A STUDY OF THE ROLE OF AN ONLINE COMMUNITY IN THE PROFESSIONAL LEARNING OF TEACHER LIBRARIANS

A Dissertation submitted by

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In fulfilment of the award of

Doctor of Philosophy,
Faculty of Education, University of Southern Queensland

2005

ABSTRACT

The thesis has its origins in a concern that teacher librarians in schools throughout Australia were disadvantaged in the development of their professional learning due to their professional and often geographical isolation in schools. A listserv (online discussion network) called OZTL_NET was developed to facilitate the enhancement of teacher professional learning for this group of teachers. OZTL_NET has been available to teacher librarians and others interested in teacher librarianship for over nine years. The study sought to determine whether usage of OZTL_NET was associated with the enhancement of teacher librarians' professional learning. The study also explored the characteristics of teacher professional learning from the literature and sought to determine which characteristics of online communities may contribute to teacher professional learning.

A case study design for the research was adopted using a mixed methods approach. The methods of data collection were a web survey and semi-structured interviews. Quantitative and qualitative data were collected and analysed and a detailed description of the object of study, OZTL_NET, was provided.

A major finding of this study was that usage of OZTL_NET was significantly related to the enhancement of teacher professional learning. It was concluded that online learning communities may provide appropriate contexts for teacher professional learning and that, in relation to the case of OZTL_NET, various aspects of the concept of online learning communities and, to a lesser extent, communities of practice, are portrayed in the listserv. The findings supported the assertion that online learning communities have the *potential* to enhance the professional learning of teachers and provide *opportunities* for teachers to learn online.

The study also revealed that community building online is a complex and demanding activity. Usability and sociability factors must be carefully considered and developed over the lifetime of the community. This process should include input from the community, the leadership of which should be broad-based and inclusive. Two broad principles emerged from the research that provide guidance for the management of listservs for teacher professional learning online. First, the study revealed that

involvement and collaboration were critical ingredients in teacher professional learning online. Involvement was portrayed not only in the learning that ensued from the *interactivity* that necessarily underpins the sharing of tacit knowledge through information exchange and professional discussion between and among subscribers online but also by individuals through less obvious means such as lurking, archive searches and off-list communications. In terms of collaboration, this study found that in addition to high levels of trust, subscribers experienced a strong sense of collegiality and support as members of OZTL_NET.

Second, the major finding above confirms that involvement and collaboration are strongly related to individual and collective orientations of teacher professional learning. The broad concept of *individual or collective orientation* recognises that teacher professional learning occurs in both orientations online as it does offline. Teachers have long recognised their colleagues as their major source of professional information. The difficulty in the past has been in the identification of a means by which teachers can readily access a wider pool of colleagues with whom they can discuss important issues, seek advice and so on. This is particularly important for teachers who are professionally isolated as a consequence of their teaching speciality (such as teacher librarians) and those who are geographically isolated making real time meetings with colleagues expensive and/or impracticable. In this context listservs such as OZTL_NET can play a critical role in providing the infrastructure to support distributed models of teacher professional learning online.

CERTIFICATION OF THESIS

I certify that the ideas, experimental work, results, analyses, software and conclusions reported in this dissertation are entirely my own effort, except where otherwise acknowledged. I also certify that the work is original and has not been previously submitted for any other award, except where otherwise acknowledged.

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Signature of Candidate   Date

ENDORSEMENT

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Signature of Supervisor   Date

ACKNOWLEDGEMENTS

First, I am indebted to the guidance and patience of my supervisor, Dr Glen Postle, especially for his good humour and flexibility during the period of my candidature. Thanks also to Professor Frank Crowther and the staff of the Faculty of Education at USQ for their encouragement and support and to Dr Ray King and Mr Russell Kay, for taking the time to provide feedback on various aspects of the statistical analysis and organisation of the final thesis.

Second, thanks to Ms Lyn Hay whose idea it was to establish a listserv for Australian teacher librarians. Also, special thanks to Mr Geoff Fellows for his technical support of OZTL_NET over many years and for his assistance in the mounting of the web survey and the collection of data. I would also like to acknowledge the encouragement provided to me by Professor Jim Pratley in the completion of this thesis.

Third, many thanks to all of the participants in the study without whose involvement this research could not have been successfully conducted and completed.

Finally, a special note of appreciation to my wonderful family without whose understanding and support the successful completion of this thesis would not have been possible. Many thanks then to Kerri, Greg and Claire for all you have done for me during what has been a very busy time in all our lives. I also take this opportunity to thank my parents, Ken and Glenda Dillon and my sister, Debbie Willott, for their lifelong support and my grandparents to whom I dedicate this work.

DEDICATION

This thesis is dedicated to my wife, Kerri, and our children Greg and Claire. It is also dedicated to my parents, Ken and Glenda Dillon, and to my sister Debbie Willott. Finally, it is dedicated to my grandparents whose contribution to this research was neither immediate nor direct but nevertheless was inestimable in terms of the lessons they imparted on the virtues of commitment, determination and sheer hard work.

IN MEMORY OF

Walter Henry Lewis Dillon

&

Leah May Dillon

and

Alfred James Cox

&

Rose May Cox

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CHAPTER 1:   INTRODUCTION

1.1   Introduction

The purpose of this chapter is to describe the focus of the study, provide the background for the research, set out the research problem and research questions, introduce the important concepts and terms for the analysis and briefly describe the object of study, the OZTL_NET listserv (online discussion network). This chapter also introduces the contemporary literature that describes the characteristics of teacher professional learning including the potential of online communities. The changing professional learning requirements of teacher librarians in response to workplace demands are also described. It is proposed that the need to adopt more contemporary conceptions of teacher professional development may include learning through participation in online environments.

1.2   Background to the study

The thesis has its origins in a concern that teacher librarians in schools throughout Australia were disadvantaged in the development of their professional learning due to their professional and often geographical isolation in schools. A listserv (online discussion network) called OZTL_NET was developed to facilitate the enhancement of teacher professional learning for this group of teachers. OZTL_NET has been available to teacher librarians and others interested in teacher librarianship for over nine years. At July 2004 there were in excess of 2100 "subscribers" (participants) in OZTL_NET and the time has come to investigate the role of the listserv in the professional learning of its subscribers.

The questions that guide the study seek to determine whether usage of OZTL_NET is associated with the enhancement of teacher librarians' professional learning. A new conception of learning environments characterised by informal, voluntary participation online wherein the interactions between and among subscribers are considered critical to professional learning, is considered. In this regard, the range of reasons for which subscribers may participate online in the satisfaction of their professional learning needs, is central to the study.

In recent years traditional approaches to teacher professional development have come under fire. The "transmission" model of teacher professional development whereby teachers largely act as passive recipients of information has been broadly criticised in the literature on a number of grounds and its critics have proposed a range of alternative approaches and models. An important theme in the literature is the need for individual teachers to take charge of their own professional learning. Fundamental to this notion is the idea that professional learning should be viewed as an *ongoing* part of professional growth rather than as a series of "stop-start" activities and serendipitous learning opportunities with colleagues from within the teacher's own school, valuable as such experiences may be. New conceptions of teacher professional learning recognise the importance of collegial interactions and "tailored" within-school and system-driven professional development but also stress the need for teachers to *integrate* professional learning into their professional lives as an embedded part of responsible professional practice. Such an integrated approach underpins the eminently desirable notion of teachers as models of lifelong learning.

In their pursuit of opportunities for professional learning, many teachers actively seek out professional interactions on a regular basis online with colleagues from outside their school, district, system, state or country. Depending on their needs, teachers may seek to participate in professional discussions about issues of concern, they may have questions about aspects of their practice or they may simply want to share information they think may be of interest to their colleagues. According to the literature reviewed in Chapter Two, a defining characteristic of online communities for teacher professional learning is the opportunities they provide for information gathering and sharing and for the development of shared understandings and increased capacity that may result from online interactions. An operational definition of "online community" based on Preece (2000, p.10) is provided in Section 2.6 of Chapter Two.

Basic to capacity building is the idea of extended online communities that provide the means for time-independent collegial interactions and therefore enhanced opportunities for professional growth based on shared experiences and collegiality. More and more online communities of teachers now exist thereby providing the potential for *continuous* point of need professional learning to take place between

and among schools wherein teachers have the opportunity to support each other in their pursuit of new knowledge and skills. Within this context, the propensity for knowledge construction through participation in online communities is also examined in this study.

The case for investigation in this study is the OZTL_NET listserv wherein the opportunities for the professional learning of teacher librarians in an online environment are considered. The study aims to determine the degree to which OZTL_NET succeeds in meeting the needs of its subscribers as an online community in support of professional learning. It also aims to shed light on how subscribers use the listserv to satisfy their professional learning needs and to identify which technical factors and aspects of use impede or promote effective deployment of the listserv by its subscribers.

This is an important study for the future of OZTL_NET. Almost a decade into its evolution, the time is right for a detailed assessment of the usefulness of the listserv in meeting the needs of its subscribers. The study is concerned with ascertaining whether there is an association between usage of OZTL_NET and the professional learning of teacher librarians. If such an association should exist within an established listserv such as OZTL_NET, then it may be possible to conceive of new online approaches to teacher professional learning less reliant on the "transmission" models that have tended to dominate in the past. Other major outcomes of this research include an enhanced understanding of the potential contributions of online communities to teacher professional learning in general, the production of a set of recommendations to improve OZTL_NET, the provision of a set of guiding principles relating to effective communication in and development and management of listservs, and the identification of future areas of research.

The research design in Chapter Three is informed by evidence derived from the literature on the characteristics of teacher professional learning and on the theoretical foundations of online communities for teacher professional learning (described in Chapter Two) and by data derived from the detailed profiles of OZTL_NET subscribers and messages described in the first part of Chapter Three.

1.3   Research problem and related research questions

Since 1995, many Australian teacher librarians and others interested in teacher librarianship issues have subscribed to OZTL_NET. The proposal that underpins this study is that OZTL_NET as an online community enhances teacher librarians' professional learning. Evidence to examine this proposition will be obtained in the process of addressing the following principal research question:

> To what extent is usage of OZTL_NET by subscribers associated with the enhancement of the professional learning of teacher librarians?

In the process of addressing the principal research question, the following enabling questions will also be addressed.

1. What are the characteristics of teacher professional learning?
2. What are the characteristics of online communities that may contribute to the enhancement of teacher professional learning?
3. What are the defining characteristics of OZTL_NET as a listserv-based online community?

1.4   Teacher professional learning online

In their seminal work, Harasim, Hiltz, Teles and Turoff (1995) provide an introduction to the concept of "learning networks" which provide a means for people to communicate and collaborate at the "time, place and pace" that best suits them. Asynchronous forms of computer-mediated communication (CMC) such as listservs would appear to be particularly suited to teacher involvement in online communities as teachers have the flexibility to organise their participation around professional and personal commitments. Examples of successful Australian professional online communities of this kind include oz-TeacherNet (2004) and QSITE-Community (2004).

To facilitate teacher professional learning, merely making available the "avenue of communication" is not in itself enough. If teachers are to benefit professionally from their involvement in online communities then their level of involvement needs to extend beyond the posting of anecdotes and the asking of questions. They need to be provided with a forum in which participation is encouraged and valued, to partake in the kind of substantive discussion and interactions that are central to shared learning and characteristic of productive online communities. Such a "deep" level of learner-

centred, self-paced involvement provides the opportunity for the exchange of ideas and information with others that may ultimately lead to enhanced teacher collegiality.

Additionally, there exists great potential for the cross-fertilisation of ideas between and among online communities and for opportunities to break down some of the faculty and discipline barriers that so often hamper genuine teacher collaboration. Hargreaves (1992) describes this condition where individual teacher learning is over emphasised as a "balkanized" culture wherein individual teachers and groups of teachers such as faculties operate in isolation from their colleagues while Darling-Hammond and McLaughlin (1999, p. 381) argue that the further teachers move away from such an environment towards the adoption of collaborative practices and eventually "learning communities", the greater the possibilities for individual teacher learning.

Owston (1998) focuses on two strengths of online communities for teacher professional learning, resource access and opportunities for teacher collegiality. While recognising that there are some circumstances under which the "transmission" model may be appropriate (dissemination of new curriculum information, for example), he argues strongly for a model whereby teachers take more responsibility for their own professional learning by taking advantage of the opportunities available to them online:

> Without a collegial environment, individual initiative will be curtailed…
> The obstacles of accessing resources and finding an interested professional community all but disappear with the Internet… Not only is the Internet a vehicle for professional learning and growth, but arguably, it is the single most effective tool available today to help [teachers] improve professionally. (pp. xi-xii)

Here, Owston alludes to a tension between learning as an individual from *involvement in* professional development activities and an alternative view where collaborative learning results from individuals' *engagement and interactions with* a group of people as a community of learners. For teacher librarians who are often professionally isolated within their own schools, online communities may provide an

effective means by which engagement with colleagues about issues that affect them can enhance their professional learning and growth.

Williams (1998) is particularly concerned that there should be a shift away from "information age thinking" towards "communication age thinking" in terms of teacher use of the Internet. Teachers must embrace the "communities" definition of the Internet because it

> causes people to look for people and not pages of information the first time and almost every time. They ask the community first, help out in the community and choose not to work anonymously. Teachers who have experienced [this kind of] collegiality [rely on their involvement in online communities] to [communicate with] remote peers for support, share resources, have access to powerful hints and tips and generally understand the significance of connectivity to the lives of modern teachers.

1.5   Professional development of teacher librarians

Teacher librarians are teachers who have the responsibility for coordinating the design and delivery of information services in their school communities. Qualified teacher librarians hold dual qualifications in education and librarianship as recognised by the Australian School Library Association and the Australian Library and Information Association (2001):

> The teacher librarian is both an educator and an information manager with integrated understandings from both of the areas. As a result, knowledge of the curriculum, teaching strategies and learning styles are combined with knowledge of resource management, information services, personnel management and information access systems including information technology systems. This enables teacher librarians to undertake an active role in curriculum design, support and implementation. (p. 60)

The changing context of schooling has resulted in greater expectations of the role of the teacher librarian especially in terms of the potential of information and communication technologies (ICTs) for the enhancement of teaching and learning. Additionally, there has been a strong focus within the profession and beyond for teacher librarians to make explicit the links between school libraries and improvements in student learning outcomes (Lonsdale, 2003). Not only do teacher librarians participate in professional development in these areas but they also have a responsibility to provide assistance to their teaching colleagues in how ICTs might

be used to improve practice (Australian School Library Association and Australian Library and Information Association, 2001; 2004), and how as information professionals, they might effectively support and work with their teaching colleagues in integrating ICTs into the curriculum. In order to provide this level of support, "being connected" has become a professional imperative for teacher librarians.

New demands on the professional development of teacher librarians have resulted from the continuing changes to the role in schools (Australian School Library Association and Australian Library and Information Association, 2001, 2004; Lonsdale, 2003; Lowe, 2000; Performing Hybridity, 2000; White, 1999). The growing number of demands and stresses has meant that teacher librarians have struggled to cope with wide-ranging system level changes and a raft of new responsibilities in the "self-managing school" (Caldwell & Spinks, 1988, 1998). Further pressures on the profession include a gradual decline in the number of qualified teacher librarians in schools (Lonsdale, 2003) and the use of teacher librarians in primary schools to provide release time for their classroom-teaching colleagues, a practice recommended for review in NSW government schools by Vinson, Esson and Johnston (2002, p. 341).

Greater demands are now made on teacher librarians who have been forced to reconsider their role in light of a range of issues relating to practice including the provision of access to remote electronic sources and services and the requirement to cater to a wider than ever range of information needs, both user generated and curriculum driven. These issues correspond with an increase in the need for professional information especially as systemic support structures contract or disappear.

Furthermore specialist teachers such as teacher librarians are likely to feel professionally isolated within their schools as they do not have the advantage of a faculty to support them in terms of their discipline area. Many teacher librarians are supervised directly by the principal or another senior member of the school executive. This lack of collegial support is significant in light of research that

indicates that the main source of professional information for most teachers is their colleagues (Dillon, 1997; Juchau, 1984, Wasley, 1991).

This feeling of professional isolation can be compounded by geographical isolation where the physical distances between schools make frequent personal contact between teacher librarians problematic (Dillon, 1999, 2000). The decline in available funding to support real-time inter-school meetings of teachers with common concerns and issues has contributed further to the lack of formal support mechanisms for networking among colleagues. Additional problems for teachers travelling to attend professional development include the difficulty in finding suitable replacements to cover their absence, the extra travel and accommodation costs of attendance and in rural and remote schools, a perception that the system policies and programs in terms of "training and development" are city-centred (Retallick, 1999a: 494).

For teacher librarians and educators of teacher librarians this situation constitutes a critical challenge. Now more than ever teacher librarians need access to a range of professional learning opportunities both within and external to the school environment. Online communities provide one means by which some of the challenges associated with the professional isolation experienced by teacher librarians may be addressed.

1.6 OZTL_NET: A list community for information professionals in Australian schools

An example of a professional online community for Australian teacher librarians is the OZTL_NET listserv. The acronym OZTL_NET is short for **OZ**(Aus)tralian **T**eacher **L**ibrarians' **NET**-work. OZTL_NET was developed specifically for the "Australian teacher librarianship community" in 1995. The researcher is one of two members of the Centre for Studies in Teacher Librarianship within the School of Information Studies at Charles Sturt University who share the main responsibility for administration of the listserv. In July 2004 the number of OZTL_NET users exceeded 2100 of whom approximately 1500 were subscribed to the regular list and 600 were subscribed to the digest version (wherein a number of messages are

collapsed into a single message headed by a table of contents). At this time, the OZTL_NET archives contained in excess of 38000 individual messages.

1.7   Conclusion

The purpose of this chapter was to describe the focus of the study, provide the background for the research, set out the research problem and research questions, introduce the important concepts and terms for the analysis and introduce the object of study, OZTL_NET. This chapter also briefly introduced the contemporary literature that describes the important concepts of teacher professional learning and online communities. The changing workplace demands on teacher librarians were also described in terms of their professional learning requirements and the need to adopt more contemporary conceptions of teacher professional development including the possibilities presented by online communities.

This study is concerned with ascertaining whether there is an association between teacher professional learning and the practice of an online community. It seeks to determine whether OZTL_NET provides an appropriate environment for the professional learning of teacher librarians and whether the concept of online communities is useful in terms of providing a suitable framework in which professional learning may occur. This chapter provided an introduction to the study. The literature relating to teacher professional learning and online communities is reviewed in detail in Chapter Two.

1.8   Overview of the thesis

There are five chapters to follow this introductory chapter. Chapter Two begins with a review of the literature that explores the conceptual framework of teachers' professional learning. It examines the literature with specific reference to isolating the most relevant characteristics of teacher professional learning and explores the possibilities presented by "learning communities" and "communities of practice". This section of the literature review provides a detailed examination of the concept of learning communities and communities of practice and their potential in teacher professional learning online. Subsequent to consideration of the potential for knowledge construction through participation in online communities, the literature

review moves on to examine the notion of "online learning communities" as they may relate to teacher professional learning.

Chapter Three contains a detailed description of the object of study, OZTL_NET. This chapter also presents the design of the study (case study) including the rationale for the approach taken (mixed methods) and the methods of data collection (web survey and semi-structured interviews). The chapter concludes with a description of the procedures employed for the analysis of the quantitative and qualitative data collected and a statement describing how ethical implications impinging on the study were considered and approved.

Chapter Four provides the detailed analysis of the subscriber sample responses to the web survey, the first stage of data collection. The analysis was concerned with both quantitative and qualitative data emanating from the web survey. This analysis was completed prior to the analysis of the interview data. Chapter Five presents the analysis of the ten subscriber interviews undertaken as the second stage of data collection. The analysis presented in this chapter is further informed by the discussion of results from Chapter Four and by reference to the profile of OZTL_NET subscribers and messages in Chapter Three and, where appropriate, to relevant sections of the OZTL_NET website.

Chapter Six details an analysis of the findings in relation to the principal and enabling research questions posed in Chapter One. Based on the conclusions drawn from this analysis, a series of recommendations is presented for the consideration of all stakeholders in OZTL_NET. This chapter concludes with some suggestions for future areas for research revealed by this study. Finally, Chapter Seven provides a set of guiding principles for the development, management and leadership of listservs such as OZTL_NET.

CHAPTER 2:   LITERATURE REVIEW

2.1   Introduction

In Chapter One the literature relating to the characteristics of teacher professional learning and online communities was introduced. An important theme in the contemporary literature was the need for individual teachers to take charge of their own professional learning. Additionally, the literature specifically relating to the professional learning of teacher librarians was examined in order to situate the study in relation to the OZTL_NET listserv.

This chapter provides a more detailed review of the literature. In the first part of the review the literature relating to contemporary conceptions of teacher professional learning and the changing context of schooling is explored. This part of the review includes a section that considers the literature that critically examines traditional forms of teacher professional development and puts forth the argument for the need to re-conceptualise teacher professional learning. The second section of this part of the review focuses on the key concept of teacher professional learning and its characteristics. It examines the literature with specific reference to identifying the most relevant components of teacher professional learning.

In the second part of the review a discussion of the literature on "learning communities" suggests the need for a broader conceptualisation of the term from within-school, real-time groups or teams to consideration of cross-school, online communities of teachers. That is to say, that in the online context the concept of learning communities is defined quite differently. The third part of the review extends this idea through a detailed examination of the concept of "communities of practice" and the possibilities this concept may afford in terms of a new way of thinking about teacher professional learning especially in terms of online communities. The discussion of communities of practice includes an examination of literature relating to the propensity for the construction of knowledge and the building of capacity afforded by participation in an online community. Here the review seeks to determine whether online communities provide both the opportunity for distributed problem solving and a means for individuals to take more responsibility for their own professional learning. Additionally, this part of the

review briefly examines the literature that suggests that communities of practice may serve as useful informal learning environments for teacher professional learning online.

The literature explored in these first three parts informs phase one of the study which seeks to ascertain whether there is an association between teacher professional learning and participation in online communities (Kling & Courtright, 2004; Wild, 1999). Furthermore, while a good deal of the literature points to the significant *potential* for online communities and communities of practice, the review also includes critical perspectives that challenge some of the core assumptions that underpin the theoretical conceptions of online communities and communities of practice for teacher professional learning.

The fourth part of the literature review examines the notion of "online learning communities" as they relate to communities of practice and introduces the literature that challenges some of the commonly held beliefs about online learning. In particular, the view that the propensity for learning online is socially situated and occurs as a result of the interactions that result in the formation of learning relationships is considered. The review concludes with a brief consideration of the potential for information and knowledge re-use in online learning communities. These final sections of the literature review inform the design of the study in terms of identifying the factors that characterise online learning communities. Consequently appropriate survey and interview questions could be derived that allowed for responses that provide data to assist in determining the extent to which the OZTL_NET listserv, a predominantly text-based asynchronous environment supported by a website, is associated with teacher professional learning as conceptualised in the literature. The intention is also to help ascertain whether online learning communities facilitate and support learning relationships between and among their participants.

2.2   Teacher professional development and the changing context of schooling

Contemporary views of professional development take into account the impact of key factors including the changing context of schooling and new conceptions of teacher professional learning in school education. This broad view of professional

development as "…built into the professional lives of teachers, is likely to have better outcomes than those which only require participation in traditionally structured and delivered professional development courses, as important as such courses are" (Ramsey, 2000, p. 72).

Recent school reform movements such as "Schools Renewal" in New South Wales and "Schools of the Future" in Victoria emphasised the managerial and economic aspects of education and de-emphasised the professional aspects (Smyth, 1993; 2001). The demands on teachers during this period not only included keeping up-to-date with major changes in education but also required the development of coping strategies to handle the increasing number of rapidly invoked changes that occurred over a relatively short period of time. There was considerable concern about the future independence of schools and by inference the professionalism of teachers. The impact of accelerated change in education became even more significant in the daily operation of school communities due to advances in information and communication technologies (Beare, 2001).

It is important to note that many of the changes that were imposed upon teachers during this period were the result of initiatives that came from outside individual schools. To this end, Sparks and Hirsh (1997) argue that, within the context of school reform, professional development must not only:

> affect the knowledge, attitudes, and practices of individual teachers, administrators, and other school employees, but it also must alter the cultures and structures of the organizations in which those individuals work. While the need to help individual teachers and administrators do their jobs better is generally recognized, it is also essential that educational leaders pay attention to organizational change – if for no other reason than to bring a sense of coherence to the reform process. (pp. 1-2)

While the context in which teachers work needs to be taken into account, the recent report of the review of teacher education in NSW (Ramsey, 2000) concluded that:

> Too much professional development is "in house" in that it is provided substantially by the employers. Teachers need to be learning from a wider variety of sources. In continuing teacher education, emphasis should be placed on the responsibility of the individual teacher to keep up-to-date professionally, rather than just participating in courses offered by their employer. (p. 6)

2.2.1 Changing conceptions of teacher professional development

The term professional development is often used interchangeably with "staff development" and "in-service education." Fullan (1990) and Sparks and Hirsh (1997), for example, take such an approach although Bellanca (1995) prefers to draw clear distinctions between these terms and further distinguishes between professional development of the individual teacher and the imperative of system-wide professional development:

> From the individual's point of view, professional development begins with the individual's election to expand his or her repertoire of knowledge or skills. For a teacher, the means may be a graduate program, workshop, conference, action research project, etc. that helps the individual understand and do higher quality teaching… From the school system's point of view… professional development is a planned, comprehensive, and systemic program designed by the system to improve [teachers'] ability to design, implement, and assess productive change in each individual and in the school organization. (pp. 5-6)

It is important that teacher professional development is considered within the context of schooling and not as an isolated activity. The relationship between individual professional development and development of the school as a learning organisation is reinforced by Fullan and Stiegelbauer (1991):

> Continuous development of all teachers is the cornerstone for meaning, improvement and reform. Professional development and school development are intrinsically linked. This means that teacher development depends not only on individuals, but also on the teachers and administrators with whom he or she works. (p. 315)

The idea that new forms of professional development need to be adopted as fundamental to the successful implementation of school reform and the improvement of student learning outcomes is supported by a number of leading commentators and researchers in the area including Darling-Hammond (1998), Darling-Hammond and McLaughlin (1995), King and Newmann (2001), Lieberman (1995), Lieberman and Miller (1999), Loucks-Horsley (1995), Sparks and Hirsh (1997) and Vinson, Esson and Johnston (2002). The clear message is that it would be a mistake for teachers to confine themselves solely to structured professional development opportunities provided by their education system.

In his wide-ranging report of the situation in New South Wales, Ramsey (2000) concluded, among other things, that an emphasis on trying to overcome the problem of teacher supply has over-shadowed the key issue of teacher quality not only in terms of initial teacher education but also in terms of the continuous professional development of teachers in schools. In short, the increasing need for effective and sustainable ongoing professional development of teachers has been recognised in this context as a basic plank in the improvement of teacher quality. Key to the achievement of this objective according to Ramsey (2000) is the need to drill down to the level of improved practice of individual teachers at the classroom level:

> In general, more professional development provision needs to be related directly to improving the quality of teacher practice. Much of the professional development offered is designed to meet the needs of systems or schools, not necessarily those which teachers would regard as their professional priorities. There must be a greater focus in continuing teacher education on individual, rather than collective, improvement. (p. 3)

Critics of traditional forms of professional development point to the failure of these kinds of activities to effect real change in schools, particularly in terms of student learning (King & Newmann, 2001) and teacher leadership (Crowther, Kaagan, Ferguson & Hann, 2002, pp. 21-35). Sometimes called the "transmission", "delivery", "hypodermic" or "batch processing" mode of professional development (Hargreaves, 1995; Hawley & Valli, 1999; Lai, 2001; Lieberman & Miller, 1999, Owston, 1998; Schoales, 1998; Sparks, 2002), teachers have little or no voice in the selection of topic, or of "expert" presenter and, inevitably, much of what is imparted is forgotten once the teacher returns to the realities of the classroom and its concomitant set of demands. In particular, these traditional forms of professional development lack a reflective component, are perceived as "shallow and fragmented" (Hawley & Valli, 1999, p. 134), fail to build on previous experience and knowledge and lack intellectual rigour (Sparks, 2002). Therefore, they do not provide teachers with the opportunity to make sense of what they have learned and to consider possible applications within the context of their individual practice (Richardson, 1994, Speck & Knipe, 2001).

Consequently, a number of strong arguments for the need to reconceptualise teacher professional development have been mounted (Bellanca, 1995; Brody & Davidson, 1998; McKenzie, 1999; Sparks & Hirsh, 1997; Wilson & Berne, 1999, Vinson, Esson & Johnston, 2002). In particular, schools need to overcome the narrow view of professional development analogised above as the "transmission" model. Gore (2001, p. 8) supports this view in the context of Quality Matters when she concludes that, "with only a few notable exceptions, extant professional development programs have shown a remarkable inability to demonstrate lasting benefits at the school level."

While participation in a range of professional development activities is desirable, online communities can provide an effective means of continuous professional development because they provide school and/or home-based, individualised point-of-need access to teachers' most sought after source of professional information, their teaching colleagues (Dillon, 1997; Juchau, 1984, Wasley, 1991). In reporting on research conducted by Nicholson, Joyce, Parker and Waterman (1976) that undertook to analyse in excess of 2000 teacher in-service documents, Zepeda (1999, p. 2) concluded that "the one descriptor found to be essential in defining teacher in-service was continuity. This finding seriously weakens the validity of the one-shot approach to professional development".

Darling-Hammond and McLaughlin (1995) summarise the characteristics of professional development likely to result in improved teacher practice as:

- experiential, engaging teachers in concrete tasks of teaching, assessment, and observation that illuminate the processes of learning and development
- grounded in participants' questions, inquiry, and experimentation as well as profession-wide research
- collaborative, involving a sharing of knowledge among educators
- connected to and derived from teachers' work with their students as well as connected to examinations of subject matter and teaching methods
- sustained and intensive, supported by modelling, coaching, and problem solving around specific problems of practice
- connected to other aspects of school change. (p. 598)

Similarly, in his review of the literature relating to professional development as a factor in school improvement, Abdal-Haqq (1995) describes traditional professional

development approaches as "fragmented, unproductive, inefficient, unrelated to practice and lacking in intensity and follow-up." On the other hand, effective professional development:

- is ongoing
- includes training, practice, and feedback; opportunities for individual reflection and group inquiry into practice; and coaching or other follow-up procedures
- is school-based and embedded in teacher work
- is collaborative, providing opportunities for teachers to interact with peers
- focuses on student learning, which should, in part, guide assessment of its effectiveness
- encourages and supports school-based and teacher initiatives
- is rooted in the knowledge base for teaching
- incorporates constructivist approaches to teaching and learning
- recognizes teachers as professionals and adult learners
- provides adequate time and follow-up support; and
- is accessible and inclusive. (pp. 2-3)

McLaughlin (1997, p. 80) argues that these kinds of characteristics empower the processes that drive real teacher learning. They are "capacity-building policies [that] view knowledge as constructed by and with practitioners for use in their own contexts, rather than as something conveyed by policymakers as a single solution for top-down implementation." The idea of extended online communities of teachers that provide enhanced opportunities for professional growth based on shared experiences and collegiality may be basic to capacity building in this context. More and more of these communities of teachers now exist online, potentially allowing for *continuous* professional learning to take place between and among schools as teachers support each other in their pursuit of new knowledge and skills. In this study professional development is considered in terms of teacher professional learning in an online context.

2.3   Teacher professional learning

The idea of teacher professional *learning* extends the late industrial age concept of teacher professional *development* by shifting the emphasis from "improvement" of the individual from the perspective of the educational system to a deeper level where the opportunities for genuine learning through shared experience result in personal capacity building that ultimately benefits the individual as well as the school. At the

core of this shift is the establishment of professional learning relationships which are essential to the social processes required to turn information into knowledge (Fullan, 2001, p. 6). Here the view is that not only should teacher professional learning be information driven, it should also be knowledge based necessarily involving social interactions that lead to the formation of learning relationships that address shared concerns and problems. More than the establishment of individual identity in a community of like-minded individuals, a core criterion for teacher professional learning in online communities is that learning takes place *as a result* of these interactions. Such a view clearly challenges the industrial age concept of teachers as "robust silos" or "lone rangers", of highly competent individuals working in schools in isolation from each other and, in the worst-case scenario, in competition with each other.

This conception of teacher professional learning is concerned not only with the cognitive or psychological processes involved in individual learning but also with the social practices and interactions that facilitate learning in collaborative environments within the authentic situated contexts of online communities. This social constructivist perspective underpins the central concepts of knowledge construction and capacity building that may characterise genuine online communities for teacher professional learning.

2.3.1 Characteristics of teacher professional learning

Hannay (2004, p. 4) differentiates between traditional modes of teacher professional *development* characterised by an emphasis on information delivery, and teacher professional *learning* in a supportive climate as "a first essential step in moving from a culture of dissemination to one of knowledge creation." Hannay (2004) argues that this is a critical shift because of the failure of traditional professional development to change the *professional practice* of most teachers:

> The professional development literature has documented that traditional forms of professional development rarely change practice. Yet internationally most schools and educational authorities continue to practice the traditional forms of 'sit and get' professional development. It is not a given that professional development leads to professional learning. Professional learning is an 'internal' mental process through which

individuals create professional knowledge. Thus professional learning is connected to the construction, or probably the reconstruction, of the personal professional knowledge of practitioners. (p. 7)

Hannay (2004) draws heavily on the contemporary theory of professional development to distil four characteristics which support and facilitate "deep" teacher professional learning. First, "authentic focus" is concerned that the needs and issues that confront teachers are "real" rather than contrived. This is critical to successful knowledge construction and requires that individual teachers actively engage with their "contextual realities" to obtain ownership of the problem prior to taking appropriate action that will necessarily involve sharing with colleagues:

> Such a collaborative process will allow the individual tacit knowledge to become collective explicit knowledge which can then be codified and further shared. Through such a process, knowledge creation becomes embedded into the context and the organisation moves further towards being a learning organisation. (p. 28)

A second characteristic of teacher professional learning is *collaboration* as "both an attribute and a process" (Hannay, 2004, p. 28). Genuine collaboration requires a supportive culture wherein teachers feel comfortable in taking risks, declaring their lack of knowledge in certain cognate areas and in exhibiting their willingness to "openly and collectively explore unknown professional practices…The challenge is respecting the individual while fostering collaboration and pursuing collective professional learning" (Hannay, 2004, p. 28). An emerging vehicle for this kind of collaboration among teachers has been the movement of what Putnam and Borko (2000, p. 19) refer to as *discourse communities* into the online context. Putnam and Borko (2000) suggest that if discourse communities provide teachers with access to innovations and new ideas at the school level, then it seems reasonable to suggest that more powerful possibilities may exist in extended, distributed discourse communities online since:

> These discourse communities play central roles in shaping the way teachers view their world and go about their work…. The notion of distributed cognition suggests that when diverse groups of teachers with different types of knowledge and expertise come together in discourse communities, community members can draw upon and incorporate each other's expertise to create rich conversations and new insights into teaching and learning." (p. 19)

The third characteristic of teacher professional learning posited by Hannay (2004, p. 29) is *professional dialogue*, in which the deep and reflective engagement of teachers provides them with a heightened "possibility of their changing their practice…because such engagements assist in the construction of professional knowledge". When such professional dialogue occurs in a collaborative context teachers feel secure in relating their "contextual realities" in terms of the issues and needs they have in terms of their professional practice. According to Hawley and Valli (1999) an important aspect of professional dialogue is the propensity for *problem solving* that it presents to participating teachers as long as the framework has been thoughtfully designed:

> Although collaborative problem solving can result in potentially irreconcilable positions or merely perpetuate existing practice, when done skillfully, it leads to the clarification of learning needs and the sharing of knowledge and expertise. It breaks down teacher isolation…collectively empowers teachers…creates an environment of professional respect…and develops a shared language and understanding of good practice. (p. 141)

The fourth and final characteristic of teacher professional learning described by Hannay (2004, p. 31) is evidence-based enquiry wherein the establishment of "a spiral of action through evidence collecting, reassessment and then revised action has great possibility of both generating professional knowledge and fostering changes to classroom practice." As such this process "fosters experiential action with critical reflection on the effectiveness of that action" and is essential in *knowledge creation*, a process Hargreaves (2000) describes as "tinkering":

> The 'tinkering' teacher is an individualised embryo of institutional knowledge creation. When such tinkering becomes more systematic, more collective and explicitly managed, it is transformed into knowledge creation. Tinkering often precedes knowledge creation, for it provides, in the form of both explicit and tacit knowledge, much of the raw material for knowledge creation. Tinkering is embedded in the process of professional knowledge creation, since this is the means of testing and modifying an initial 'good idea' into something worth subjecting to more systematic validation. When a group of teachers tinker with ideas emerging from knowledge creation, they are checking the extent to which the emergent practice is both transferable and transposable. In tinkering, knowledge creation and knowledge utilisation are not separate entities that occur in sequence, but an interactive process in which knowledge utilisation becomes part of the creative activity. (p. 231)

The next section of this review provides a basis for a new conception of "online learning communities" through consideration of the literature that seeks to re-define the characteristics of these communities from the "Internet as culture" perspective particularly in terms of the issues around level of engagement and the quality of interactions in these environments. The section concludes with a consideration of the literature that provides the potential for information and knowledge re-use in online learning communities. This section of the review assists in providing a framework for considering whether OZTL_NET, a predominantly text-based asynchronous environment supported by a website, contributes to the professional learning of teacher librarians.

2.4   Learning communities

Within the context of teacher professional learning, Johnson (1999) argues that schools need to work harder in their quest to become genuine "learning communities." He points out the irony of Senge's (1992) concept of the "learning organisation" as a major means to "legitimise and awaken interest in its applicability and use in schools":

> At present, staff professional development is often narrowly conceived as "courses" and "special activities" usually conducted off-site or after school. I would argue that such a narrow conception often increases the intensification of teachers' lives with little payoff for them or their communities. The challenge is for many staff and formal leaders to conceive of staff professional development more broadly as opportunities for learning that occur naturally in the workplace as well as outside on special occasions.

> Therefore, in a learning community multiple forms and models of staff professional development as are appropriate to the particular requirements are selected, combined and embraced…Use is made of forms such as short courses, action research, peer coaching and mentoring, case discussions, study groups, small group problem-solving, journal writing and professional networking. (p. 31)

While a focus on schools as learning communities is useful, it should also be recognised that learning communities often transcend physical locations such as schools. In the same way that learning communities may exist within individual schools, they can also exist among schools and across school systems and geographic boundaries. The potential for professional learning in these extended learning communities is further enhanced where they are characterised by a "grass roots"

culture of support and a genuine ethic of collaboration. Characteristically, a learning community is a flexible and fluid entity, the creation of which was made possible by the provision of structures to facilitate the evolution of a community that is typically organised around the interconnections among people, relationships and ideas. Online communities may constitute one example of structure to facilitate teacher professional learning.

Traditional forms of professional development are often about providing teachers with the knowledge and skills that the organisation or system requires. A major disadvantage of this approach is that individual learning of this kind often remains unshared, a major impediment to knowledge construction and capacity building, predominantly group oriented processes. Retallick (1999b, 1999c) is concerned that the quality of teachers' professional community has profound implications for student learning outcomes and argues, consequently, for greater recognition of workplace learning as a valid form of teacher professional development. As a member of one or more learning communities, teachers share ways of knowing and ascribe value to knowledge constructed from their participation in the dynamic of the learning community. In these inclusive communities, new and experienced members are supported, encouraged and recognised for what they know and need to learn (Brody & Davidson, 1998; Clarke, 2000; Hough, Paine & Austin, 1997).

Serim (1996) makes explicit a link between teacher professional development in online communities and the potential value such an approach has for teachers as lifelong learners. An important outcome of individual professional growth of teachers is the establishment of the necessary supportive climate for enabling learning communities. In addition to the benefits of professional growth, teachers as lifelong learners are also great models for their students in information literate school communities:

> Already we see the beginnings of an international revolution, motivated by the vision of free-flowing knowledge, people taking responsibility for their own learning, and grand-scale collaborations that embrace the innovations of networking, enabling us to exchange new types of communications and experiences to build human and informational resources that address common problems in a spirit of community… What this means to you and me and our mutual interest in lifelong learning is that… learning will be

liberated from locality, and anyone so motivated will be able to take responsibility for placing themselves at the centre of their own learning. (p. 4)

The school reform movement demanded a new set of teacher skills. Online communities may provide a mechanism for teachers in their quest to adapt and cope with these demands particularly in terms of reconceptualising traditional forms of professional development to incorporate new approaches to professional learning that are teacher-centred and characterised by teacher-to-teacher interactions, tolerance of risk and experiment, encouragement of reciprocity and the existence of informal pathways for communication and reflection. In fact, online learning communities may provide a "shared space for reflection [which] is something teachers have never before had" (Serim, 1996). Another important link made by Serim is between the idea of information need and the potential for various forms of online professional learning to satisfy a very broad range of needs that may otherwise remain unmet.

