the issue or problem either formally or informally (learning modes). This formal or informal interaction is characterized by the following four distinct cultures of practices that foster a culture of learning: knowledge sharing culture, culture of collaboration, knowledge transfer culture and the culture of innovation.

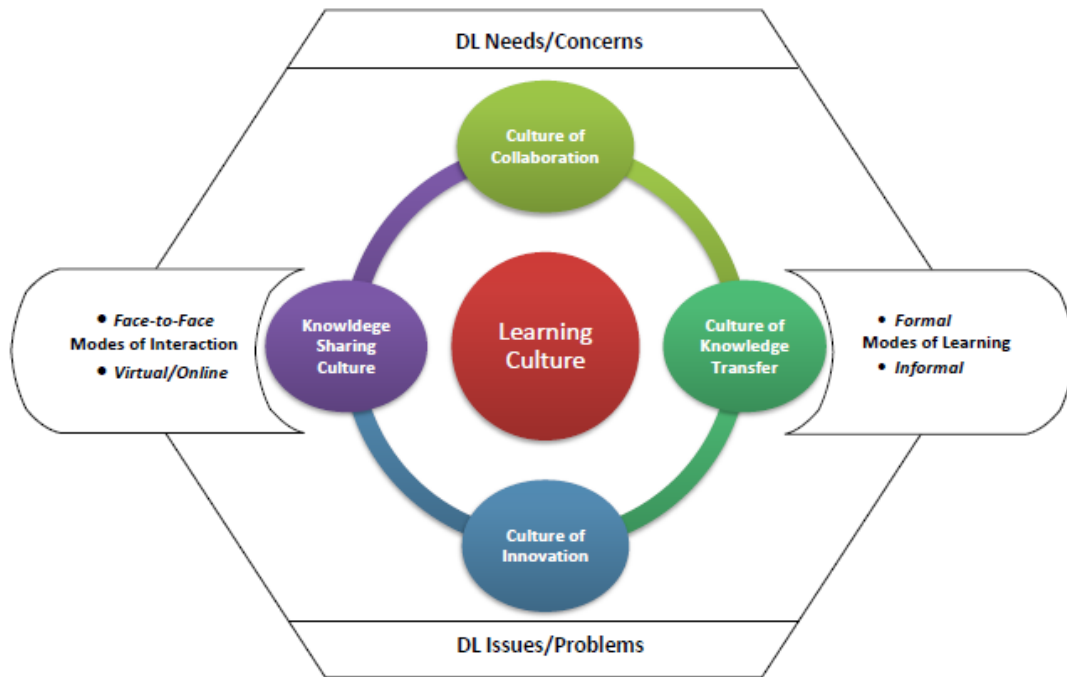


Figure 1. Conceptual Model of DL CoPs Learning Culture

Discussion of the conceptual model will be presented in the following sub-sections based on the findings of the study and on how it relates to the peer-reviewed literature.

4.2.5.2. Needs, Concerns, Issues and Problems Being Addressed by DL CoPs

As shown in Figure 1 the process begins when there is an expressed need, concern, issue, and/or problem that the community has to address. The findings of the study revealed that DL CoPs tackled many issues in the DL field. Some participants indicated that their CoPs are focusing on specific issues pertaining to DL initiatives, structure, core competencies, and copyright issues. Some are focusing on developing projects, for instance DL education projects while others are developing new initiatives in line with the European Commission's DL agenda, technology development, technology application and innovation. Other emerging issue that CoPs are trying to address are on DL interoperability issues due to various metadata standards adapted by libraries.

The results have indicated that ultimate purpose of DL CoPs is to address issues or problems related to DL developments and the emerging technologies. Oguz (2007) found (see section 2.3.) that CoPs played an important role in enabling staff members to access up-to-date and experienced-based knowledge, provided a distributed problem-solving and learning environments, facilitated informal communication and collaborative activities, and informed the decision-making process. For instance, DELOS, DL.org, MINERVA and others are working on an open-context environment in the pursuit of addressing relevant issues in DL through research and collaboration (see section 2.3).