While the literature reveals that the concept of learning communities can be extended beyond within-school, real-time interactions, alternative conceptions of how practitioners might come together in a collaborative way to support and learn from each other and to achieve shared goals through the relationships they form also needs to be considered. One possibility suggested by the literature is the concept of "communities of practice" and the possibilities they may afford in terms of a new way of thinking about teacher professional learning especially in terms of online communities.

2.5   Communities of practice

Some commentators claim that the development and place of online communities has been a neglected dimension of Internet-based computer-mediated communication studies (Kim, 1999; Preece, 2000). Meaningful investigations of online communities then, focus on the communicators or participants and on process and context rather than on the enabling technologies that make connections between participants possible. In short, the development of online communities has often focussed on the facilitating technology and the provision of content rather than on context, participation and interactions.

One type of community that focuses on context, participation and interactions is a community of practice. Wenger, McDermott & Snyder (2002) describe communities of practice 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.... 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 aspirations, and their needs. They ponder common issues, explore ideas, and act as sounding boards… However they accumulate knowledge, they become informally bound by the value that they find in learning together. This value is not merely instrumental for their work. It also accrues in the personal satisfaction of knowing colleagues who understand each other's perspectives and of belonging to an interesting group of people. Over time, they develop a unique perspective on their topic as well as a body of common knowledge, practices, and approaches. They also develop personal relationships and established ways of interacting. They may even develop a common sense of identity. They become a community of practice. (pp. 4-5)

In her discussion of the concept of a community of practice, Williams (1997) makes the following observation that goes directly to the heart of online communities for teacher professional learning:

> "talk" is the essential ingredient of professional communities. Talk and participation, is the expression of the spirit of professionalism that sets one professional community apart from another… Teachers close the door on their classrooms at 9.00am and have so few opportunities to participate in professional dialogue. I would like to propose that participating in the community of practice is not only right, but also a responsibility of being a contemporary educator – it is part of the work ethic of being an educator. (p. 3)

The idea of a community of practice fits comfortably with the practice of online professional learning. In this context, the concept of community of practice as a theory of learning is based on the assumption that engagement in social practice through dialogue is at the heart of learning. Learning is situated within a framework of social participation wherein theory and practice reside together and wherein the nexus of community, social practice, meaning and identity provides the means for personal and professional growth through reflection, interaction and participation. Rather than being viewed simply as a way to come to *know about* the social world,

learning is seen as a way of *being part* of the social world; learners are simultaneously engaged in the learning context and the broader social world. Communities are shaped via participation of new and experienced members in a community of practice characterised by dynamic patterns of work and learning (Lave & Wenger, 1991; Wenger, 1998b).

Wenger (1998b, pp. 72-85) describes three dimensions of communities of practice as mutual engagement, shared repertoire and joint enterprise. Within a community of people, "mutual engagement" refers to the shared enterprise or goal in which the participants are involved. In this context, community is not synonymous with team, group or network but is "a matter of mutual engagement. That is what defines the community." This idea of community coherence is further supported by the notion of "joint enterprise" that is negotiated within the community through the engagement of participants seeking to work towards a common goal.

More than the negotiation of a common goal, joint enterprise includes elements of joint accountability derived from the participation of people in the process of negotiation. "Shared repertoire" refers to the collection of resources developed over the time it takes to negotiate meaning in the pursuit of joint enterprise. The repertoire can include "routines, words, tools, ways of doing things, stories, gestures, symbols, genres, actions or concepts that the community has produced or adopted in the course of its existence, and which have become part of its practice." For example, the discourse of teacher librarians in schools is one means by which these practitioners shape and order their relationship to the social world. In the process, parameters may be established in terms of membership, legitimacy and identity in a community of practice.

Communities of practice can provide a framework for personal and professional growth. The nurturing of communities of practice is important if educators are to overcome any pre-occupation with information and individuals to better understand the critical role that human sociability has in contributing to organisational goals (Brown & Duguid, 2000). Stein, Silver and Smith (1998) explain that the assumption from psychological theory that teacher professional learning takes place within the boundaries of teachers' minds and actions is challenged by a socio-cultural view that:

> Learning is seen to result from the fact that individuals bring varying perspectives and levels of expertise to the work before them. As individuals work towards shared goals, they together create new forms of meaning and understanding. These new meanings and understandings do not exist as abstract structures in the individual participants' minds. Rather, they derive from and create the situated practice in which individuals are co-participants. (p. 29)

Participation in a social milieu is consistent with constructivist principles of learning. For example, "Student-Centred Learning Environments" (Jonassen, 2000, pp. 89-121) provide a context within which students construct knowledge rather than merely act as passive recipients of knowledge "bundles." While Jonassen's model was designed with formal learning environments in mind, it may also be useful in helping to determine how participants in informal contexts construct knowledge within a community of practice.

While the literature that describes online communities of practice within formal learning environments such as university study provides valuable insights into the potential of participation and engagement for learning and knowledge construction, the degree to which informal online learning environments characterised by voluntary participation afford the same level of opportunity for their subscribers is less certain. As Watson and Prestridge (2003) observe:

> The literature relating to online learning communities frequently focuses on higher education or distance education and explores characteristics that help maintain and facilitate discussion and learning in these fields of education. However, these characteristics do not necessarily relate to an online community of teachers, because there is no specific course structure to support and provide a purpose to the community. (p. 228)

Teachers negotiate the meaning of information and construct knowledge about aspects of their practice via their engagements within various communities of practice. In so doing, participants are "transcending…time and space and creating new images of the world and themselves" (Wenger, 1998b, p. 176). More than simply providing information, the social interactions that characterise online communities of practice may provide the interactive support that participants need to make decisions. The kinds of interactions that take place vary in many ways depending on the focus, membership and size of the community and whether it is

characterised by formal or informal, synchronous or asynchronous communication practices. As part of the change from an industrial to a knowledge society, communities of practice, it has been proposed, constitute one possible means by which groups of people may work together to solve problems (Hung & Chen, 2001; Wenger, McDermott & Snyder, 2002).

At this point, it is useful to consider a recent extension of the idea of communities of practice as proposed by Wenger, McDermott and Snyder (2002, p. 27) which describes three basic elements of any community of practice: "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." Specifically:

> The *domain* creates common ground and a sense of common identity. A well-defined domain legitimizes the community by affirming its purpose and value to members and other stakeholders. The domain inspires members to contribute and participate, guides their learning, and gives meaning to their actions. Knowing the boundaries and the leading edge of the domain enables members to decide exactly what is worth sharing, how to present their ideas, and which activities to pursue. It allows them to recognize the potential in tentative or half-baked ideas.

> 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. Have you ever experienced these mixtures of intimacy and openness to inquiry? 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.

> The *practice* is a set of frameworks, ideas, tools, information, styles, language, stories, and documents that community members share. Whereas the domain denotes the topic the community focuses on, the practice is the specific knowledge the community develops, shares, and maintains. When a community has been established for some time, members expect each other to have mastered the basic knowledge of the community.... This body of shared knowledge and resources enables the community to proceed efficiently in dealing with its domain.

> When they function well together, these three elements make a community of practice an ideal *knowledge structure* - a social structure that can assume responsibility for developing and sharing knowledge. (pp. 27-29)

This new conception of communities of practice extends the model previously described by Lave and Wenger (1991) and Wenger (1998b) by placing greater emphasis on the potential of communities of practice as *contexts for learning* (albeit a continuing implicit emphasis). A key area of extension is in terms of Wenger, McDermott and Snyder's articulation of the ways in which communities of practice as knowledge structures have a central role to play in knowledge construction and in knowledge management. The connections between communities of practice and knowledge construction will be explored in the next section of this review.

In the context of this study, a community of practice is a group of people who share a common interest in the theory and practice of teacher librarianship and related information professions (domain), who share a particular language for talking about the various aspects of these disciplines (practice), and who use tools and sense-making approaches for constructing knowledge and for capacity building (community). In this sense, the degree to which OZTL_NET subscribers learn through their engagement with the listserv and through their interactions with others online needs to be determined.

Mentis, Ryba and Annan (2001, p. 13) suggest that "there are some important underlying principles for the creation of viable and sustainable communities of practice that can enhance cognition and assist with the development of identity and professional knowledge." In Table 2.1 they have adapted Hung and Chen's (2001) "dimensions" as a useful framework for conceptualising the creation of effective online communities of practice. Within communities of practice, learning is conceived "in terms of participation since it focuses attention on ways in which it is an evolving, continuously renewed set of relations" (Lave & Wenger cited in Guile & Young, 2002, p. 152). Authenticity of online communities of practice is dependent on the extent to which "the dimensions of situatedness, commonality, and interdependency are allowed to occur within an altruistic and psychologically safe infrastructure" (Mentis, Ryba & Annan, 2001, p. 14). While it is important to recognise that the framework described in Table 2.1 was applied to a formal learning context, it may also apply to informal contexts wherein participants "should have a framework which, while not as structured as a university unit, will facilitate more than simply serendipitous learning" (Mitchell, 2004, p. 3). Posting messages to a

listserv community such as OZTL_NET may enable or facilitate discourse about practice in an informal context and the richness of the discourse may be deepened because the medium is asynchronous allowing time for reflection and the formulation of considered responses. Of some concern, however, is whether the framework in such communities is sufficiently robust for any "deep" learning beyond the serendipitous kind to take place given the characteristically informal and unstructured nature of such communities compared to more formal learning environments and the potentially questionable expertise of those providing advice or "knowledge".

Table 2.1:   Underlying principles for the creation of viable and sustainable communities of practice in formal learning environments

Dimension	Implications for creating authentic online communities
Situatedness	Learning involves collaborative and authentic tasks which enable participants to construct knowledge through socially situated learning within the intellectual collective of the community.
Commonality	Learning involves a joint effort to enable individuals to develop their personal and professional identities through bonding as members of the community. Socialisation into a community of practice not only promotes skill development but also assists in the formation of self-identity as a capable practitioner.
Interdependency	Learning involves using the varying expertise brought by members of the community to promote a positive interdependence so that collectively students can solve problems that would be too difficult for an individual on their own.
Infrastructure	Successful learning communities develop strong norms for helping others. This sense of altruism and shared responsibility results in participants having a positive reciprocity with one another. Combined with this social infrastructure, is a professional structure, a language and framework that contributes to shared understandings and ways of working.

The concept of online communities of practice challenges some traditional theories of communication that treats information and knowledge as objects that exist independently of participants and supports an "alternative concept of communication as the shared construction of meanings" (Riva, 2000, p. 132). This conception of the context in which communication occurs transcends the need for people to meet in real-time face-to-face interactions to construct shared meanings. Instead, it "accounts for interaction, identity, and knowledge construction processes. Context…is not restricted to the physical co-presence of other people but consists of the interlocutory

space which provides the subject with socially recognizable meanings" (Riva, 2000, p. 133).

In order to examine the propensity for knowledge construction and the building of capacity afforded by participation in an online community it is necessary to turn to the literature that examines the potential for knowledge construction at the personal and social levels of involvement in online communities particularly in terms of the implications that this participation may have for practice.

2.5.1   Knowledge construction

The conception of communities of practice as a *knowledge structure* is useful for professional learning communities wherein the construction and sharing of knowledge are core activities. The use of appropriate information and communications technologies (ICTs) to extend these communities online provides the means for connecting larger, distributed groups of individuals in specialised fields of practice. Wenger (2001) explains how online communities of practice differ from other online communities in these terms:

> Every group that shares interest on a website [or via the Internet more generally] is called a community today, but communities of practice are a specific kind of community. They are focused on a domain of knowledge and over time accumulate expertise in this domain. They develop their shared practice by interacting around problems, solutions, and insights, and building a common store of knowledge.

Wenger's explanation points not only to the critical role that interactions in communities of practice have to play in knowledge construction through participation, it also signals the important role of the historical context. The process of knowledge construction not only requires the key elements of domain, community and practice, it also requires contextualisation in an historical as well as a social milieu. This is an important feature of the lifecycle of communities of practice because "the strength of communities of practice is self-perpetuating. As communities of practice generate knowledge, they renew themselves. They give you the golden eggs and the goose that lays them" (Wenger & Snyder, 2000, p. 143).

Wenger, McDermott and Snyder (2002, pp. 68-70) describe five stages of development through which a community of practice may pass over time; potential, coalescing, maturing, stewardship and transformation. Each stage is characterised by a range of activities and differing levels of interaction among participants. Community development in this context is not necessarily a linear process nor does it imply that a community needs to pass through all five stages. Each of the five stages of community development in terms of the key domain, community and practice issues relating to each stage of community evolution are described in Appendix A.

Participation in communities of practice is largely driven by a need to stay abreast of current developments in the domain of knowledge. Participation and interaction in a social context over time provides the means for knowledge construction and for the sharing of knowledge of benefit to others. Implicitly, there exists a recognition that knowledge construction is less likely to occur in individuals in isolation as it is through participation and interaction with others in the knowledge domain:

> Real knowledge is integrated in the doing, social relations, and expertise of these communities…The processes of learning and membership in a community of practice are inseparable…[and]…knowledge is inseparable from practice. It is not possible to know without doing. By doing, we learn (On Purpose Associates, 2001).

In teacher communities of practice, then, learning may occur through shared practice. Typically, these communities are informal, self-organising entities un-aligned with traditional school structures such as faculties or formal committees. They are practitioner-focused communities wherein the core business is the development of shared meanings around practice and the construction of knowledge. Teachers may belong to a number of such communities with different levels of participation in each ranging from core to peripheral. What has become evident, however, is a growing recognition of how communities of practice "fulfil a number of functions with respect to the creation, accumulation, and diffusion of knowledge" (Wenger, 1998a).

In this respect, communities of practice may act as "nodes for the exchange and interpretation of information" within the knowledge domain (Wenger, 1998a). Through shared practice, participants recognise what is useful and relevant and the community acts as a conduit through which information is disseminated.

Communities of practice can also "retain knowledge in 'living' ways, unlike a database or manual." This is particularly useful over time for the preservation of tacit knowledge that supplements or amplifies more formal but rigid methods of retaining and storing knowledge such as formal information management systems. This is practitioner knowledge derived from shared practice over time. Communities of practice can also "steward competencies" of members who claim to be leading edge in their area by providing a mutually beneficial environment for the community (through enhanced reputation for currency and relevance) and for the individual (by association with and membership of a dynamic community based on collaborative enquiry).

Finally, communities of practice "provide homes for identities." Identities are important in these communities and provide a constant over time as more contrived groupings such as imposed teams fade away. Wenger (1998b) explains that identities assumed by participants within the community may also provide members with clues that inform decisions about their level of participation in the community and are closely linked to participants as learners in the community:

> Because learning transforms who we are and what we can do, it is an experience of identity. It is not just an accumulation of skills and information, but a process of becoming…We accumulate skills and information, not in the abstract as ends in themselves, but in the service of an identity. It is in that formation of an identity that learning can become a source of meaningfulness and of personal and social energy. (p. 215)

While the literature indicates that there appears to be great potential for online communities of practice, there are also those who draw attention to some issues that militate against the idea. Wood and Smith (2001, p. 121), for example, report two areas of concern with the use of the online community metaphor. These criticisms involve concerns that meaningful relationships cannot be formed without some component of face-to-face interaction and the view that the online community metaphor is limited by opportunity as so much of the world does not enjoy reliable Internet access.

In terms of teacher professional learning, Marx, Blumenfeld, Krajcik and Soloway (2000, pp. 289-290) are concerned that communities of practice need to reach a

"critical mass" to be successful and that "while other professional groups have reached such critical mass, the literature on teacher telecommunications does not report major successes in this regard." Wenger, McDermott and Snyder (2002, pp. 139-159) devote a chapter to the "downside of communities of practice" acknowledging that "they can hoard knowledge, limit innovation, and hold others hostage to their expertise." Because of their informality and lack of bureaucratic structure, communities of practice may be prone to what Wenger, McDermott and Snyder (2002, pp. 139-159) describe as "disorders" that can threaten their development. This is why astute leadership in community development is vital if communities of practice are to thrive. The outcomes of this study will include a judgement as to whether or not OZTL_NET has reached "critical mass" as an online community of practice for teacher professional learning and what implications, if any, there are for the leadership of the community into the future.

To this point, the literature indicates that participation in online communities and/or communities of practice may enhance teacher professional learning. In the following section of this review some further critical perspectives that challenge some of the core assumptions that underpin the theoretical conceptions of online communities and communities of practice for teacher professional learning are considered. The idea of what constitutes genuine collaborative involvement and how it is portrayed at the level of interaction through the formation of learning relationships online is explored.

2.5.2 Beyond communities of practice

While communities of practice in education may be small within-school groups with a specific task or goal to achieve, they can also be larger, distributed groups that have a focal point (in this case the theory and practice of teacher librarianship) wherein meaning is derived from social interaction undertaken as part of participation in the community. Through participation, common understandings are derived and newcomers are socialised into the community. In this context, learning involves four "deeply interconnected and mutually defining" key components: "meaning (learning as experience), identity (learning as becoming), practice (learning as doing) and community (learning as belonging)" (Wenger, 1998b, p. 5). The result is a mutually

beneficial arrangement predicated on level of engagement. Individuals learn courtesy of their contributions to the community while the community redefines its practices in response to individual contributions: the key components are at once "deeply interconnected and mutually defining" (Wenger, 1998b, p. 5).

In his discussion of Wenger's work, Mayes (2001) concurs with and emphasises the view that deep engagement in communities of practice (which he describes as "stable and long-term" environments) results in more than sense making; the relationship actually shapes the *identity* of the individuals who participate. Fowler and Mayes (2000) and Mayes (2001) consider that early conceptions of communities of practice were limited in terms of the design of formal learning environments because they did not sufficiently encompass "a description of learning *per se*, or of how people learn together." While recognising the influence of the "wider social context" in situated learning, the focus should be on *learning relationships* that exist when we "learn from, or through, others. Such relationships will vary according to the characteristics of the groups involved, the context within which they operate, and the strength of the relationships" (Fowler & Mayes, 2000, p. 44).

Fowler and Mayes (2000) argue that while Wenger's conceptualisation of communities of practice as a useful means for individuals to participate in shared activities is legitimate, such participation does not necessarily constitute genuine collaborative involvement. They contend that a deeper level of engagement is required where personal motivation to learn becomes the driver behind participation. For Fowler and Mayes whose focus it must be remembered is on the design of *formal* learning environments, the central question in the context of this study really is; how can an online community of practice facilitate and support learning relationships?

Such a question has important implications for this study since it goes to the heart of individual's motivations to participate in OZTL_NET. Anecdotal evidence indicates that subscribers use OZTL_NET to exchange information, satisfy information needs, and provide support and a forum to discuss and debate issues. Fundamental to this study is the determination of how participation in online communities may support and enhance the professional learning of teacher librarians.

In order to determine how, if at all, the notion of online communities relates to communities of practice, the proposal that learning online needs to be socially situated and occurs as a result of the interactions that result in the formation of learning relationships is considered in the next section of this review. This section of the review also identifies the factors that characterise "online learning communities" and provides a conceptual summary of the changes in context and focus in the literature in relation to the concept of "communities of learners".

2.6   Online learning communities

As with "real" communities, there exist many kinds of online communities. Preece (2000, p. 10) identifies four elements common to almost all online communities:

1.   *People*, who interact socially as they strive to satisfy their own needs or perform special roles, such as leading or moderating.

Without participants, there is no community. One of the advantages of using listserv technology is that while simple to enact, participants must elect to "subscribe" (register or join) which may be enough to discourage the purely casual user and "help to create a sense of security and belonging, two major advantages" (Preece, 2000, p. 239). Listserv communities are participant-friendly, particularly to new subscribers, as the interface is familiar to anyone who can use email. Many professional online learning communities have a reputation for tolerance of "newbies" (Kim, 1999, p. 30). One of the main strengths of these kinds of communities is in the social interactions between participants and the relationships they form as they seek and provide support for each other within the focal point of practice that, in this case, is teacher librarianship.

2.   A shared *purpose,* such as an interest, need, information exchange, or service that provides a reason for the community.

OZTL_NET was originally designed for the teacher librarianship community. That is, it was specifically made available to anyone interested in issues relating to teacher librarianship and related information professions. In

particular, it was designed to cater to the needs of the Australian teacher librarianship community although information professionals from some other parts of the world participate. Additionally, theory and practice within professions like teacher librarianship is multi-disciplinary in nature and discussions about aspects of, for example, children's literature, draw participants from the ranks of classroom teachers, creators, critics, publishers, academics and booksellers, as well as from the information professions.

3.   *Policies*, in the form of tacit assumptions, rituals, protocols, rules, and laws that guide people's interactions.

The OZTL_NET policies and procedures are located on its main website (see Appendices B1-B6). The co-administrators have adopted a predominantly "hands-off" approach in order that the community establish its own protocols, rules and laws, particularly in debates about controversial topics. OZTL_NET is un-moderated so that subscribers can post messages directly to the listserv without them being screened by an intermediary such as an administrator, owner, or moderator. In this sense, OZTL_NET is regarded as an "open" community in that neither messages (except for "commercial" messages) or subscribers are vetted for suitability in any way before posting or joining. From the outset, the co-administrators have supplied "netiquette guidelines" (constantly under revision) for subscribers but these are quite broad and not designed to inhibit free speech and debate.

4.   *Computer systems*, to support and mediate social interaction and facilitate a sense of togetherness.

In terms of the potential for learning in online communities, Mayes (2001) challenges the concept of communities of practice as articulated by Lave and Wenger (1991) and Wenger (1998b) particularly in relation to the idea that, in addition to deriving meaning from participation in activities with a group of people, individual identity is also shaped from the relationships formed in that context. Mayes is also concerned that communities of practice have less utility for the design of long term, stable, online learning environments that

better reflect constructivist principles of learning, particularly considerations of learner involvement in collaboration, authentic tasks, reflection and dialogue. The implication for this study is the need to consider this distinction between a community of "practice" and a community of "learners." The latter, Mayes argues, is a more suitable conceptual basis for the design of online learning environments. The informality and flexibility afforded by the former might well be more appropriate for those seeking support and meaning in the context of their practice.

The OZTL_NET listserv is supported by a website that provides background information for subscribers including access to a message archive. In this sense, OZTL_NET does not use a raft of communications technologies to provide a broad range of opportunities for user interactions. Instead, the focus is on providing a listserv in two formats (single-message and digest) with website backup and support from the co-administrators. The final section of this review considers the literature that provides the background for a conception of teacher professional learning within online learning communities.

2.7 Towards a conception of online learning communities for teacher professional learning

Online learning communities may provide both the opportunity for distributed problem solving as well as a means for individuals to take more responsibility for their own professional learning. In this sense, the potential for online learning communities for teacher professional learning has been proffered by Hargreaves (2000) as worthy of serious consideration since they:

> provide opportunities for networking for professional knowledge creation, shared tinkering, and concurrent dissemination on a scale and at a rate that has hitherto been unimaginable. Subject-specialist knowledge creation networks should arise, bringing to an end the isolation of teachers specialising in a particular subject of the curriculum, when there are often just one or two such teachers in a single school. Networks are valuable to small or isolated schools whose staff can tap into the experience and knowledge of teachers located elsewhere. Networks are the key to this different model of dissemination in which all schools can now be linked through ICT and so all can take part in the activities of professional knowledge creation, application and dissemination. (pp. 237-238)

A critical aspect of the potential for professional learning afforded by online learning communities is the opportunities they may provide for interactions among participants. The idea that interactions that take place in real time can be replicated in online environments is described by Hodgson (2002) as a view of "Internet as cultural artefact." In this view, it is claimed that online environments are simply an extension of the existing social practices and patterns of interaction in "real" environments. An alternative conception of the "Internet as culture" emphasises how communities may be created as cultures within online environments.

In terms of this study, such a dichotomy provides a useful means for demarcating between traditional location-based forms of professional development and time and geography independent professional learning online. In online learning environments, there is a change in the kind of engagement among learners, especially in terms of control and the relationships between people that can be empowering. This idea represents an important shift in mindset since it challenges the predominant view that what takes place in online learning communities is a reflection and extension of social practices that take place in real life and proposes, instead, that the view of "Internet as culture" is a more suitable way of describing online learning communities that provide opportunities for and support of more equitable participation through interactions wherein participants are relatively unencumbered by the power relationships that often limit the opportunities for and quality of participation in real-time interactions.

Online learning communities may provide time and place independent opportunities for teacher professional learning. The opportunity for social interactions and time for reflection afforded by asynchronous environments may provide a means for teacher empowerment via the opportunity to construct knowledge. In other words, knowledge construction and capacity building through quality social interactions are defining characteristics of online learning communities. In this context, Postle (2001, p. 114) suggests that "online environments not only provide opportunities for 'individual constructivism' (interaction with content through a range of cognitive tools such as concept maps and graphic organisers) but also opportunities for 'social constructivism' (collaborative learning and co-construction of knowledge)".

Within the context of this study, the challenge for OZTL_NET will be whether a predominantly text-based environment supported by a website and therefore lacking in "such social and interpersonal features as physical presence and non-verbal cues can actually promote productive social interaction" (Postle, 2001, p. 114) that leads to the enhancement of teacher professional learning.

The following characteristics of online learning communities are consistent with the conception of Internet as culture described above. They are "believed to have the potential to change processes and patterns of interaction between people" and have been adapted from Hodgson and McConnell, 1994 (cited in Hodgson, 2002):

- it is possible to contribute to a computer mediated interaction or discussion whenever individuals feel they want to without having to wait their "turn" or without having to interrupt someone else

- contributions can be made at any time of day or night and on any day of the week

- contributions can be made wherever the different participants are geographically, from almost any location in the world, and are not dependent on the "physical" presence in one locality of the discussants

- discussions are ongoing and continuous in nature for as long or short a period of time as required or desired

- responses to others do not have to be made instantaneously or immediately but when the respondent is "ready"

- communication is generally slower and of a more sporadic nature (and thus potentially more reflective) as compared to face to face communication

- there is a permanent record of a group's work and of every individual contribution which can be referred to at any time and which can be manipulated as any other information held electronically in a database. (p. 231)

The contention here is that online learning communities for which the above characteristics are true provide opportunities for quality interactions and the formation of relationships in an online context. In the context of teacher professional learning, online learning communities may provide an environment for learning that transcends organisational and geographic boundaries that "involves people

developing the capacity to think beyond the immediate situation they find themselves in and understand why it might be both possible and necessary to create new knowledge" (Guile & Young, 2002, p. 153).

From the professional learning perspective, it could reasonably be expected that OZTL_NET subscribers, as a professional group of people, would possess fairly advanced learning skills, bring considerable experience and expertise to the community, and be willing to share information and actively seek to engage with others. This last point is important since "the main focus should be on the relationship of the learner to other people, rather than to information" (Mayes, 2002; 173). These subscriber characteristics in combination with those described above for online learning communities may result in a fertile environment for teacher professional learning.

The final characteristic referred to by Hodgson above is important since it is central to the idea of the re-use of knowledge by the provision of access to the accumulated wisdom of the online learning community. Given that learning needs to be "situated" within a social context with adequate time for discussion and reflection (Lave & Wenger, 1991; Wenger, 1998b), what contingencies are in place for individuals to access the information that has been disseminated to and the knowledge that has already been constructed prior to their entry into the community? Mayes (2001; 2002) addresses this concern in his discussion of "contextualisation" as a key element of the learning cycle. In seeking to apportion greater emphasis to the motivational and social dimensions of learning, Mayes (2002) argues that:

> In contextualisation we see those aspects of apprenticeship and peer learning that set the social context for learning coming into play. Here, too, we see scope for an expression of individual differences. Since the emphasis now will be on real-world learning, the use of the knowledge or skill acquired through a long period of construction, then the learner will now move close to achieving the goals that motivated the learning in the first place, and the learning dialogues will become both more personalised and more focused on the context of application. (p. 166)

The criterion of re-use of knowledge, or what Collis and Winnips (2002) describe as "productive learning" appears then to be critical in any consideration of the potential benefits of participation in an online learning community. Collis and Winnips (2002,

p. 1) argue that "an important but underexploited form of productive learning relates to the capture and reuse of the tacit knowledge of members" within learning environments. Access to this knowledge can be provided in a number of ways including tools that allow for the provision of a database of frequently asked questions (FAQs) or for the "threading" of online discussions. Mayes (2002, p. 168) points out that these tools offer new learners access to the discussions and resources that "capture the essence of being an active member of a community of learners…[by] providing access to the questions, comments and dialogues of previous learners." In this context, Mayes argues, discussions and resources are captured, structured and made available to new learners as part of what he calls vicarious learning. These tools provide the means for extending the concept of "social" in online learning communities beyond the immediate contexts of interaction to support a broader conception of teacher professional learning that provides access to the aggregated discussions and artefacts that underpin participation and the support of learning in the community. In terms of this study, access to the "collected wisdom" of OZTL_NET subscribers over time may provide a challenge for participants in terms of "information glut." The study will need to determine how subscribers manage the sheer quantity of information made available to them through their subscription to the listserv and how that relates to the potential of OZTL_NET as a mechanism for supporting the professional learning of subscribers.

2.8   Conclusion

This review of the literature revealed that prominent among the concepts associated with teacher professional learning are authentic collaboration, problem solving, professional practice, knowledge creation and participation or involvement (a factor incorporating a number of components such as motivation to seek further information, implementation of new ideas, and discussing and debating issues). However, a number of additional concepts and practices were also located in the literature including keeping up-to-date with professional development activities and professional reading.

This review of the literature suggests the need for a broader conceptualisation of learning communities from within-school, real-time groups or teams to include

consideration of cross-school, online communities of teachers. The literature also provided strong support for the concept of communities of practice and the potential role they may play in terms of re-conceptualising teacher professional learning in the context of online communities. While a substantial section of the literature indicates the significant potential of online learning communities and communities of practice, the review also revealed some critical perspectives that challenged some of the core assumptions underpinning the theoretical conceptions of online learning communities and communities of practice for teacher professional learning.

The review also found evidence in the literature (e.g. Kling & Courtright, 2004; Wild, 1999) to support the contention that there exists potential for the construction of knowledge and the building of capacity through active participation in an online learning community. In particular, there was support in the literature for the view that learning online may be socially situated and may occur through the interactions that result in the formation of learning relationships. Finally the literature pointed to the potential for the re-use of information (eg archived messages) and knowledge (eg professional discussions and "threads"), and for vicarious learning experiences in online learning communities as factors that may influence use through level and type of subscriber engagement and through the types of interactions subscribers experience online.

The review failed to identify any previous research studies that were directly concerned with the contribution of online communities composed of a listserv and supporting website to the enhancement of teacher professional learning. Existing studies either concentrated on online communities that provided environments and services that extend well beyond the provision of a listserv and website such as Tapped In (2004) and Math Forum (2004) based in the United States and oz-TeacherNet (2004) and QSITE-Community (2004) in Australia or their focus was on formal online learning environments, particularly in the pursuit of distance learning solutions for tertiary students (Conrad, 2002; Davidson-Shivers, Muilenburg & Tanner, 2001; Palloff & Pratt, 2003).

This literature review informed the design of the study as provided in Chapter Three. The identification of factors that characterise teacher professional learning and online

communities informed the research design, particularly in terms of framing appropriate web survey and interview schedule questions designed to elicit responses to assist in determining the extent, if any, that the OZTL_NET listserv, a text-based asynchronous environment supported by a website, approximates an online community as conceptualised in the literature and also to help ascertain whether online communities facilitate and support learning relationships between and among participants in the pursuit of teacher professional learning.

The literature that supports the selection of the research design and the approach to the study is discussed in detail in Chapter Three which also contains a detailed description of OZTL_NET. The data collection methods including the pilots of instruments are also discussed in this chapter. Chapter Three concludes with a description of the approaches to data analysis used and a discussion of the ethical implications of this study for subscribers.

CHAPTER 3:   DESIGN OF THE STUDY

3.1   Introduction

This chapter presents the design of the study (case study) including the rationale for the approach taken (mixed methods) and the methods of data collection (web survey and semi-structured interviews). The research design is followed by descriptions of the methods of data collection and the procedures employed for the analysis of the quantitative and qualitative data provided in detail in Chapters Four and Five, and by a statement describing how the ethical implications impinging on the conduct of the study were considered and approved follows. The chapter concludes with a detailed description of the object of study, OZTL_NET.

3.2   Research design

The focus of the study is on the possibilities for the enhancement of professional learning presented by teacher librarians' participation in an online community, OZTL_NET. According to the literature, many online learning communities are characterised by informal, voluntary participation of subscribers wherein the interactions between and among subscribers are considered critical to the enhancement of professional learning. The case for examination in this study is OZTL_NET, a listserv for the teacher librarianship community. The study aims to determine whether OZTL_NET succeeds in meeting the needs of its subscribers in terms of an online learning community. It also aims to shed light on how subscribers use the listserv to satisfy their professional learning needs and to identify what technical factors and aspects of use impede or promote effective deployment of the listserv by its subscribers.

The design of the study is determined by the scope of the investigation, the status of research in the area of teacher professional learning and online communities and the principal research and enabling questions to be addressed. This is a one-shot case study (Popham, 1993, pp. 227-228) consisting of three phases. The one-shot case study is an appropriate design for this study because it facilitates close investigation of a specific context consistent with the need to address the evaluative "flavour" of the research questions at the heart of this study (Wolf, 1990, pp. 144-145). The one-

shot case study is descriptively useful in studies that require the detailed investigation of an object on a formative basis at a single point in time (Popham, 1993, pp. 227-228). It is therefore a suitable design in terms of the "shape" of this research which is concerned with observing how subscribers use the object of study, OZTL_NET to enhance their professional learning.

A case study design was selected as it provides the necessary flexibility to explore issues associated with interactive processes in a single instance such as the online context of the OZTL_NET listserv in some depth (Babbie, 2004, p. 293). The analysis of these "deep" data allows significant scope for exploration of the relationships critical to the concepts of teacher professional learning and online community. An important advantage of a case study design is that it provides the opportunity to focus intensively on a specific "bounded" example or instance within a particular context to obtain a holistic description and analysis of the object of study (Merriam, 1998, p. 12). As suggested by Bell (1999, pp. 10-11), "the great strength of the case study is that it allows the researcher to concentrate on a specific instance or situation and to identify, or attempt to identify, the various interactive processes at work." In this tradition, "the distinguishing feature of case study is the belief that human systems develop a characteristic wholeness or integrity and are not simply a loose collection of traits" (Sturman, 1997, p. 61). The case study design then provides for the generation of "deep" description to identify relationships and patterns in the data to aid understanding and to get at the "meaning [that] is embedded in people's experiences" (Merriam, 1998, p. 6). This case study consists of three phases as summarised in Table 3.1 in the next section of this chapter.

3.3   Approach to the research

The nature of the research questions required the selection of a mixed methods approach for the conduct of this study that "employs strategies of inquiry that involve collecting data…sequentially to best understand research problems [and which include] both open and closed ended questions, both emerging and predetermined approaches, and both quantitative and qualitative data and analysis" (Creswell, 2003, pp. 18-19). The use of a mixed methods approach is supported by Sturman (1997, p. 62) who suggests that qualitative approaches may be usefully deployed "in

explaining more fully findings from quantitative research" and by Johnson and Onwuegbuzie (2004, p. 15) who point out the flexibility that a mixed methods approach "allows researchers to mix and match design components that offer the best chance of answering their specific research questions." The advantage of using a "complementarity" mixed methods approach for this study was that the results of the survey could be used to "develop" and inform the conduct of the subscriber interviews. This not only allowed for more depth in the data collected but also contributed to the "completeness" of the data since "qualitative and quantitative methods are used to measure overlapping but also different facets of a phenomenon, yielding an enriched, elaborated understanding of that phenomenon" (Greene, Caracelli & Graham, 1989, p. 258).

Within the quantitative paradigm, "hard" data in the form of numerical data was collected using a web survey of a simple random sample of 15 per cent of OZTL_NET subscribers (n=276) drawn from the population of subscribers in November 2002 to obtain a statistical profile of the sample. The web survey was also used to collect "soft" data in the form of subscriber responses to open-ended questions to establish how subscribers use OZTL_NET, to identify and gain insights into key issues and concerns of subscribers in relation to use and to assist in the identification of potential interviewees.

Within the qualitative paradigm, interviews were conducted with ten selected subscribers subsequent to the analysis of the survey data to determine the extent to which professional learning and knowledge construction occurred as a result of participation in OZTL_NET. In this way, it was possible to establish through the analysis of these "soft" data how the concepts of online learning communities and/or communities of practice were portrayed in OZTL_NET.

The interview data complemented and extended the data collected from the web survey, the prime purpose of which was to "map the terrain" and provide data about how OZTL_NET was used by subscribers. The interviews provided the opportunity to explore through in-depth discussions aspects of usage revealed through the survey

and what it is subscribers do in terms of enabling knowledge construction and contributing to a community of practice if indeed the evidence reveals that these concepts are portrayed in OZTL_NET.

The three phases of the study are summarised in Table 3.1. In phases one and two, the associations between the enabling questions that guide the study and the relevant section of the thesis are linked and a brief summary of each phase is provided. In phase three, the link is between the principal research question that framed the study, the analyses of data and the subsequent conceptual analysis that informed the conclusions, recommendations, principles and identification of further areas of research which constitute the outcomes of the study.

Table 3.1:　　　Summary table: Phases of the study

Phase One	
Enabling Questions	*Introduction and Literature Review*
What are the characteristics of teacher professional learning? What are the characteristics of online communities that may contribute to the enhancement of teacher professional learning?	An introduction to the topic followed by an examination of the literature relating to the characteristics of teacher professional learning, online communities, communities of practice and online learning communities as they may relate to OZTL_NET (Chapters 1 and 2).
Phase Two	
Enabling Question	*Describing OZTL_NET*
What are the defining characteristics of OZTL_NET as a listserv?	A description of OZTL_NET including history and purpose of the listserv and a summary of participant (subscriber) and message activity 1995-2003 including analysis of selected documents and sources (eg OZTL_NET message archive), and reports (eg OZTL_NET subscriber lists) (Chapter 3).
	Data Collection (Methods) and Analysis
	Web based survey of random sample of 276 OZTL_NET subscribers to obtain a profile of the sample, help establish how participants use OZTL_NET, to identify issues and concerns related to use of the listserv, and to assist in the identification of potential subscribers for interview (Chapters 3 and 4).

	Telephone interviews with ten selected OZTL_NET subscribers to determine the extent to which professional learning occurs. Data from the interviews complemented and extended the survey data and provided "rich description" about how OZTL_NET is used by subscribers. Semi-structured interviews were used although the opportunity for comment beyond responses to the questions that made up the schedule was provided (Chapters 3 and 5).
Phase Three	
Principal Research Question To what extent is usage of OZTL_NET by subscribers associated with the enhancement of the professional learning of teacher librarians?	*Conceptual Analysis* Analysis of the survey provided demographic and descriptive data for profiling subscribers and their use of OZTL_NET as well as informing question formulation for the interviews. The quantitative data analysis identified measures of usage and teacher professional learning and examined the relationship between them. This process involved the development of a single composite measure of teacher professional learning that incorporated several others (Chapter 4). Analysis of the interviews provided "rich" information to assist in determining whether subscriber participation in OZTL_NET enhanced the professional learning of teacher librarians in online communities as conceptualised in the literature (Chapter 5). The outcomes of these analyses provided the bases for the formulation of conclusions and recommendations emanating from the study. They also provided the basis for the formulation of guiding principles relating to the future development and management of OZTL_NET specifically and to listserv communities for teacher professional learning more generally (Chapters 6 and 7).

3.3.1   Theoretical perspective

The purpose of the data collection was to obtain information to help ascertain how subscribers use OZTL_NET and to determine the extent and type of outcomes for subscribers of participation in OZTL_NET in terms of professional learning and

knowledge construction. To this end, a framework based on the theory of transformative learning as espoused by Mezirow (1991, 1997, 2000) informed both the construction of the interview schedule and the analysis of data. For Mezirow the central process in transformative learning is *critical reflection* which, in combination with discourse and reflective action "always exists in the real world in complex institutional, interpersonal, and historical settings, and these inevitably significantly influence the possibilities for transformative learning and shapes its nature" (Mezirow, 2000, p. 24).

This framework assists both in the interpretation and contextualisation of the outcomes of the survey analysis and in informing the construction of the kinds of questions required to elicit further information about the outcomes of subscriber participation in OZTL_NET. In addition to critical reflection Mezirow (1991) emphasises the central role of *rational discourse* as the means by which individuals validate their knowledge of the world and themselves:

> We all depend upon consensual validation to establish the meaning of our assertions, especially in the communicative domain of learning, and that an ideal set of conditions for participation in critical discourse is implicit in the very nature of human communication. (p.198)

For Mezirow, meaning making and the interpretation of past experience through individual critical self-examination of the assumptions upon which personal meaning schemes are based is a distinguishing feature of adulthood. Development in adulthood is seen "as an adult's progressively enhanced capacity to validate prior learning through reflective discourse and to act upon the resulting insights" (Mezirow, 1991, p. 7). Prior interpretations of experiences are reviewed in the light of new knowledge as fundamental to transformative learning. This new knowledge is integrated with existing knowledge, experiences and beliefs.

Mezirow (1991) calls the process whereby adults revise their meaning structures *perspective transformation*:

> The process of becoming critically aware of how and why our assumptions have come to constrain the way we perceive, understand, and feel about our world; changing these structures of habitual expectation to make possible a more inclusive, discriminating, and integrative perspective; and, finally, making choices or otherwise acting upon these new understandings. (p. 167)

Mezirow (1991, p. 185) also recognises that "perspective transformation is a social process often involving points of view expressed by others." Schugurensky (2002, pp. 63-64) agrees pointing out that the transformative learning process cannot occur in isolation as it "involves participation in constructive discourse in which participants deliberate about the reasons for their actions and get insights from the meaning, experiences, and opinions expressed by others."

This framework is further informed by Larrivee's (2000, p. 293) notion "for conceptualising developing as a critically reflective teacher." For Larrivee (2000, p. 294), critical reflection is the conceptual combination of critical inquiry and self-reflection and is the defining characteristic of reflective practitioners. Given the voluntary nature of participation in OZTL_NET and the autonomy of the listserv it would appear that such an environment would provide a supportive climate for critical reflection through rational discourse.

Finally, the work of Cranton (1996) that relates the basic concepts of transformative learning theory to teacher professional learning, informed question formulation. Cranton extends Mezirow's view of transformative learning as an essentially developmental process to consider the circumstances under which critical reflection *results in* transformative learning in practice. An important point to note here is that both Cranton (1996, p. 113) and Brookfield (2000, p. 142) recognise that critical reflection on practice does not necessarily result in transformative learning. In other words, critical reflection is a necessary but not sufficient condition for transformative learning to take place. A transformation has not occurred until "a revision of basic assumptions, beliefs, or a perspective on education takes place" (Cranton, 1996, p. 113).

3.4   Methods of data collection

It was anticipated that the two-step approach to data collection (web survey and semi-structured interviews) would provide sufficiently rich data from which findings could be derived about how usage of OZTL_NET by subscribers may be associated with the enhancement of the professional learning of teacher librarians as well as how the concept of online communities may be portrayed in OZTL_NET.

3.4.1 Data collection: The web survey

3.4.1.1 The OZTL_NET population and web survey sample

The total of subscriber email addresses on OZTL_NET varies on a daily basis. For this reason the totals which form the basis of calculations are indicated in each case by the date on which the data were analysed. In designing the sample frame it was not possible to take into account multiple occurrences of the same person. Some subscribers may have had more than one email address. At the time the web survey was conducted (November 2002) there were 1840 subscriber email addresses listed in the membership management section of OZTL_NET. This list of OZTL_NET subscribers constituted the sampling frame for this study. All subscriber addresses were imported into a spreadsheet and allocated a unique number. From this sampling frame a simple random sample (Gay & Airasian, 2000, pp. 123-126; Williamson, 2002, pp. 227-228) of 15 per cent of subscriber addresses was obtained using the random number generator facility in Microsoft Excel. This resulted in a sample of 276 subscriber addresses. A simple random sample was considered appropriate for this study due to the availability of a robust sampling frame (OZTL_NET subscriber list) and the need to use a survey instrument to collect data from a geographically dispersed sample (Babbie, 2004, pp. 199-203).

In relation to survey research de Vaus (2002, p. 81) advises that when a "sample size represents a sizeable proportion of the population (eg. 10 per cent)… a slightly smaller sample size is equally accurate." In this study, the size of the sample was increased to 15 per cent of total subscriber email addresses despite the relative homogeneity of the population, another factor supporting a smaller sample size than that used in this study (de Vaus, 2002, p. 81). Couper (2000, p. 486) points out that a major advantage of drawing samples from restricted populations such as the sampling frame used for this study is very high or complete coverage. That is, each subscriber email address in the survey population appears in the sample frame list once only such that each will have the same chance of being selected for the sample (Dillman, 2000, p. 204).

One of the main reasons for using a 15 per cent sample size then was to ensure that the final sample was large enough once "undeliverable" emails were deducted from the initial sample of 276. As it transpired only 11 emails did not reach a subscriber email address resulting in a final sample of 265 subscriber email addresses. Another reason for using a 15 per cent sample size (as opposed to a smaller proportion) was to guard against the possibility of a low response rate considering previous research that shows that web surveys have traditionally lower response rates than mail surveys (Couper, 2000; Solomon, 2001, p. 3).

3.4.1.2 Justification of the web survey sample

The original sample of 276 subscribers was randomly selected from the population of 1840 subscribers. It would be reasonable to assume that a 100 per cent response rate to the web survey would have yielded a representative sample of OZTL_NET subscribers. However, the nature of the sample was that there was a 35 per cent non-response. This outcome resulted in two questions: 1) Is the sample reasonably representative of the OZTL_NET population? and 2) Is the sample reasonably representative of the broader population of teacher librarians in Australia?

First, a statistical procedure was used to demonstrate that the final subscriber sample of 170 was broadly representative of the 1840 subscribers in the OZTL_NET subscriber population at that time (November 2002). Determining the extent to which the final subscriber sample was representative of the total population of OZTL_NET subscribers was a challenge because no overall statistical profile of the OZTL_NET population existed. The relative anonymity of OZTL_NET subscribers meant that there were very few measures available to check the representativeness of the subscriber sample. Therefore, a usage measure was selected for this purpose, use or non-use of the digest message option. This usage measure is discussed below.

The purpose of this procedure was to determine whether the sample was reasonably representative of the OZTL_NET population. The assessment used was a comparison between the average number of messages posted by the 170 subscribers in the sample in the previous year and the mean number of messages posted by the 1795

subscribers in the OZTL_NET population at census date (August) in the year 2002. The average number of messages posted by OZTL_NET subscribers for 2002 was 3.34. The estimated reported average for the sample was derived from using medians within the group data for Question 20 in the web survey. It was estimated that subscribers who reported posting 20 or more messages had posted 25 while midpoints were used for the remaining intervals. The final mean score obtained from this analysis was 5.32. This figure is not grossly different from the score of 3.34 for the OZTL_NET population particularly given the propensity for respondents to over-estimate their involvement in research that uses self-report measures (Gall, Gall & Borg, 1999, pp. 173-174; Gay & Airasian, 2000, p. 156).

Because the data were grouped in uneven intervals it was not appropriate to perform any statistical assessment of the difference between the sample and the OZTL_NET population as the score of 3.34 is an exact measure whereas the score of 5.32 is a self report assessment derived from group data. In other words, there may have been some sense of over-reporting in the score of 5.32 for the sample that does not appear in the score of 3.34 for the population of OZTL_NET users. For example, in the category "3-10 messages per year" in Question 20, there may have been a number of subscribers who actually posted two messages only in the preceding year. Subscribers would not necessarily know *exactly* how many messages they had posted for the stated period which may have resulted in some misreporting or "apple polishing" at the boundaries of the intervals that may have resulted in an inflated mean score for the sample in comparison to the OZTL_NET population. The tendency to over-report may have been further compounded by the fact that subscribers in the sample will likely have relied solely on their memory as the basis of their reported estimate as opposed, for example, to checking the archive to count the number of messages they had actually posted. This result underlines the benefits of the two follow-ups to survey non-respondents in the first phase of data collection that resulted in a response rate that climbed from 31 per cent increasing to 42 per cent subsequent to the first reminder and, finally to 64.15 per cent subsequent to the second reminder. The resulting 170 web survey respondents ensured coverage of a wider range of OZTL_NET usages than would have been the case if there had been no follow-ups. Lack of follow-up would not only have resulted in a poor response

rate, it would almost certainly have significantly reduced coverage, as mainly the most enthusiastic subscribers only would have taken the time to respond.

The usage measure (use or non-use of the digest message option) was compared using a one sample chi square test which was not significant thereby confirming that the subscriber sample does not significantly differ from the OZTL_NET population in regard to this measure (χ^2 =2.53, df=1, p>0.10). This comparison is summarised in Table 3.2.

Table 3.2:   Comparison of sample and population of OZTL_NET on the basis of digest use

	Digest Users	Non-Digest Users
Sample Frequency*	58	111
Population Frequency	516	1279
Population %	28.75	71.25
E Values	48.62	121.38

χ^2 =2.53 df=1 p>0.10 *One non-response reduced sample size to 169

The second procedure was a comparison of the percentage of total teachers by state for 2002 (the web survey was first administered at the end of that year) for all schools in Australia with the distribution of the 170 survey respondents across all states of Australia. The Australian Bureau of Statistics does not produce statistical profiles of teacher librarians in Australia and it was not practicable in terms of the time it would take to attempt to build such a profile by combining the records of each of the educational authorities throughout Australia even if such records existed. This comparison appears in Appendix C. A one sample chi-square test revealed that the number of schools in the sample compared to the total population of schools in Australia was slightly significant when all states and territories were included (χ^2 =15.79, df=6, p>.02). The reason that the schools-by-state make-up of all Australian schools did not better match the make-up of the sample was almost entirely due to the ACT being over-represented (contributing a chi-square value of 8.1 ie. over half of the value of the total of 15.79). Because the NT had no schools in the sample, it was excluded from the analysis altogether. Both of the Australian territories were likely to cause problems in this analysis because of their low numbers of schools. However, given the lack of a statistical profile of Australian

teacher librarians, the degree to which subscribers to OZTL_NET are representative of all Australian teacher librarians cannot be unequivocally established. Appendix C also confirms the national coverage of OZTL_NET with only the Northern Territory not represented in the sample.

3.4.1.3 Structure of the web survey

The selection and wording of questions for inclusion in the survey was informed by the review of literature on teacher professional learning, online learning communities and communities of practice, the requirement to obtain a statistical profile of the sample, the need to establish how subscribers use OZTL_NET, and to assist in the identification of potential interviewees. A web survey was used to collect both quantitative and qualitative data (see Appendix D). The objective of the first six questions of the survey (Part A) was to obtain some basic demographic data about the sample. The five questions in Part B sought to find out about the workplace contexts of the subscribers in the sample. Analysis of the data obtained from Parts A and B of the survey assisted in contextualising the interpretation of the responses to Part C of the survey by providing background data about, for example, the range of subscriber situations and workplaces. The purpose of Part C of the survey was to "map the terrain" in terms of how subscribers used OZTL_NET. Analysis of these data informed question formulation for the interviews, the purpose of which was to explore in more detail aspects of subscriber use of OZTL_NET.

3.4.1.4 Use of the email cover letter and web survey

Given that this survey was of listserv subscribers, the use of email for the first point of contact with the sample was an obvious approach to take. In fact, the sample was of subscriber email addresses not of subscribers themselves so that email was the only reliable means by which subscribers in the sample could be contacted. The initial "cover email" to subscribers in the sample (see Appendix E) was designed to introduce the researcher and outline the purpose and potential outcomes of the survey for subscribers. The issue of confidentiality was addressed in the email and an invitation to make contact with the researcher if necessary was also extended.

The emails were also used to issue each subscriber in the sample with the website address, username and password for access to the web survey. These subscribers were also supplied with unique survey identification numbers in order that the researcher could track responses for the purposes of following up non-respondents.

3.4.1.5 Pilot of the email cover letter and web survey

The cover email and the survey were piloted with eight subscribers based on their experience as users of OZTL_NET. Generally, the pilot group was happy with the cover email particularly in terms of the assurance of confidentiality and the explicitly stated purpose and benefits of participation in the survey. There were, however, a number of changes made to the cover email based on feedback from the pilot group including adjustments to the order in which information was provided, changes to the text format to highlight important information, inclusion of approximate time needed for subscribers to complete the survey, the need to mention the name of the survey in the cover email and advice on an appropriate response time for completion and submission of the survey online.

The pilot group reported general satisfaction with the survey, particularly in terms of access to the survey website, the clarity of instructions, definition of terms used and the overall grouping of questions into three distinct parts. In addition to feedback regarding the format of the survey (font size, layout, etc.), the pilot group provided a number of useful suggestions for improvements to the survey including a more succinct yet descriptive survey title, the need to re-state from the cover email the benefits for subscribers of completing the survey, some minor improvements to the clarity of language used in three questions and the need to make clear to subscribers that the survey was not confined to practising teacher librarians in schools.

Typically, feedback relating to specific questions comprised advice about the inclusion of additional response options, as was the case in Questions 4, 23, 24, 25, 26, 29, 37 and 38. Overall, this advice resulted in the addition of 21 options across eight different questions. The pilot group also suggested that multiple responses be allowed to Question 4, as was already the case with Questions 22, 23, 27 and 35. In this way subscribers could more accurately describe their current position or

situation. This was considered important given the evidence in the literature of the multi-faceted role of the teacher librarian.

Three additional questions were included based on the feedback of the pilot group. Question 16 was included to complement the data from Question 15. The original survey had sought reasons as to why subscribers used the digest version of messages but did not ask why non-users did not use the digest. Questions 41 and 42 were added based on feedback that suggested that subscribers might appreciate the opportunity to simply list any suggestions they might have for improvements and/or make any final comments about OZTL_NET not already made in their previous responses.

Feedback was specifically sought on the use of the concepts of "professional community" (Question 28) and "knowledge creation/construction" (Question 27). A colleague of the researcher with a background in the teacher librarianship discipline and who was a subscriber to OZTL_NET identified these terms as perhaps requiring some further clarification. There was particularly strong feedback from the pilot group confirming the use of "professional community" as a clearly understood concept in need of no further explanation in the context of OZTL_NET. An understanding of the broad concept of "knowledge creation/ construction" was less well understood by one of the pilot group with the remaining seven advising that the concept was sufficiently well understood to be used in the survey especially since there was no adequate alternative available.

Finally, several questions were deleted on the basis that the feedback from the pilot group shed doubt on their usefulness in terms of helping to address the research questions. The deletion of these questions also assisted in keeping the survey to a reasonable length such that the response rate would not be unnecessarily compromised by a lengthy instrument requiring too much of the sample subscribers' time to complete.

3.4.1.6 Administration of the email cover letter and web survey

The cover email was forwarded by bulk email to all 276 subscriber sample addresses at the same time. Of these, 11 cover emails were returned as "undeliverable"

reducing the sample to 265. The undeliverable cover emails had been either sent to subscribers whose email addresses had changed or ceased in the brief period between when the sample was selected and when the cover emails were forwarded.

All sample subscriber emails were listed in a spreadsheet along with their unique identifier numbers and case numbers (1-276). The unique identifier and date and time of survey submissions were recorded as part of the header of each group of responses when the surveys were submitted. The researcher was then able to track the progress of surveys as they were returned. This allowed the researcher to follow up on non-respondents by bulk email only to those who had not completed the survey on two occasions in order to maximise the final response rate. These follow ups involved re-sending the cover email with a request to complete the survey (see Appendix F). In this study these follow ups were important in achieving the final response rate because, unlike paper surveys, email cover letters (and the web survey details contained therein), are easier to delete and therefore are often more difficult to retrieve for completion than paper-based surveys (Witmer, Colman & Katzman, 1999, p. 156). Respondents were asked to submit their completed surveys within two weeks of administration. The initial response rate was 31 per cent increasing to 42 per cent subsequent to the first reminder and, finally to 64.15 per cent subsequent to the second reminder. This final response rate was also boosted by telephone follow-up to non-respondents where subscribers included their contact details in their Internet signatures on the bottom of messages posted to OZTL_NET and/or when subscribers in the sample made contact with the researcher. The overall effect of these multiple contacts with respondents was to more than double the original response rate. This outcome lends significant support to claims about the crucial role of multiple contacts in maximising survey response rates (Babbie, 2004, p. 260; Dillman, 2000, p. 149; Solomon, 2001, p. 3).

Because the researcher included all contact details in the cover email, a number of respondents made email and telephone contact. While this provided the opportunity for the researcher to assist respondents with some submission issues and therefore assist the response rate, it also provided some insights into possible reasons for non-response. For a very few respondents using old operating systems on old computers and old web browsers there may have been browser incompatibility problems that

prevented them from displaying the survey although no potential respondents contacted the researcher to report this particular problem. Similarly, a possible cause of non-response may have been unspecified problems with respondents' web servers and/or Internet service providers at the time they chose to complete the survey.

It is likely that web browser incompatibility and Internet problems accounted for only a small proportion of non-response. Consistent with the advice of Dillman (2000, pp. 375-376), the design of the web survey was purposive in terms of keeping to a simple format, avoiding the incorporation of colour, graphics and other features that would add to the file size of the instrument thereby increasing download time and providing a potential barrier to would-be respondents. The size of the survey file itself was only 30 kilobytes with an approximate download time of 5-10 seconds on a typical dial-up connection.

A further possible cause of non-response was the requirement for the survey to be completed and submitted in the one sitting. Respondents were not afforded the flexibility of being able to complete the survey in stages if so desired such that parts of the survey could be completed over time. The degree of responsibility of browser incompatibility, Internet problems and the need to complete the survey in one sitting to non-response cannot be safely estimated but represent factors that need to be taken into account in the future use of web surveys. An overall outcome of the contacts made by members of the sample with the researcher was the submission of one survey by email and eight by facsimile that otherwise may not have been submitted.

The survey data was collected on the secure survey website protected by access restrictions in Unix set up by the system manager of the server on which the data is stored. Individual responses were stored as files using the Unix date format for each filename. These data were then extracted and converted into plain text and subsequently Microsoft Word documents for the purposes of data analysis. Two data output reports were created, all responses for each respondent and all responses for each question.

3.4.1.7 Response rate

de Vaus (2002, p. 127) points out that a survey of a specific homogenous group such as a simple random sample of OZTL_NET subscribers, should result in a good response rate. It might also be reasonable to assume that the likelihood of a reasonable response rate would be further enhanced by virtue of the fact that the subscriber sample would have received the cover email directly into their email accounts. Solomon (2001, p. 2) has observed that the use of a cover email as a means of contacting respondents in a simple random sample is particularly effective when the hyperlink to the web survey is included as part of the email. In this way, respondents can simply go straight to the web survey. In this study, each member of the subscriber sample was also supplied with a username, password and unique identifier (a five digit number). This meant that the web survey was secure and that only those with a username, password and valid identifier could access, complete and submit the web survey. The five-digit identifier was required for survey submission and any attempt to submit without it resulted in a dialogue box alerting the respondent to the need for their identifier. Since the OZTL_NET listserv is email based and includes website support it might reasonably be assumed that the subscriber sample was relatively comfortable with the administration of the cover letter by email containing the access information and hyperlink to the web based survey.

Notwithstanding these assumptions and the follow-up actions described in the preceding section, Table 3.3 indicates that the overall response rate for the survey was 64.15 per cent. This proportion exceeds the 60 per cent return rate considered by Babbie (2004, p. 261) to be "good" but is short of the 70 per cent response rate he considers "very good" and that Wiersma (2000, p. 176) considers adequate for traditional mail surveys for a "professional" sample. The overall response rate was, however, pleasing in the light of research that indicates that web surveys generally have a lower response rate than mail surveys (Solomon, 2001). It is unclear as to what effect, if any, the completion of a web survey had on the response rate in this study. However, since the only contact information about the subscribers the researcher had was their email addresses, it would appear that the selection of the cover email and web survey combination would provide the best opportunity for a

good response rate given the reported poor performance in comparison of surveys that were solely email based (Schonlau, Fricker & Elliott, 2001, p. 20; Smee & Brennan, 2000, p. 2).

Table 3.3:   Final response rate: Web survey

Total surveys distributed by email:	276 (15% of subscribers)
Deduct "undeliverable" emails:	11
Total surveys successfully administered:	**265**
Total surveys returned:	177
Deduct "double-ups":	7
Total usable surveys:	**170**
Final response rate to survey was 170/265 = **64.15 per cent**	

3.4.2   Data collection: The interviews

The questions for the interview schedule were informed by the results of the web survey and by the characteristics of teacher professional learning, online learning communities and communities of practice discussed in the literature. A semi-structured interview schedule was used although there was also opportunity for comment beyond responses to the questions that made up the schedule. Due to the wide geographic distribution of OZTL_NET subscribers, telephone interviews were used to gather these data. The interview schedule was piloted with two experienced OZTL_NET subscribers.

Interviews were conducted with ten selected OZTL_NET subscribers to determine whether professional learning and knowledge construction occurred. In this way, it was possible to establish the degree to which the concepts of online learning communities and/or communities of practice were being portrayed in OZTL_NET.

3.4.2.1 The interview sample

A purposive sample of ten OZTL_NET subscribers was selected for interview. Purposive samples allow for the selection of "information-rich cases…from which one can learn a great deal about issues of central importance to the purpose of the inquiry" (Patton, 2002, p. 230). The selection of the interviewees for the in-depth analysis was undertaken using the dimensions of usage identified in the survey responses and other data about the sample such as levels and nature of participation.

There were four contributing aspects of interviewee selection in terms of levels and nature of participation. The first basis for selection was the probability that those selected would provide a sufficient breadth of responses such that the full range of issues around the outcomes of participation in OZTL_NET in terms of professional learning and knowledge construction were raised and addressed. The second basis for selection of interviewees was their survey responses wherein issues of direct relevance to the purpose and range of uses of OZTL_NET had been raised.

A third basis for selection of these subscribers was that they would likely furnish responses to the interview questions that would provide depth to and further clarification of issues arising from the overall analysis of survey responses. Finally, they were also selected on the basis of their experience and use of OZTL_NET such that the range of subscribers interviewed would provide responses of direct relevance to the research questions central to this study. This approach was adopted in order to give voice to the range of OZTL_NET subscribers rather than emphasise certain categories of subscribers over others.

This process resulted in the selection of ten subscribers for interview, two from each of the following groups:

- *Experienced Subscribers.* These subscribers had a minimum of five-years total subscription to OZTL_NET and were identified by survey respondents either positively or negatively at least twice. They were frequent or prolific posters of messages to the listserv having posted in excess of 100 messages in the ten-month period leading up to the interviews.
- *Engaged Subscribers.* From their survey responses and/or contributions to the listserv, these subscribers reported having experienced a sense of professional learning and/or knowledge creation and/or online community as a result of their participation in OZTL_NET.
- *Professional Subscribers.* These were subscribers who, from their survey responses and/or contributions to the listserv, were of the view that more professional discussion was required on OZTL_NET.
- *Organised Subscribers.* These were subscribers who, from their survey responses and/or contributions to the listserv indicated the need for improved management of OZTL_NET messages and content.
- *Latent Subscribers.* These were subscribers who, from their survey responses, self-identified as "lurkers", people subscribed to OZTL_NET who had not posted to the listserv but monitored messages and discussion.

Allocation of subscribers to any one of the five categories described above does not suggest that some interviewees could not belong to more than one category. For example, some subscribers with concerns about the amount and quality of professional discussion on OZTL_NET also expressed concerns about aspects of message and content management. Therefore, the subscriber groups described above are not mutually exclusive. Rather, the selection of interviewees for each of the categories was based on "best fit" to the category criteria with an emphasis on strongly expressed views that typified the category to which the subscriber was allocated. Because the questions that made up the interview schedule did not change substantially the responses of the two pilot interviewees were included in the analysis bringing the total number of interviews to ten. The main changes to the interview schedule were in structure rather than content (see "Pilot of the Interview Schedule" below). Table 3.4 is a summary listing of the ten interviewees by category, involvement in the survey, mode of interview and workplace. Seven interviewees were survey respondents, two others had been involved in the interview schedule pilot (see section 3.4.2.4) and the tenth was selected on the same basis as those for the pilot. Demographic data for interviewees is provided in Appendix G.

Table 3.4:   Interviewees by subscriber category, survey participation and interview/work context

Name (Pseudonym)	Subscriber Category	Survey Respondent	Interview Context	Work Context
Alice	Experienced	No	Telephone	School (K-6)
Clare	Experienced	Yes	Telephone	School (4-12)
Dave	Engaged	Yes	Telephone	School (K-6)
Sue	Engaged	Yes	Telephone	School (K-6)
Gail	Professional	No	Face-to-face*	School (K-6)
Jane	Professional	No	Telephone	Librarian
Cheryl	Organised	Yes	Telephone	School (7-12)
Amy	Organised	Yes	Telephone	School (7-12)
Bob	Latent	Yes	Telephone	School (K-6)
Karen	Latent	Yes	Telephone	School (K-6)

* The availability of one of the interviewees made it possible to carry out a face-to-face interview

3.4.2.2 Structure of the interview schedule

The selection and wording of questions for inclusion in the interview schedule was informed by a conceptual framework formulated from the study of the relevant material in the review of literature and on Mezirow's theory of transformative learning. A semi-structured interview approach was adopted. In this approach a standard list of questions is included in the interview schedule but the interviewer retained the flexibility to follow-up on leads provided by respondents during the

interview including the use of appropriate "probes" to seek more complete answers to or elaborations on responses (Babbie, 2004, p. 266; Wiersma, 2000, pp. 185-186). This discretion is important in the context of this study because the flexibility contributes to the variety and depth of responses allowing the interview "to capture the respondent's perspective on a situation or event under study" (Mellon, 1990, p. 55).

The interview schedule was divided into four parts (see Appendix H). The focus of Part One was on the issue of "professional discussion" on OZTL_NET. Professional discussion on OZTL_NET emerged from the survey analysis as well as from the literature as a type of use of the listserv in which subscribers "learn how to learn" and construct meaning through dialogue as opposed to uses of the listserv that were confined to information transmission and gathering. Overall, the survey analysis revealed that subscribers felt that there was not enough professional discussion on the listserv. This issue of professional discussion goes straight to the heart of what subscribers understand to be the *purpose* of OZTL_NET.

A persistent theme in the literature and in the survey responses was the need for appropriate management of messages and content. The survey analysis revealed an uneven pattern of subscriber knowledge about and use of the range of available strategies for message and content management. A number of possible approaches were mentioned in the literature and by subscribers and were subsequently included for discussion in Part Two of the interview schedule.

Part Three of the interview schedule was concerned with exploring a number of personal and professional impacts that had emerged from the literature and survey responses. The first group of impacts comprised a list of factors identified as having some effect on the level of subscriber participation. The second group of impacts was concerned with what implications participation in OZTL_NET had for the individual subscriber on both a personal and professional basis. Consideration of these impacts assisted in determining what participation in OZTL_NET means to subscribers and how their participation was affected by the impacts under discussion.

Part Four of the interview schedule sought to elicit responses from subscribers about factors that may be related to professional learning, knowledge creation and online community that would assist in determining whether the OZTL_NET listserv could be considered an online learning community for teacher professional learning as conceptualized in the literature. In particular, subscribers were asked to draw on their experiences of OZTL_NET as a subscriber in order to ascertain whether participation in the listserv was capable of promoting transformative learning in an online community of practice.

3.4.2.3 Use of telephone interviews

Due to the wide geographic distribution of OZTL_NET subscribers, telephone interviews were used for this phase of data collection. It was considered much more important to interview members of the purposive sample described above regardless of their geographic location than it was to conduct face-to-face interviews of a convenience sample of OZTL_NET subscribers that would almost certainly not be as representative as the purposive sample. Telephone interviews were also considered appropriate because two of the most often cited disadvantages of telephone interviews did not apply to this sample. That is, there were no concerns about subscribers in the interview sample not having a telephone or that they had an unlisted telephone number (Babbie, 2004, p. 268). In fact, in addition to the enormous saving in cost compared to face-to-face interviews, the use of telephone interviews in this study provided the researcher with the flexibility to make contact with each member of the interview sample to arrange a time convenient to them for the conduct of the interview (Gillham, 2000, p. 77).

3.4.2.4 Pilot of the interview schedule

The interview schedule was piloted with two experienced OZTL_NET subscribers selected on the basis of their broad knowledge and experience of the listserv. The pilot revealed no basic problems with understanding the questions or the amount of time required for the interviews. The pilot responses were also analysed in relation to the research questions in order to ensure that the questions that made up the

interview schedule provided coverage of the issues identified by survey respondents and therefore would provide data of direct relevance to the research questions.

The main changes made as a result of the pilot were structural. Part 3 of the schedule was divided into two parts (Parts 3 and 4) to separate out and give more emphasis to the section on professional learning, knowledge creation and online community. The factor "mechanism to aid critical reflection on practice" was moved from Part 3 to Part 4 on the basis of advice that it was less of a personal or professional "impact" and more an aspect of "professional learning and knowledge creation". The partitioning of the schedule into four parts also resulted in the division of the interview into reasonably discrete chunks for the convenience both of the interviewees and for the purposes of analysis.

Additional changes included some attention to semantics. For example, the more generic term "online community" replaced the specific term "online communities of practice" as the former does not assume interviewee knowledge/understanding of the online communities of practice concept. Also, in the interests of clarity "management of messages and content" replaced the term "content management". In Part 3.1, the advice was to include "number of messages" as a factor in its own right as the pilot interviewees considered it was only one of a range of possible contributing aspects to the factor "time to participate". In Part 3.2, the advice was to expand "information sharing" to include "information gathering and sharing" as a more precise description of that particular impact.

The only major change to the interview procedures was the advice from the second pilot interviewee that the provision of the interview schedule about 20-30 minutes prior to the interview helped her in terms of getting an overall understanding of the breadth of the interview and also in organising her responses "in her own mind". Without the benefit of a copy of the questions, the first interviewee tended to anticipate subsequent questions and "jump the gun" to some extent. The other reason that the provision of the interview schedule ahead of the interview time was deemed useful was that it allowed the interviewee adequate time to think of examples to illustrate their responses eg. the specific professional discussion in Part One. While the second pilot interviewee reported that having the questions was useful, it was her

advice that they should not be provided more than 60 minutes prior to the interview as that would allow too much time to prepare thereby reduce the level of spontaneity that an interview would provide.

3.4.2.5 Procedures for conduct of the telephone interviews

Initial contact to request involvement in the interviews with each member of the interview sample was made by telephone. Each of the eight members of the sample agreed to participate and both of the pilot interviewees agreed that their interviews be used in the final analysis. A follow-up email was sent to each interviewee (Appendix I) which re-affirmed the conditions under which the interviews would take place. In particular, interviewees were reminded that their responses would be recorded and kept confidential, that pseudonyms would be used in the analysis and reporting of results and that selected quotes from the interview transcripts may be used in the writing of the thesis. Interview times were arranged on a case-by-case basis to suit the interviewee. Typically, interviews lasted between 50 and 70 minutes. Interviews were transcribed into Microsoft Word documents for the purpose of analysis.

3.5   Data analysis

Data analysis "essentially involves synthesizing the information the researcher obtains from various sources…into a coherent description of what he or she has observed or otherwise discovered" (Fraenkel and Wallen, 2000, p. 505).   The approach to the analysis of data in this study was shaped by the type and amount of data collected and made extensive use of description in addition to a number of statistical analyses of the quantitative data. The two primary data sources, the web survey and the semi-structured interviews, were analysed and reported in terms of patterns in subscriber responses in relation to the principal and enabling research questions that guided the study.

The data analysis was completed in two stages. In Stage One the web survey data was analysed followed by the analysis of the interview data in Stage Two. Stage One of the data analysis was completed before Stage Two commenced because the research design required that the issues and concerns that resulted from the analysis of the survey would be used to inform the construction of questions for the interview schedule. The web survey data involved analysis of both quantitative and qualitative

data while the interviews were concerned with the analysis of qualitative data in the form of subscriber responses to questions in the semi-structured interviews. This section of the chapter will provide details about each stage of the data analysis.

3.5.1 Stage one: Analysis of the web survey

The web survey was divided into three parts: Part A: "About you" (Questions 1-6), Part B: "About your workplace" (Questions 7-11) and Part C: "About how you use OZTL_NET" (Questions 12-42). Subscriber responses to individual questions were collected using the web survey and stored as individual files using unique filenames created through the application of the UNIX date format, a 32-bit number. A program (CGI script) was then written to extract these data from these files to present them in a format suitable for analysis. Each subscriber respondent was allocated a unique identification number so that all responses could always be linked to the subscribers who provided them. The quantitative data, originally presented in a text format, were then imported into Microsoft Excel for analysis. Similarly, the qualitative data were imported into Microsoft Word for analysis. In terms of data analysis, a major advantage of web surveys is that "the data received by the researcher are in a completely predictable and consistent format, making automated analysis possible without the editing that may be necessary with text-based email [and paper surveys]" (Mann & Stewart, 2000, p. 70).

The quantitative analysis of data in Stage One was undertaken using SPSS and involved the use of several statistical techniques including correlation, factor analysis (principal components analysis) and multiple regression analysis. The remaining output from the quantitative analysis was largely in the form of frequency distributions and proportions for each response category as represented in the tables presented in the analysis of Parts A and B of the web survey in Chapter Four. For questions in these parts of the survey that were not "exhaustive" in terms of the inclusion of all possible categories of response (eg. Question 4), all responses to the "other" category were included for analysis with the qualitative responses. This step required some cross checking in the analysis of data between the quantitative and qualitative data output on a question-by-question basis. This need to seek a combination of quantitative responses and qualitative data to assist in addressing one

or more research questions is quite common in survey research (Best & Kahn, 2003, p. 260).

Subscriber responses to the web survey resulted in two types of quantitative data. First, there were data resulting from "category" questions (Youngman cited in Bell, 1999, p. 120) that required single responses only (eg Question 2). Second, there was data resulting from "list" questions (Youngman cited in Bell, 1999, p. 120) that allowed for multiple responses either by selection from a list of alternatives (eg Question 23) or by selection from a pull-down menu (eg Question 24). These questions were designed to allow for a range of possible subscriber responses such that they were not "forced" to select one response from two or more equally valid options. For example, the pilot of the survey revealed that subscribers typically engaged in a number of follow-up actions in response to OZTL_NET messages (Question 22). The subsequent analyses of these data provided the total number of follow-up actions and the percentage that individual actions represented of the total, rather than focusing on how many follow-up actions were undertaken by individual subscribers. The analyses of these questions used frequency counts and percentages with the results reported as tables (Bell, 1999, pp. 174-176).

The statistical analysis of quantitative data from the web survey resulted in the development of four different measures that represented teacher professional learning. Two of these measures were ratings and two were aggregated from scores derived from responses to dichotomous items indicating that particular types of professional learning had or had not occurred. Thus there were four discrete measures that represented types of teacher professional learning. A principal components analysis and subsequent scale analysis were undertaken to demonstrate that these four measures could be combined to produce a single measure of teacher professional learning. Finally, to examine the relationship between the single measure of teacher professional learning and the multiple usage measures multiple regression analysis was used.

In terms of the qualitative responses to the web survey, the data analysis was concerned with "a search for patterns in [the] data – recurrent behaviours, objects, or a body of knowledge" (Neuman, 2003, p. 447). The qualitative output from the web

survey was produced in two arrays; responses by respondent and responses by question. The latter array was particularly useful in the data analysis as it allowed for all responses to each question to be grouped together. The use of unique identification numbers provided a link between the two arrays. These data were "eye-balled" by the researcher in order to determine response categories and to organise responses into those categories. Where possible, the analyses of these questions attempted to "capture" all subscriber responses in categories. The results were reported in frequency tables in Chapter Four that used category, frequencies of mention and percentages.

3.5.2   Stage two: Analysis of the interviews

The data from the semi-structured interviews were used to elaborate on the results of the web survey. Because of the room to manoeuvre provided through the selection of semi-structured interviews compared to more formal interview approaches, the process of collecting data via this means allowed for the simultaneous application of a "clear structure" (the interview schedule) and a "natural" element (the option of using prompts and pursuing some responses in more depth). "This very flexibility is what makes the semi-structured interview such a productive research tool" (Gillham, 2000, p. 65).

The researcher conducted each of the ten interviews. The process of analyzing these qualitative data can be divided into three steps (Creswell, 2003, pp. 191-195). The first step in the data analysis was to organise and prepare the data. Each interview was recorded and subsequently transcribed verbatim into a Microsoft Word document. The second step in the data analysis was to "eye-ball" or closely read through all of the transcripts in order to obtain a general sense of the information and some early feeling for its meaning in the context of the study. The process of checking each interview transcription against the relevant interview audiotape further sensitised the researcher to the issues and concerns raised by subscribers in their responses. In this step, some potential key points were highlighted and margin notes made, particularly as themes and issues began to emerge.

Step Three of the data analysis involved the use of a coding process. This step required closer examination of each transcript and the production of additional margin notes. Upon completion of this examination, the transcripts were re-arranged such that subscriber responses to each of the four sections of the interview (see Appendix H) were aggregated and colour-coded so that subscriber responses to questions within each section could be easily compared. From this analysis, a number of issues and themes were identified that formed the basis of the questions that comprised the interview schedule. This outcome appears to support the selection of research design for this study since the analysis of the web survey data that informed question construction in the interview schedule proved to be a very good predictor of the major themes and issues to arise from the analysis of the latter. It should be stated, however, that the major themes and issues for analysis in the interviews were in no way limited to those that were defined in the web survey. Indeed, there were a small number of additional issues identified from the analysis of subscriber interviews (such as the legitimacy of peripheral participation in OZTL_NET) that were subsequently discussed in the relevant sections of Chapter Five.

In Step Four of the data analysis, the researcher took notes which summarized each subscriber's response to a particular question. Where similar responses to the same question were provided, a code in the form of a "score" was allocated to each response to indicate its usefulness in illustrating the issue or theme to which it was related. To ensure that no relevant data were excluded from the analysis, cross references from related relevant responses were established using both margin notes and a keyword approach to searching the interview transcripts.

In Step Five, suitable quotations were identified for potential use in Chapter Five to illustrate the range of perspectives on issues and themes as they emerged. Chapter Five makes extensive use of these quotations within the narrative that reports on the findings of the analysis. The approach taken in Chapter Four is to report the analyses of data in the order of questions in the web survey. In Chapter Five some re-ordering of question responses into logical groupings was undertaken as part of the analysis. This approach provided a logical flow to the analyses that allowed for the identification of issues and themes as they emerged.

The sixth and final step in data analysis was to interpret and derive meaning from the data reported in Chapter Five. In this way, findings from the present study could be compared to those in the literature reported in Chapter Two. These findings were also used to draw conclusions and make recommendations in Chapter Six.

3.6   Ethical considerations

Ethics clearance for the conduct of this study was sought and obtained in writing from the Office of Research and Higher Degrees (ORHD) at the University of Southern Queensland (Reference number H02STU2200). The researcher's application to the ORHD addressed a number of ethical points, several of which were discussed in the context of the sections on data collection above. In summary, every effort has been made to guarantee anonymity of survey respondents. The administration of the survey, collection of data, collation of returned surveys and use of the survey results were done entirely by the researcher. Each of the interviewees was informed that quotes from transcribed interviews might be used in the thesis. In both phases of data collection confidentiality was assured through, for example, the use of aliases for interviewees. Finally, all of those involved in the study were informed that participation was entirely voluntary. No form of coercion was used to involve subscribers in the study. In all cases, the benefits of participation in the study were stated and the researcher undertook to report key findings from the study back to OZTL_NET.

3.7   Describing OZTL_NET

The acronym OZTL_NET is short for **OZ**(Aus)tralian **T**eacher **L**ibrarians' **NET**-work. OZTL_NET was developed specifically for the "Australian teacher librarianship community" in 1995. The researcher is one of two members of the Centre for Studies in Teacher Librarianship within the School of Information Studies at Charles Sturt University who administer the listserv. In July 2004 the number of OZTL_NET users exceeded 2100 of whom approximately 1500 were subscribed to the regular list and 600 were subscribed to the digest version (wherein a number of messages are "collapsed" into a single message headed by a table of contents). At this time the OZTL_NET archives contained in excess of 38000 individual messages.