4.2.5.3. Communication and Interaction Mode in CoPs

Daele, Deschryver, Gorga and Künzel (2007) commented (see section 2.6) that members of CoPs are communicating either face-to-face or online using Internet-based technologies for meetings, debating, sharing, collecting or building meaning about their professional practices. In relation to the present study, the findings indicated that in CoPs some of the communication and interactions take place in the physical world and some in the virtual space. It was also found that some CoPs have online communication platforms that facilitate communication or interaction among their members.

However, several participants indicated that they preferred both communication modes – communicating with colleagues either physically or virtually. The reasons for having both modes were: (1) in terms of physical or face-to-face meeting – they valued the significance of physical presence, because activities are done in most cases in physical world and becoming familiar with each other is essential; (2) in terms of virtual communication – to make cooperation better with stable information infrastructure, for cost savings, for saving time, interactions could take place at anytime, and stakeholders need not to travel to have face-to-face interactions. The participants also acknowledged the value of face-to-face communication. These findings are supported by the studies of Cambridge, Kaplan and Suter (2005) that CoPs provide a new model for connecting people in the spirit of learning, knowledge sharing, and collaboration as well as individual, group, and organizational development. Therefore, problems and issues within CoPs need to be communicated in either form (face-to-face or virtual/online) in the pursuit of finding answers or tangible results.

4.2.5.3. Modes of Learning in CoPs and its Learning Climate

Johnson (2001) argued that for some reasons, “individuals are motivated to join a community due to their “dissatisfaction with traditional methods and arenas” (p. 48). In CoPs’ perspective members are embracing a new form of learning through informal interaction and collaboration. However, the study revealed that formal learning also takes place in CoPs through joint summer schools, workshops, mentorships, conferences and formal meetings. But most of the time learning in CoPs usually occurs informally and primarily through information sharing, e-mail discussion lists, exchanging best practices, study tours, online discussions as well as face-to-face discussions.

In terms of the learning climate in CoPs, the interviewees indicated that there is a positive, friendly, collaborative, very accessible or open, relaxed and not competitive environment. Formal or informal learning will flourish having such a climate. Wenger, McDermott and Snyder (2002) argued (see section 1.1) that they accumulate knowledge, they become informally bound by the value that they found in learning together. More so, this formal and informal learning are characterized by four distinct cultures that foster a culture of learning: knowledge sharing culture, culture of collaboration, knowledge transfer culture and the culture of innovation.

4.2.5.5. The Practices that Foster a Learning Culture in CoPs

This sub-section presents the discussion of the practices in CoPs which foster a culture of learning such as knowledge sharing, collaborative learning, knowledge transfer and innovation that emerged from this study. Learning culture has been collectively defined as “an embodiment of or a set of beliefs, norms, and behaviours of individuals and groups in a community of practitioners which nurture learning through collective discovery, sharing, and application of knowledge (see sub-section 2.5.2). CoPs as learning organizations have a culture that encourages knowledge

sharing (sharing of documents, knowledge, understanding and meaning) and transmission of knowledge to workplace environment (see sub-section 4.1.5.1).

4.2.5.5.1. Knowledge Sharing Culture

CoPs are the “heart” and “soul” of knowledge sharing in the organization due to wealth of experiences, insights, and perspectives (World Bank, n.d.). The findings of this study revealed that knowledge sharing culture creates a practice of open sharing where there is the presence of high level professionals who are willing to share their experiences. CoPs serve as nodes for the exchange and interpretation of information. In relation to this, Wenger (1998b) asserts (see section 2.4) that as a consequence, a community of practice that spreads throughout an organization is an ideal channel for moving information, such as best practices, tips, or feedback, across organizational boundaries. It preserves the tacit aspects of knowledge that formal systems cannot capture.

Knowledge sharing in some way fills in the knowledge gaps and provides opportunities for members to share something (see sub-section 4.1.3.3.1). On a related development, the interviewees also indicated that attitude toward knowledge sharing (such as motivation, open-mindedness and willingness to share, trust and professionalism) is a critical success factor in building a culture of learning (see sub-section 4.1.6.1.1). This behaviour, however, may facilitate the development of a practice that reflects a vibrant culture of learning. The results of the study reflect of what Cross, Parker, Prusak and Borgatti (as cited in Lesser & Fontaine, 2004) reiterated that there are four (4) features that determine knowledge sharing effectiveness. These include: (1) knowing what another person knows and thus when to turn to them; (2) being able to gain timely access to that person; (3) willingness of the person sought out to engage in problem solving rather than dump information; and (4) a degree of safety in the relationship that promoted learning and creativity.

4.2.5.5.2. Collaborative Culture

In practical sense, CoPs are collaborative in nature as how Wenger, McDermott, and Snyder's (2002) defined it: "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis (p. 4). The results of the study revealed that what brought CoPs' members together was their interest on common activities and on gaining new learning experience through mutual engagement. People are working together and learning from each other by sharing information, exchanging best practices and expertise. Moreover, there is also a challenge in collaboration within CoPs which is basically caused by conflict of interests. Despite of that challenge, there is still a strong collaborative culture characterized by a strong bond of people committed to work together in their quest of achieving their goals. So, there is an active collaboration, collective learning and shared practice.

4.2.5.5.3. Culture of Knowledge Transfer

In CoPs knowledge is flowing freely in a network of people with similar interest on a topic or domain. So, knowledge is transmitted and acquired (see sub-section 4.2.3.2) by other members who need it. The findings indicated that majority of the participants believed that knowledge is embedded in all CoPs' activities and practices, in individuals and in the community itself. Through interaction, this knowledge is communicated, acquired, and transferred.

This acquisition or the transfer of knowledge is critical in some point in generating new ideas, creation, invention or developing new product. It is a culture which is basically founded on knowledge that is freely available in CoPs and has been translated into action or what we call "learning by doing". The findings concur with the studies conducted by Retna and Ng (2001) that CoPs facilitate knowledge sharing and transfer and have positive impact on organizational effectiveness in learning and

KM (see section 2.4). In relation to KM, transfer of knowledge is one of its processes.

4.2.5.5.4. Culture of Innovation

Innovation is a by-product of an emerging need or demand for new technology, products or services. Summarily, the findings of the study indicated that DL CoPs have facilitated the development of new DL services and in developing new applications and software prototypes. These indicate that CoPs are great source of information that one could use in developing or creating new products or services. So, knowledge has to be managed, organized and put into use for creative purposes. Without knowledge nothing could be made or created.

This culture of innovation is interdependent with knowledge sharing culture, collaborative culture and the culture of knowledge transfer. Innovation is about learning to learn – whatever you have learned from the community will be put into useful endeavour or creation. Furthermore, innovation is framed on the idea of creativity – generating ideas; sharing knowledge or information; acquiring knowledge; working with group of people and fostering collaboration. These findings are supported by previous studies for example Hildreth and Kimble (2004) that this network of relationships that develop in a CoP, the inner motivation that drives them and the knowledge they produce, lead to the creation of an environment that is rich in creativity and innovation.

4.2.5. Success and Hindering Factors in Creating a Culture of Learning

There are many factors that greatly influence a learning culture to thrive in CoPs. The results of the study revealed that there are three critical success factors in creating a learning culture in CoPs such as: (1) human behaviour-related, (2) organizational and (3) technological factors respectively. The human behaviour-related factors

include: attitude towards knowledge sharing such as motivation, open-mindedness and willingness to share, trust and professionalism. In fact, knowledge sharing depends on CoPs' members' motivation and willingness to share their knowledge to others. Knowledge sharing is possible in an environment where people feel comfortable to express their ideas, share with an open mind, and trustful on what others are sharing or contributing.

In terms of organizational factors, these include shared vision/values, sense of belongingness and leadership. In this engagement they are guided by their shared vision or values that drives them to achieve something. The findings are supported by Wenger et al. (2009) that CoPs' members are driven by their mission and working to achieve it. More so, the participants also indicated that a leader plays an important role in shaping the culture of learning within CoPs. This is also supported by Wenger, White and Smith (2009) wherein in community cultivation orientation, the notion of a leader is given value – such leadership shall facilitate conversation, convene meetings, organize activities, collect, edit, or produce resources, connect members, keep pulse on the health of the community, and encourage it along developmental path (see section 2.6).