3.7.1   OZTL_NET as an online community

An attribute of online learning communities identified in the literature was that they might provide leadership opportunities for participants. OZTL_NET is un-moderated and the co-administrators have intentionally employed a "hands-off" approach in their management of the listserv. Such an environment may be conducive to the support and encouragement of "teacher leaders" (Andrews and Crowther, 2002; Crowther, Kaagan, Ferguson & Hann, 2002; Crowther & Olsen, 1997). The identity of these leaders varies depending on the content of messages and the interactions among subscribers but the underlying philosophy is one of ongoing collegial support where subscribers provide assistance to each other in an online environment. Such an environment provides the necessary conditions wherein the individual practices of many may connect with and form shared practice, a condition described by Sergiovanni (2000) as "deep community" characterised by:

> High levels of trust, openness, and sharing that revolve around a common focus… Teachers learn together, share together, and research their practice together. They feel obliged to help each other learn and thus to share their own learning by connecting it to the learning of other members of the community. (p. 140)

The literature review revealed that online learning communities differ from groups and teams in that their participants are united by their involvement with one another rather than by membership alone. Typically, participation in these communities is voluntary so subscribers may join and leave the listserv or suspend their membership as they wish. Moreover, this involvement is based in action where the power of shared activity to create shared knowledge and shared ways of knowing may be exploited (Lave & Wenger, 1991). Typically, subscribers will be more centrally involved in some communities while their involvement in others will be marginal or peripheral. The degree of "centrality" of subscriber involvement may also shift over time as various issues and concerns come and go and subscriber priorities change.

In this context, the notion of a community of practice (Wenger, 1998b) can be extended to incorporate the notion of a "community of leaders" (Senge, cited in Limerick, Cunnington & Crowther, 1998, p. 227). All participants in a community of

practice have the opportunity to lead knowledge construction and to build capacity, particularly for the benefit of others in the community. Participation in these communities of practice leads to interactions that result in knowledge construction. All participants in an online learning community have this same opportunity. Participation in online learning communities, however, leads not only to knowledge construction for the benefit of the community; it is also about individual capacity building through the creation of learning relationships forged online.

A further extension of this idea is to build on the fundamentals of knowledge management principles that encourage the creation of a knowledge sharing culture within individual schools (Hargreaves, 2000; Todd, 2001) to the point where involvement in online learning communities facilitates knowledge sharing among individuals in many schools. At that time, it might be concluded that the processes of knowledge construction would have transcended geographical and organisational (school and system) boundaries to include contributions from all stakeholders with concerns about the theory and practice of teacher librarianship and related disciplines.

The idea of online learning communities spanning boundaries allows for consideration of the formation of "collective intelligence" that is built on and contributes to the development of tacit knowledge in "the social space between formal hierarchies and project teams…[In fact,] many communities of practice are now global" (Sallis & Jones, 2002, pp. 24-25). Sallis and Jones (2002) point out that, in education, these communities are:

> particularly important in nurturing and harvesting tacit knowledge and in building up a sense of common purpose, although they can be equally valuable in creating explicit knowledge. They can work as well with contracts, regulations and codified procedures as with rules of thumb, intuition, hunches and underlying assumptions. (p. 25)

The preceding statement suggests two underlying issues worthy of further consideration in the context of this study. First, while online learning communities may be particularly suited to developing and leveraging tacit knowledge, an otherwise elusive form of knowledge to harness, knowledge construction in online learning communities may also contribute to the creation of explicit knowledge

especially when the community requires it to further its collective goals and aspirations. Second, the fundamental difference in the case of OZTL_NET is that the collective is not confined to an organization but to a subset of the *profession,* a self-organised, informal and voluntary network of individuals bound together by "common interests, with a common need to share and communicate ideas and expertise, and to solve problems" (Sallis & Jones, 2002, p. 24).

As an outspoken advocate of the "knowledge creating school", Hargreaves (2000) has championed Nonaka and Takeuchi's (1995) model that describes knowledge creation in terms of the interactions between explicit and tacit knowledge from which four modalities of knowledge conversion are postulated:

> *Socialisation* concerns the shared experience through apprenticeship and on-the-job training which generates tacit knowledge. Dialogue and collective reflection among members of the community trigger *externalisation* by which tacit knowledge is articulated into explicit knowledge. Learning by doing stimulates *internalisation*, by which explicit knowledge is converted into tacit knowledge; as in skill acquisition, what is initially explicit becomes tacit through experience. People with different knowledge coming together through networking results in *combination*, a process of systemising and elaborating explicit knowledge by combining different bodies of knowledge. (p. 228)

The appeal of this model is the focus on the process of knowledge construction through collective endeavour based on shared experience through dialogue and reflection. Such a focus would appear to be most useful in the context of professional online communities, as "turning information into knowledge is a social process, and for that you need good relationships" (Fullan, 2001, p. 6).

According to Fullan (2001), due consideration of the role of information, relationships and commitment is fundamental to a collective conception of successful knowledge sharing and creation in professional learning communities. In these communities it is not so much the people but the relationships between and among them that make the difference; "data without relationships merely cause more information glut" (Fullan, 2001, p. 6). In this regard moral purpose and internal commitment are necessary prerequisites for knowledge sharing. Individuals need moral purpose before they will share their knowledge. Fullan cites Argyris (2000, p.

40) in his explanation of the key role of internal commitment as "energies internal to human beings that are activated because getting the job done is intrinsically rewarding" and concludes that the link between knowledge building and internal commitment needs to be explicit and intimate if the community is to obtain maximum benefit (Fullan, 2001, p. 81; Hung & Chen, 2001; Wenger, McDermott & Snyder, 2002).

3.7.2   History and purpose of OZTL_NET

The establishment of OZTL_NET was the idea of Lyn Hay, a lecturer in teacher librarianship at Charles Sturt University. Subsequent to preliminary discussions with colleagues about the feasibility of establishing a listserv for the Australian teacher librarianship community, Hay presented a proposal to the teacher librarianship discipline group in December 1994. The proposal to establish the listserv was accepted. The researcher, who had been a subscriber to the US-based LM_NET - Library Media Network (2004) for some time agreed to co-administer the list with Hay, who subsequently liaised with the University's Division of Information Technology regarding appropriate configuration of its listserv software, SmartList, for the purpose. With the permission of the LM_NET list owners, Mike Eisenberg and Peter Milbury, Hay and Dillon based a number of administrative aspects of OZTL_NET activity on those of LM_NET including procedures for communicating with others and the formulation of "netiquette" guidelines.

OZTL_NET was established with three main goals in mind (adapted from Hay & Dillon, 1998):

- to support the professional information needs of Australian teacher librarians using an electronic communication forum

- to enhance regular professional communication delivery and exchange between all members of the Australian teacher librarian community, thus overcoming the professional isolation of teacher librarians; and

- to create an effective electronic community of Australian teacher librarians on the Internet which could potentially unite all parties interested in teacher librarianship issues. (p. 273)

Throughout the first half of 1995, a list of potential subscribers to OZTL_NET was compiled and plans for promoting the service to the profession were devised. The number of subscribers grew steadily during the later part of 1995 as potential subscribers were contacted via email and as word spread through teacher librarian networks, professional development activities, other listservs and teacher librarianship newsletters and journals. Promotional events were also planned and the first of several real-time OZTL_NET "breakfasts" was held in Sydney on June 8, 1996 by which time there were 641 subscribers. On August 4 1995 Dillon posted the first official message to the public list with the subject line "OZTL_NET Announcement" (Dillon, 2000a). By the end of August 1995 there were 124 subscribers and by mid-December there were 361. The growth of OZTL_NET is dealt with in more detail in the next section of this chapter. A timeline that marks the major milestones in the evolution of OZTL_NET is provided as Appendix J. Since the establishment of OZTL_NET, a number of state, system and otherwise specialist listservs for teacher librarians have appeared in Australia. Details of these listservs are located in Appendix K.

The findings of this study will provide a useful basis for decision-making about the future directions that OZTL_NET might take, particularly in terms of supplying data to support or challenge the large amount of anecdotal evidence that appears to indicate that the listserv is an important source of professional interaction for its subscribers. In a message to OZTL_NET, Braxton (2000) summarised the results of her poll of OZTL_NET subscribers, which summarised and reflected the kind of anecdotal feedback the co-administrators had also received. The survey sought to determine the strengths of the listserv and also contained some "other observations":

> The strengths of the list, in no particular order, are:
> - the range of topics that are discussed, and the value of these to the professional development of our members whether they take an active part in the discussions or not
> - the spontaneity of the topics - people ask when they need to know, which is the most valuable purpose for learning - if the topics were left to a "committee" to decide then the members would lose "ownership"
> - the deep knowledge and ready assistance available and shared by the members
> - the support it offers those who have no formal qualifications or are new to the job or experienced [teacher librarians] looking for new ideas

- the global perspective which allows us to find out what is happening beyond the walls of our own library
- the networking that is developing so we can argue issues affecting our roles on a national basis
- it provides us with exactly what we are teaching the kids - locating a range of information, selecting it and sharing it with whoever needs it and thus enhancing our profile and role in the school
- immediate communication and discussions about issues as they arise such as performance appraisal
- being able to bring a wider perspective to argue for issues that affect us in our own schools, such as creating a "challenged materials" policy - it is very powerful to be able to say, "this is how my colleagues in other schools handled this..." - takes away the personal barrow-pushing perspective
- being able to locate and share physical resources that for whatever reason, a librarian does not have - it all goes towards the purpose of our job - creating the best learning situations we can for the students.

Other observations were:

- unsubscribing is always an option
- readers need to be reminded of the purpose of the subject line and the delete buttons
- after a while (reading the list) is as natural as breathing
- the nonsense and humour and gossip keep us going
- an appreciation of the lack of commercialism - we know publishers and other interested parties monitor the list but we appreciate the fact that they don't butt in to push their products, websites, etc
- the archives are useful and their use needs to be advertised more widely so repeated requests for the same stuff does not clog up the list.

At the time of its formation, the main objective of OZTL_NET was to assist in the servicing of the professional needs of practising teacher librarians, consultants, academics and others involved with or interested in the discipline of teacher librarianship and related areas. The purpose of OZTL_NET (adapted from Hay & Dillon, 1998) was to provide a means by which subscribers could:

- share ideas, problems, experiences and advice in a timely and convenient manner
- develop common visions and work towards common goals
- work together to find solutions to professional and workplace issues and problems
- "conference" at the point of need as issues and problems arise
- develop and enhance skills in the use of information and communication technologies

- reduce professional and geographical isolation and provide collegial support in a collaborative environment to even the most remote teacher librarians in Australia with national and international colleagues
- receive professional advice from experts in primary, secondary and tertiary education and other organisations within an Australian context
- efficiently and effectively disseminate information from professional groups, associations and publishers
- interact with academics and researchers, bridging the gap between theory and practice
- display leadership of the profession by placing the teacher librarianship community in the centre of a national networking movement
- support training of teacher librarians in tertiary study by providing a conduit to the collective knowledge of practitioners ie seeking practical solutions to "real life" teacher librarianship issues and problems. (pp. 273-274)

A website to support the listserv was developed and made available in April 1997 (http://www.csu.edu.au/cstl/oztl_net/). The website consists of six sections that provide background and guidance for existing and potential subscribers. Information provided includes the OZTL_NET Homepage (Appendix B1), a "Welcome" page with information about how to subscribe and unsubscribe to the regular and digest message versions (Appendix B2), and a page with procedural advice about how to post messages, use subject line keywords, stop receiving mail, and formulate "target" and "hit" messages (Appendix B3). Appendix B4 contains detailed "netiquette" guidelines which outline the conventions under which the listserv operates and provides advice on a range of issues such as when to reply to the list or to the individual, the appropriate use of Internet signatures and subject line keywords and brief policy statements on "flaming" and electronic chain letters. Appendix B5 contains information about the OZTL_NET archives including information about the "Glimpse" search engine for keyword retrieval of messages. In OZTL_NET only "commercial" messages are moderated, all other messages are posted directly to the list. The policy for commercial activity is available in the sixth and final section of the website (Appendix B6).

3.7.3   Profile of OZTL_NET subscribers and messages

Dillon (1999b) created a preliminary profile of OZTL_NET subscribers and messages. However, a more detailed and current profile of subscribers and messages was subsequently undertaken in order to obtain a broad "feel" for the scope of

listserv activity and to provide background data for the study. This profiling exercise builds upon preliminary descriptive information about the services provided by OZTL_NET (Hay & Dillon, 1997; 1998) and a brief review of the literature (Dillon, 2000b) that sought to position OZTL_NET within the context of teacher professional learning and online communities.

The total number of OZTL_NET subscribers has grown steadily from August 1995 to August 2002, peaking at 2056 in August 2000. Because subscribers are always joining, leaving or suspending their membership of the listserv, it is not possible to determine exactly when membership of the listserv reached its absolute peak. Figure 3.1 shows annual total number of subscribers at August of each year for the period 1995-2002. The month of August was selected as the "census date" for this purpose since the listserv went public in August 1995. Unfortunately, figures for August 2003 are not available although at August 2004 membership had increased to 2156 subscribers.
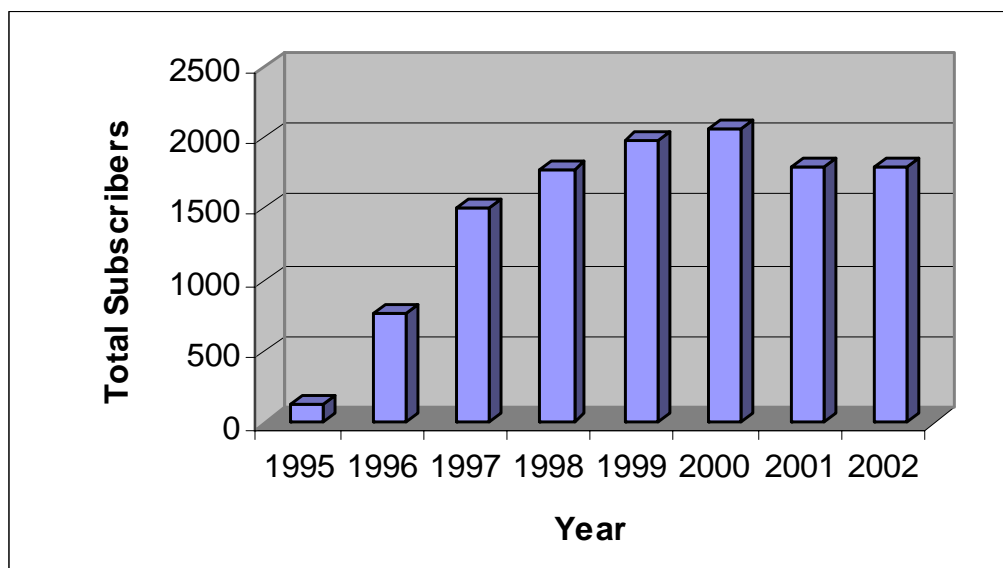
Figure 3.1: Total OZTL_NET subscribers by year, 1995-2002

Figure 3.2 shows the growth in the number of "active" OZTL_NET subscribers for the period August 1995 to August 2003. "Active" subscribers are those that have posted at least one message to OZTL_NET. Every effort was made to identify unique subscribers by reversing the domain order of each email address, identifying and removing duplicates and sorting by date of first post to the listserv. To be entirely accurate, Figure 3.2 shows the growth in the number of unique email addresses from

which at least one message has been received. By December 2003, the number of unique posters to the listserv numbered 1910. Because subscribers to listservs "come and go" it was not possible to determine the duration of subscription of individual participants, determine the amount of time subscribers accessed OZTL_NET or to ascertain the frequency with which subscribers posted messages to the listserv without going directly to the subscribers. This was an important function of the web survey as similar studies had shown that these were important measures in respect of listserv usage (Andrews, Nonnecke & Preece, 2003; Clyde, 1997; Wild, 1999). Consequently, items in the web survey utilised these measures in helping to determine the extent of their impact on subscriber use of OZTL_NET.
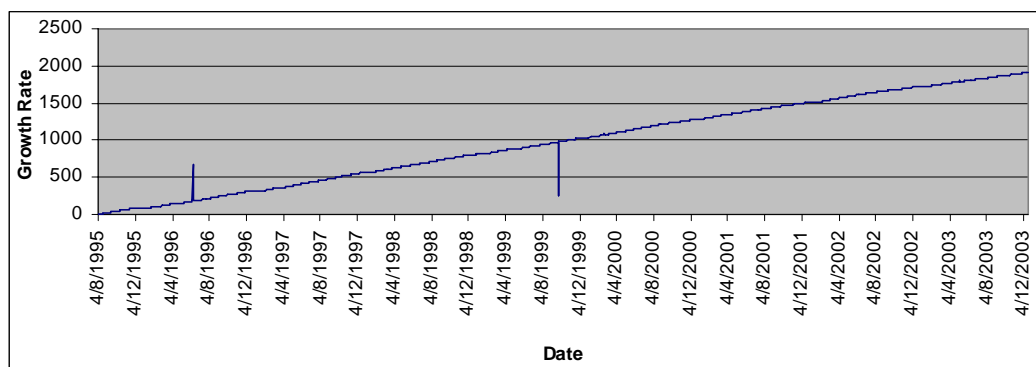
Figure 3.2: Number of active OZTL_NET subscribers each quarter, 1995-2003

Figure 3.3 shows the number of subscribers to the "regular" and "digest" versions of OZTL_NET since the inception of the digest option in 1996. Once again, August was selected as "census month" for the purposes of this exercise. The number of digest subscribers grew steadily from 63 in August 1996 to peak at 685 in August 2000. In August 2002 the number of digest subscribers dropped to 516. The decline in subscriber preference for the digest subscription version may have some basis in user preference and/or may be attributable to one or more aspects of message format. Either way, subscription preference may have some relationship to the way subscribers use the listserv.
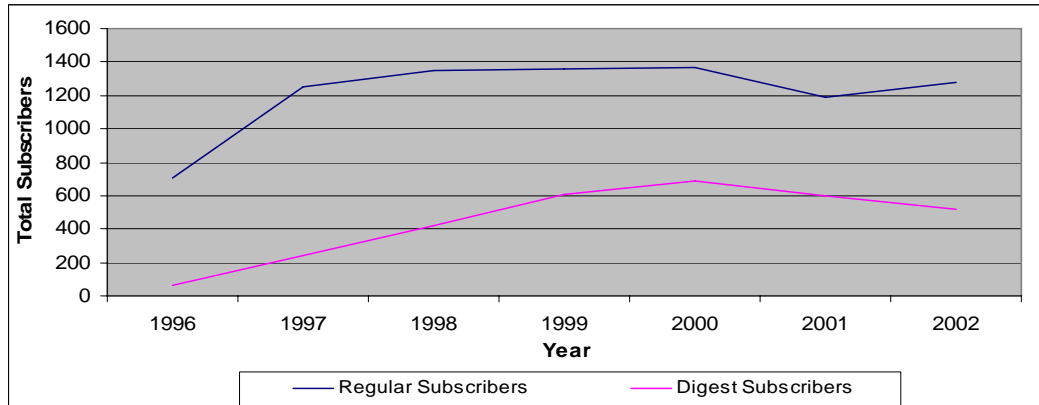
Figure 3.3: Number of OZTL_NET subscribers to regular and digest versions, 1996-2002

Figure 3.4 shows the total number of messages posted to OZTL_NET for the period 1995-2003. The 10,000[th] message was posted to the list in June 1999, 47 months after the list commenced operation. The 20,000[th] message appeared only 21 months later in March 2001 and the 30,000[th] in November 2002, a further 20 months into the life of the listserv. These data suggest that the number of message postings will reach 40,000 inside 20 months as the number of subscribers at August 2004 had risen to 2156. Within this context, it would appear that there is the possibility that message volume and management may have implications for subscriber use of the listserv.
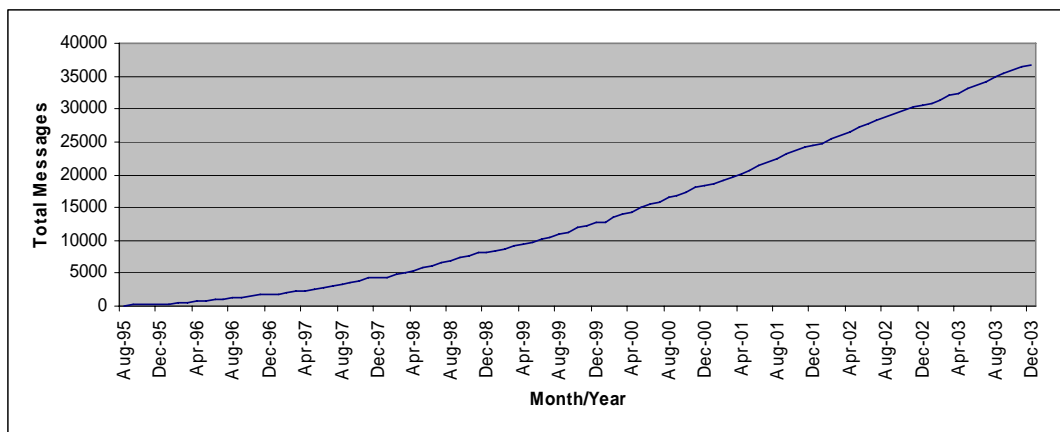
Figure 3.4: Number of messages posted to OZTL_NET each quarter, 1995-2003

An indication of the country of origin of OZTL_NET subscribers was obtained through an analysis of the domain names within subscribers' email addresses. Table 3.5 shows a comparison of the geographic distribution of OZTL_NET subscribers for 1996 and 2001. In November 1996 there were a total of 935 subscribers from at least nine different countries. 91 per cent of email addresses in the subscription list at this time originated in Australia (indicated by the domain suffix .au). By November 2001

the proportion of distinctly Australian email addresses had declined to 81 per cent and the subscriber list reflected representation from at least 15 different countries. These data, however, need to be treated with caution as the 2001 subscriber list contained 220 email addresses and the 1996 data 14 email addresses from free web-based email providers that could not be identified by country of origin. While the country of origin of subscribers using hotmail (n=119) and yahoo (n=37) accounts is indeterminate the likelihood is that the vast majority of these subscribers will be Australian and a lesser number will be from the United States. This assertion is supported by an analysis of a sampling of postings to the list by hotmail and yahoo subscribers. The subscribers using bigpond accounts (n=64) will almost certainly be from or located in Australia since an Australian company provides that service. Table 3.5 indicates that OZTL_NET subscribers are predominantly from or located in Australia with some international interest. Various postings to the list suggest that the number of American subscribers to OZTL_NET is greater than that indicated in Table 3.5 (note also the number of "unknowns") and at least some of the offshore subscribers to OZTL_NET are in fact Australian expatriates working overseas. These results support the stated purpose of OZTL_NET as a national listserv for Australian teacher librarians.

Table 3.5:   Geographic distribution of OZTL_NET subscribers, 1996 and 2001

Subscribers in November 1996		Subscribers in November 2001	
Country	**Number**	**Country**	**Number**
Australia	864	Australia	1413
United States	24	New Zealand	25
Canada	16	South Africa	10
New Zealand	8	Canada	9
Hong Kong	3	United Kingdom	5
Iceland	2	Hong Kong	4
Thailand	2	Singapore	3
Guam	1	Indonesia	2
United Kingdom	1	Guam	1
		Iceland	1
		Papua New Guinea	1
		Spain	1
		Thailand	1
		United States	1
		Vietnam	1
Subtotal	921	Subtotal	1478
Provider	**Number**	**Provider**	**Number**
world.net	14	hotmail.com	119
		bigpond.com	64
		yahoo.com	37
Subtotal	14	Subtotal	220
Unknown	17	Unknown	49
Total 1996	**952**	**Total 2001**	**1747**

By virtue of their subscription to OZTL_NET all subscribers have the ability to post messages to the listserv. Table 3.6 indicates the number of messages by individual subscribers to OZTL_NET for the period 1995-2003. These data were derived through an analysis of the email addresses of all subscribers who have posted at least one message. The number of subscribers was reduced to a list of unique subscribers by combining the counts of each message poster who, it was known, had used more than one email address in the nine-year period. The analysis was confirmed by cross checking email addresses with names of message posters in the OZTL_NET archives.

Table 3.6 shows that 14 subscribers have posted in excess of 200 messages each. One subscriber had posted 1986 messages to OZTL_NET exceeding the combined total of the next three most active message posters who had posted 746, 678 and 525 messages respectively. Three subscribers accounted for 1040 message postings among them. The top seven message posters to OZTL_NET accounted for 4975 or 13.5 per cent of the 36842 messages to the list in the period 1995-2003.

Additionally, Table 3.6 indicates that, overall, 4003 individual subscribers have posted at least one message to OZTL_NET. Because these data have been derived from an analysis of the 36842 messages posted to the listserv over a nine-year period it is not possible to conclude how many "lurkers" (subscribers who do not post messages to the listserv) there have been over time. However, an earlier analysis by Hay and Dillon (1998, p. 279) indicated that, based on the number of subscribers who had not introduced themselves to the list, the proportion of "lurkers" on OZTL_NET was in the vicinity of 75 per cent. In terms of the present study, it is necessary to determine the range of subscriber views in regard to the legitimacy of "lurking" as a form of participation in OZTL_NET. Additionally, it is necessary to ascertain from the "lurkers" themselves their reasons for not participating more explicitly in the listserv and to determine the extent to which their chosen form of participation constitutes a kind of vicarious online learning experience.

Two important outcomes from Table 3.6 appear to indicate areas for exploration in the current research. On the one hand there appears to be a relatively small group of

"dominant" subscribers who among them are responsible for a significantly greater number of message postings. On the other hand, there appears to be a large number of subscribers who do not post messages ("lurkers") or who post messages infrequently (2583 or 64.5 per cent of the 4003 individual subscribers in Table 3.6 posted between 1 and 4 messages). In terms of the current study it is necessary to determine what factors influence subscribers' decisions to post or not post messages to the list. Subscriber use of available options for information sharing and participation in discourse either on or off the list needs to be explored in order to gain an understanding of what decisions subscribers make about the form of their participation in OZTL_NET.

Table 3.6:   Distribution of number of message postings to OZTL_NET by message frequency band and number of subscribers, 1995-2003

Message Frequency Band	Number of Messages	Number of Subscribers
1	>1500	1
2	1000-1499	0
3	500-999	3
4	300-499	3
5	200-299	7
6	100-199	30
7	50-99	66
8	20-49	254
9	10-19	362
10	5-9	694
11	2-4	1298
12	1	1285

The annual total and mean numbers of monthly messages posted to OZTL_NET in the period 1995-2003 are shown in Table 3.7. Activity in this period peaked in 2003 when the number of messages posted to OZTL_NET was 6301. The highest number of messages posted in a single month was 721 in May 2002 and the lowest was 23 in December 1995. By dividing the total number of messages (n=36842) by the number of years represented in Table 3.7 (n=8.42), it can be determined that the mean number of messages per year is 4378. Generally, the pattern of activity conforms to Australian school holiday periods with the December-January period the quietest time of year. The level of activity also declines in April, July and September. Traditionally heavy usage months include March, May, August, October and November.

Table 3.7:   Annual total and mean number of monthly messages posted to OZTL_NET, 1995-2003

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1995	-	-	-	-	-	-	-	52	85	102	81	23	343
1996	19	81	124	76	140	116	114	172	168	146	190	81	1427
1997	44	182	188	160	261	218	193	257	335	319	295	114	2566
1998	93	324	427	251	354	351	369	470	380	331	432	147	3929
1999	92	357	439	315	218	393	326	530	402	518	496	321	4407
2000	187	564	685	276	629	477	341	684	323	555	582	329	5632
2001	322	532	578	357	655	548	577	650	563	596	630	232	6240
2002	217	614	649	510	721	488	392	651	494	529	503	227	5995
2003	176	649	610	433	684	626	536	600	548	587	606	246	6301
Total	1150	3323	3700	2378	3662	3217	2848	4066	3298	3683	3815	1720	36842
Mean	143.8	415.4	462.5	297.3	457.8	402.1	356	451.8	366.4	409.2	423.9	191.1	4378

One of the defining characteristics of listserv software is its inability to "thread" messages by subject. Threaded messages are messages posted to electronic forums that follow a specific discussion about a subject and which are "positioned to indicate how they are related" (Preece, 2000, p. 44). The effect of threading is that replies to a message are grouped under the original message such that the reader can easily follow the discussion. In listservs messages appear in the chronological order in which they are received regardless of subject or relationship to previously posted messages. This is one of the reasons why discussion tools such as "targets" and "hits" (see Table 3.11) were introduced to OZTL_NET, ie in order to provide a structure for discussion and exchange. However, the archiving facility within the Mailman software that OZTL_NET currently uses does allow for messages to be sorted by "thread." An analysis of 2003 messages was undertaken to determine total number and mean number of messages per month and frequency of message "discussion threads" per month. For the purposes of this study a "discussion thread" consists of a minimum of three messages on the same subject. Each monthly archive was examined and each discussion thread was manually examined, validated and tallied by the researcher.

The results of this analysis appear in Table 3.8. In 2003, February, May, June, August and November were the busiest months accounting for 3165 or 50.1 per cent of all messages while January and December were the quietest accounting for less than 7 per cent of total messages. The daily average number of messages peaked in February at 23.2 and bottomed out in January at 5.7.

The analysis of the Mailman archives indicates that there were a total of 351 identifiable discussion threads in 2003. Typically, each thread contained between three and six messages with some notable exceptions reaching as many as 12 or 15 messages. Generally, the number of threads reflected the number of messages for each month with February, August, October and November registering the highest counts and January and December the lowest. These data may have implications for the current study in terms of the use of OZTL_NET for the purposes of professional discussion as opposed to its use, for example, for information gathering and sharing. In his analysis of two listserv communities, Wild (1999, p. 127) points out that "the more threads that occur in a list, the more opportunity there is for critical and reflective dialogue to occur."

Table 3.8:   Total message postings, frequency of discussion threads per month and mean number of messages, 2003

Month	Number of Messages	Threads (Freq.)	Mean No. Per Day
Jan	176	8	5.7
Feb	649	41	22.4
Mar	610	30	19.7
Apr	433	29	14.4
May	684	32	22.1
Jun	626	33	20.9
Jul	536	25	17.3
Aug	600	40	19.4
Sep	548	28	18.3
Oct	587	35	18.9
Nov	606	35	20.2
Dec	246	15	7.9
Total	**6301**	**351**	**17.3**

Since the number of OZTL_NET messages is quite high, the administrators made the early decision to adopt a system of "subject line keywords" (SLKs) that would provide subscribers with an indication of the content of a message thereby reducing the time required to manage the large number of messages they receive. While the idea of the digest version of subscription was also to assist mail management (see Figure 3.3), it had been demonstrated on other listservs such as LM_NET that the use of SLKs was also a potentially useful means by which subscribers could filter their email messages. (See Appendices B3 and B5 for a list of SLKs and their definitions as used in OZTL_NET).

Table 3.9 provides a breakdown of OZTL_NET message postings by SLK for each month of 2003. These data were obtained by a manual search of the OZTL_NET archives. Overall, 542 or 8.6 per cent of the 6301 messages posted in 2003 contained a SLK. With such a low percentage of adoption by subscribers, it can safely be concluded that SLKs are not widely used as an indicator of overall message content. However, they may be useful in the context of the individual messages for which they are used.

The 2003 data indicate that GEN (n=146) was the most used SLK followed by HUMOUR (n=96), CH LIT (n=74), TECH (n=50) and JOBS (n=45). There are some stark contrasts in these results to the data reported for 1996 by Hay and Dillon (1998, p. 278) that indicated that TECH (n=289), COLL DEV (n=222), GEN (n=210) and INTRO (n=164) were the most used keywords. The major changes evident in the comparison of the data for the two years include the decline in use of the following SLKs: INTRO (from 164 to 14), TECH (from 289 to 50), COLL DEV (from 222 to 36), GREET (from 88 to 4), INFO LIT (from 88 to 14), REF (from 149 to 11), TL ROLE (from 65 to 5) and WHATS ON (from 89 to 6). Increases in the use of SLKs include CLASS/COMM (from 9 to 39), HUMOUR (from 1 to 96) and JOBS (from 28 to 45). These data indicate that subscriber use of SLKs has declined markedly in the period 1998-2003. It is probable that the reasons for this decline are related to usage factors identified in other studies (Andrews, Nonnecke & Preece, 2003; Clyde, 1997; Wild, 1999), such as time available to access the listserv, frequency of access and duration of subscription to OZTL_NET.

Table 3.9: Frequency and monthly distribution of messages containing subject line keywords, 2003

Subject Line Keyword	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Admin	0	3	2	0	0	2	0	0	2	0	0	2	11
Ch Lit/Lit	1	4	5	10	15	4	12	0	7	10	6	0	74
Class/Comm	0	4	7	3	6	3	1	0	5	6	3	1	39
Coll Dev	0	13	4	2	0	1	4	3	1	7	0	1	36
Gen	4	16	15	12	18	13	6	11	15	16	16	4	146
Greet	0	0	0	0	0	3	0	0	0	1	0	0	4
Humour	0	10	15	4	2	8	8	6	11	16	11	5	96
Info Lit	0	0	0	0	0	0	0	0	0	5	0	0	5
Intro	0	3	0	0	1	1	2	1	5	1	0	0	14
Jobs	1	4	7	1	2	6	2	4	6	2	6	4	45
Ref	0	0	0	1	3	2	1	2	1	0	1	0	11
Tech	0	3	9	4	6	2	0	9	5	5	7	0	50
TL Role	2	1	0	0	1	0	0	0	0	0	1	0	5
Whats On	0	0	0	0	1	1	0	0	2	2	0	0	6
Total	**8**	**61**	**64**	**37**	**55**	**46**	**36**	**36**	**60**	**71**	**51**	**17**	**542**

Although there was no provision for an SLK entitled "VIDEO", subscribers began to use this "unofficial" SLK from the early days of the listserv. Table 3.10 shows frequency and monthly distribution of messages containing the subject line keyword VIDEO for the year 2003. Only messages requesting copies of videos were included in the count. Messages, for example, about video copyright or technical queries were not counted. In total, there were 361 messages in which the keyword VIDEO appeared. It would be reasonable to conclude that this keyword constituted a special case since it was used by subscribers more than twice as often as the most frequently used "official" SLK, GEN (see Table 3.9) for the same period. In fact, the keyword VIDEO (n=361) appears almost as many times as all of the SLKs combined, excluding GEN (n=396).

Table 3.10:   Special case: Frequency and monthly distribution of messages containing subject line keyword "video", 2003

Subject Line Keyword	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Video	4	45	45	26	48	27	42	29	37	28	15	15	361

Given the inability of listserv software to "thread" message postings, one means by which discussions may be organised is the use of discussion tools such as TARGETS and HITS.   The OZTL_NET website (Appendix B3) describes the use of a TARGET/HIT as a four-step process:

1. The TARGET → originator proposes the subject for answering/commenting, i.e. TARGET → AFW Stocktake Procedures.
2. Those interested in the subject send their responses to the _originator_ of the TARGET → question. Please do NOT post the response to the group.
3. TARGET → originator summarizes or collates the responses; and then,
4. Posts the summarized responses to the entire list, using the original subject of their message, as a HIT → ie. HIT → AFW Stocktake Procedures.

In practice subscribers use target and hit in the same way as SLKs and sometimes in combination with them. However, rather than indicating the intended content of a message the use of these discussion tools signals to the reader that, in the case of targets, the poster of the message intends either to collect responses from individuals

off-list, organise them and at some time in the future post a summary or post a collection of responses as a hit, usually in a single message. Table 3.11 shows the frequency and monthly distribution of messages using these discussion tools for 2003. From a total of 6301 messages in 2003, there were 33 message postings that used target in the subject line and 183 that used hit. In terms of this study the discrepancy between the number of targets and the number of hits is of interest. How do 33 targets result in 183 hits? One explanation might be that a number of subscribers who post queries to the list do not anticipate the degree of interest in the responses to their message from other subscribers. The low number of targets appears to indicate that knowledge of the existence of these discussion tools is low among the subscriber base and that the much larger number of hits may have resulted from a large number of requests from subscribers to the original poster to *share* the responses they received to their original message. The study includes consideration of subscriber use and non-use of these discussion tools.

Table 3.11:   Frequency and monthly distribution of messages using TARGET and HIT
                 discussion tools, 2003

Discussion Tool	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Target	1	2	6	1	4	1	0	0	8	10	0	0	33
Hit	1	19	22	21	28	16	6	21	13	15	18	3	183

The OZTL_NET "netiquette guidelines" (see Appendix B4) discourage subscribers from posting messages with attachments to the list. Table 3.12 shows the frequency and percentage of messages with attachments for 2002 and 2003. Overall, there was a 32 per cent increase in the number of messages with attachments from 2002 to 2003, a disproportionately large increase given that the growth in total number of messages from 2002 to 2003 was only 5 per cent. In addition to concerns about viruses, the size of some attachments may also present challenges for subscribers with older computers and/or slower Internet connections. In the current study then, the issue of attachments is explored in terms of the implications they may have for the way subscribers use the listserv.

Table 3.12:   Frequency and percentage of messages with attachments, 2002-2003

Month	Total Messages (Month)		Messages with Attachments (Freq.)		Messages with Attachments (%)	
	2002	2003	2002	2003	2002	2003
Jan	217	176	2	3	0.92	1.69
Feb	614	649	9	19	1.47	2.99
Mar	649	610	16	12	2.47	2.05
Apr	510	433	12	12	2.35	2.81
May	721	684	22	18	3.05	2.74
Jun	488	626	12	33	2.46	5.37
Jul	392	536	14	37	3.57	7.09
Aug	651	600	27	23	4.15	3.89
Sep	494	548	7	23	1.42	4.29
Oct	529	587	20	29	3.78	5.03
Nov	503	606	18	27	3.58	4.56
Dec	227	246	9	14	3.96	5.43
Total	**5995**	**6301**	**168**	**250**	**2.80**	**4.05**

Figure 3.5 shows an overall decline in the use of the OZTL_NET public message archive from 2533 searches in 2000 to 1677 in 2003. 2001 and 2002 figures were lower again at 1508 and 1427 searches respectively. Within the context of this study, these results may have implications for how subscribers re-use information in the form of archived messages and may provide insights into the degree of value they place on the public archive facility. As a usage factor, message archives have been identified as important in a number of previous studies (Clyde, 1997; Collis & Winnips, 2002; Wild, 1999).
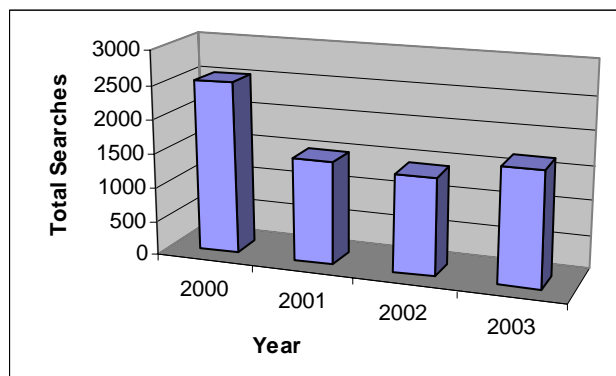
Figure 3.5: Total archive searches per year, 2000-2003

Figure 3.6 shows that the number of public archive searches peaked between July and September 2000 when 579 searches were conducted and bottomed out in October 2002 when 39 searches were conducted. The OZTL_NET public archive automatically receives messages from the list and is updated daily. A search engine called "Glimpse" allows for Boolean searching of the archive. The pattern of searches evident in Figure 3.6 suggests that the archives may not be used to any great extent by subscribers.
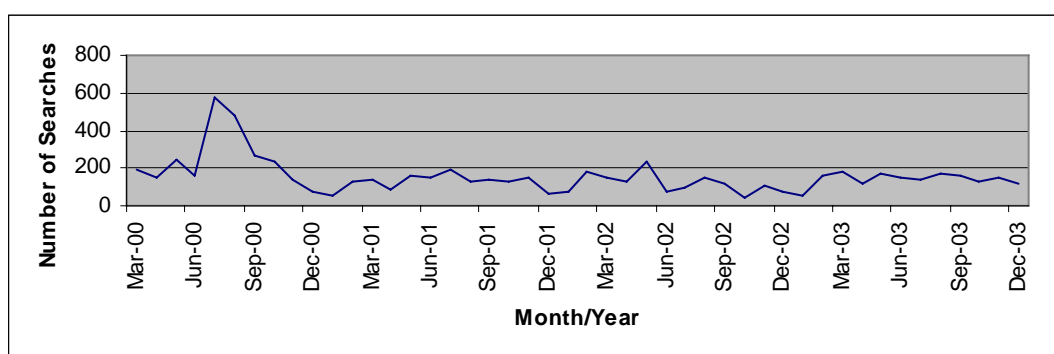
Figure 3.6: Number of archive searches per month, March 2000-December, 2003

This section of the chapter has provided a detailed profile of the OZTL_NET listserv and identified several factors from the profile that appear to have implications for the way subscribers use the listserv. The profile provides useful trend data in relation to aspects of subscriber use that informs the design of the study, particularly the construction of the web survey and interview schedule. Table 3.13 provides summary data that describes the dimensions of the listserv in terms of number of subscribers and messages, smallest and largest message, and total message storage.

Table 3.13:   Summary statistics for OZTL_NET at December 2003

Measure	Statistic	@
Subscribers	1795	Jul 2003
Messages	36842	Dec 2003
Smallest Message	952 bytes	Dec 2003
Largest Message	1995595 bytes	Dec 2003
Total Message Storage	203 MB	Dec 2003

Beyond the preceding description of OZTL_NET this study is concerned with ascertaining whether usage of OZTL_NET is associated with the enhancement of teacher librarians' professional learning. In Chapter Two the review of literature

considered the evolution in thinking from an assessment of traditional notions of staff professional development through to a consideration of contemporary conceptions of teacher professional learning. Since the vast majority of OZTL_NET subscribers work in schools and because anecdotal evidence suggests that participation in the listserv may contribute to the professional learning of subscribers, it was also important to consider changes in the ways teachers and teacher librarians now experience professional learning. The literature that describes learning communities including online learning communities and communities of practice as they may apply to teacher professional learning were also considered in detail in Chapter Two.

3.8   Conclusion

The purpose of this chapter was to describe OZTL_NET, describe the "shape" of the study, the research design (one-shot case study), the approach to the research (mixed-methods) and the methods of data collection (web survey and semi-structured interviews). The chapter also included a description of how the data were analysed and the ethical considerations pertinent to the study. The complete analyses of data are presented in the next two chapters. Chapter Four presents the analysis of the subscriber sample responses to the web survey and Chapter Five presents the analysis of subscriber responses to the questions in the semi-structured interviews.

CHAPTER 4:   ANALYSIS OF THE WEB SURVEY DATA

4.1   Introduction

Due to the large amount of data collected from the web survey and semi-structured interviews, the analysis of data for this aspect of the study was divided into two chapters. The two data collection sources, the web survey and the semi-structured interviews, were analysed and reported in terms of the patterns of responses found in the data. This chapter presents the analysis of the subscriber sample's responses to the web survey. The web survey had two purposes. First, in addition to their contribution to the findings, conclusions and recommendations of this study, the pattern of responses in the web survey data were also used to identify issues that subsequently informed the construction of questions for inclusion in the interview schedule. Second, the web survey provided data that allowed exploration of whether there was any statistically significant relationship between the professional learning of teacher librarians and their usage of OZTL_NET. The literature review suggested that there may be a relationship and a quantitative analysis of these data was undertaken to determine whether such a link exists within the context of this study.

This chapter is divided into two major treatments of the web survey data. The first part describes the quantitative analysis of the data while the second part presents the detailed descriptive analysis of the web survey results and the interpretation of those results in light of the literature reviewed in Chapter Two. The second part of this chapter also identifies and foreshadows a range of issues from the web survey that required further elaboration and amplification through the subscriber interviews, the results of which are reported in Chapter Five.

4.2   Quantitative analysis of the web survey data

The objective of the first six questions of the web survey (Part A of Appendix D) was to obtain some basic demographic data about the subscriber sample. The five questions in Part B of Appendix D sought to determine the range of workplace contexts of the subscribers in the sample. The questions in Parts A and B also assisted in the justification of the sample described in Chapter Three. The purpose of Part C of the web survey was to "map the terrain" in terms of how subscribers used OZTL_NET. Analysis of these data informed question formulation for the

interviews, the purpose of which was to explore in more detail aspects of subscriber usage of the listserv.

Certain items in the web survey were viewed as indicators of teacher professional learning (see Appendix L). The measure of current enrolment in a teacher librarianship course (Question 5) was discarded because it failed to encompass those subscribers who had already completed a relevant qualification. The measure of membership of a professional association (Question 6) was shown to be related but not significantly to the professional practice (PRACTICA) rating measure (Question 25). While membership of professional associations was not actually in itself used as a variable it did relate quite well to a number of other indicators of teacher professional learning including implementing ideas (IMPIDEA), solving problems (SOLVPROB), discussing and debating issues (DISCUSS) and professional development opportunities (PDOPP). However, the strength of these relationships varied as indicated in summary Table 4.1. These relationships are provided in more detail in Appendix M while Appendix L contains a list of the variable labels and descriptions used in the quantitative analysis.

Table 4.1:   Relationships between membership of professional association and selected indicators of teacher professional learning

	Practica*	Impidea	Solvprob	Discuss	Pdopp
χ^2	U=2.477	5.62	1.38	3.295	4.37
df		1	1	1	1
p	0.205	0.018	0.240	0.069	0.036

*Results for this variable are from Mann-Whitney U test because of the ordinal nature of this measure.

Consequently four potential indicators of teacher professional learning were developed. First, a set of checklist items related to involvement in OZTL_NET was used. The relationships between these pairs of dichotomous items were investigated by means of phi coefficients (Siegel & Castellan, 1988, pp. 232-235). These results showed high levels of correlation between these items so that it was appropriate to sum the five items to produce a single measure of involvement (INVOLVE). Table 4.2 shows the phi coefficients and probability in parentheses for each item in the INVOLVE measure.

Table 4.2:   Phi coefficient and probability matrix for INVOLVE measure

	Impidea	Moreinfo	Discuss	Solvprob	Pdopp
Impidea		.160 (.037)	.174 (.023)	.237 (.002)	.251 (.001)
Moreinfo			.199 (.009)	.246 (.001)	.233 (.002)
Discuss				.308 (.000)	.328 (.000)
Solvprob					.190 (.013)

In the context of this study the INVOLVE measure is considered as a type of involvement rather than level of involvement. The indicators that made up the INVOLVE measure were present in the review of literature (implementing ideas, seeking more information, discussion and debate, solving problems and knowledge of professional development opportunities). Descriptive statistics for the INVOLVE measure are provided in Table 4.3.

Table 4.3:   Descriptive statistics for the INVOLVE measure

	N	Range	Minimum	Maximum	Mean	Std. Deviation
INVOLVE	170	5.00	.00	5.00	3.2294	1.43921
Valid N (listwise)	170					

Second, a similar procedure was undertaken for the items used to develop the collaborative measure. Once again, the relationships between these pairs of dichotomous items were investigated by means of phi coefficients (Siegel & Castellan, 1988, pp. 232-235). The results showed high levels of correlation between these items so that it was appropriate to sum the four items to produce a single measure of collaboration (COLLAB). Moreover, there was a significant relationship between this measure and membership of a professional association (see Appendix M).

Table 4.4:   Phi coefficient and probability matrix for COLLAB measure

	Benprof	Benwork	Knowcrea	Target
Benprof		.173 (.024)	.101 (.189)	.113 (.141)
Benwork			.133 (.083)	.170 (.027)
Knowcrea				.235 (.002)

The indicators that made up the COLLAB measure were present in the review of literature (knowledge creation, group projects of benefit to workplace, group projects

of benefit to the profession and use of discussion tools such as targets and hits). Table 4.4 shows the phi coefficients and probability (in parentheses) for each item in the COLLAB measure. Descriptive statistics for the COLLAB measure are provided in Table 4.5. As was the case with the INVOLVE measure, the degree of association or congruence between these measures reinforces the proposition that these are measures of an aspect of teacher professional learning.

Table 4.5:   Descriptive statistics for the COLLAB measure

	N	Range	Minimum	Maximum	Mean	Std. Deviation
COLLAB	170	4.00	.00	4.00	1.3000	1.05947
Valid N (listwise)	170					

The third and fourth indicators of teacher professional learning were already present as rating scales. Table 4.6 provides summary statistics for the indicators professional practice (PRACTICA) and problem solving (PROBSOLA).

Table 4.6:   Descriptive statistics for the PROBSOLA and PRACTICA measures

	N	Range	Minimum	Maximum	Mean	Std. Deviation
PROBSOLA	169	3.00	1.00	4.00	3.6213	.65358
PRACTICA	169	3.00	1.00	4.00	3.0118	.68996
Valid N (listwise)	169					

An intercorrelation matrix of the four measures of teacher professional learning was produced (see Table 4.7). The results of the analysis revealed that four variables (type of involvement, collaboration, problem solving and professional practice) were significantly correlated at $p<.01$. Subsequently, a principal components analysis showed that these four measures all loaded on to a single factor which accounted for 54.7 per cent of the total variance (see Table 4.8). As the measures all had similar loadings (0.685-0.784) it was appropriate to use their unweighted sum as the overall measure of teacher professional learning (see Table 4.9).

Table 4.7:   Intercorrelations among four measures of teacher professional learning (n=170)

	INVOLVE	COLLAB	PROBSOLA	PRACTICA
INVOLVE (Type of involvement)	-	.440*	.409*	.446*
		.000	.000	.000
COLLAB (Collaboration)		-	.238*	.395*
			.002	.000
PROBSOLA (Problem solving)			-	.446*
				.000
PRACTICA (Professional practice)				-

* Pearson correlation is significant at the 0.01 level (2-tailed).

Table 4.8: Principal components analysis: Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.189	54.733	54.733	2.189	54.733	54.733
2	.768	19.203	73.936			
3	.548	13.693	87.629			
4	.495	12.371	100.000			

Table 4.9: Component matrix (a)

	Component
	1
INVOLVE	.784
COLLAB	.685
PROBSOLA	.701
PRACTICA	.784

Extraction Method: Principal Component Analysis. a. 1 components extracted.

The descriptive statistics for this aggregate measure of teacher professional learning are displayed in Table 4.10 and the distribution of scores for this measure is shown in Figure 4.7. Tabachnick and Fidell (2001, pp. 73-75) provide probability tests for skewness and kurtosis statistics (see Table 4.10) but they imply that values in the –1 to + 1 range may be acceptable. For example, Tabachnick and Fidell (2001, p. 74) suggest that any underestimation of variance associated with positive kurtosis disappears when N>100. Additionally, large samples produce small standard errors because N is in the denominator, and consequently these probability tests are overly stringent. Tabachnick and Fidell (2001, p. 74) advocate the use of visual inspection of distributions and values not too far from 0. However, the –1 to +1 principle seems reasonable here given the distribution of TPL scores shown in Figure 4.7. The indicators of TPL comprised a scale which was made up of the following four components: type of involvement, collaboration, problem solving and professional practice.

Subsequent analysis revealed that this scale had a Cronbach alpha of 0.68 and that all four items should be included to avoid reducing this value. While 0.7 or greater is usually acceptable in terms of reliability using Cronbach alpha, this limit may decrease to 0.6 in exploratory research (Hair, Anderson, Tatham & Black, 1998, p. 118). Therefore, 0.68 is a respectable result especially given that there were only four items in the principal components analysis. This is important because the more items

in the analysis the higher the Cronbach alpha will be (Hair, Anderson, Tatham & Black, 1998, p. 118). Moreover the distribution of scores on this TPL measure was good as shown in Figure 4.7.

Figure 4.7:   Distribution of TPL scores

TPL
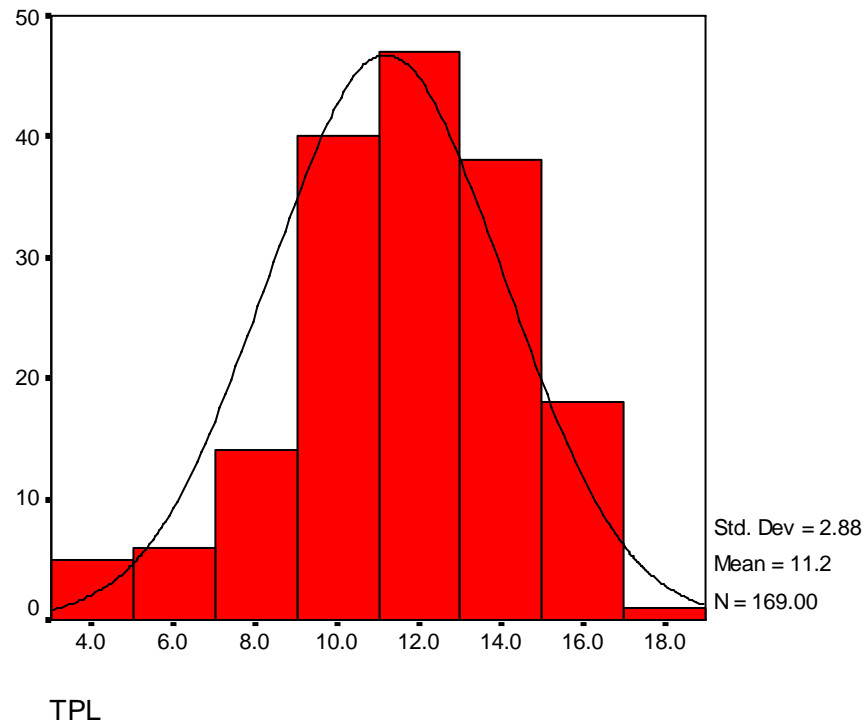
Table 4.10:   Summary descriptive statistics for TPL

	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Statistic
TPL Valid N (listwise)	169 169	.3.00	17.00	11.1893	2.87843
	Skewness		Kurtosis		
	Statistic	Std. Error	Statistic	Std. Error	
	-.493	.187	.187	.371	

In comparison to TPL the usage measures were more straightforward. Some of these measures were closely related to each other but not so much as to cause problems (multicollinearity) for the subsequent analysis. In order to explore the relationship of these usage measures to the single TPL measure an intercorrelation matrix was produced (see Table 4.11) which demonstrated that the five usage measures were at least weakly related and that their correlations with TPL were moderate to good. The results revealed that four variables (duration of subscription to OZTL_NET, time spent accessing OZTL_NET, frequency of message posting and number of times accessed OZTL_NET archives) were significantly related to the dependent variable teacher professional learning (TPL) at p<.01 with the remaining variable (number of

99

times accessed OZTL_NET website) significant at p<.05. Appendix N contains a series of scatter plots which compare each of the five usage measures with the single measure of TPL. The scatter plots verify that the relationships between each of the five usage measures (independent variables) and the single TPL measure (dependent variable) approximate to linear.

Table 4.11: Intercorrelations among five measures of aspects of teacher professional learning (n=170)

	TPL	SUB TIME	TIME ACC	NEW FREQ	WEB SITE	ARCH IVES
TPL	-	.327**	.376**	.483**	.187*	.264**
		.000	.000	.000	.015	.001
SUBTIME		-	.088	.255**	.127	.152*
			.253	.001	.099	.048
TIMEACC			-	.303**	.094	.086
				.000	.224	.266
NEWFREQ				-	.143	.214**
					.063	.005
WEBSITE					-	.346**
						.000
ARCHIVES						-

** Pearson correlation is significant at the 0.01 level (2-tailed). * Pearson correlation is significant at the 0.05 level (2-tailed).

The final step in this part of the analysis was to undertake a multiple regression analysis using the usage measures as independent variables and TPL as the dependent variable. A stepwise multiple regression analysis was used given the exploratory nature of the research (Tabachnick & Fidell, 2001, p. 138). The analysis summarised in Table 4.12 and Appendix O revealed that four of the usage measures accounted for a very substantial share of the variance of the TPL measure with the first one, frequency of message posting (NEWFREQ) accounting for 23 per cent (r = .48). All four of the usage measures produced significant R^2 changes. However, even though one variable (WEBSITE) did not enter into the model, it was also significantly related to TPL. Its failure to enter is the result of its correlations with the other independent variables.

Table 4.12:   Results of multiple regression analysis of teacher professional learning

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				
					R^2 Change	F Change	df1	df2	Sig. F Change
1	.483(a)	.233	.229	2.52805	.233	50.796	1	167	.000
2	.538(b)	.289	.280	2.44182	.056	13.002	1	166	.000
3	.578(c)	.334	.321	2.37101	.045	11.064	1	165	.001
4	.595(d)	.354	.338	2.34184	.020	5.136	1	164	.025

a Predictors: (Constant), NEWFREQ
b Predictors: (Constant), NEWFREQ, TIMEACC
c Predictors: (Constant), NEWFREQ, TIMEACC, SUBTIME
d Predictors: (Constant), NEWFREQ, TIMEACC, SUBTIME, ARCHIVES
e Beta coefficients in Appendix O.

A stepwise multiple regression was used to determine which OZTL_NET usage variables were predictive of the professional learning of teacher librarians as measured by the dependent variable, TPL. Table 4.12 shows that four independent variables (frequency of message posting, time spent accessing OZTL_NET, duration of subscription to OZTL_NET and number of times accessed OZTL_NET archives) constituted the most reliable group of predictors for TPL. Together this group of predictor variables accounted for more than one third of the variance of TPL. In the context of her study of the LM_NET listserv, Clyde (1997) cites the "accepted notion that on any listserv or discussion forum, around 90 per cent of postings will be made by around 10 per cent of the members." Similarly, Preece, Nonnecke and Andrews (2004, p. 2) report that commonly, "in many active, successful communities, a small core of participants generates most of the responses. Some people respond only occasionally, and many read and never contribute…Lurkers are reported to make up over 90% of several online groups". In the present research these proportions from previous studies appear to support the importance of frequent message posting as a predictor of teacher professional learning. They also help explain the major contribution to total variance that this independent variable made in the model summarised in Table 4.12.

The preceding analysis does not purport to confirm that these usage measures (independent variables) caused TPL (dependent variable). Instead, the analysis shows that they are statistically associated. Rather than causation, the analysis reveals a reciprocal relationship between the usage variables and teacher professional learning that precludes any assumption that causation is in a single direction. That is, on the

one hand, it might be argued that subscriber use of OZTL_NET may enhance the professional learning of teacher librarians. On the other hand, it might equally be argued that one could expect that as part of teacher librarians' seeking to enhance their own professional learning, they may make greater use of OZTL_NET.

As described in the justification of the sample in Chapter Three and confirmed by the linearity illustrated by the scatter plots in Appendix N, an adequate sample size was used for this study. Tabachnick and Fidell (2001, p. 117) recommend a 40 to 1 ratio of cases to independent variables for multiple regression which suggests that this sample is slightly too small (-30 cases). However, Tabachnick and Fiddell take a more stringent view in relation to sample size than do some others. For example, in research in the social sciences, Stevens (2002, p. 143) suggests that a ratio of 15 to 1 is generally adequate. Green (1991, pp. 499-510) suggests a minimum sample size calculated as $N>104+m$ (where m is the number of independent variables) for multiple regression while Harris (1985, pp. 63-64) suggests that, with five or fewer independent variables, a satisfactory sample size can be calculated on the basis of $N>m+50$. According to these formulae, the sample size required for this multiple regression needed to be 109 (Green) and 55 (Harris). Finally, in their discussion of appropriate sample sizes in multiple regression, Miles and Shevlin (2001, pp. 118-125) suggest that a sample size of 80 will suffice when a large effect size is predicted (up to 20 independent variables) or a sample of 100 is sufficient when expecting a medium effect using up to six independent variables. The actual sample size used in this study was 170. The lack of shrinkage in the adjusted R^2 values is testimony to the adequacy of the sample size for this multiple regression analysis which used only five measures, finally including only four in the model.

4.3 Detailed descriptive analysis of the web survey data

The web survey was divided into three parts. The purpose of this section of the quantitative analysis is to examine individual aspects of the data from Part C of the web survey in depth. The purpose of the data collected in Parts A and B of the web survey was to profile the sample in terms of subscriber demographics and workplace contexts. The responses to Parts A and B are reviewed and summarised in the analysis following the order of questions in the survey instrument (Appendix D). Because these data do not have direct relevance to the principal and enabling

research questions that guide this study, the analyses of these two parts is not reported as part of this chapter but has been made available as Appendix P.

The principal focus of this section of the chapter is to present the analysis of the quantitative data collected in Part C of the web survey. This descriptive analysis of Part C involved the grouping together of responses to the web survey questions around three broad themes. The first theme ("Background") was related to subscriber awareness of the listserv (Question 12), duration of subscription (Question 13), amount of time spent accessing the listserv (Question 17), overall usefulness to practice (Question 19) and frequency of message posting (Question 20). The second theme ("Facilities") was related to the use of the digest message option (Questions 14-16), the OZTL_NET website (Question 29), the listserv archives (Question 30) and the involvement of the co-administrators (Question 31). The third theme ("Aspects of Participation") focussed on subscriber reaction to and interaction with listserv messages (Questions 21 and 22), the value of participation (Questions 23-26, 32-33), collaboration and community (Questions 27-28), barriers to participation (Questions 34-36, 40), personal and professional impacts (Questions 37-38), and general feedback (Questions 41-42).

4.3.1   Theme one: Background

Table 4.13 shows that about 33 per cent of subscribers first became aware of OZTL_NET from their colleagues while almost 30 per cent became aware as a result of their participation in a conference, workshop or meeting. Twenty per cent of subscribers first became aware of OZTL_NET through a university course while ten became aware by "word-of-mouth."

Table 4.13:   Initial awareness by subscriber sample of OZTL_NET

How first became aware of OZTL_NET	Freq	Percent
Colleague/s	55	32
Conference, workshop or meeting	48	28
Through a university course	34	20
By word of mouth	10	6
From reading an article	5	3
Another listserv or online discussion	2	1
Via a search of the WWW	2	1
Other	1	1
I do not recall	12	7
No response	1	1
Total	**170**	**100**

In terms of duration of subscription, in excess of 60 per cent of respondents had been subscribers to OZTL_NET for more than three years while almost 25 per cent of respondents indicated that they had been subscribed to OZTL_NET for more than five years in total. This result indicates that a core of "loyal" subscribers has helped sustain the listserv over this time. Less than 10 per cent of respondents had subscribed for less than one year in total. This result also suggests that OZTL_NET is at or about its maximum number of subscribers. Overall, these results indicate that OZTL_NET has quite a stable subscriber base. People join and stay awhile. This is quite different to online communities that are characterised by quite significant turnover (Preece, 2000, pp. 96-97). Perhaps the main reason for this is that OZTL_NET is quite a "tightly focused" listserv community "with an emphasis on interactions in a group for the purpose of sharing ideas and practices" (Hoban, 2002, p. 150) although it is also clear that it helps satisfy the needs of people other than for whom it was originally designed (teacher librarians). Table 4.14 indicates that the duration of subscription categories are fairly evenly spread across the range. It would be determined through Part C of the web survey and particularly via the interviews which factors contribute to retention of subscribers and which contribute to attrition.

Table 4.14:   Total duration of subscription to OZTL_NET of subscriber sample

Duration of Subscription	Freq	Percent
Less than 3 months	1	0.61
3-12 months in total	12	7.05
1-2 years in total	18	10.56
2-3 years in total	33	19.41
3-4 years in total	34	20.00
4-5 years in total	30	17.64
More than 5 years in total	41	24.12
No response	1	0.61
Total	**170**	**100**

From Table 4.15 it might be concluded that a dominant group within OZTL_NET forms part of the 15 per cent of subscribers who access OZTL_NET for more than three hours per week. Certainly it appears that a handful of prolific posters seem willing to share their expertise at almost any time confirming the analysis of actual message postings provided in Table 3.6 that showed that a relatively small group of dominant subscribers was responsible for a disproportionately high number of

message postings while 64.5 per cent of active subscribers had posted between one and four messages.

Table 4.15: Amount of time per week accessing, reading and/or responding to OZTL_NET messages

Average period of engagement/week	Freq	Percent
Less than one hour	54	31.76
Between one-two hours	83	48.82
Between three-four hours	23	13.53
More than four hours	9	5.29
No response	1	0.6
Total	**170**	**100**

The interviews provided the opportunity to explore in greater depth subscriber perceptions of the role that dominant message posters played in their experience of participation in OZTL_NET. For example, did dominant posters engage in the seeding of "deeper" activities such as raising issues and leading professional discussions or did they simply spend more time responding publicly to many small queries raised by subscribers? Participants' perceptions of the value of the contributions made by dominant subscribers reflect the reputation of those subscribers in the eyes of the broader membership as a subscriber "who frequently voices an opinion will have a stronger reputation (for better or worse) than someone who tends to keep quiet" (Kim, 1999, p. 109).

A defining characteristic of practice-based learning communities such as OZTL_NET is that members belong to the listserv on a voluntary basis (Riel & Polin, 2004, p. 26). It might be reasonable then to expect that subscribers to the listserv find membership of OZTL_NET to be useful in their daily professional practice. Table 4.16 indicates that almost 60 per cent of subscribers considered that OZTL_NET was very useful or extremely useful in their work while one-third of respondents considered that OZTL_NET was useful in their work. Less than 9 per cent of respondents considered OZTL_NET to be of limited use in their work. While the degree of "usefulness" of OZTL_NET is spread across useful to extremely useful, a somewhat surprising result, given that membership of the listserv is free and voluntary, was that 14 subscribers indicated that OZTL_NET was of limited use to their work. The interviews assisted in determining why subscribers considered OZTL_NET to be useful in the varying degrees indicated in Table 4.16.

Table 4.16:   Degree of usefulness of OZTL_NET to the work of the subscriber sample

Usefulness of OZTL_NET in your work	Freq	Percent
Extremely useful	37	21.76
Very useful	62	36.48
Useful	56	32.94
Limited	14	8.24
No response	1	0.58
Total	**170**	**100**

Table 4.17 shows that about 40 per cent of subscribers posted between three and ten messages to OZTL_NET per year while about one-quarter of respondents posted fewer than three messages per year. About one-fifth of subscribers did not post a message to the listserv and less than four per cent indicated that they posted more than 20 messages per year. Given that more than 60 per cent of respondents had been subscribed to OZTL_NET for more than three years (Table 4.14), it is, on one level at least, somewhat surprising to find that about 26 per cent of subscribers had posted less than three messages and about 20 per cent had never posted a message. However, the analysis of message postings summarised in Table 3.6 places the results of the subscriber sample in perspective. In Table 3.6, 64.74 per cent of "unique" subscribers posted between one and four messages, over three times the amount of the subscriber sample. This comparison is indicative only as Table 3.6 reported results for a nine-year period while the subscriber sample was asked to indicate the number of message postings on an annual basis. In terms of the interviews, the factors that motivate/de-motivate subscribers to post a message and drive the prolific posters to invest so much time in the list responding to individual queries on-list and off-list and to the list in general, were of particular interest because polarised views of the legitimacy of dominant subscriber use of OZTL_NET were identified as an important issue by the subscriber sample in terms of the ways in which the listserv might be used.

Table 4.17:   Frequency of message posting to OZTL_NET by the subscriber sample

Frequency of message posting	Freq	Percent
More than 20 messages per year	6	3.53
10-20 messages per year	16	9.41
3-10 messages per year	69	40.59
Fewer than 3 messages per year	45	26.47
Haven't had reason to post	33	19.41
No response	1	0.59
Total	**170**	**100**

Another obvious area for investigation through the interviews was the legitimacy of peripheral participation or "lurking" given that approximately 20 per cent of the subscriber sample had not posted a single message in the past year although as Barab, Kling and Gray (2004, p. 4) point out "it is common for many people to visit and leave without posting messages and for many others to stay and only read public messages (lurking)."

4.3.2   Theme two: Facilities

When the option of subscribing to OZTL_NET using a digest version instead of individual messages was made available to subscribers in 1996, the expectation was that it would reduce the number of messages received by subscribers each day thereby reducing the amount of time subscribers needed to read and manage their email (Hay & Dillon, 1997, 1998). Table 4.18 shows that, nine years after its introduction, subscriber use of the digest version in the sample was at 34.18 per cent. This proportion of digest subscriptions is quite high given the pattern reported in Table 3.6 which indicated that digest subscriptions had peaked in August 2000 and were on the decline.

Feedback from the survey pilot group indicated that there might be some issues with the formatting of the digest version of OZTL_NET messages that made it an unattractive option for some subscribers and that there may in fact be some advantages to receiving each message separately from the listserv, principal among them the ability to save individual messages to email archive folders for later reference. There was also concern that some subscribers may be unaware of the existence of the digest version unless they had at some time visited the main OZTL_NET website. These issues were pursued through the interviews to determine not only the level of awareness of the availability of the digest facility but more importantly to determine the factors that influence subscriber decisions to use or not use the digest version of OZTL_NET.

It is somewhat surprising that the digest version has not been more widely accepted by subscribers since the literature consistently reports "lack of time" as the main limiting factor in terms of teachers' greater participation in professional learning

(Barab, MaKinster & Scheckler, 2004, p. 84; Dillon, 1997; Hargreaves, 2003, pp. 148-149; Hoban, 2002, p. 68). This result was re-affirmed by the web survey in the analysis of Question 35 results that indicated that subscribers cited "time constraints" as their main barrier to increased participation in OZTL_NET (61.46 per cent). The interviews then needed to ascertain what factors were responsible for what appears to be a less than enthusiastic take-up rate of the digest version given subscriber responses that indicate the constraints of time on their level of participation in the listserv.

Table 4.18:   Use of the digest version of messages by OZTL_NET subscriber sample

Digest	Freq	Percent
Yes	58	34.18
No	111	65.29
No response	1	0.53
Total	**170**	**100**

On average, almost half the subscribers accessed, read and/or responded to OZTL_NET messages for between one and two hours per week and about 20 per cent of respondents accessed, read and/or responded to OZTL_NET messages for three or more hours per week. This pattern of results is of interest in terms of understanding the breadth of amount of use of the listserv which ranges from peripheral participation or "lurking" to what members of the pilot study labelled "dominant" subscribers who are characterised by the high frequency with which they post messages to the listserv.

Table 4.19 indicates that almost 60 per cent of the subscriber sample mentioned that use of the digest message version saved them time in terms of allowing them to "skim and/or scan" through the subject lines of the messages that made up the contents of each digest message. This allowed these subscribers to make judgements about which messages to read, if any. About 33 per cent of mentions pointed to the benefit of the digest as a means of reducing the overall number of messages received by subscribers. Typically, these subscribers receive one or two digest messages each day as opposed to multiple individual messages.

Table 4.19:   Subscriber sample reasons for using the digest message version

Category	Frequency of Mentions
Ease of message management – digest saves time and allows subscribers to skim and scan through message list	38
Reduction in message congestion in terms of number of messages and computer space	21
To learn from the practice of others	2
No knowledge of digest	2
Other	1
Total	**64**

Table 4.20 shows that almost 38 per cent of reasons cited for not using the digest message version were also to do with ease of message management. These subscribers considered that individual messages were easier to deal with because they did not have to scroll through the contents of a digest. Additionally, these subscribers pointed to the advantages of being able to sort, delete, store and/or reply to individual messages compared to the digest version. About one-fifth of subscribers indicated that they simply had a personal preference for individual messages without specifying their reasons. About the same proportion of subscribers indicated that they did not use the digest message version because they had no knowledge of its existence while 16 per cent of subscribers were simply not interested in using the digest, were not sure as to why they did not or had not used it or were aware of the option but elected not to try it.

Table 4.20:   Subscriber sample reasons for not using the digest message version

Category	Frequency of Mentions
Ease of message management (when messages arrive separately, it is easier and quicker to scan the subject line of individual messages and make a decision whether to read, delete, store or reply than it is to scroll through the entire digest)	42
Personal preference for single message format (reason/s unspecified)	24
Subscribers had no knowledge of the existence of the digest option	21
Subscribers expressed lack of interest, didn't know why they didn't use the digest version or had never tried digest version	18
Technical problems (unspecified)	5
Use of email filter more effective with single messages	2
Total	**112**

The OZTL_NET listserv is supported by a website in six sections that contains a range of information to assist new and experienced subscribers make effective use of

the listserv (Appendices B1-B6). Table 4.21 indicates that one-quarter of subscribers had visited the OZTL_NET website more than 20 times although most respondents (41.18 per cent) had visited the website between one and five times. Thirty-one subscribers had never visited the website. Since the website was designed specifically to support the listserv, it was determined through the interviews why subscribers did not visit it more regularly, if at all. Responses to this question were likely to assist in explaining the apparent under-use of listserv functions such as subject line keywords and the digest message option.

Table 4.21:   Number of visits to OZTL_NET website by subscriber sample

Number of visits to OZTL_NET website	Freq	Percent
Never	31	18.23
1-5 times	70	41.18
6-20 times	24	14.12
More than 20 times	44	25.88
No response	1	0.59
Total	**170**	**100**

Table 4.22 shows the number of visits to the OZTL_NET archives by the subscriber sample. The most significant result from Table 4.22 is that over half of the subscriber sample had never accessed the OZTL_NET message archive and one-third had accessed the archives between one and five times. About 15 per cent of respondents had accessed the archives more than six times. The low incidence of archives use indicates some problem areas related to access or lack of knowledge about the facility. Typically, a listserv archive is searched by subscribers seeking to locate a specific message, discussion thread, or background material, so this result is surprising and was subsequently investigated through the interviews. This is an important area for investigation because archive use may be considered one measure of information/ knowledge *re-use*. Under-use of such a facility would constitute a significant waste for existing and future subscribers who might otherwise draw upon the collective wisdom that exists in approximately 38000 archived messages. As Riel and Polin (2004) explain:

> When the emphasis is on practice, the concept of community indexes a view of learning as increased participation and responsibility in activity, and a view of knowledge as knowledge-in-use. These terms characterise the reproduction and distribution of knowledge throughout a group of people who constitute a working community on the basis of their shared goals and interests in productive activity of some sort, such as work. These *practice-based learning communities* focus on the evolution, preservation, and

reproduction of the common or shared understandings of the group beyond the current social grouping. (pp. 26-27)

Table 4.22:   Number of visits to the OZTL_NET archives by subscriber sample

Number of visits to OZTL_NET archives	Freq	Percent
Never	88	51.77
1-5 times	57	33.53
6-20 times	16	9.41
More than 20 times	9	5.29
Total	170	100

Table 4.23 indicates that about 58 per cent of respondents had never made contact with an OZTL_NET administrator and no respondent had reported having contacted an OZTL_NET administrator more than 20 times. To some extent this result reflects that of Table 4.21 which indicated that over 50 per cent of subscribers had never accessed the OZTL_NET website. There are two OZTL_NET administrators including the researcher. The administrators could be considered by subscribers as an alternative source for assistance to the website. Alternatively, subscribers may not be concerned about visiting the website, have had no reason to visit the website or they are unaware of the existence of the website. Anecdotally subscribers to OZTL_NET usually contact an administrator if the problem is technical or, to a lesser extent, when they have concerns with some aspect of list administration such as the posting of messages they consider inappropriate. The reasons behind the apparent under-use of the website and the bases for subscribers making contact with an OZTL_NET administrator were pursued through the interviews.

Table 4.23:   Number of times contacted an OZTL_NET administrator

Number times contacted OZTL_NET administrator	Freq	Percent
Never	98	57.65
1-5 times	66	38.82
6-20 times	6	3.53
More than 20 times	0	0
Total	170	100

4.3.3   Theme three: Aspects of participation

When subscribers respond to a post to OZTL_NET they respond to the whole list by default. A decision that subscribers need to make before responding is whether it is more appropriate to respond to the individual message sender rather than to the entire list. In terms of use of the listserv, it was useful then to determine how subscribers

usually responded to OZTL_NET messages. Table 4.24 shows that in excess of one-quarter of subscribers monitor the messages posted to OZTL_NET but either do not intend to respond to those messages or respond infrequently. A further one-quarter of subscribers indicated that they respond to both the list and the individual senders of messages while the preferred approach of almost 45 per cent of subscribers was to respond directly to the sender of a message rather than to the entire list. Only two subscribers indicated that their usual response was to post directly to the list. These figures suggest that there is a great deal of communication among OZTL_NET subscribers off-list.

Table 4.24:   Usual response to OZTL_NET messages by the subscriber sample

Usual response to OZTL_NET messages	Freq	Percent
Direct to list rather than sender	2	1.18
Direct to sender rather than list	75	44.18
Both list and sender	46	27.06
Monitor and respond infrequently	37	21.76
Don't intend to respond, just monitor	9	5.29
No response	1	0.53
Total	170	100

The significance of this result in terms of the present study was to ascertain the degree to which subscribers may think that making connections with others off-list is an important part of belonging to OZTL_NET. Beyond information gathering and sharing and the possibility of knowledge creation within the listserv, membership of OZTL_NET may also provide a means of establishing professional links with others that may, for example, result in the formation of real-time collegial support networks, project initiation, and so on. The amount and nature of off-list communication initiated by messages to the list was further explored in the interviews.

It is possible for subscribers to follow through on any one of a number of possible actions as a result of reading an OZTL_NET message. The pilot studies assisted in the formulation of the list of 14 common follow-up actions included in Question 22 of the web survey. Table 4.25 shows that the most commonly mentioned follow-up actions reported by subscribers were visiting a website (n=150), responding directly to one or more individuals (n=142), forwarding a message to colleagues or staff (n=130) and implementing an idea or innovation (n=128). Together these actions accounted for almost half (49.82 per cent) of all follow-up actions reported by respondents.

The range of reported follow-up actions in Table 4.25 was quite broad. It appeared that actions that involved *seeking* information (visit websites, request information, read an article/book) were prominent as were actions about *sharing* information (respond to individuals/list, forward messages, supply information). The means for supplying information were almost always electronic (email and email attachments). Personal, telephone and facsimile communications were less popular. This was a somewhat surprising result as the supply of information and to a lesser extent the initiation of personal contact with other subscribers was less frequently reported as a form of follow-up action compared to message postings that might otherwise have been expected in an online community of practice.

Table 4.25:   Follow-up actions to OZTL_NET messages by the subscriber sample

Follow-up actions to OZTL_NET messages	Freq	Percent
Visited a website	150	13.59
Responded to one or more individuals	142	12.86
Forwarded a message to colleagues or staff	130	11.78
Implemented an idea or innovation	128	11.59
Read an article/book	93	8.42
Responded to the list	78	7.07
Requested further information	72	6.52
Supplied a requested resource	68	6.16
Supplied information by email attachment/s	64	5.80
Made telephone contact	53	4.80
Faxed information	42	3.80
Sent information via snail mail	38	3.44
Made personal contact	38	3.44
Other	8	0.73
Total	**1104**	**100.00**

An interesting characteristic of the top six most commonly mentioned follow-up actions in Table 4.25 is that they could result from peripheral participation ("lurking") as well as from more active forms of participation in OZTL_NET. In other words, the main benefit of subscribing to OZTL_NET for lurkers is the opportunity it affords them to monitor messages and simply forward the relevant ones on to the appropriate colleague in the school or beyond. They may also respond off-list to the originator of the post seeking further information (or in fact, supply some of their own). Ideas and innovations are implemented as a by-product of messages and discussions on the list but the originators of those messages and the participants in those discussions may never know that their ideas and innovations were taken up by one or more "passive" subscribers. In Table 4.17, 20 per cent of the subscriber sample indicated that they "haven't had reason to post" and almost 30

per cent indicated that they monitored messages and responded infrequently or not at all to the list (Table 4.24). Clearly, the issue of follow-up actions in response to OZTL_NET messages needed to be explored in some depth through the interviews such that a clearer idea about the uses to which subscribers put information they obtain from their participation in OZTL_NET could be obtained.

The overall impression gained from the results displayed in Table 4.25 is that some subscribers view OZTL_NET as predominantly a means for information gathering and sharing and that the social aspects of participation are "side-effects" or "by-products" of their participation rather than motivating factors to belong. In this view OZTL_NET is more a *professional information environment* than it is a *social network of professionals*. These are areas that were explored further through the interviews – what is the preferred style of participation of subscribers and what should be the main purpose or focus of OZTL_NET?

The survey sought to gain an indication from subscribers as to what kind of items they considered to be of value as a result of participation in OZTL_NET. Table 4.26 indicates that obtaining answers to questions and gaining access to resources comprised almost one-quarter of the total items considered valuable by subscribers as participants in OZTL_NET while keeping up-to-date with professional development and sharing information with others also ranked high in terms of value. These results indicate that meeting people online was not considered by respondents to be a major item of value as a participant of OZTL_NET. Once again, the focus appears to be more on information gathering and sharing rather than on creating knowledge and forging learning relationships online.