On the other hand, in terms of technology factor, the interviewees claimed that efficient technology to some degree makes cooperation easier. Several studies (see section 2.6) have found that technology is a significant factor that facilitates learning to take place in CoPs. For instance, Wenger et al.'s (2009) elucidated that digital tools are now part of most communities' habitats and Conner and Clawson (2002) also claimed that technology enhances CoPs communication process as well as learning.

The above discussion has outlined the critical success factors in creating a culture of learning in CoPs. In contrary, there are also factors which hinder its creation. These

include: (1) attitude towards knowledge sharing, (2) culture-related challenges, (3) language limitation and (4) time.

The interviewees indicated that attitude towards knowledge sharing is a barrier if there is a sort of monopoly in information or knowledge sharing in CoPs and if the member's behaviour is passive. To address this challenge, Lesser and Fontiane (2004) suggested on how organizations can break through the barriers that impede effective knowledge sharing. They have noted that communities, through their ability to foster the development of connections, relationships and common context between knowledge seekers and sources, can help eliminate many of the common knowledge sharing barriers that plague even the most successful organizations.

Furthermore, there are also some challenges with regards to culture as the result of the study revealed. These cultural barriers or challenges are caused by cultural inferiorities, biases and differences. Though culture influences knowledge sharing and learning but somehow it is also a barrier. However, some interviewees suggested that open communication counts a lot – things needs to be understood and agreed by parties. On the other side, this behaviour is somewhat a by-product of the members' professional and cultural backgrounds. The study also revealed that language is a major barrier for learning culture to thrive in the community. In fact, knowledge is communicated using language as a tool for transmitting or delivering it to other learners. This factor has been discussed in sub-section 4.2.3.2.

Lastly, the finding of the study also revealed that time is a significant barrier. This is also related to the above discussion on some of the reasons why DL professionals are not joining or participating CoPs (see section 4.2.3.2). The findings of the previous studies of Retna and Ng, (2011) and McDermott (2000) support the current study on the challenges and issues related to time.

4.3. Conclusion

This chapter presented, analyzed and discussed the data of this study obtained through semi-structured interviews. The main themes that emerged from the interview data through thematic analysis were the following: (1) drivers in CoPs' creation, (2) CoPs' conceptualization, (3) CoPs' structural dimension and forms of participation or membership, (4) communication in CoPs, (5) CoPs' culture of learning, and (6) success and hindering factors in creating a culture of learning. Furthermore, the information derived from thematic analysis was also useful in developing a conceptual model on how learning culture is formed in DL CoPs in Europe. Each theme was analyzed and discussed in relation to the literature presented in Chapter 2.

CHAPTER 5: CONCLUSIONS

5.1. Introduction

This research sought to: (1) find out the defining characteristics of CoPs in the field of DL, (2) examine on how CoPs' contribute to the development of a learning culture and (3) determine the success and hindering factors in the development of such learning culture.

Through the literature review, it emerged that there have not been studies that specifically discuss the development of learning culture in DL CoPs. Therefore, this study was intended to address this gap in the literature and to provide a conceptual model of DL CoPs' learning culture. Based on the findings of the study, the implications for future research are also presented in this Chapter.

5.2. Conclusion to the Research Questions

This section presents a summary of the most significant results gleaned from the data analysis as they pertain to the three major research questions of this study.

5.2.1. Research Question 1

What are the defining characteristics of CoPs in the field of digital library?

The findings of this study indicated that the distinguishing attributes of CoPs in the field of DL are as follows:

- DL CoPs are vibrant groups of people having the same professional interest in a common theme or domain, concern, topic, project or endeavour who have

joined together to share, cooperate or collaborate, perform, understand and make use of the development in a particular field.

- DL CoPs are also called as a (1) community of experts, (2) networking organization, (3) professional community, (4) community of specialists, (5) group of interests, (6) community of interested people, (7) community of exchange of ideas, (8) learning organization, and (9) community of a real practice.
- DL CoPs were created for the following reasons: (1) having common interests on a particular domain of knowledge, (2) due to ongoing DL initiatives around EU countries, (3) need for DL education and training, (4) establishing common understanding about DL concept, (5) building linkages, (6) supporting community of users, (7) knowledge or information sharing and (8) building knowledge repositories.
- DL CoPs has no definite structure and their creation is always dependent on the purposes for which they are established. The emerging forms include: formal, informal, global/international, practice-based, project-based and virtual CoPs.
- DL CoPs are providing many opportunities to its members such as: (1) international exposure, (2) keeping them abreast/updated in the field, (3) knowledge sharing and acquisition, and (4) learning through collaboration.