Table 4.26:   Items considered valuable as a result of participation by subscriber sample

Items considered valuable as a participant	Freq	Percent
Obtaining answers to questions	136	12.51
Gaining access to resources	133	12.24
Keeping up-to-date with professional development	129	11.87
Sharing information with others	125	11.50
Solving problems	114	10.49
Providing advice, assistance, support	110	10.12
Discussing and debating issues	106	9.75
Being aware of forthcoming online projects	97	8.92
Reducing isolation	93	8.56
Meeting people online	30	2.76
Other	14	1.28
Total	**1087**	**100**

Question 24 of the survey required subscribers to select the two most valuable items as a result of their participation in OZTL_NET. Table 4.27 shows that, overall, respondents indicated the *most* valuable items of participation in OZTL_NET to be gaining access to resources and obtaining answers to questions. Between them, these two items accounted for more than 50 per cent of responses. Discussing and debating issues and reducing isolation accounted for a further 27 per cent of total responses to this question.

Table 4.27:   Items considered most valuable as a result of participation by subscriber sample

Item considered MOST valuable as a participant	Freq	Percent
Gaining access to resources	46	27.06
Obtaining answers to questions	41	24.12
Discussing and debating issues	29	17.06
Reducing isolation	17	10.00
Meeting people online	11	6.47
Sharing information with others	8	4.70
Solving problems	8	4.70
Providing advice, assistance and support	5	2.94
Keeping up-to-date with professional development	4	2.35
Being aware of forthcoming online projects	1	0.60
Other	0	0.00
Total	**170**	**100**

Consistent with the results of the previous question, Table 4.28 indicates that the *second most* valuable items of participation in OZTL_NET were gaining access to resources and obtaining answers to questions. Between them, these two items accounted for more than one-quarter of all responses. Discussing and debating issues, reducing isolation and meeting people online were also prominent accounting for

almost 40 per cent of total responses to this question. This result indicates that while participation in interactions in the listserv was not the primary value item of participation for many subscribers, these aspects of participation were certainly highly ranked as items of secondary value.

Overall the results summarised in Tables 4.27 and 4.28 indicate that, in terms of their participation in OZTL_NET, subscribers attribute most value to gaining access to resources and obtaining answers to questions. In other words, OZTL_NET greatly assists teacher librarians in the performance of two traditionally significant aspects of their role, resource selection and acquisition, and information and referral services (Australian School Library Association and Australian Library and Information Association, 2001; 2004). These responses also indicate that in terms of use, OZTL_NET is less about reducing isolation and meeting people online than it is about assisting core professional work and improving practice (Schlager & Fusco, 2004, p. 122). This result is understandable given Lonsdale's (2003) analysis that pointed to the pressures on teacher librarians to be effective in their core work.

Subscribers also ranked discussion and debate of issues the third most valuable benefit of subscription to OZTL_NET overall. Nevertheless, discussing and debating issues still ranked third in terms of value of participation. In other words subscribers use OZTL_NET for more than one purpose; to help them perform effectively in their practice (basis of participation = needs and resources) *and* as a forum for addressing issues impacting on the profession more widely (basis of participation = issues and concerns).

These results suggest a hierarchy of value in terms of subscriber participation in OZTL_NET. Level 1 focuses on gaining access to resources (combined frequency = 70) and Level 2 focuses on obtaining answers to questions (combined frequency = 64). Level 3 focuses on discussing and debating issues (combined frequency = 51) and Level 4 focuses on reducing isolation (combined frequency = 39). Level 5 focuses on meeting people online (combined frequency = 32). The interviews explored the value placed on participation by subscribers in more depth. For

example, it is likely that Level 1 activities are conducted on behalf of others in the school community while Level 3, 4 and 5 activities constitute a form of professional development for teacher librarians themselves.

Table 4.28:   Items considered second most valuable as a result of participation by the subscriber sample

Item considered SECOND most valuable	Freq	Percent
Gaining access to resources	24	14.12
Obtaining answers to questions	23	13.53
Discussing and debating issues	22	12.94
Reducing isolation	22	12.94
Meeting people online	21	12.35
Sharing information with others	16	9.41
Solving problems	15	8.82
Providing advice, assistance and support	15	8.82
Keeping up-to-date with professional development	7	4.12
Being aware of forthcoming online projects	5	2.95
Other	0	0
Total	**170**	**100**

The results reported in Tables 4.27 and 4.28 suggest that the bases for subscriber participation in OZTL_NET can be divided into two categories, needs (and resources) and issues (and concerns). Table 4.29 shows that the needs category is based on a support metaphor and is information driven. Here participation is embedded in the need for practical assistance and is based on imperatives such as the satisfaction of information needs, the need or desire to disseminate relevant information to others, to locate resources, maintain current awareness, or to seek answers to questions. Interactions in this category are typically one-to-many and then, in response to the need, many-to-one and usually over a short period of time. All subscribers receive these messages and depending on the complexity of the need, there may be many responses, typically sent to the original poster rather than to the whole list.

Table 4.29:   Bases of subscriber participation in OZTL_NET

Bases of Participation	Needs (and Resources)	Issues (and Concerns)
Metaphor	Support	Sharing
Driver	Information	Knowledge
Outcomes	Practical assistance eg. satisfaction of information needs, dissemination of information, location of resources, maintain current awareness.	Theoretical discussion and debate leading to co-construction of knowledge, individual capacity building.
Typical Interaction and Time Scale	One-to-many then many-to-one depending on complexity of need. Usually short time span.	One-to-many then many-to-many depending on range of views and degree of controversy of issue. Usually longer time scale.
Typical Audience	All participants receive the message. Responses may go to entire list but typically to sender only.	All participants receive the message. Responses typically go to the entire list rather than to the sender only.

The issues category is based on a sharing metaphor and is knowledge driven. Participation is characterised by subscriber involvement in theoretical discussion and debate leading to the co-construction of knowledge and the building of individual subscriber capacity in the workplace. The interactions in this category initially involve one-to-many but have the propensity to result in many responses to the list from many subscribers. Typically, the issues discussed and debated in this category pique subscriber interest usually because they contain some element of controversy and/or they are multi-faceted and complex. All subscribers receive these messages. Discussions in this category can span a considerable time period as subscribers "weigh into" the debate.

Table 4.29 does not suggest that subscribers can be placed in one category or the other. The same subscriber may participate on both a needs (and resources) and on an issues (and concerns) basis as they deem appropriate. These results indicate that the subscriber bases for use of OZTL_NET vary over time and are related to needs and issues in the context of the professional practice of teacher librarians. Overall, however, the primary basis of participation in OZTL_NET is most accurately described by the needs (and resources) category as subscribers generally prefer to use OZTL_NET for practical assistance rather than for theoretical discussion and debate, although it should be recognised that subscribers may use OZTL_NET for both purposes. This finding supports the literature that suggests that teachers consider they don't have the time to engage in professional discussion and debate preferring instead to have timely access to ideas and resources that they can use immediately in their work (Barab, MaKinster & Scheckler, 2004, p. 84; Dillon, 1997; Hargreaves, 2003, pp. 148-149; Hoban, 2002, p. 68; Wasley, 1991).

In order to gain some idea of the extent of the impact on subscriber's professional practice that participation in OZTL_NET has had, respondents were asked to indicate the degree to which they considered their professional practice had changed as a result of subscription to the listserv. Table 4.30 shows that almost 60 per cent of respondents indicated that their participation in OZTL_NET had changed their professional practice to some degree. Slightly less than one-quarter of respondents felt that their professional practice had changed significantly as a result of their participation in OZTL_NET while about 16 per cent of respondents felt that their professional practice had not changed as a result of their participation in OZTL_NET. The latter result is the most surprising from this question. Since these subscribers report no change to their professional practice as a result of participation in OZTL_NET, it might be concluded that either the listserv was not effective in meeting their professional needs or the subscribers' basis of participation was not founded on "issues and concerns" but focused more on "needs and resources".

Table 4.30:   Degree of change to professional practice as a result of participation in OZTL_NET

Degree of change to professional practice	Freq	Percent
Significantly	38	22.35
A bit	100	58.82
Not really	27	15.88
Not sure	4	2.35
No response	1	0.6
Total	**170**	**100**

It could be argued that the key means by which professional practice might be improved is via access to a pool of colleagues who can assist in solving problems. Subscribers were asked to indicate the extent to which they considered OZTL_NET was useful in terms of helping them solve problems. Table 4.31 indicates that almost 70 per cent of respondents felt that OZTL_NET definitely provided a useful means for subscribers to solve problems while about one-quarter of respondents indicated that OZTL_NET sometimes provided a useful means for subscribers to solve problems. Surprisingly, "solving problems" ranked equal sixth with "sharing information" in terms of the value subscribers apportioned to the item in Table 4.27. The conclusion here is that while subscribers do not consider that solving problems is one of the most valuable aspects of participation in OZTL_NET they do believe strongly that participation has been useful in solving problems. This result was also

explored in more depth in the interviews. It may well be the case that "solving problems" is such a broad term that it cuts across both "issues and concerns" and "needs and resources".

Table 4.31: OZTL_NET as a useful means for solving problems

OZTL_NET assistance in solving problems	Freq	Percent
Definitely	116	68.23
Sometimes	47	27.65
Rarely	1	0.59
Not sure	5	2.94
No response	1	0.59
Total	170	100

Table 4.32 shows that almost 70 per cent of respondents indicated that they participated in other email discussion lists while about 30 per cent of respondents did not. This may not be surprising at the present time although the same question five years ago would probably have resulted in the opposite result. In addition to the thousands of discussion lists that now exist, a number of specialist listservs for Australian teacher librarians have emerged in recent years (see Appendix K). Of the available lists for Australian teacher librarians only OZTL_NET has a national focus. The remaining lists are either parochial (eg NSW government schools) or narrowly focused (eg OASIS Library User Group). Having established that about 70 per cent of OZTL_NET subscribers belong to other lists, the results reported in Table 4.32 provide some indication of how subscribers think OZTL_NET compares to these other lists in terms of their usefulness to them in their professional lives.

Table 4.32: Subscriber sample participation in other email discussion lists

Other Listservs	Freq	Percent
Yes	116	68.24
No	53	31.18
No response	1	0.58
Total	170	100

Table 4.33 indicates that about one-third of respondents who were participants in other email discussion lists reported that OZTL_NET was a "better" list in terms of its usefulness in their professional lives compared to the other lists to which they belonged. Thirty percent of respondents who were participants in other email discussion lists indicated that OZTL_NET was "about the same" in comparison to other lists in terms of its usefulness in their professional lives and less than four per cent of respondents considered OZTL_NET "worse" than other email lists to which

they belonged. It was therefore considered useful in terms of the interviews to determine from those subscribed to other lists which features of OZTL_NET made it superior/inferior to other listservs and for those not subscribed to other lists, what reasons they had for total reliance on OZTL_NET.

Table 4.33:   Subscriber sample comparison of OZTL_NET with other email discussion lists

Comparison of usefulness with other lists	Freq	Percent
No response	56	32.94
Better	56	32.94
About the same	52	30.59
Worse	6	3.53
Total	**170**	**100**

Subscribers were asked to indicate the results of their involvement in OZTL_NET in terms of their participation in activities that have resulted in collaborations with others. Table 4.34 shows that about one-quarter of respondents indicated that they had participated in the collection and dissemination of information through the use of "targets" and "hits" (defined previously) as a form of collaboration. Table 3.11 indicates that the use of the target and hit discussion tools appears to have declined in recent years, especially the use of targets. Subscriber responses to interview questions about how they used or did not use these discussion tools shed light on the kinds of messages subscribers post for this purpose and what factors (if any) encourage or discourage this kind of collaborative activity.

Table 4.34 shows that about one-fifth of subscribers reported that knowledge construction/creation took place as a form of collaboration in OZTL_NET. Examples of this were sought through the interviews. Activities involving students and group projects of benefit to the subscriber's professional practice accounted for a further 30 per cent of responses. Assessments of the impact that these kinds of collaborative activities have had in the school and/or on the individual subscriber were also sought. Low ranking forms of collaboration reported by respondents included lobbying and advocacy and group projects of benefit to the profession. About 12 per cent of respondents indicated that they had not participated in any collaborative activities as a result of their participation in OZTL_NET. Once again, further information on the reasons for low or zero participation was sought through the interviews. One likely explanation for these low levels of participation is that

these subscribers had identified more suitable alternative forums than OZTL_NET for these activities. Finally, the results displayed in Table 4.34 required interview questions that explored the propensity of participation in OZTL_NET for knowledge construction and individual capacity building.

Table 4.34:   Forms of collaboration from participation in OZTL_NET

Forms of collaboration from participation	Freq	Percent
Collection and dissemination of information through the use of "targets" and/or "hits"	94	26.48
Involvement in knowledge creation/construction	64	18.03
Participation in activities involving students, eg. "Book raps"	57	16.06
Involvement in group projects of benefit to the workplace	48	13.52
Not participated in collaborative activities	44	12.39
Involvement in lobbying and advocacy activities	33	9.30
Involvement in group projects of benefit to the profession more generally	15	4.22
Other opportunities	0	0.00
Total	**355**	**100**

Beyond collaboration, the literature identifies a feeling or sense of community as a defining characteristic of online communities of practice (Hoban, 2002, p. 150; Kim, 1999; Kling & Courtright, 2004, p. 99; Preece, 2000). Table 4.35 indicates that about 47 per cent of respondents reported that they experienced a strong sense of professional community on the basis of their participation in OZTL_NET. A further 50 per cent of respondents experienced a moderate sense of community or some sense of community. Overall, these results indicate that OZTL_NET subscribers experience a sense of community as a result of their participation in the listserv regardless of type or level of participation. On one level this is not a surprising result since subscription to OZTL_NET, a practice-based learning community, is voluntary and there is "a strong emphasis on the notion of a community as a shared activity and goals, though there may be differences in expertise and experience" (Riel & Polin, 2004, p. 26). On another level, the fact that almost half of the subscribers indicated a "strong sense of community" indicates that even among the subscribers whose main use of OZTL_NET is "needs and resources", there is a feeling of belonging.

The whole question of professional community was identified as another "meaty" area for investigation through the interviews which sought to determine how these reported feelings of community were portrayed among OZTL_NET subscribers. For

example, the results summarised in Table 4.27 were much more under-stated than the results displayed in Table 4.35 in terms of the value placed by subscribers on professional community. That is, overall, subscribers felt that OZTL_NET was more successful in providing a sense of community than it was in changing their professional practice.

Table 4.35: Degree of professional community experienced by subscriber sample

Degree of professional community experienced	Freq	Percent
Strong sense of community	79	46.47
Moderate sense of community	50	29.41
Some sense of community	36	21.18
No sense of community	4	2.35
No response	1	0.59
Total	**170**	**100**

Table 4.36 shows that about 36 per cent of respondents reported that they had experienced barriers to greater participation in OZTL_NET while Table 4.37 indicates that time constraints was the single largest barrier to greater participation with 61.46 per cent of respondents reporting that they had experienced this barrier. Connection problems and limited computer access were experienced by 22 per cent of subscribers. These responses indicate that technical barriers experienced by subscribers are minimal and that adequate time to more fully participate in OZTL_NET is by far the most significant reported barrier. In terms of use of OZTL_NET, the interviews needed to determine how aware subscribers were of facilities such as the digest option and message archive to assist them in managing their time online and to help them make more effective use of time spent accessing OZTL_NET.

Table 4.36: Subscriber sample experience of barriers to greater participation in OZTL_NET

Experienced barriers to OZTL_NET	Freq	Percent
No response	2	1.18
Yes	62	36.47
No	106	62.35
Total	**170**	**100**

Table 4.37:   Subscriber sample reported barriers to greater participation in OZTL_NET

Barriers to participation	Freq	Percent
Time constraints	59	61.46
Other	14	14.58
Connection problems	11	11.46
Limited computer access	10	10.42
Lack of computer skills	1	1.04
Lack of confidence online	1	1.04
Total	**96**	**100**

Question 36 asked subscribers to indicate the factors that would lead them to unsubscribe from OZTL_NET. While there was quite a range of factors identified by subscribers, two of the predominant reasons were related to subscriber absence from work rather than concerns related to OZTL_NET itself. Table 4.38 indicates that "retirement or change of job/profession" and "going on holidays/extended periods of leave" accounted for 30 per cent of mentions by subscribers as to what would lead them to unsubscribe from the listserv.

Table 4.38:   Subscriber sample reasons for unsubscribing from OZTL_NET

Category	Frequency of Mentions
Retirement or change of profession/job	37
Time constraints	33
Going on holidays/extended periods of leave	27
An increase in the number of trivial messages	20
Loss of relevance/focus on teacher librarianship issues	14
Would never unsubscribe	14
Concerns about computer viruses	11
Drop in quality/level of discussion and/or sharing of ideas	10
An increase in the number of messages	9
Use of the listserv for political reasons or as a "soapbox for self-promotion"	9
Ineffective use or under-use of subject line keywords	5
Flaming, personal attacks, whinging and/or lack of "newbie" tolerance	5
Parochial or narrow discussion eg. K-6 or 7-12 issues	5
Subscribers who communicate through the list rather than off the list	5
Completion of university studies	2
Other reasons	7
Total	**213**

"Time constraints" accounted for a further 15 per cent of the reasons cited by the subscriber sample for taking the decision to unsubscribe from OZTL_NET. This result re-affirms the findings in the literature on teacher professional learning (Barab, MaKinster & Scheckler, 2004, p. 84; Dillon, 1997; Hargreaves, 2003, pp. 148-149; Hoban, 2002, p. 68) and the results from other questions in the web survey that indicated that time to participate is a critical factor in the level of participation of subscribers in OZTL_NET. For example, previous results from the web survey revealed that some subscribers use the digest version to save time and that 61 per cent of subscribers considered "time constraints" to be the main barrier to increased participation in OZTL_NET (see Tables 4.19 and 4.37).

Other major reasons for unsubscribing from OZTL_NET included an increase in the number of trivial messages (n=20), a decline in relevance of messages to teacher librarianship (n=14), fear of contracting a computer virus (n=11), a reduction in the quality of discussion (n=10), if the number of messages became too great (n=9) and the use of the listserv for political reasons or as a "soapbox for self-promotion." Fourteen subscribers indicated that they would "never unsubscribe" from OZTL_NET.

Question 40 asked the subscriber sample to nominate anything about OZTL_NET that annoyed or frustrated them. This question allowed respondents the opportunity to provide feedback on any negative factors not already identified previously in the survey. In fact, Table 4.39 shows that the subscriber sample used this opportunity to re-affirm a number of criticisms made in previous sections of the survey. Primary among these annoying factors for the subscriber sample were factors related to various methods of subscriber participation in OZTL_NET. These included too much trivial information and not enough professional discussion (n=26), the inappropriate and/or careless use of the message subject line and subject line keywords (n=21) and too many irrelevant messages (n=17). Other annoying subscriber-related factors included the use of inappropriate message formats (n=10), the dominance of the list by some subscribers with an "axe to grind" (n=10), "flaming" and/or unfair criticism of persons (n= 8), subscribers who defer to the list immediately for assistance before doing some basic research themselves (n=5) and inappropriate messages including political and commercial use of the listserv (n=5).

Table 4.39:   Annoying or frustrating aspects of OZTL_NET participation

Category	Frequency of Mentions
Too much trivial or inaccurate information and not enough professional discussion	26
Inappropriate and/or careless use of the message subject line and subject line keywords	21
Too many messages irrelevant to me personally	17
Subscribers who respond to the entire list rather than to the individual poster of the message	12
Use of inappropriate message formats	10
Dominance of the list by some subscribers with an "axe to grind"	10
"Flaming"/unfair criticism of persons	8
Computer viruses	7
Issues related to the digest message version	5
Subscribers who defer to the list immediately for assistance before doing some basic research themselves	5
Problems associated with unsubscribing from the list	5
Inappropriate messages including political and commercial use of the listserv	5
The time lag between sending a message and its appearance on the list	5
Nothing or nothing in particular is annoying or frustrating about the list	23
Other	11
Total	**169**

Technical issues that gave raise to frustration included viruses (n=7), problems associated with unsubscribing from the list (n=5), digest related issues (n=5) and the time lag between sending a message and its appearance on the list (n=4). Twenty-three subscribers (13.6 per cent) reported that they found nothing in particular annoying or frustrating about their participation in OZTL_NET.

A broad theme identified in the literature of teacher professional learning and participation in online communities of practice in Chapter Two was the propensity for significant personal and professional impacts of involvement. Table 4.40 provides a summary of subscriber responses to Question 37 that sought to ascertain the nature of these impacts. In terms of personal impacts, 45 per cent of the subscriber sample reported a strong sense of collegial support and community that

provided them with the opportunity to build relationships with other subscribers. As an extension of this result, 23 per cent of the subscriber sample indicated that subscription to OZTL_NET had helped them to create empathy and understanding with their colleagues. Twenty per cent of the sample subscribers reported a sense of satisfaction and an increase in confidence as personal impacts while six per cent reported that their image and/or reputation had been enhanced as a result of their participation in OZTL_NET. These results point to the significant role that OZTL_NET plays in both the personal and professional lives of many of its subscribers and indicates that the listserv meets several of the criteria that describe communities of practice and online learning communities as described in the literature (Al-Hawamdeh, 2003, pp. 121-137; Barab, MaKinster & Scheckler, 2004, p. 54; Hildreth, 2004; Wenger, McDermott & Snyder, 2002).

Table 4.40: Personal and professional impacts of subscription to OZTL_NET

Category – Personal Impacts	Frequency of Mentions
It is a form of collegial support, allows for the building of relationships and provides a sense of community	43
It helps create empathy and understanding as others are facing similar problems, issues, etc.	22
It makes me feel good to be able to assist other subscribers and/or it has increased my confidence in the job	19
It has helped to enhance my image/reputation with members of the school community as it allows me to meet their needs	6
Allows me to recognise names of OZTL_NET colleagues at real-time conferences	6
Category – Professional Impacts	**Frequency of Mentions**
Allowed for sharing of work practices, new ideas and innovations – better informed	76
Invaluable source of advice about resource selection and acquisition	38
Helps to overcome professional isolation and increases professional collegiality	32
It provides an important forum for raising and debating issues impacting on the profession	28
Its national focus is important ("big picture") – raises awareness of situation in other states	17
An important source of daily professional development	14
Helps me to answer questions from users	12
Helps me solve problems	8
Has provided me with the opportunity to improve student learning through better servicing of teachers' needs	7
Has improved my ICT knowledge	3
Has had no impact or little impact on me personally and/or professionally	4
Total	**335**

In terms of professional impacts, information sharing and gathering (n=76) and the seeking of advice (n=38) accounted for 48 per cent of total mentions in this category. This result re-affirms the importance that subscribers place on these activities as a consequence of participation in OZTL_NET. Other major professional impacts include the assistance OZTL_NET provides to practitioners in overcoming professional isolation (13 per cent), the importance of the listserv as a forum for raising and debating issues (12 per cent) and as a focus for national issues and raising awareness of the situation in different states and across educational authorities (7 per cent).

Less frequently mentioned professional impacts included OZTL_NET as an important source of daily professional development, as a form of assistance in solving problems and answering questions from school library users, and as a way of assisting subscribers to help teachers improve student learning outcomes. Four respondents reported that subscription to OZTL_NET had had little or no impact on them either personally or professionally.

Beyond the impacts that participation in OZTL_NET had on subscribers as individuals, Question 38 asked respondents to identify a specific example of how their participation in OZTL_NET had impacted on their school or workplace. Table 4.41 indicates that subscribers most frequently mentioned examples that were closely aligned to their daily practice as teacher librarians. Consistent with the results reported in Tables 4.27 and 4.28, supporting the curriculum through sourcing and acquisition of appropriate resources (n=68) and the improvement of information services for school library users (n=29) were considered highly accounting for 44 per cent of all examples cited by subscribers.

The subscriber sample also reported examples of direct impacts on students and teachers. Prominent among these were the provision of opportunities for students to participate in online activities and projects (n=16), strategies to assist with the integration of information literacy principles into the curriculum (n=14) and the promotion and/or provision of professional development for teachers (n=11). Nine respondents reported that they could not think of an example or that their participation had resulted in no impacts on their school or workplace.

The remaining 32 per cent of the examples provided were related to the empowerment of the individual subscriber through participation. These examples described participation in OZTL_NET as a means of improving personal competence and performance (n=23), allowing subscribers the opportunity to construct professional knowledge through collegial community (n=18), the ability to apply directly in the workplace that which had been learnt as a result of participation (n=15) and heightened awareness of key/emerging issues affecting the profession (n=13).

Table 4.41:   Examples of impacts of subscriber participation in OZTL_NET on the school or workplace

Category	Frequency of Mentions
Has allowed me to support the curriculum through the sourcing and provision of appropriate resources	68
Has allowed me to make improvements to information services for school library users	29
Has provided a means by which I have been able to improve my personal competence and performance in my job	23
Has allowed me to feel part of a collegial community that contributes to the construction of professional knowledge	18
Has provided opportunities for student participation in online activities and projects	16
Have been able to directly apply what I have learnt from my colleagues on OZTL_NET in my school/workplace	15
Has provided me with strategies to assist with integrating information literacy principles into the school's teaching and learning programs	14
Has heightened my awareness of key/emerging issues in the profession	13
Has assisted in the promotion and/or provision of my professional development services to staff and/or colleagues	11
I cannot think of an example or my participation has resulted in no impacts	9
No category	3
Total	**219**

Question 39 asked subscribers whether they had a favourite OZTL_NET story or anecdote. Thirty-five subscribers indicated that they did not have a favourite OZTL_NET story or anecdote while five subscribers indicated that they could not recall one specific anecdote from a number they could cite. Nine subscribers indicated that they enjoyed/ appreciated the humorous postings to OZTL_NET while

five subscribers recounted instances where they or someone else had embarrassed themselves on OZTL_NET. Eleven subscribers recounted specific anecdotes/ examples about the power of "being connected."

Question 41 sought to provide the subscriber sample with the opportunity to provide suggestions for the improvement of OZTL_NET not made in responses to previous questions. As was the case with Question 40, respondents took this opportunity to make suggestions regarding several issues that had previously emerged from the analysis. Table 4.42 indicates that improved use of subject lines and subject line keywords (n=14) was the dominant suggestion. A number of suggestions were consistent with responses to questions that drew criticisms of technical and administrative features of OZTL_NET including improvements to the format of digest messages (n=5), archive access and searching (n=4) and access to and involvement of the list administrators (n=4). Other suggestions were focussed on subscriber use of OZTL_NET including the need to better educate subscribers about OZTL_NET "netiquette" (n=5), and the need to reduce the number of messages with inappropriate formatting (n=4) and the number of parochial (eg. state-specific messages) (n=4).

Table 4.42:   Subscriber sample suggestions for improvements to OZTL_NET

Category	Frequency of Mentions
Better/improved use of message subject lines/ more specific subject lines/ increased use of subject line keywords	14
Separate into two lists for primary and secondary or introduce a method of indicating whether a message is of interest to primary and/or secondary subscribers in the subject message line	6
Increase the use of discussion tools such as "targets" and "hits" and introduce other ways of providing "summaries" of discussions	6
Improve the format of digest messages	5
Better educate subscribers about the OZTL_NET "netiquette guidelines"	5
Improve access to archives and archive searching	4
Increase administrator involvement in list and/or improve subscriber access to administrators	4
Reduce the number of messages with inappropriate formatting	4
Reduce the number of parochial (eg. state-specific messages)	4
Do not have any suggestions for improvements	19
Other	3
Total	**74**

The responses to Question 41 did result in some specific suggestions for improvements including the idea of separating OZTL_NET into two lists for primary and secondary or introducing a method of indicating whether a message is of interest to primary and/or secondary subscribers in the subject message line (n=6). Clearly, these subscribers considered messages that did not directly concern their work context to be irrelevant and considered the creation of two lists or an improved method of signalling the message context as strategies that would improve their experience of OZTL_NET. Additionally, six subscribers suggested an increase in the use of discussion tools such as "targets" and "hits" and consideration of other ways of providing "summaries" of discussions. These suggestions were followed up in the interviews. Nineteen subscribers indicated that they had no suggestions for improvements to OZTL_NET.

The final question in the web survey provided the subscriber sample with the opportunity to make any final comments about OZTL_NET. The responses, summarised in Table 4.43, indicate that OZTL_NET is considered by some subscribers to be a very useful resource/service and source of support (n=28), an important form of ongoing professional development (n=12) and a critical means for some subscribers in overcoming professional isolation (n=10). Subscribers also took this opportunity to thank the administrators for the provision of OZTL_NET (n=27).

Table 4.43:   Other comments about OZTL_NET from the subscriber sample

Category	Frequency of Mentions
OZTL_NET is a very useful resource/service and source of support	28
Thanks to the administrators for the provision of the valuable service	27
OZTL_NET is an important form of ongoing professional development	12
OZTL_NET is critical in helping subscribers overcome professional isolation	10
No comments	5
Other	12
Total	**94**

4.4   Conclusion

This chapter presented the analysis of the subscriber sample responses to the web survey. Summary demographic and workplace context data from Parts A and B of

the web survey were analysed in order to obtain a profile of the subscriber sample (Appendix P). The analysis of the quantitative data collected in Part C of the web survey assisted in "mapping the terrain" in terms of how subscribers in the sample used OZTL_NET. The purpose of the first part of this chapter was to describe the exploratory quantitative analysis of the web survey data while the second part presented the detailed descriptive analysis of the web survey results and the interpretation of those results in light of the literature reviewed in Chapter Two. The second part of this chapter also identified and foregrounded a range of issues from the web survey that required further elaboration and amplification through the subscriber interviews. The issues and concerns revealed as a result of these analyses informed the construction of questions for inclusion in the interview schedule, the purpose of which was to explore in more detail aspects of subscriber use of OZTL_NET. The analysis of these data is provided in Chapter Five.

The analysis of the web survey data in Part C was assisted by grouping the responses into three broad themes, "Background", "Facilities" and "Aspects of Participation." In terms of the first theme, "Background", the factors that contribute to subscriber retention of and attrition from OZTL_NET and the degrees of usefulness that subscribers apportioned to participation in the listserv to their professional practice were identified as issues for further exploration in the interviews. Additional issues that arose in this theme and that informed the questions for the interview schedule were the need for subscriber opinions relating to the role that "dominant" message posters and peripheral participators ("lurkers") may have had on subscribers' experience in the listserv.

Analysis of data in the context of the second theme, "Facilities", revealed a number of issues and concerns directly related to listserv functionality and subscription options that had direct implications on subscriber use of and participation in OZTL_NET. These issues and concerns included low levels of adoption and/or use of the digest message version, OZTL_NET website, message archives and list administrators. The analysis revealed a general lack of awareness of these facilities in addition to other functions related to message and content management such as subject line keywords. Questions seeking further elaboration on these issues and

concerns in the experience of OZTL_NET subscribers were also included in the interview schedule.

The main emphasis of the analysis in theme three, "Aspects of Participation", was on the range of personal and professional impacts of participation experienced by OZTL_NET subscribers and on gauging the degree of subscriber participation in the listserv in terms of professional learning, sense of community and/or the opportunity for knowledge construction through interactions with other subscribers. In this regard, further information from the interviews was sought in response to a number of issues and concerns raised in this theme of the data analysis. These included the range of subscriber reactions to and interactions with messages, what subscribers considered valuable in terms of their participation in OZTL_NET including their views on the importance or otherwise of professional discussion, subscriber experience of involvement in collaborations and collegial processes, and how they considered participation in OZTL_NET in terms of their professional development.

Additionally, the analysis in this theme informed the construction of questions in the interview schedule designed to elicit responses from subscribers that would assist in determining the extent of subscriber critical reflection on practice, the degree to which subscribers learnt through interactions with others online and whether there was any evidence to suggest that knowledge construction and/or capacity building resulted from subscriber participation in OZTL_NET. In short, the questions for inclusion in the interview schedule were formulated on the basis of the analysis of the subscriber survey such that the semi-structured interviews would provide sufficiently rich data in order that the principal and enabling research questions that guide the study could be comprehensively addressed.

CHAPTER 5:   ANALYSIS OF THE INTERVIEW DATA

5.1   Introduction

In Chapter Four the quantitative data from the web survey were analysed and reported in terms of the patterns of responses found in the data. The purpose of the quantitative data collected in Parts A and B of the web survey was to profile the sample in terms of subscriber demographics and workplace contexts. The responses to Parts A and B of the web survey were reviewed and summarised in the analysis following the order of questions in the survey instrument (Appendix D) and the results reported in Appendix P. The principal focus of Chapter Four was to present the analysis of the quantitative data collected in Part C of the web survey. The results of the analysis of Part C were also used to identify issues that subsequently informed the construction of questions for inclusion in the interview schedule.

The analysis of the web survey responses identified a number of factors related to professional learning and online communities resulting from subscriber participation in OZTL_NET. Based on their participation in the listserv, the ten interviewed subscribers were asked to describe their experience in terms of six factors that had emerged as themes from the survey responses. All of these were critical in terms of the principal and enabling research questions that guided this study: 1) Sense of belonging to a community; 2) Learning through interaction with others; 3) Mechanism to aid critical reflection on practice; 4) Generation of new ideas through interactions online; 5) Opportunity to contribute new knowledge to the profession, and 6) Evidence of knowledge creation/construction. Analysis of the interview data relating to each of these factors appears below in Part Four of this chapter. The analysis of these data includes appropriate linkages to the results of the subscriber survey reported in Chapter Four. Because of the inter-relatedness of the six factors not only with each other but also with other aspects of the analysis in this study, the analysis in Part Four also draws on the literature that describes the characteristics of online learning communities and communities of practice throughout the discussion.

As the second part of phase two of the study, the purpose of this chapter was to explore the outcomes of subscriber participation in OZTL_NET in terms of the professional learning of teacher librarians. This chapter presents the analysis of the

ten subscribers' responses to the questions in the semi-structured interviews. The ten interviews resulted in a large volume of data for analysis. The responses were reviewed and summarised following the order of questions in the interview schedule (Appendix H). Each of the four parts of the interview schedule reflected the major themes for exploration that emerged from the survey results and allowed for the logical grouping of questions that would elicit responses of direct relevance to the principal and enabling research questions that guided the study.

Extensive use was made of extracts from the interview transcripts as examples to illustrate points and in some cases, the range of subscriber responses to a question or reactions to an issue. The analysis of these interview data was further informed by the inclusion of appropriate references to the survey results presented in Chapter Four and to the profile of OZTL_NET subscribers and messages presented in Chapter Three. The integration of relevant extracts from and references to the six sections of the main OZTL_NET website (Appendices B1-B6) provided additional explanatory depth to the analysis of these data. These extracts appear as boxed comments in the analysis. Their purpose was to illustrate the relevant recommended policy, guideline or behaviour from the main OZTL_NET website that related to the issue under discussion in context. The degree to which these policies, guidelines and behaviours were portrayed in OZTL_NET provided a further indication of subscriber awareness of and attitudes towards their participation in the listserv.

Subscriber responses to open-ended questions in the web survey were also used to provide greater depth to the analysis of interview data. These responses assisted in illustrating the range of responses to questions and in linking the issues that had their genesis in the survey responses to the responses that resulted from the semi-structured interviews. The context for the analysis of each section of the interview is provided as part of a preliminary discussion of the information gleaned from the qualitative survey data. In order to indicate the strength of the points of view reported in the analysis, summary information relating to the qualitative responses to the web survey were presented as frequencies and sometimes as tables which indicated categories and frequencies of mention. Additionally, references to relevant tables in Chapter Four were provided as appropriate. Where there was unanimity of response to a question the number of subscribers who held that particular view was indicated.

In some instances where the pattern of responses was inconsistent and trends in the data were difficult to identify, the conclusion drawn was that that particular view was not strongly held by subscribers. Because of the inter-relatedness among the component questions that comprised each of the four parts of the interview schedule, the main analyses were made at the conclusion of each part following the presentation of results.

5.2   Adequacy of representation of the interview sample

The basis for selection of the ten interviewees that comprised the purposive sample was described in Chapter Three (*The Interview Sample*). Seven of the ten interviewed subscribers were also web survey respondents. This section of the chapter describes the process used to show that these seven cases were broadly representative of the 170 subscribers in the final survey sample in terms of the measures of teacher professional learning (TPL) and usage used in the regression model summarised in Table 4.12 and Appendix O. The WEBSITE variable was not used in this process because even though it was significant in the regression it did not load into the model. This process also assisted in determining the degree of accord between what subscribers reported in the web survey and what they reported in their interviews. In this sense, Table 5.1 serves as a further validation of the interview data.

Table 5.1:   Summary of the standardised scores of usage and of actual and predicted teacher professional learning for the seven interviewees*

Case	zTPL	zNewfreq	zSubtime	zTimeacc	zArchives	zTPL'	zTPL
33	0.976	2.490	-0.013	0.109	0.375	0.871	0.976
45	-1.108	-1.494	-1.287	0.109	-0.797	-0.829	-1.108
59	-1.108	1.494	-0.013	2.527	-0.797	0.993	-1.108
70	0.628	2.490	1.262	1.318	2.720	1.781	0.628
81	0.281	0.498	1.262	-1.100	0.375	0.196	0.281
161	1.323	2.490	0.625	2.527	-0.797	1.441	1.323
162	-0.413	-1.494	-0.650	-1.100	-0.797	-1.003	-0.413

* The beta coefficients upon which this table was produced are included in Appendix O.

Table 5.1 indicates a high degree of consistency between what Cases 33, 45, 81 and 161 reported in the web surveys and their calculated TPL from usage scores. The TPL score for Case 162 calculates a little worse on TPL in terms of that subscriber's actual score while Case 70 appears to constitute an example of under-reporting because despite a positive reported TPL this subscriber's predicted TPL is even higher due to high overall use. Case 59 represents the only major discrepancy in

reported and calculated scores among the seven cases. This subscriber's reported TPL was relatively low (one SD below the mean) yet his calculated TPL from usage scores places this subscriber at one SD above the mean, an overall discrepancy of almost two standard deviations. It may be that this subscriber has also under-stated his/her TPL in terms of the responses provided to the web survey.

In Table 5.1, the seven cases serve as examples that generally show a spread in terms of the zTPL scores in the final column either side of the mean score. In terms of the projected TPL in the second last column the scores represent a function of usage or a way of summing the four usage measures. The spread shows scores ranging from well above the mean to almost one standard deviation below the mean. This spread of scores confirms that these seven cases were not similar and are broadly representative of the total survey sample of 170.

5.3   Part 1: Professional discussion on OZTL_NET

A strong recurring theme to emerge from the analysis of Part C of the web survey in Chapter Four was the range of views that subscribers held in relation to the quality or level of professional discussion on OZTL_NET. This is an important issue from the perspective of OZTL_NET subscribers because it is closely related to the purpose of the listserv. In the quantitative analysis provided in Chapter Four the indicator DISCUSS (discussing and debating issues) was related to membership of a professional association ($p<0.069$) (Table 4.1). DISCUSS was also highly correlated with the indicators seeking more information, discussion and debate, solving problems, implementing ideas and professional development opportunities and as such was included as one of the five items in the production of the single measure of involvement (INVOLVE) as shown in Table 4.2. Some general guidance as to what discussion on OZTL_NET may entail is provided on the main OZTL_NET website:

"Discussion on OZTL_NET may include: library, school and departmental policies, practices and procedures; location and use of Internet resources; information literacy issues, programs and strategies; reference questions of teachers and students; products and resources for school libraries; general discussion of teacher librarianship issues; training tips and use of information and communication technologies; and workshop and conference announcements." (Appendix B1 - OZTL_NET Homepage, Version 4, 2003, p.1)

For the purposes of this study, a distinction was drawn between professional discussion and general discussion on OZTL_NET. General discussions include

messages that involve personal communications ("chit-chat"), requests for resources and the seeking of information. Professional discussions are less superficial, issues-based and typically focused on concerns around practice related issues. They usually involve a number of participants in more in-depth debate and discussion and characteristically involve several public message postings to the list.

The semi-structured interviews were used to explore in depth what subscribers understood constituted professional discussion and whether they thought the proportion of messages devoted to discussion was appropriate. Subscribers were also asked to recall and relate a specific professional discussion experience in which they had been involved in order to give voice to their understanding of the concept in the context of their participation in OZTL_NET.