5.2.2. Research Question 2

How can CoPs contribute to the development of a learning culture among DL professionals?

The result of the study revealed that CoPs have a potential contribution to the development of a learning culture among DL professionals. Thus, the information derived from the thematic analysis helped in conceptualizing on how this learning culture is formed:

- The process begins when there is an expressed need, concern, issue and/or problem that the community has to address. The research discovered that DL CoPs tackled many issues in the DL field. These include:
 - Issues pertaining to DL initiatives, structure, core competencies, and copyright issues.
 - Some issues are focusing on developing projects, for instance DL education while others are developing new initiatives in line with the European Commission's DL agenda, technology development, technology application and innovation.
 - Other emerging issues that CoPs are trying to address are on DL interoperability issues due to various metadata standards adapted by libraries.
- People are discussing these issues both physically and virtually. The participants recognized that physical or face-to-face meeting is significantly important because most of the activities are done in the physical world. Also, it was acknowledged that virtual communication makes cooperation easier and better with stable information infrastructure, for cost savings, for saving time, for interacting independent of place, and stakeholders need not to travel from one place to another for physical or face-to-face interactions.
- The study revealed that most of the time learning in CoPs occurred informally and primarily through information sharing, e-mail discussion lists, exchanging best practices, through study tours, online discussions as well as face-to-face discussions. Formal learning also took place in CoPs through joint summer schools, workshops, mentorships, conferences and formal meetings. To help flourish this interaction, a positive, friendly, collaborative, open, accessible, relaxed and not competitive environment is desirable.
- There was a strong culture of learning among DL professionals which was characterized by four distinct cultures of practices – knowledge sharing

culture, culture of collaboration, knowledge transfer culture and the culture of innovation.

- Knowledge sharing culture creates a practice of open sharing where there is the presence of high level professionals who are willing to share their experiences. It was also discovered that attitude toward knowledge sharing (such as motivation, open-mindedness and willingness to share, trust and professionalism) critically influence the creation of a culture of learning.
- Their interest in common activities and in gaining new learning experience through mutual engagement or collaborative learning brings CoPs' members together.
- The majority of the participants believed that knowledge is embedded in all CoPs' activities and practices, in individuals and in the community itself. Through interaction, this knowledge is communicated, acquired, and used in generating new ideas, creating, inventing and/or developing new products.
- DL CoPs have facilitated the development of new DL services and in developing new applications and software prototypes. Thus, CoPs have brought the culture of innovation and creativity.

5.2.3. Research Question 3

What are the success or hindering factors in developing such learning culture?

The third question is closely related to the second question. However, the third question aims to identify the success or hindering factors in the creation of learning culture in DL CoPs. The result revealed:

- There are three critical success factors in creating a learning culture in CoPs such as:
 - Human behaviour-related factor includes attitudes towards knowledge sharing such as motivation, open-mindedness and willingness to share, trust and professionalism;

- Organizational factor includes shared vision or values, sense of belongingness and leadership; and
- Technological factor includes having efficient technology.
- There are four hindering factors or barriers in creating a learning culture in CoPs such as:
 - Attitude towards knowledge sharing such as monopoly in information or knowledge sharing by few individuals and passive behaviour among members;
 - Culture-related barriers or challenges due to cultural inferiorities, biases and differences;
 - Language limitation; and
 - Time.

5.3. Implications

The results of the study provided some insights on the conceptualization of CoPs and on the purposes or reasons why these communities were established. These communities are providing many opportunities to members through strong learning culture which is characterized by the following cultures of practices: knowledge sharing, collaboration, knowledge transfer and innovation. In a way, this culture of learning once cultivated will bring forth remarkable results to both personal/professional and at organizational level. It will also lead to increase productivity and on developing innovative products and services in the DL field.

The conceptual model developed will also provides a comprehensive overview on how learning culture can be cultivated and what are the drivers or factors that have a largest influence on its creation.

Furthermore, the conduct of the following research is suggested:

- Measuring the impact of CoPs' learning culture to work, professional practice and organizational innovation;
- eLearning: the VCoPs' contextualization;
- Learning through knowledge sharing and collaboration: capturing knowledge in DL CoPs;
- VCoPs learning culture: implications for DL practice;
- Does technology facilitate learning?: an exploratory research of CoPs technological platforms;
- In-depth studies on how language and culture impede learning in DL CoPs
- Virtual collaboration in a Web 2.0 environment: a cross-continental study in DL CoPs.

The current research has shed light on the emergence of CoPs in the field of DL and may pave the way to a new understanding on how a learning culture is created. Hence, CoPs are becoming a new means of strengthening the organizations' strategic relevance and in enhancing individuals' professional and working life.

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APPENDICES

Appendix 1: Communication Addressed to the Participants

Dear Participant:

This is in reference to my research on “*The Digital Library (DL) Professionals’ Learning Culture: A Study on Digital Libraries’ Communities of Practice (CoPs) in Europe*”. With this, I am writing to you to seek for your participation in the second phase of my research – the collection of qualitative data through interview. The interview is a fundamental component of my research and I highly value the information that you will share with me about the subject of this study.

Participation in this interview is completely voluntary. The interview is expected to take about an hour of your time. You may decline to answer any question that you prefer not to answer, and you may stop the interview at any time. All the information you provide will be held in the strictest confidence. You will not be identified in the thesis, report or publication resulting from this study. With your consent, the interview will be recorded to facilitate the discussion and to ensure the accuracy of the interview data.

If you agree to be part of the research interview, please provide some information on your preferred date and time for the interview. Further, if you have any questions or concerns about the research itself, please e-mail me at mbatiancila@gmail.com or my supervisor Sirje Virkus at sirvir@tlu.ee.

I am thanking you in advance for your assistance, and I look forward to converse with you about the topic.

Yours sincerely,

Marcial R. Batiancila
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Appendix 2: Interview Questions

I. CoPs Concept

1. Are you familiar with the concept of community of practice? Or, what does the term community of practice mean to you?
2. What do you think are the drivers in the creation of a community of practice in the field of digital libraries, particularly in European settings?

II. CoPs Membership & Defining Characteristics

3. Could you please describe the communities of practice which you belong to? And, what is the purpose for which those communities of practice are being established?
4. How will you describe your participation/involvement in communities of practice? What role did/do you play? Please explain elaborately.
5. What do you think are the defining characteristics of your community(ies) of practice based on its structure?

III. Motivation & Limitation in CoPs' Participation

6. What motivates you to participate/join a community(ies) of practice?
7. What, in your opinion, are the factors why other digital library professionals do not participate in these communities? What are hindering them to participate?
8. Did you benefit from joining or participating in these communities? If yes, what kind of benefits do you get?
9. Will you please describe some problems/issues that your CoP/CoPs are trying to address?

IV. Learning Culture: Norms, Behaviours, Practices, Challenges & Success Factors

10. Given the notion of community of practice as a learning organization, how can you characterize/describe your community of practice's culture of learning?

11. In addition, how would you describe the following: (1) the knowledge sharing behaviour of community of practice's members, (2) the learning activities/opportunities that the community of practice offers to its members and (3) the general learning climate of your community of practice?
12. In your opinion, how do communities of practice facilitate learning, collaboration and knowledge transfer? Please elaborate it and if possible provide some examples.
13. In relation to current developments in digital libraries around Europe, what issues do your communities of practice address? Please explain further and if possible provide some examples.
14. In terms of interaction within your communities of practice, what is your preference, face-to-face or online/virtual communication or both? Please explain your preference.
15. In your opinion, what factors do you consider as critical success factors for the creation of a culture of learning within your community of practice?
16. What, in your opinion, are the barriers in creating a culture of learning in your community(ies) of practice?
17. What do you think are the potential contributions of community(ies) of practice in fostering innovation in digital libraries?
18. What, in your opinion, are the key factors in sustaining a community of practice?
19. Should you wish to say more about the learning culture of your community that as not covered by these questions, please feel free to add comments.