The analysis of the web survey data in Chapter Four highlighted the importance of professional discussion as an issue for subscribers that required further exploration through the interviews. For example, the variable DISCUSS (discussing and debating issues) was a key indicator of teacher professional learning in the INVOLVE measure. Moreover, Table 4.26 indicated that "discussing and debating issues" ranked seventh in a list of eleven items subscribers considered valuable as a result of their participation in OZTL_NET (n=106 or 9.75 per cent of total mentions). When subscribers were asked to select the two most valuable items from the eleven listed, "discussing and debating issues" rose to third position as the most valuable and second most valuable items (Table 4.27, n=29 or 17 per cent of total mentions and Table 4.28, n=22 or 13 per cent of total mentions).

The issue of quality or level of professional discussion on OZTL_NET consistently arose in the subscriber responses to the web survey. For example, in response to Question 36 about the factors that might lead subscribers to discontinue their subscription to OZTL_NET Table 4.38 indicated that while 101 subscribers did not mention any aspect of professional discussion in their reasons for discontinuing their subscription, 67 mentions of specific aspects of professional discussion were identified as possible reasons for unsubscribing.

Table 5.2: Aspects of professional discussion as a basis for unsubscribing from OZTL_NET

Category	Frequency of Mentions
In terms of professional discussion would unsubscribe if the:	
number of "trivial" messages increased	20
number of irrelevant messages increased	14
number of personal messages increased	12
overall level of professional discussion were to decline	10
sharing of ideas ceased or declined	6
number of subscriber complaints or flames increased	5
No mention of professional discussion as a reason for unsubscribing	101
Total mentions	**168**

Several subscribers made strong statements in their survey responses in relation to the importance of professional discussion on OZTL_NET. The following subscriber responses to Question 36 indicated that a decline in the amount of what these subscribers considered quality professional discussion might lead them to unsubscribe from the listserv:

> [I would unsubscribe if OZTL_NET] became a "whinging board" for issues rather than a rational discussion board. I tire of repeated messages hammering single issues. Their relevance and worth does not require multiple hits. [Subscriber 9]

> If I felt that the ideas were lacking, or the professional discussion was not interesting, or the sharing of ideas ceased. [Subscriber 103]

> [If there was a] lack of quality in the level of discussion, occasionally there are small gems that keep me going. I live in hope. [Subscriber 166]

Other subscribers supported a balance between professional discussion and other types of messages but still expressed frustration when they felt that the overall quality of discussion was in decline. For example, Table 5.3 summarises web survey responses to aspects of professional discussion in OZTL_NET that subscribers considered annoying or frustrating.

Table 5.3: Annoying or frustrating aspects of professional discussion on OZTL_NET

Category	Frequency of Mention
Too much trivial or inaccurate information and not enough professional discussion	26
Too many messages irrelevant to me personally	17
Dominance of the list by some subscribers with an "axe to grind"	10
Flaming/unfair criticism of persons	8
Subscribers who defer to the list immediately for assistance before doing some basic research themselves	5
Inappropriate messages including political and commercial use of the listserv	5
Total mentions	**71**

The following qualitative responses to Question 40 about what annoyed or frustrated subscribers serve to illustrate some of their concerns in respect of the quality or level of discussion on OZTL_NET:

> Some people seem to share information that is not really accurate. [Subscriber 14]

> I am sorry to be less than positive, but I am sometimes appalled at the level of discussion engaged in by teacher librarians. It seems to me that the list is used less for the purpose of professional debate and more for the purpose of solving organisational problems that were solved years ago and surely have been touched upon in any teacher librarian course. If this is the purpose of the list then I suppose it is OK, but it seems that people are using this list as a first port of call in finding a solution. For example, how do I lend periodicals? Or how do I find the notice that goes up next to the copying machine? [rather] than indulging in a little basic reference thinking. Do they use this method to teach students the skills of research? What is the prime purpose of the list? [Subscriber 166]

> Occasionally inane discussions about what I consider to be insignificant matters. [Subscriber 172]

In response to Question 38, 128 of the 135 subscribers who answered were able to cite one or more examples of positive impacts on their school or workplace that had resulted from their participation in OZTL_NET. While most of these examples involved the location of resources or the adoption of ideas 22 subscribers also mentioned the value of professional discussion on OZTL_NET to them in terms of impacts on their school or workplace:

> Recently there has been discussion on policies for school libraries and I have been able to access websites that have proved useful in allowing me to make a start on putting some policies in place for our school library. [Subscriber 3]

> Much discussion about what other people do in their libraries and schools makes me think about my own practice eg other people's views on research skills and information literacy. [Subscriber 37]

> I have a colleague interested in school copyright issues from a system perspective and have found the discussions around copyright helpful from my own point of view as well as a useful source for my colleague who is not in the library fraternity. [Subscriber 112]

The results of the subscriber survey clearly revealed a range of views regarding the adequacy or otherwise of the amount and quality of discussions on OZTL_NET. These results also indicate that while many subscribers value their subscription to OZTL_NET to the point where they are prepared to tolerate perceived weaknesses in the quality of discussion, they also have firm ideas and suggestions as to what is required to increase the quantity and improve the quality of the discussion on the listserv.

5.3.1   What is professional discussion?

Question 1.1: What do you understand constitutes professional discussion as opposed to other types of messages posted to OZTL_NET?

Most subscribers considered professional discussion to be issues-based, concerned with both teaching and learning and library management matters. For example:

> Professional discussion to me is discussion of issues, issues that affect teacher librarians and I think professional discussion is requests for help on things to do with teaching…I will be narrow with professional discussion, I have been going through my archives, actually I think professional discussion is just issues related to teacher librarianship. [Cheryl]

> I use OZTL basically to keep aware of what is going on with other teacher librarians and people in this field. To me it should be about librarianship or general education type stuff, curriculum issues. I don't mind the odd humour type stuff that you see there but I still think the discussion should be largely focused on librarianship and educational type issues. That is why I belong to OZTL. [Dave]

> Well, professional discussion would be about library management and teaching and learning issues, discussion about the way different resources are managed, student management issues, resourcing the curriculum, quite often there are things on there about looking for resources for particular topics, also maybe staffing issues. [Amy]

One subscriber described professional discussion in more overtly developmental terms:

> I think that probably I would rate professional discussion as anything that helps you with thinking about and developing your understanding of what it means to be a teacher librarian and how that impacts on your work. [Clare]

Another subscriber was moved to broaden the definition of what she considered constituted professional discussion. Her response indicates an expanded conception of professional discussion beyond issues-based or developmental considerations to include a role-based perspective that reflects the multiplicity of responsibilities that the literature (Australian School Library Association and Australian Library and Information Association, 2001; Lonsdale, 2003; Lowe, 2000) and survey responses revealed as characteristic of the practice of many teacher librarians:

> I could say quite academically professional discussion relates to matters that affect your performance, ability or knowledge in terms of being an effective teacher librarian in a school. But over time that has changed enormously for me because my experience of being a TL has changed enormously …The way the list has grown the kind of nature that it has taken on almost because of the users that are out there, a lot of what happens that may not actually fit within that really rigid "this is professional" can actually be of great benefit to people…But now I see [professional discussion] as being a much broader thing and that probably fits with the way the role has evolved for many TLs because they wear many hats in a school. [Jane]

5.3.2 Professional discussion experiences

Question 1.2: Can you recall and describe a <u>specific</u> professional discussion experience you have had as a subscriber to OZTL_NET?

All but one of the subscribers was able to describe a specific professional discussion experience on OZTL_NET. The topics of these discussions could be placed in three broad categories; collection management issues (n=4), the changing role of the teacher librarian (n=3) and technical/management issues (n=2). Typically, professional discussions were initiated by a question or statement posted to the listserv:

> Someone asks a question or makes a statement about a particular thing and people pick up on it either to add to it or to give their own experience and it just seems to feed off itself which is probably the best thing about the whole deal, the fact that you can make a statement and you can get so many different points of view that you start to reassess your own. So it sort of varies but it is mostly a question asked or a response to something that somebody has said or an issue that they have raised. [Dave]

One subscriber described her own experience of initiating a professional discussion:

I posted with a subject line on information on Reader's Cup required or requested. And then in the body of the message I explained that a new group of teacher librarians were attempting to set up a Reader's Cup and that we hadn't done it before, that we were looking for any advice from experienced Reader's Cup runners and suggestions for good books, any shared questions, any ideas for supporting activities would be greatly appreciated. I offered to put up a "hit" for any answers or responses and I probably got 10 or 12 replies from people that had participated in the Reader's Cup and they shared a wealth of information between them - located in both primary and secondary which was in my message, cause we had interest from TLs in both sectors. Then I probably got an equal amount of replies saying "don't forget the hit, I want this information as well." [Gail]

Some issues appear to be perennial. The following discussion on the controversial issue of closing the school library for the purposes of stocktake was initiated by an enquiry to the listserv. What is interesting about Sue's response is that it illustrates a form of re-use of information formerly obtained from an OZTL_NET posting:

A teacher librarian sent a message saying that the library was going to be closed and she had to then at the next staff meeting present her reasons for having a stocktake and why she should have a stocktake and why she should have time with the library closed to do it. Then people were able to contribute, I think [Subscriber A] sent in one that she had prepared herself with the help of OZTL people probably the year or two before and then other people said what they did as well. [Sue]

The preceding issue is indicative of the often "cyclic" nature of tasks that need to be performed over the school year by teacher librarians. To some extent this may contribute to the recurring appearance of discussions of some issues such as stocktake. In addition, the freedom for subscribers to subscribe and unsubscribe from OZTL_NET at any time means that discussions that have finished or almost finished may be re-energised by someone who only recently subscribed to the list or who may have been lagging behind in terms of monitoring the discussion:

Issues do arise and peter out and then come up again. Either from somebody who perhaps wasn't involved in the initial discussion or it has just come again because it came up for somebody and often people refer to it. I have seen lots of messages where people have said "I know there was a discussion about… but what was concluded" sort of thing. [Dave]

In terms of the factors that helped sustain professional discussions, breadth of opinion around a certain issue, particularly controversial issues was at the top of the list:

There became a level of controversy actually because there became two camps one of those who felt that stocktaking was something that could be done around everything else and those who felt that to do it properly they needed to be able to

close the library. So that was one controversy so that people were like chiming in with their experiences but it is just something that we all face at this time of the year and it doesn't matter whether we are in Australia or the US or wherever we always seem to have this lack of understanding about what it involves so it is just people being able to share the ideas and keep them going. Somebody would post something and that would spark an idea with somebody else and people felt free to contribute. [Alice]

If subscribers did not consider the topic of discussion particularly important then it typically spanned a relatively short period of time:

Not a huge long time, maybe a week or so and then somebody will say this is where we have got to or I have had enough of this or it just peters out and people lose interest in maintaining the dialogue. [Clare]

It was reasonably difficult for subscribers to recall with great accuracy the level of involvement of subscribers in the professional discussions they nominated. Typically, between 9 and 25 messages to the listserv was estimated as comprising the professional discussions cited. These estimates were further confused for subscribers who had initiated and/or participated in these discussions because there was sometimes a combination of messages to the listserv and responses directly to individuals. For example, the following comment illustrates how the genesis of one professional discussion was in the off-list communications between the original poster of the message and other interested subscribers:

I think it was [Subscriber A] who posted the initial request and a lot of people responded to her off list and it was when she posted her "hit" that the public discussion began. That is often a pattern that I have seen. That there is often more on-list discussion after a "hit" is posted. [Alice]

This result supports the survey results reported in Table 4.24 which indicated that almost 44 per cent of subscribers usually responded directly to the sender of a message rather than to the public list and 27 per cent responded both directly to the sender and to the list. It could reasonably be concluded then that the genesis of many professional discussions on OZTL_NET is in the off-list communications between subscribers especially where this correspondence results in a request for information to the list with the promise of a "hit."

Further support for this conclusion is evident in Table 4.24 which showed that less than two per cent of subscribers' usual response to an OZTL_NET message was to

reply directly to the public list. This result is consistent with the data reported in Table 4.25 which indicated that "responded to the list" accounted for only seven per cent of all follow-up actions taken by subscribers in response to an OZTL_NET message.

These subscriber behaviours in relation to off-list responses are encouraged by the OZTL_NET administration to avoid possible subscriber embarrassment, prevent misunderstandings and reduce the number of personal messages posted to the public list:

"1. Be extremely careful when **replying to the sender** of an OZTL_NET message. Many email systems will send your reply to the OZTL_NET list address if you simply use a reply command. This could be embarrassing if the message is of a personal nature...NEVER post a reply message to the list address which would not be of interest to most members. Just send it to the individual who posted the original message to which you are responding.

3. **Think before you post.** Do I really want to say this to the entire world (OZTL_NET)? Reread what you wrote. Did you really say what you intended to? Once a message is sent, it cannot be retrieved. Sending to the individual or the entire group is an important consideration. Normally one can send replies to the entire group, however, an individual person who requests the information may offer to post a HIT to the list. This will mean that all replies should be sent to the individual requester and it is their responsibility to collate and post the collective response to the group."
(Appendix B4 - OZTL_NET Netiquette, Version 5, 2003, p.1)

Not all of the subscribers that respond to the original message poster make a contribution to the discussion. They are also interested in the same issue and would like the original poster to collect and share the contributions they receive both on-list and off-list with others:

> People might write to them [the original poster] and say look I can't answer your question but I am really interested in the answers so can you please post a "hit" and share them? [Alice]

In addition to simply "petering out" discussions may conclude in other ways. For example, sometimes the originator of a request and/or another interested subscriber will post a "hit", a summary, representative or complete collection of responses to a query, to the listserv. It will be a more complete "hit" if posted by the message originator as that subscriber will likely have received a number of individual responses from other subscribers. The posting of a "hit" then does not only encourage discussion it can also provide the summary of a discussion. The example below suggests that Cheryl's motivation for posting her query and subsequently a

"hit" was partly to seek external validation from her peers of a professional decision she had made prior to operationalising that decision:

> [The discussion] concluded by my posting a "hit" and my making a decision that I would not continue our subscription for next year. So what they did was they just clarified my thoughts and gave me support. I was taking a professional decision that was valid. [Cheryl]

For Jane there are sometimes requests for assistance that initiate discussions that may not be appropriate to collapse into a "hit" for dissemination to the entire list because:

> Sharing of solutions…often…comes within a specific context and often it is very personal what someone is asking. I can recall a number of occasions where people have sought advice from others on the list related to something that's obviously an issue for them within their professional role and maybe it isn't always possible or appropriate to share the outcome of that and sometimes it does help. I don't have a black and white answer on that but – because it works for person A it may not always work for person B, it may actually cause more problems for person B. [Jane]

Subscribers reported a range of personal and professional learning outcomes from their participation in OZTL_NET discussions. The following statements exemplify these outcomes. In the first, Clare alludes to participation as a kind of yardstick or point of reference against which she reflects on her own practice. In the second, Gail points to the listserv as a means of stimulating professional curiosity and raising awareness of issues:

> I think that it has to be an individual thing, for me it often gets me to question where I am and how I differ from what other people think about things and stuff like that. At one point I remember revising my role description because I thought it is not really reflecting where I've got to and things like that. [Clare]

> It confirmed and affirmed that teacher librarians are great sharers which is why you can confidently put a request out because you know that there are people out there that will respond…I think it is interesting that one person can post a query and it makes other people think, "oh yes, I want to know about that." So I think it stimulates people's curiosity to know about things as well. There are so many things we want to learn about and don't have time and they get put on the back burner. So that is one thing that OZTL_NET does do is that it brings things out, back into your mind and makes you think, "oh yeah, I was going to follow through on that." So it is a good prompter. [Gail]

5.3.3 Amount of professional discussion

Question 1.3: Relevant to other messages, is the number/amount of messages devoted to professional discussion on OZTL_NET appropriate? Why/ why not?

In addition to the proportion of professional and other messages on OZTL_NET, relevance to the individual subscriber's immediate work situation was a major factor in subscriber responses to this question:

> I think sometimes there is not enough of it, just being professional discussion [and] I am not personally subscribed at the moment…also just the amount of messages… it takes a huge amount of time to even find out if it is something that is going to be relevant to you because the subject line isn't always accurate or meaningful so you sometimes will open a message and it has got something to do with a different geographic area or it might be something only related to primary schools and I am in a secondary school. [Amy]

For Sue, the time of the year and the level of subscriber experience were important considerations:

> Sometimes I think it depends on the time of year. I guess it depends a lot on whether there are new people. When I joined I was doing my upgrade to being a teacher librarian and they suggested it at Uni and so when I got involved I was totally absorbed because I had so much to learn but I guess now it is a little bit different because I am now a little bit further down the track. A lot of people have been on the list for a long time so it's possibly not the same level of discussion at times although when new people come on and they ask something the older members are able to come in and help which is really good. I have noticed it seems to vary with the time of year, the discussion issue. [Sue]

Overall, the interviewed subscribers thought that there was not enough professional discussion on OZTL_NET. Interestingly, however, there was a range of levels of tolerance of other types of messages. For example, Gail has a very definite view:

> I don't think that there are enough of them [professional discussions]. I find that there are a number of messages that I feel are a waste of space - a waste of time, it annoys me getting them. One of the things would be the number of state advertisements or the things for local meetings that are posted on OZTL_NET that I think should be catered for within the state and not on a national mailing list. NSW is terrible for it. If the subject line is good - I don't worry about it. If the subject line isn't good I just delete it. So if I don't know immediately whether it is worth opening, cause I get the digest, I don't open it. I don't have time to wade through a lot of email so I am very selective in what I use. The topics that are about teacher librarianship compared to how do you survive your daily life, interest me the most. [Gail]

The remaining subscribers were less critical than Gail of the amount of non-professional discussion although Jane suggests that with the appearance of a number of smaller, parochial listservs for teacher librarians, they would be more appropriate forums for "nuts and bolts" and specific technical requests leaving OZTL_NET for more serious professional discussion:

I think in the early days of OZTL_NET there were lots of questions that related to things like different library operating systems and "does anyone know how to", those kinds of "nuts and bolts" questions. Over time specific lists have evolved like Queensland has an "Oasis/Alice Users" list so that people who want specific information relating to that library operating system can subscribe to that. So perhaps that's taken some of those kinds of questions away, there is LM_NET and there is NSW Teachers. In the initial days I think OZTL_NET was in the forefront… it was one of the most important sources of communication and information for a lot of teacher librarians. But over time perhaps some of them have chosen to move into other areas that follow their specific interests and perhaps and maybe the more professional, as in nuts and bolts sorts of questions, have moved into other arenas which then leaves OZTL_NET as a platform for perhaps more broad issues. I don't know, I feel that the potential is there, whether it is actually happening – I guess the jury is out on that one. [Jane]

On the other hand, Clare cautions against a list that is over committed to professional discussion preferring the current balance of messages:

I mean obviously on a discussion list like this there's going to be nuts and bolts things like how do you do this, can you find out that, all that sort of stuff. There is also going to be humorous messages, messages just basically keeping in touch, how are you going, this is what we are doing, that kind of thing. There is also going to be time for reflection and I think especially for TLs like me who are on their own, it is incredibly invaluable to be able to maintain that kind of level of professional discussion and most of us don't have a huge amount of time so long messages about professional discussion are not likely or not really very useful because you don't have time to read a lot of them. [Clare]

From her attempts to stimulate professional discussion, Alice is convinced that it cannot be contrived or "seeded" and that its genesis must be in the authentic professional needs of subscribers at the time:

I would like to see more professional discussion but I don't. We have tried to raise issues up for discussion but unless people have got a need, an issue impinging on them directly at that time, it doesn't work. There [have been] a few times that I have flicked something across from LM_NET and said what do Australian TLs think about it but there hasn't been a lot of response. [Alice]

The preceding analysis confirms the findings of a study that examined e-ILF an e-forum designed for teachers which found that the "difficulties of supporting reflective dialogue and community building in online forums seem to be under-appreciated within educational communities…Perhaps we should not be surprised to find that such reflective discussion does not spontaneously arise in the e-ILF" (Kling & Courtright, 2004, p. 112). This conclusion points to the necessity for the careful

design of online communities that provide optimal conditions for quality engagement among participants. A major outcome of this analysis pertaining to the issue of professional discussion on OZTL_NET was the emergence of the adequacy or otherwise of the strategies and practices employed by subscribers for the management of messages and content as a critical issue in online communication. The analysis suggests that subscriber proficiency in communicating *effectively and efficiently* in the listserv is closely related to the *level of skill* they have in *communicating textually* online. This is a critical issue as indicated by Herring (2004) since

> online interaction overwhelmingly takes place by means of discourse. That is, participants interact by means of verbal language, usually typed on a keyboard and read as text on a computer screen. It is possible to lose sight of this fundamental fact at times, given the complex behaviours people engage in on the Internet…Yet these behaviours are constituted through and by means of discourse: language is doing, in the truest performative sense…where physical bodies (and their actions) are technically lacking. (p. 339)

The analysis then revealed that in addition to the adequacy of the level of discussion in the listserv reported by subscribers there were a number of message and content management factors that impacted significantly on the subscriber experience in OZTL_NET. These factors are explored in the next section of the analysis.

5.4   Part 2: Management of OZTL_NET messages and content

The second part of the interviews sought responses from subscribers to clarify and amplify several issues of concern raised by the survey respondents in relation to OZTL_NET message and content management. Listserv communications rely on email messages and are almost exclusively text-based. Communicating in a text-based environment such as a listserv requires a number of subscriber skills for the effective and efficient management of messages and content. For example, clearly stated message subject lines and succinct, thoughtfully composed messages by posters enhance the quality of communication for all subscribers. This is a critical issue for subscribers involved in a medium which relies so heavily on text communications especially when the subscriber base is made up of a group of professionals. If the quality of the text communications declines then subscribers are

discouraged from continuing their subscription and/or from participating more actively in the listserv. Mangubhai and Carmichael (2003) point out that this problem is one that professional communities share with more formal learning environments:

> This learning context that students are immersed in is a highly textual one requiring them to read and respond to a large number of postings in the process of making sense of the content and its relation to their particular contexts. Other associated dilemmas include adapting to the online absence of physical body cues, present in face-to-face communication, and new ways of "conversing" with each other through written text. For some students, it is a challenge to cope with changes in the nature of communication as it is constructed textually online, while for others the creation of an online social identity appears problematic and may prevent them from active participation. (p. 69)

Given that the listserv as a medium is characterised by subscribers who join and leave on a continuous basis, it is important that subscribers are regularly reminded of the "rules and expectations" of engagement in relation to the maintenance and enhancement of the quality of communication on the listserv.

5.4.1   Aspects of OZTL_NET message and content management

Question 2.1: Are there any aspects of the management of OZTL_NET messages and content that need improvement?

5.4.1.1 Use of message subject lines

OZTL_NET subscribers are encouraged to use subject lines in all messages:

"6. Please include a **subject line** in your postings (it's a good idea for ALL email)." (Appendix B4 - OZTL_NET Netiquette, Version 5, 2003, p.1)

The survey responses revealed that the varying degrees to which subscribers use message subject lines effectively in OZTL_NET was an important issue for many subscribers. The following subscriber responses are from a total of six to Question 36 that identified poor use of subject lines as a possible reason for unsubscribing from the list:

> With a dramatic increase in the number of messages, I could see the day when I would only have time to scan through the items during the "holidays." With greater, stricter use of the recommended subject lines, I could see that this might overcome the problem as the list gets busier. [Subscriber 26]

Some subscribers don't use the subject line well so you can end up checking messages that relate to a particular geographic area, or a topic that you aren't interested in. A lot of my time is wasted in reading irrelevant messages. I have unsubscribed for this reason, as I have been spending too much time reading these and not doing what I should be! [Subscriber 66]

Topic identifiers also need to be clear or it is a negative for the list. Nothing worse than having to read things which have no interest or relevance to you just because someone didn't attach a relevant subject. I know that this is something people are asked to do but it doesn't always happen. [Subscriber 100]

Lack of use or inappropriate use of subject lines featured prominently in the subscriber responses to Question 40 of the survey which was concerned with the annoying and frustrating aspects of belonging to OZTL_NET. The following are broadly representative of the 16 responses from subscribers to this question that were critical of the use made of subject lines:

At times the discussion is not relevant for me and I rely on the subject line of the email to decide what I will and will not read. I like the subject line therefore to always be clear. [Subscriber 110]

I monitor attachments quite closely because of virus implications etc and will often simply delete messages that have an attachment without a clear and appropriate subject line. [Subscriber 112]

Vagueness of some subject/topic headings which leads to time wasted opening items not applicable to you eg primary/secondary items. [Subscriber 182]

Subscribers who reported their annoyance and frustration in terms of what they considered poor use of subject lines were quite strong in suggesting actions they felt appropriate for addressing the problem:

Encourage members to use the subject line effectively. [Subscriber 17]

[Subscribers] must include a subject/target heading or the posting does not get through. [Subscriber 81]

Don't post anything without a subject entry. [Subscriber 143]

Overall, the interviewed subscribers were satisfied with the way posters of messages used the message subject line. Most subscribers used the message subject line as a filtering and sorting device, deleting emails with subject lines that did not interest them or that they considered were irrelevant to their situation. For example:

> I think most people are fairly good with the use of message subject lines, I find them helpful. I think they are fairly good – what else can I say? They're valuable because I must say that sometimes I can hit delete straight away, so I find it very valuable if people have quite descriptive subject lines. [Cheryl]

The main concern that the interviewed subscribers had with message subject lines was in terms of their precision. Their view was that more accurate message subject lines would save subscribers time in terms of message management:

> I think they are not always used in the right way, they are not clear enough. Sometimes it might be a subject line that says "resources for geography" for instance and then if you were to click on it what the person is actually looking for is a geography resource for a grade two class so if you are in a high school then that message is not directed to you…it is a wonderful resource to use but it just takes up so much time to have to look and see if there is a message that's relevant to you or you can help out with or that you are interested in because the subject lines are just not used in the right way I don't think. [Amy]

> I would like to see them more succinct. The message subject line is really critical because you can often decide to delete or open based on the subject line and sometimes people are a bit vague. I would also like to see the encouragement of the "target-hit" format that you have got in place. [Alice]

Gail suggests that one of the reasons subject message lines are not always precise is that new subscribers may not understand their importance and that even experienced users can forget the value of succinct and/or descriptive subject message lines:

> I think it is a concern. We have to take on board the fact that there are always new users to OZTL_NET and you learn so people that are very new at email and it is their first list experience aren't very good at putting subject lines in and the most experienced users have bad hair days and forget so you have to be tolerant to that. That is part of being part of the community that you have to realise that people might respond to a message simply to get the address and then forget to change the details. But yeah, subject lines are a problem. [Gail]

While the predominant use of message subject lines was to scan through them to make decisions about which messages should be deleted and which should be retained, for Dave the message subject line was used in conjunction with the sender of a message for that purpose:

> I think they're very important because it assists me to identify whether I need to read that now or later…if the subject line doesn't interest me it is gone. But I also have certain people that I just don't read their messages or I do read their messages all the time. I look at the two things I look at who the message is from and what the actual subject line is. [Dave]

5.4.1.2 Use of subject line keywords

> "Subject line keywords are designed to allow individuals the opportunity to gauge the relevance of posted messages listed in their mailbox. This is a form of mail control which assists OZTL_NET members to sort through their email based on content-related keywords… Wherever possible, members are encouraged to use at least one (or more) subject line keywords, where appropriate." (Appendix B3 – Communicating with others on OZTL_NET, Version 5, 2003, pp. 2-3).

A full list of OZTL_NET Subject Line Keywords (SLKs) is available to subscribers on the main OZTL_NET website (see Appendices B3 and B5). The use of SLKs is strongly emphasised in the advice provided to subscribers:

> "2. Use the **Subject Line Keywords** wherever possible. It is considered a waste of time for list members to be pestered with meaningless (to them!) messages which are of value only to a small number of people. Using the **Subject Line Keywords** can alleviate this problem." (Appendix B4 - OZTL_NET Netiquette, Version 5, 2003, p.1)

Additionally, subscribers are advised to use SLKs to assist in searching the message archives (see Appendix B5) and in the formulation of appropriate subject lines for messages of a commercial nature (see Appendix B6).

Consistent with the annoyance and frustration reported by the surveyed subscribers in relation to ineffective use of subject lines, the omission and/or misuse of the more specific SLKs also irritated some subscribers:

> It is a little annoying when those posting to the list do not put the relevant classification in the subject line eg. LIT., ADMIN., etc. [Subscriber 128]

> Those who don't use the guidelines re subject field to post their messages ie using the codes – JOBS, etc. [Subscriber 141]

> Vague requests – such as HELP PLEASE in the subject line or VIDEOS. [Subscriber 142]

As reported in Table 3.9 there has been a significant decline in the use of the 14 "official" SLKs from 1152 occurrences in 1996 to 320 in 2003. One possible reason for this decline in usage is lack of awareness among some subscribers as was the case with four of the subscribers interviewed. Alice's response appears to support this view while Cheryl appears to have some concerns about the usefulness of SLKs given a carefully articulated message subject line and the difficulty in classifying a message into a single category:

I don't think that many people actually go and read the netiquette guidelines on the OZTL site and that they are just not aware of what [the SLKs] are and that perhaps those who are using them are because they are picking them up from the fact that other people are using them as well. [Alice]

They are not very well used at all. I don't know about the value of them. I think if the message subject line is clear enough perhaps we don't need the subject line keywords. I find them a bit confusing. Sometimes I use them and sometimes I don't because sometimes it is hard to fit something into one of the categories because things cross categories and you don't know where to sort of classify it. [Cheryl]

In terms of Cheryl's concerns, there is a SLK for difficult to classify messages (GEN) and some subscribers have combined SLKs often using one of their own design (or that they have seen others use) in message subject lines in order to increase precision (eg. REF SEC Fiction = REFERENCE SECONDARY Fiction) as explained by Gail:

I think [SLKs are] a great idea but I can never remember them and I have been on OZTL_NET since nineteen-ninety something. I mean what an advert looks like and collection development. But if I actually go to post a message I forget to use them and I should use them and I certainly couldn't be bothered to look them up and I think a lot of people if they think of it use their logic so if it was literature they would put "LIT." I don't know if that is the right term or not. A lot of people would use something close to the keyword and if they don't it is very apparent at the beginning of the subject line. Depending on the mail system long subject lines might only show the first five words or something. But it is important so the "literature" or "management" or something needs to come out early. Keywords are a good idea – I am not good at using them and that's slackness more than anything else and I am not particularly offended if other people don't use them. I expect them for adverts. [Gail]

As explained in Chapter Three, the use of "unofficial" SLKs has grown dramatically in recent times. For example, Table 3.10 showed that the unofficial SLK "VIDEO" was used in 361 message subject lines in 2003, almost as many times as all of the other SLKs combined, excluding GEN (n=396). Clare provides another reason as to why the use of SLKs might be encouraged:

[SLKs] can be quite useful to give an indication of what the topic is about… especially useful if you are doing a search on the archives and things like that because it often brings up things that you are looking for. [Clare]

5.4.1.3 Use of digest message option

> "Some OZTLs prefer to subscribe to our Daily Digest option. This means that all messages posted to OZTL_NET in one day will be sent to you in usually one email message per day (depending on the file size), rather than receiving each post individually. This can considerably reduce the number of daily emails arriving in your mailbox. If you are seeking ways of controlling your daily email, the OZTL_NET Daily Digest option could be for you." (Appendix B2 - Welcome to OZTL_NET, Version 5, 2003, p.1)

Complete information for subscribers about OZTL_NET message options is located on the OZTL_NET website (see Appendix B2). Subscriber responses to the survey revealed that despite 61 per cent of subscribers citing time constraints as the main barrier preventing their increased participation in OZTL_NET, only 34 per cent of the sample elected to use the digest message option (Table 4.18). Additionally, Table 3.5 indicates that the proportion of digest subscribers is on the decline.

Table 4.19 indicated that the main reasons cited by the subscriber survey sample for using the digest message option were the ease of message management afforded by the digest which saves time and allows subscribers to skim and scan through the message list (n=38 or 59 per cent of total mentions) and the reduction in message congestion in terms of number of messages and computer space required (n=21 or 32.8 per cent of total mentions). The following responses were typical of this group of subscribers:

> Email takes up an increasing amount of my working day and I need to manage the number of messages I receive. The digest allows me to manage the OZ_TL postings more efficiently. [Subscriber 47]

> There are so many messages every day so the digest at least organises them into manageable groups. I usually just scan the contents and then decide what to read. [Subscriber 52]

> A lot of the mail does not interest me and I can delete the digest in one hit instead of going in and out of the mail. I am not interested in the "humour" or most of the primary school mail. [Subscriber 57]

The difficulties associated with the management of digests was the main reason cited by the subscriber survey sample for <u>not</u> using the digest message option (n=42 or 37.5 per cent of total mentions). These subscribers considered that when messages arrived individually into their mailboxes, it was easier and quicker to scroll through a digest than it was to scan the subject line and/or content of individual messages as the basis for making decisions about whether to read, delete, store or reply:

I prefer to scan the individual emails and ditch those which aren't relevant and reply to those which are. I tried digest OZTL_NET and discovered that users were not good at editing their email in a sensitive manner so that getting the digest as part of every reply became a waste of space and time. I found it much easier to filter my mail (once I learnt how :-) and to have the luxury of not having to copy and paste addresses for individual replies. [Subscriber 39]

I prefer to receive the postings at irregular intervals during the day, particularly when posting my own query and then waiting on "instant" replies. [Subscriber 97]

It is quicker and easier to read each email and delete what I don't want. I also check emails two to three times a day. The digest only arrives once. [Subscriber 106]

I find it easier to delete messages, reply or file them as I go. I usually don't have much time and find this works well. I can track queries and match responses from the subject lines. [Subscriber 171]

A second group of subscribers (n=24 or 21 per cent of total mentions) indicated that they simply did not use the digest version due to their personal preference for the single message format:

I like to be current or up-to-date with the list and what is happening. It is easy just to open one email at a time and deal with it. If you are in the middle of a digest version and you are interrupted you can get lost. I also download both at school and at home so I can easily trash the emails I have read and save the ones I want to keep without having to save the whole digest or copy and make new files. [Subscriber 12]

I prefer to select, arrange, file or delete individual messages. [Subscriber 72]

I check my emails a number of times a day so like to get a few at a time. I find it is more difficult to reply to digest posts ie cutting and pasting required. The ability to delete individual messages eg those with a HUMOUR tag or from a couple of subscribers who need to get a life (without reading them) after scanning the subject line enables me to manage my email more effectively. [Subscriber 77]

A third group of subscribers were unaware of the existence of the digest version (n=21 or 18.8 per cent of total mentions) while a fourth group expressed a lack of interest, didn't know why they did not use the digest version or had never tried the digest version (n=18 or 16 per cent of total mentions):

I have never tried the digest. [Subscriber 7]

I don't really know what the digest version is and I am perfectly happy with my existing version. [Subscriber 10]

I have never heard of the "digest version." [Subscriber 22]

Seven out of ten of those interviewed did not use the digest message option. The most often cited reason for this was a preference for single messages that could be easily deleted, saved and/or sorted for later reference, typically into dedicated subject folders within the subscriber's email client. The responses from Cheryl and Clare encapsulate this view:

> I don't use the digest message option because of the way I use email. I prefer to have individual messages that I can deal with and put in their appropriate boxes on my hard drive and the digest would not suit my purposes…I save resources and I save discussions that I have taken part in. Say if I responded to something, anything I respond to and anyone that responds to me I save plus I save lists of resources just because the website that I do, it is handy. [Cheryl]

> I have never found [the digest] particularly helpful. Firstly you have to go through all of them to find something that you like and so if a particular day is pretty long then you go for a long period of time. It is much more difficult to reply specifically to people. You can inadvertently reply to the whole list when you only want to reply to one person. It is more difficult to find people's email addresses. I don't particularly use it. I mean I imagine some people might but in my case I don't…I save single messages a lot. I file messages onto my hard drive in subject areas, especially "hits" about books, or "hits" about particular topics or things like that. So digest messages just don't work for me. [Clare]

On the other hand, Karen preferred the digest message option on the basis that "it is quicker in that you can scan through stuff." Gail was by far the most enthusiastic about the benefits of the digest. Her response indicates a thoughtful approach to message and content management that was not widely evident in either the survey responses or the semi-structured interviews:

> Wonderful – I use it, it means that in a day I might download eight messages from OZTL_NET on a busy day and I can just open up the digest and I read the subject lines. Quite often I don't open anything and I can just delete it. If there is something there that looks interesting I open it up and if I want to keep it I just forward it to me, then it comes to me as an individual message and then I just delete the digest. I find it is a really good management tool. So I can move a message into a folder, I can forward it to my work email if it is work related but I am not coping with huge downloads of mail and I feel like I am in control. [Gail]

A related issue to the use of the digest message option identified by several subscribers was the use of inappropriate message formats such as HTML as a significant source of frustration for users of this option. The unsightly and unwanted characters commonly known as "gobbledegook" is now much less of a problem for digest users since the default settings in the listserv software were changed from

plain text to MIME in February 2002. Advice about message formats is incorporated into the OZTL_NET Welcome Message. This advice includes information for subscribers about how to adjust individual subscription options including the option to select MIME or Plain Text digests (Appendix B2). The following responses clearly indicate a lack of awareness among subscribers of the availability of this facility:

> My messages these days are in text format and come with lines of rubbish that I have to scroll through. I'm not sure what has changed but I used to get them without the rubbish. The only other way I can see them is in HTML which for some reason means I have to click on each one to view rather than being able to scroll through. [Subscriber 32]

> I also find that there's a lot of computer gobbledegook after the actual message which takes up a lot of room. This may be a problem with my computer or the system our school uses - however it is very annoying. [Subscriber 52]

> I had heaps of problems initially with MIME format and didn't have the confidence/knowledge of how to get out of it, or to know who to contact for help. Fortunately there was a posting from the administrator which helped me work my way through this and I note that there is now better information on how to contact system administrators. [Subscriber 63]

> The digest messages always have a lot of computer gobbledegook. Can this be tidied up? [Subscriber 71]

The common advice from those interviewed was that messages sent to OZTL_NET should wherever possible be formatted as plain text to avoid the kind of problems reported by Alice and Dave:

> They are not so much [of an issue] for me although they can be in terms of download time and what have you but for other people who don't have broadband and I don't have access to it but it can be an issue. I think that part of the netiquette needs to be that they need to use plain text, no stationery sort of stuff when you sending to a list like ours. [Alice]

> I don't like them because I often can't read them. If someone has gone to the trouble of a HTML message why can't they just note that page somewhere and put a link to it so if I choose to have a look at it I can. Like if you have got a whole lot of stuff that you want to show other people and share with other people then why should every OZTL member have to download that as an attachment. Why can't it be somewhere and point to it. [Dave]

For Karen the problem is no more. As a result of reactivating her subscription she changed her choice of message format with desirable results:

I think I've just solved that because that was another reason why I got fed up because I would get the message first then I would get all this gobbledegook coming straight after the message that would sometimes go for pages and pages and pages and you couldn't understand it, it was all just garbage and I didn't know why. It just meant that you were forever scrolling down to get to the end but when I reactivated, because I didn't know about this website and how you could get in there and reactivate, it actually gave you a choice of text format or MIME format and obviously when I first got on a couple of years ago I didn't realise that there was a choice or I didn't understand so this time I thought well, if I have been having it in text then maybe I will try MIME and I will see what happens. I am not familiar with what MIME even is but anyway, I ticked that box the other day and looking at them now they are all perfect. I don't have all of those reams and reams of unreadable symbols and stuff. So maybe I have done the right thing. [Karen]

The concerning aspect of these results is that there was substantial subscriber ignorance of the digest message version and associated message formatting options. In particular the analysis suggests that subscribers were unaware of the main OZTL_NET website where information about the digest message version resides. There was then a lack of subscriber transparency in relation to the breadth of the functionality of the listserv that was available despite the existence of the main OZTL_NET website. Rather than a "seamless" online environment wherein the links between the listserv and the main website that supported it were clearly evident, there was a lack of integration between the two components that resulted in low subscriber knowledge of listserv message options.

5.4.1.4 Access to and use of OZTL_NET message archives

An inter-correlation matrix of the five measures of aspects of teacher professional learning (TPL) revealed that number of times accessed OZTL_NET archives (ARCHIVES) was one of four predictor variables (along with duration of subscription to OZTL_NET, time spent accessing OZTL_NET and frequency of message posting) that were significantly related to TPL at $p < .01$. ARCHIVES was the fourth independent variable to load into the regression analysis summarised in Table 4.12 and Appendix O that indicated that all four variables were significantly related to TPL.

"All OZTL_NET posts dating back to 1995 are available to members via our archive facility. When searching the archives please use specific search terms, subject line keywords, dates and names, or a combination of these, to achieve a satisfactory search result." (Appendix B5 - OZTL_NET Archives, Version 5, 2003, p.1)

There are two OZTL_NET archive facilities. The public archive is keyword searchable and contains almost all messages from the inception of OZTL_NET in 1995 to the present time. This archive is available to the general public (see Appendix B5). The Mailman (listserv software) archive is a private message archive that commenced as a function of the software's archive facility when Mailman replaced SmartList in February 2002. This archive is only available to subscribers. The messages in this archive may be browsed by thread, subject, author and date (see Appendix Q).

The web survey revealed that almost 52 per cent of the subscriber sample had never accessed the OZTL_NET archives. A further third of the sample had visited the OZTL_NET archives less than five times (Table 4.22). The analysis of quantitative data reported in Chapter Four revealed that higher levels of access to the OZTL_NET archives was significantly related to teacher professional learning at $p<.01$. Twelve of the 14 subscribers in the sample who mentioned the message archives pointed to problems they had experienced in accessing the public archive:

> The archives take ages to search…Get new software/interface/whatever you call it for archives. [Subscriber 77]

> Archives can be disappointing, sometimes believe that there must be material but cannot locate, problem with search terms?…With archives, analyse which are the main ten areas, then provide links to these, with year/time breakdowns. [Subscriber 108]

> I have had quite a bit of time off work lately and am just settling back in so my recent usage has been irregular. I find it really useful to access discussion of resources and practices but I often have problems getting into the archive because it times out. [Subscriber 120]

> The regular notification of the user password and instructions to suspend the subscription is a good idea. I would also like to see included in these instructions how to access the OZTL_NET archives. [Subscriber 128]

> I used to use the archives but couldn't find things so I haven't done that for a long time. I just post a question and ask for help. [Subscriber 131]

Four of the subscribers interviewed had never used the OZTL_NET message archives while one had used the facility "a couple of times" with success. While Alice was also not a big user of the message archives, she provides some possible reasons for subscriber non-use of the facility:

I use them. I use them when I need to but not often…There is certainly not the emphasis like if you are on LM_NET and somebody asks a question, quite often the response will be "go to the archives and look under these headings" whereas I would say that most people don't even use the archives. Maybe [OZTL_NET subscribers] are not aware of them. Maybe they are not aware of how to use them. There is also the problem that if you search it depends so much on the search terms that you use whether you actually get a hit or not and you have got to be so precise so that not all subjects are threaded and quite often if you start off and somebody might say "stocktake" and then somebody will change it to "inventory" or something like that so that even though the thread of the discussion is the same because it has got different subject lines when you go and search the archives not all the messages come up. When I was using it I was being very precise because I knew precisely what I was looking for. [Alice]

In addition to a general lack of awareness of the archives among subscribers, Alice's response highlights the disadvantage of the way that messages are stored as discrete entities in the public archive. This lack of message "threading" means that messages about the same topic that use synonymous terms like "stocktake" and "inventory" do not automatically result from a search unless the subscriber thinks carefully about the way the search terms are framed using the Boolean operators available in the "Glimpse" search engine used for the message archive. Amy, Cheryl and Clare recount their frustrations in attempting to use the public message archive:

I think I tried a couple of times and I possibly didn't work it out the right way so I didn't actually get to use them…I think it would be very useful to be able to go back and have a look at discussions because quite often there may be something you thought wasn't relevant to you at that time and then, say, the next term that is an issue for you and you recall that there was something on OZTL_NET about that and if you have got the archives there to go back to then you don't have to go back to the listserv and ask the same question that has already been asked before. So that would streamline it I think. [Amy]

I find it really frustrating using the OZTL_NET archives, it is slow, it's old and clunky although I just put in a search for myself and it came up very efficiently, I discovered when I joined! I don't use the archives usually.... Because it is slow and clunky, yes. The search mechanism is not friendly. [Cheryl]

I found it hit and miss actually. It hasn't always worked, I haven't always found what I wanted to find. I am not sure whether it was because I wasn't using the right search term or because of the lag or what it is but I haven't had huge amounts of success finding exactly what I want. [Clare]

5.4.1.5 Awareness and use of the OZTL_NET website

An intercorrelation matrix of the five measures of aspects of teacher professional learning (Table 4.11) revealed that the predictor variable WEBSITE (number of times accessed OZTL_NET website) was significantly related to the dependent

variable teacher professional learning (TPL) at p<.05. WEBSITE did not subsequently enter into the regression model as a result of its high correlations with the other independent variables.

There are two websites associated with OZTL_NET. The main website is located at http://www.csu.edu.au/cstl/oztl_net/. There is a link from this website to the OZTL_NET listserv administration website at http://listserv.csu.edu.au/mailman/ listinfo/oztl_net/ which allows people to subscribe and change their subscription information. Each month subscribers receive a reminder email (see Appendix R) that provides them with their subscription details and information about how to change them.

The survey results revealed that about 18 per cent of the subscriber sample had never visited the main OZTL_NET website and a further 41 per cent had visited the website less than five times. The general lack of awareness of and adoption by the subscriber sample of practices such as the use of subject line keywords and the use of the message archives facilities evident in the survey responses suggests that subscribers no longer access the main OZTL_NET website on a regular basis.

Since the listserv software changeover from SmartList to Mailman in February 2002, subscribers need only visit the listserv administration website to access their personal subscription webpage (see Appendix S), to alter their personal subscription details. This means that more recent subscribers may be completely unaware of the main OZTL_NET website which contains much of the information required to make effective use of a subscription to OZTL_NET (see Appendices B1-B5). Neither the personal subscription reminder email (see Appendix R) nor the standard OZTL_NET message footer (see Appendix T) makes reference to the main OZTL_NET website. For the period May 1999 through February 2002, every OZTL_NET message contained such a reference in the email message footer (see Appendix U).

Overall, the level of awareness and use of the main OZTL_NET website by the interviewed subscribers was very low. Three of the subscribers reported that they had never used the main OZTL_NET website while two others had used only the administrative listserv website to change their subscription status. These subscribers

gained access to the administrative website directly from the personalised link provided to them in their reminder email as Gail reports:

> I use the website if I want to use the website. Once I changed my email address so I went in to change my details. Occasionally if I am going to be away for a length of time, if I want to unsubscribe – I can never remember the message, you can get your subscribing and unsubscribing information. Quite frequently I bring up the URL to send to somebody who wants to join OZTL_NET. That would be the most frequent time to do that. [Gail]

Gail's response would appear to indicate that she refers new subscribers straight to the administrative website. Others were aware of the main OZTL_NET website but were infrequent visitors, Alice because she knew what the website contained and Dave because he became aware of its existence:

> I am pretty familiar with what is on it but when it comes to doing things like if people write to me and say "I have forgotten how to subscribe or unsubscribe or whatever", I often just send them the URL and say "go read through that, have a look at that and you will find the instructions there." I go there if I need to, particularly for the archives but I am pretty au fait with the netiquette and all that sort of thing anyway. [Alice]

> I have gone there but I don't go there frequently. The reason I went was basically because I became aware it was there and that is how I happened to come upon the archives and had a look around and went back a couple of times but haven't been there recently. [Dave]

5.4.1.6 Use of "target-hit" discussion tool

In the quantitative analysis reported in Chapter Four the indicators that made up the COLLAB measure included the use of discussion tools such as targets and hits (TARGET). Table 4.4 showed that TARGET was highly correlated with three other indicators, group projects of benefit to workplace (BENWORK), group projects of benefit to the profession (BENPROF) and knowledge creation (KNOWCREA). The high degree of congruence between these measures reinforced the proposition that these were measures of teacher professional learning (TPL). Complete information about the use of the "target-hit" discussion tool in OZTL_NET is provided to subscribers as part of the main OZTL_NET website (see Appendix B3).

OZTL_NET adopts the LM_NET** initiative of the TARGET/HIT as a discussion tool. The OZTL_NET administrators recommend that OZTLs specifically TARGET-> their queries, and use a HIT-> summary to share the responses received. That is, when someone wants information about a topic (eg. AFW stocktake) they would ask for people to respond to them directly, and after a period of time, post a summary or compilation of responses. The originator of the TARGET-> question uses that term in the subject line of the initial question that is posted to the entire list... When enough responses are collected, the originator summarizes or compiles the responses, and posts the summary as a HIT-> so everyone on the list can read it if they are interested. This is an excellent way to streamline list traffic on requests for information, as well as OZTLs providing an information service for their colleagues. (Appendix B3 - Communicating with others on OZTL_NET, Version 5, 2003, p.4)

Generally, subscribers in the survey sample reported that the "target-hit" discussion tool was a useful means for sharing information and ideas although there were some frustrations reported mostly in relation to under-use of the facility by other subscribers. In response to Question 41 that sought subscriber suggestions for how OZTL_NET might be improved, increased use of "targets" and "hits" ranked equal second (n=6 or 11 per cent of total mentions):

Moderators (or a group of moderator selected mentors) [should] send a gentle email to people who reply to the list rather than individuals incessantly and if they persist give them read only privileges. Enforce the TARGET/HIT system more rigorously through these mentors. [Subscriber 77]

It would be great if, as a matter of course, a "hit" was posted when a number of responses are received to a request rather than having to email every person who asks something that you might be interested in, requesting that they send you a "hit." [Subscriber 82]

I would like to see responses made directly to the asker but they post a "hit" back to the list. [Subscriber 109]

While generally under-used, Table 4.34 indicated that subscribers had participated in the collection and dissemination of information through the use of "targets" and/or "hits" as a form of collaboration in OZTL_NET (n=94 or 26 per cent of total mentions). The subscriber sample pointed to some of the practical benefits of using the "target-hit" discussion tool:

[OZTL_NET] provides a wide range of information and comments on issues of relevance (mostly) such as "hit lists" for various categories of literature, professional development websites eg PowerPoint on plagiarism suitable for teachers, and hints on library administration procedures. [Subscriber 29]

Compiled lists of resources posted as "HITS" reduce the time I spend personally gathering and disseminating information to other members of staff...The "HITS" that I find pertinent to current class assignments I am able to forward on to relevant teachers and the webpage coordinator and subsequently assignment pages are

published on our school Intranet with links to the sites and resources. [Subscriber 153]

I also like the "hits" and booklists, etc as they often save me time and give me more to share with my staff and students…Latest example - using a list of websites for a grade that someone had posted as a "hit." [Subscriber 171]

All of the subscribers interviewed thought that the target-hit discussion tool was useful. They appreciated the fact that information was sought, collected, summarised and disseminated to the broader list. Cheryl was critical of the under-use of this tool in OZTL_NET:

I don't think people use it as well as they could. I do get very annoyed with people who respond to the whole list when they could leave it up to the questioner to post a hit. I think with the "target-hit" some users use it well, some users don't use it at all and I find it really annoying that certain respondents ignore the "target-hit" function by responding directly to the list. [Cheryl]

Gail contends that the use of target-hits is declining as an outcome of a discussion on OZTL_NET about appropriate acknowledgement of individual subscriber's contributions to a "hit" (see the section "Respecting Member's Privacy and IP in a Hit" in Appendix B3):

I actually think it has decreased in use since privacy issues became part of the game so people had to state that any information that was sent to them would be part of a "hit" and people sending information had to say yes I am happy for this to be part of a "hit" and then do you put your name to it or don't you put their name to it. So all of these things suddenly had to be addressed which means there is more work to do…I can remember the discussion happening on OZTL_NET some time ago, probably when the privacy laws were coming into effect and I think there was a posting from the administrator that basically said that people had to give their permission to share information. [Gail]

Table 3.11 indicated that the "target" part of the target-hit discussion tool was used much less often than the "hit" part. Alice provides a possible explanation for this phenomenon that suggests that the posting of "hits" is often an after-thought on the part of many subscribers who, once prompted by other subscribers who want access to the aggregated responses to an initial post, directly email the original poster and encourage them to share what they collect in the form of a "hit." If more subscribers made the conscious decision to post a carefully constructed "hit" when seeking information that is likely to be of use to other subscribers initially, then it could reasonably be expected that the overall quality of messages would increase driven by

the rise in the standard of communication emanating from the use of the existing tools provided on the OZTL_NET website:

> Often I will use a subject line and I forget to put target in front of it and I should remember to do that but I don't. So if I don't remember I can't expect other people to. Certainly I think people use the hit part rather more then they actually use the target part… there is also the common language of the group when people sort of, when people say, like I said before "I can't answer your question but please post a hit, please post a hit" so people are getting this message of posting a "hit" so that they are getting that concept in their head whereas you don't get people saying "please post a target" so you tend not to think that way. [Alice]

5.4.1.7 Level of involvement of list administrators

With the exception of commercial postings the OZTL_NET administrators do not moderate messages before they are posted to the list. The survey revealed that almost 58 per cent of the subscriber sample had never contacted an OZTL_NET administrator while almost 39 per cent had never had cause to contact an administrator more than five times. Comments from the subscriber sample were complimentary of the role that the administrators play:

> Thank you to the administrators for a listserv that allows TLs to ask for a video request through to an in-depth discussion regarding the profession. The broad range of topics allows us to realise the diverse position we hold within the school and we are part of a broader community of TLs with similar concerns. [Subscriber 19]

> It is a great credit to the administrators of OZTL_NET that they have provided us with a worldwide forum to keep our ideas and ideals flowing in a collegial and professional atmosphere. TLship as we know it would not be the same without the assistance and support of our colleagues through OZTL_NET. Thank you! [Subscriber 41]

I would like to thank the administrators for a most useful resource and means of communication with colleagues. Have heard other staff in other areas wishing someone would set up a similar forum for them. I do like that advertisers are vetted and not allowed to swamp us with their promos. [Subscriber 54]

These sentiments were generally supported by the interviewed subscribers who were satisfied with the level of involvement of the list administrators as long as they were monitoring the list and making appropriate interventions when problems such as virus attacks or inappropriate message postings took place:

> I think you guys do a great job…we haven't had a flame or anything for a long time. I love the way that usually it is either you or Lyn if there is a problem. You

chime in and let us know that there is going to be an issue or something like that so we are not kept in the dark. I should imagine that if somebody put something really cranky on there you might sort of be onto them off list pretty quickly so that you are doing that. In an online community there is that critical role of sort of having somebody in the background on the hospitality committee or whatever keeping an eye on it and making sure that some people, because some people can be, a little bit, well we know what they can be like can't we? [Alice]

Cheryl was quite strident in her views about the need for administrator intervention. Like Alice, she makes mention of a "hospitality committee", something that does not currently exist for OZTL_NET:

I wonder what happens; I haven't got a knowledge and I often wonder what happens, I wonder if there is, as with LM_NET, some sort of hospitality person behind the scenes to rap someone over the knuckles if they do something a little bit off and I do think it would be valuable. The list administrators are good but they stand in the background, they let the list go, they don't interfere which I think is really good but sometimes I think there should be some interference but not interference to the whole list, I don't know if this happens or not, but interference directed at certain individuals who don't use OZTL_NET either responsibly or because of ignorance, because they're new to the list, or they don't follow correct procedure. I don't know what you do, so I can't comment on that but I think it would be valuable if it did happen. [Cheryl]

Cheryl's comments suggest that the overall standard of communication in OZTL_NET would benefit if subscribers were more aware of the guidelines and expectations of participation in the listserv before they began posting messages. Clare offers another suggestion about how some commonly sought after advice (how to subscribe/unsubscribe) might be incorporated into the message footer. A note with similar advice (see Appendix U) was introduced in May 1999 but lapsed as part of the changeover of listserv software in February 2002:

Sometimes I think that there should be more involvement in the sense that when people say "how do I subscribe?", sometimes there seems to be a lag time in answering that because people reiterate it again but I imagine you have got other jobs so that is understandable too. Apart from that I think it is fine…One possibility might be in the little footer at the bottom of the messages that people send. It might be possible to say "to subscribe, to unsubscribe" a two line thing at the bottom of the message as you get it on the list. But that is the only thing I can think of.

5.4.1.8 Other issues related to message and content management

Subscribers identified and explored two additional issues related to message and content management and participation in OZTL_NET in this section of the interview. The first issue was that of peripheral participation (often called "lurking") as a valid

form of participation in OZTL_NET. Active participation in OZTL_NET is encouraged:

"15. **Please participate!** *Your ideas are important*. Just because you think everyone knows something, doesn't mean that they do. If you're not sure, send the posting to an experienced friend on the list (or one of the OZTL_NET Administrators) to see if the information may be valuable." (Appendix B4 - OZTL_NET Netiquette, Version 4, 2003, p.2)

The survey revealed that almost 20 per cent of the subscriber sample had not posted a single message to OZTL_NET in the previous year. A further 26 per cent of the subscriber sample had posted fewer than three messages per year (Table 4.17). Subscribers described their involvement in OZTL_NET as lurkers in the following terms:

> While I am mostly a "lurker" I do love the valuable advice, hints, resources and ideas that it provides. Time permitting next year, I hope to contribute to the list in a more "upfront" way. [Subscriber 85]

> I first subscribed to OZTL_NET while completing my MEd, it was invaluable to be a "lurker" and get a feel for the main contemporary issues facing TLs such as the discussion on release from face to face. Now, as a full-timer I collect a range of practical ideas such as promotion of reading and often refer back to my own folders or bookmarked websites that have been shared. [Subscriber 105]

> Being a "lurker" means that although not engaging in OZTL_NET discussion it provides an opportunity to reflect on my policy and procedures for the library. In small schools some of the big picture issues are not relevant but it helps to keep abreast of current thinking from different viewpoints – highly supportive. [Subscriber 175]

There was widespread consistency in the responses of all seven interviewed subscribers who discussed the issue of whether "lurking" was a legitimate form of participation in OZTL_NET. Bob who described himself as an "active hunter" of information responded in the following way to a question about the legitimacy of lurking as a form of participation:

> I think it is, for a person such as myself it comes down to that idea of online community, knowing that you are not the only TL out there, that there is a whole world out there of ideas. Lurking and not necessarily being directly involved but understanding that these are the issues and that you can build on your own knowledge and own experience and what you can provide to schools is important. Community has to be two way but the other thing is that it also creates a greater awareness of what is going on. [Bob]

Beyond this almost vicarious description of lurking as participation, Sue and Alice (below) point to the need for subscribers to have adequate time to develop the

confidence to post to OZTL_NET. Lurking is described as a legitimate form of participation in the listserv particularly for new subscribers because "what may seem reasonable, understandable, or humorous to you may not be received in that way. This is why newcomers to a community often opt to lurk for a while. They want to assess the community's ambience and get a feel for the style of interaction" (Preece, 2000, p. 100). However, continual lurking and very low levels of active participation in the listserv are counter to the communities of practice perspective that calls for broad participation (Al-Hawamdeh, 2003; Wenger, 1998b; Wenger, McDermott & Snyder, 2002). Within communities of practice, the social constructivist perspective emphasises the need for collaboration among subscribers who negotiate meaning in a rich socio-cultural context (Lave & Wenger, 1991). Moreover, "the functions that help a community of practice cohere are social functions since communities are overwhelmingly social spaces" (Barab, MaKinster & Scheckler, 2004, p. 76). Common with "activity theory", the community of practice perspective views learning as "a process of identity transformation – a socially constructed and socially managed experience" (Riel & Polin, 2004, p. 19):

> I "lurked" for a while when I was at Uni until I felt confident or felt I had anything [sic] to offer because at first I didn't think I had anything to offer anybody so I kept my mouth shut. I think that it is just fair enough to be there lurking. I would hope that they wouldn't remain as just "lurkers", that the confidence level would rise so that they felt there was something that they could contribute. [Sue]

> I think that sometimes they feel a little bit overwhelmed. I hate to think that they felt that they had nothing to offer or that they would be put down or that they had dumb questions or anything like that. Sometimes I feel that maybe there are those who aren't perhaps as confident as some of us, that they feel that they don't have anything to contribute but I don't like them to think that. [Alice]

To a certain degree, peripheral participation in OZTL_NET may be explained by the uncertainty that some subscribers feel about posting messages to the public list. They may feel threatened by the prospect of sharing their point of view in such a public way or be concerned about the interpretation of their message and further, unknown uses to which their message may be put. This provides a clue as to why subscribers may be reluctant to engage in critical discourse and robust discussion because "posts, like any other reification, run the risk of being later interpreted out of context and, thereby, the reader may misjudge the intended meaning" (Barab, MaKinster & Scheckler, 2004, p. 70). The preceding comments from Sue and Alice point to the

key role that subscriber confidence plays in participation although successful individual interventions by list administrators or members of a "hospitality committee" designed to encourage subscribers at the individual level to actively participate certainly present some significant challenges given the sheer number of OZTL_NET subscribers. However, it is important that these challenges are addressed because online learning communities "rely on the mechanism of interpersonal interaction to move the activity forward" (Riel & Polin, 2004, p. 41) and because effective communication in these communities depends upon subscribers' understanding and application of the implicit and explicit rules and expectations of communication in learning environments characterised by what Hung and Chen (2001) have called "interdependency", where individuals have developed:

> the responsibility that they share their expertise with the other participants. By utilising diverse expertise, the e-learning community can deal with problems and issues that are too difficult for any one individual to handle. An individual learns not just from the activities that they carry out themselves but from different members of the community. (p. 7)

As a self-professed lurker, Karen's response suggests that time constraints and her lack of knowledge about how to participate constitute major barriers to more explicit forms of participation:

> I'm an unintentional lurker in that sometimes I would like to respond but I am usually checking everything out in such a rush or I say I will get back to that or I will answer that person but I never do it straight away so I have to classify myself as a lurker because I haven't once answered anything but my intention is there…I suppose if I got into the habit of it I would be able to do it but I am actually not sure where they go so I would have to actually read up and learn how do you respond to something because I actually don't know how to do it at this stage because I've never done it. [Karen]

The whole issue of level of participation is important because there may exist dire consequences in terms of the long-term viability of communities that are characterised by low levels of participation especially if non-participation or low-participation leads to an overall decline in membership as Riel and Polin (2004) explain:

> If a community fails to attract new members, it will not be able to ensure its continuation and development. Where the community is dormant, or where membership is static, there may be no development or evolution of the system, the

activity, and the roles that support it. In these cases, learning is more problematic and limited. (p. 18)

A second issue, the use of message attachments, was also identified by the interviewed subscribers. As the following advice indicates, attachments to OZTL_NET messages have been a major frustration for some subscribers, particularly those who subscribe to the digest message version.

"9. **Please refrain from sending messages as attachments.** Successful extraction of attachments is dependent upon the type of mailing software used by members – not being able to successfully open attachments is a major cause of frustration for some members, and there is no guarantee that the attachment can be read by Digest subscribers. Attachments can also be a major cause of spreading computer viruses. We, therefore, request that OZTL_NET [members] **do not** send messages as attachments, but rather paste their complete message as text in the main body of an email message." (Appendix B4 - OZTL_NET Netiquette, Version 4, 2003, p. 2)

The issue of attachments had not been a significant issue among survey respondents, the following two responses (from a total of four only) pointing to concerns about the role of attachments as possible sources of computer viruses:

I think that the unnecessary attachment of signature files is frustrating. I monitor attachments quite closely because of virus implications etc and will often simply delete messages that have an attachment without a clear and appropriate subject line. [Subscriber 112]

Is there any possible virus busting to make users feel more confident about opening emails and attachments? [Subscriber 175]

Despite the low level of concern regarding attachments reported in the web survey, six of the ten interviewed subscribers proffered the view that the issue was of relevance to message and content management. Two of the interviewed subscribers commented that they generally had no problem with the use of message attachments while two others were also satisfied with their use but would prefer alternatives where possible. These alternative means for supplying information included copying the relevant text directly into an email message (as recommended in the OZTL_NET Netiquette Guidelines, Appendix B4) and direct supply of the attachment to interested subscribers upon request off-list as an email attachment. Additional alternatives included mounting documents on publicly available websites and the creation of Frequently Asked Questions (FAQs) based on an analysis of the most common requests made to the listserv: "You can streamline your communications by creating FAQs that address potentially confusing issues. The beauty of FAQs is that

they are designed to evolve; people expect them to grow, and once in place, they're easy to modify and update" (Kim, 1999, p. 217). Those in favour of attachments included Amy and Clare although both include, to varying degrees, a note of caution:

> Attachments are certainly easier to manage in terms of reading the content because if it is quite a long response or hit or whatever in the email form it is not as easy to read and manage but I do understand that some people might have issues in terms of compatibility with attachments but I think most people would now have the right technology. [Amy]

> I don't know about most schools but my school has this very, very vicious scanning thing so I actually appreciate getting some documents and things like that as attachments although often it is better to get it within the text of the email but that is not always possible. To be able to manipulate the information that some people get and play with it and change it for your own benefit it is often useful to have an attachment. So, it sort of depends I guess, if it is a Word document or Excel or something like that which is pretty ordinary I can't see there is any problem. Of course there are problems with programs and things like that and I can't really see the necessity for pictures and pretty backgrounds for email messages … But for actual documents that people have compiled I can't really see the problem because I don't think many viruses come through attachments and really if it has got an attachment and you don't want it you just don't open it. [Clare]

On the other hand, the responses of Bob and Dave reflect the concerns of some of the survey respondents that attachments are perceived by some subscribers as being a major source of computer viruses. While Bob is somewhat guarded in his views on this issue, Dave leaves no doubt as to his position on whether OZTL_NET should allow attachments:

> Yes, there is a feeling, I don't know whether it is real, we have virus concerns as in, if we have attachments, what is connected to the attachments and all this type of thing, will our filters pick them up or virus protection and scanning pick them up? We are pretty loath to open attachments. If there is something worth having we will try our best to encourage scanning or have the virus protection running in the background and we know it is up to date. If we really want the information … If we can trust the person or we know of the person …we are a little bit more sensitive if we are not sure about where the message or who the message is coming from. [Bob]

> I absolutely hate them [attachments] because it is my time, I have to pay for it and I have to sort through them. In the past that is where the majority of viruses have come from and I had a couple of instances that caused me some serious problems and I am a person who is actually up to date with viruses, aware of them, I am not computer silly, I am computer savvy and I had a couple of responses where I guess we agreed to disagree about the nature of attachments. I don't think attachments should be put there unless they're basically requested. That is probably an extreme view. [Dave]

5.5 Part 3: Professional and personal impacts on subscriber participation in OZTL_NET

5.5.1 Significant impact factors on the experience of OZTL_NET participation

The survey of subscribers revealed that each of the following factors had a significant impact upon the experience of subscriber participation in OZTL_NET. Subscriber views regarding each of these impacts on participation were sought from each of those interviewed.

5.5.1.1 Time to participate and number of messages

The results of the quantitative analysis reported in Chapter Four revealed that duration of subscription to OZTL_NET (SUBTIME) and time spent accessing OZTL_NET (TIMEACC) were significantly related to teacher professional learning (TPL) at $p<.01$. Additionally, the regression analysis summarised in Table 4.12 and Appendix O revealed that four usage measures accounted for a substantial proportion of the variance of the teacher professional learning (TPL) measure with the first one, frequency of message posting (NEWFREQ) accounting for 23 per cent ($r = .48$). Duration of subscription (SUBTIME) and time spent accessing the listserv (TIMEACC) also loaded into the model eventually contributing (with the inclusion of ARCHIVES) more than one third of the total variance of TPL.

Table 4.15 results indicated that about 80 per cent of subscribers spent less than two hours per week accessing, reading and/or responding to OZTL_NET messages while five per cent spent in excess of four hours per week engaged in such activities. Table 4.37 clearly indicated that "time constraints", reported by 61 per cent of subscribers, was the single largest barrier to greater participation in OZTL_NET for the members of the subscriber sample. In addition, Table 4.38 results indicated that "time constraints" was ranked second after "retirement or change of profession/job" as the main reason why subscribers might discontinue their subscription to OZTL_NET. The following examples from the subscriber survey indicate a relationship between the volume of messages and the shortage of time for many subscribers to participate:

> I know a lot of TLs in schools find that the amount of mail takes too much time to read, too daunting especially if computer capacity is low. This is a shame because the list is so helpful. [Subscriber 31]

It's interesting to read but I frequently am frustrated with the amount of material, especially when I don't have time to read it every day or even every week. After just two weeks of not checking I had over 100 messages and that was in digest form! However I am loathe to unsubscribe because every now and then there's a real gem. [Subscriber 52]

Too many messages...not enough time. It would be great if all posters to the list could indicate when messages are specific to a state, sec/prim school or to a specific area eg collection. [Subscriber 135]

In the interviews, subscriber responses regarding these impacts indicated a close link between the time to participate and the capacity to cope with the number of messages received. This result reinforced the problem of time to participate as a barrier to more active participation reported by subscribers. Only Cheryl and Alice indicated that these impacts presented them with no problems. It is hardly surprising to learn then that both Cheryl and Alice were from the "experienced subscriber" category as described in Table 3.4:

It's not a great issue with me. I think if you deal with these things efficiently and you have these other helpful things like a context and message subject lines it can help you deal with them efficiently. The time to participate is not an issue; I think it is a professional responsibility of mine to make time. But I am a listserv junkie. I am a bit strange. [Cheryl]

The remaining subscribers were less enthusiastic pointing to the need to look at OZTL_NET messages when the opportunity arose rather than on any predetermined basis. Commonly, however, access was available from both work and home and subscribers tried to review their messages on a regular basis in order to avoid a large backlog. For Gail, the decision to actively participate was based on what she could contribute based on her expertise:

I am not a heavy participator; I am more a user so I will flick through and find what is useful for me. So subject lines, if someone has a query that I feel 75 per cent of the population of OZTL_NET can answer I ignore it. If it is a query that specifically taps into an area that I feel I'm an expert in and feel I can really add something valuable to a response that they probably wouldn't get from someone else, I will respond. But there are some people who respond to everybody's queries. Well, I am not in that league. I don't have the time so I probably don't contribute as much as I possibly could with the level of expertise that I have [except in] particular areas…that I have developed an expertise in, I would respond to them. If they want to know a good book to read, I wouldn't bother because I know they are going to get inundated anyway. [Gail]

5.5.1.2 Dominance of some individual subscribers

Table 3.5 indicated that a relatively small number of "dominant" subscribers were responsible for a disproportionately high number of message postings while 64 per cent of active subscribers had posted between one and four messages to OZTL_NET. Dominance of the list by some subscribers with an "axe to grind" was ranked equal fourth in Table 4.39 as an annoying and/or frustrating aspect of participation in OZTL_NET. In Table 4.38, "use of the listserv for political reasons or as a soapbox for self-promotion" ranked equal eighth in the list of reasons cited by subscribers for unsubscribing from OZTL_NET. There was then a mixed response to this issue from the subscriber survey sample. Online, "the strength of someone's reputation is tied to participation. A person who frequently voices an opinion will have a stronger reputation (for better or worse) than someone who tends to keep quiet" (Kim, 1999, p. 109). The following were typical of 14 responses critical of "dominant" subscribers:

> [It is annoying] sometimes seeing the same people replying to any type of query, sensing self-promotion rather than genuine goodwill. [Subscriber 68]

> Suggest to some people that post very frequently to closely monitor their postings and to try not to dominate. Some of the super frequent people who post can be a little daunting as they appear to have the time to continually lurk. Some people seem to use OZTL_NET for self-promotion. [Subscriber 141]

> I get very frustrated with [Subscriber A] and [Subscriber B] always jumping in with a response. No one else has a chance to respond – don't those two ever sleep? Are we meant to be impressed with their quick responses, especially with all the overseas references? Most of us are toiling so hard in our schools that checking on overseas listservs is out of the question. [Subscriber 143]

On the other hand, there was also support for the role that frequent message posters play especially where they are perceived to "value-add" by performing an information dissemination service for other subscribers:

> It was (and still is) a revelation. The amount of information and help available to me as a librarian and resource provider to others is phenomenal. I am able to obtain answers to questions asked by teachers in my school through the list. Sometimes I can help provide information or answers to those asking from the list. A teacher wanted to know what products (not just food) were contained in seaweed. The depth of answers was staggering! [Subscriber A] provides endless useful information and I have had occasional personal email contact with her. [Subscriber 11]

> Reinforced that the profession has huge value in education ie [Subscriber A] and [Subscriber B's] approach and others…I know there are people out there who feel as passionately as I do about providing support, encouragement etc. through library work. [Subscriber 62]
>
> I re-entered the TL profession after about 15 years in a range of other advisory and management roles in the education sector. The list really helped me re-connect with a lot of bedrock TL issues, practices and resources. I have gained as much benefit from postings or practices I strongly disagree with, as those that are consistent with my values/philosophy - they all challenge or consolidate my thinking! Without the list I would not have discovered the wonderful [Subscriber A]. I have built on many of her ideas! [Subscriber 63]

Generally, the interviewed subscribers were not concerned about any dominance of OZTL_NET by a few frequent posters. While they had all observed that some subscribers appeared to post a lot of messages, most of them had developed strategies for handling those particular messages ranging from automatic deletion of messages from one or more of the dominant subscribers to the treatment of each message on its individual merits. A typical response was that of Gail:

> It is a mixed view because I actually think those people do a wonderful job generally in demonstrating what great sharers we are. If their sharing is supporting and helpful that is fine. If they are pushing their own barrows I don't like it and that has happened. What probably annoys me at times is that a lot of those responses should have been sent to the individual and not to the list. So I think a bit more selective judgement is needed by those people. [Gail]

Dave had no problem with frequent message posters indicating that they played a useful role while Jane was of the view that as the receiver of the messages, subscribers have the choice of whether or not they read the messages posted:

> I don't find [it] a problem. In fact there's a couple of people that post messages lots of times but what they post is good. They give me ideas, either I go off and have a look at what they are talking about or I respond to it or I delete it. No, I don't think there is a problem with dominance. [Dave]
>
> I wouldn't say dominant I would say prominent. I would use that phrase. I often think it relates to the issue being discussed, sometimes it is a matter of someone having an opinion or having some expertise or attitude. There are lots of reasons why someone may choose to be prominent or dominant if that is one of the words that perhaps some of the survey people chose but I mean if you don't particularly like what someone says or if you regard them as being dominant you don't have to read what they say. It's choice…[Jane]

Not all of the subscribers were happy with frequent posters. Cheryl was particularly dismissive:

There are certain subscribers who I think need a bit of help from the administrators of the list because they should know better, they should know not to post all the responses to the list. They should understand about "hit-target" and I must say I was trying to count them up, I can think of three people when their name comes up on the message line I just immediately delete their responses without considering them. [Cheryl]

As subscribers who fell into the "experienced" category of selection for these interviews, both Alice and Clare were self-confessed dominators:

I just think if you have got something to share you share it. It doesn't bother me that there is a core of us who are on there and we get on and we have our say. I would hate to think as I said before that people felt that because we were sort of like throwing issues around that they can't. But then again I don't know how you would stop us. Like are you going to ration us to one message a day or something?… There are a lot of people who write to me and say "I like to read your messages, I'm a lurker and I don't feel comfortable writing there" but they write to me personally. So I take a little bit of comfort in the fact that perhaps even though I do have a lot to say that it is usually reasonably thought out and it is not extreme or defamatory, and is professional and helpful. [Alice]

You can't blame people for putting in their sixpence worth if they want to, then there is no problem. Nobody has priority you just contribute if you want to, that is my opinion anyway. Mind you that might be flavoured by the fact that I do contribute a lot… most people have been very nice and said "thanks very much I have found that really helpful." I haven't had any negative feedback fortunately. Touch wood! [Clare]

5.5.1.3 Quality and level of discussion and ideas

Table 4.38 responses revealed that a decline in the "quality/level of discussion and/or sharing of ideas" ranked eighth in the list of reasons for unsubscribing to OZTL_NET. An increase in the number of "trivial" messages ranked fourth in the same table and a loss of relevance/focus of discussions on teacher librarianship issues ranked fifth. Table 4.39 revealed that "too much trivial information and not enough professional discussion" was ranked the most annoying and/or frustrating aspect of participation in OZTL_NET while the posting of "too many messages irrelevant to me personally" ranked third in the same table. The following responses are indicative of those made by 15 subscribers concerned about what they deemed "trivial" messages. In particular, the responses indicate that an increase in the number of trivial messages would most likely lead these subscribers to discontinue their subscriptions to OZTL_NET:

[I would unsubscribe] if it became less professional and became bogged down in trivia which it sometimes tends to do. [Subscriber 17]

If the number of trivial messages increased to such an extent that checking the list each day became onerous, I would unsubscribe. [Subscriber 90]

I hate the trivial items that are sent to the list. [Subscriber 101]

Sitting at a computer reading and writing email is not one of my favourite tasks, probably why I put off joining OZTL_NET for several years. I find it very frustrating to wade through the chitchat to get to the practical issues. eg humour messages and the to-ing and fro-ing over minor comments. I could just ignore these I suppose but I am afraid that buried somewhere there may be some useful information. I guess I find trivial messages annoying and frustrating. [Subscriber 102]

Most of the interviewed subscribers reported that the level of discussion on OZTL_NET had remained about the same over the period of their subscriptions. Some subscribers felt that, over time, there had been a slight decrease in the number of trivial messages because of the appearance of more parochial listservs for teacher librarians (see Appendix K). In their responses to this question, subscribers alluded to the need for tolerance as a prerequisite for membership of listserv communities, which are characterised by subscribers coming and going, and a mix of new and experienced subscribers:

There's a range of quality and level of discussion and ideas and I think we have got to understand that people are coming from all different places. They have a range of experiences and whilst I might get annoyed sometimes with some of the silly questions people ask and I think why didn't they just type a phrase into Google and look for themselves. I think we have got to be understanding and realise that we have got people who are very experienced and very old and we have got very inexperienced people who may not have good support structures and OZTL_NET is their support structure. Therefore, even if at times the quality and level of discussions is rather low I think it is a very important function of OZTL_NET that OZTL_NET provides and can give people an opportunity to discuss at whatever level. [Cheryl]

The idea of maintaining a mix of professional discussion and other types of messages on OZTL_NET was a theme that ran through the subscriber responses to this question. Gail's response implies that subscribers may not have the time to cope with too many high level discussions particularly if they were to be dominated by a few vocal subscribers or if the discussions resulted in flaming or inappropriate personal messages:

There's not a lot of high level discussion happening on OZTL_NET but there are moments and those moments are worth waiting for and if it happened all the time

we would all just wipe out from exhaustion anyway and probably unsubscribe because when topics do come up they do generate more mail and you tend to want to read them all and if you are going to do any responses you have to read them all to be in the loop. So I guess the fact that they're not that frequent is probably a good thing. Once again those discussions are probably dominated by particular individuals and unfortunately I have seen them develop into more personal comments instead of staying professional at times. [Gail]

The issue of what constitutes "quality" discussion was a thread that ran through the analysis of the quantitative and qualitative data. The emphasis placed on the quality and level of discussion and ideas on OZTL_NET was close to the hearts of subscribers. Subscribers considered what some others considered "trivial" to be useful or important. Still others considered that a mix of "trivial" messages (particularly humorous postings) and professional discussion was "tolerable", acceptable and sustainable. This result provides some pointers to the kinds of themes, ideas and expectations that OZTL_NET has cultivated through subscriber participation. The culture of the OZTL_NET environment needs to be characterised by principles of communication that make subscribers feel comfortable about actively participating in the listserv. This is particularly important for "new members engaged in learning their practice [who] must learn new conventions and skills for engaging one another. Communities require channels for communicating among members and for accumulating and archiving the history of their group interactions" (Riel & Polin, 2004, p. 32).

This is why the quality of discussion is so closely related to the quality of communication in text-based listserv environments. Communicating textually online is very different from face-to-face and voice communications and the rules and expectations of engagement are therefore critical for effective communication in the listserv and for encouraging active participation among subscribers. For OZTL_NET, these rules and expectations are set out in the main website (Appendices B1-B6) although, as section 2.1.5 of this analysis has shown, there appears to be a low level of awareness of and adherence to these expectations by subscribers. These rules and expectations do not provide guidance in relation to the posting of so-called "trivial" messages. To do so would seem to defeat the philosophy behind the formation of learning communities and communities of practice that is encouraging of broad participation. Such an approach would also fail to recognise the different levels of expertise and experience of subscribers that can in fact be an advantage to the listserv

which becomes "functional when [it] provides for access and participation among members of varying degrees of experience and expertise" (Riel & Polin, 2004, p. 41). In short, improvement of the subscriber experience in OZTL_NET has as much to do with the quality of the communication in the listserv dynamic than it has with whether or not subscribers deem individual postings to be trivial or otherwise.

5.5.1.4 Posting of inappropriate messages

The OZTL_NET website provides the following advice to subscribers in relation to the appropriateness of messages:

> "8. **Chain letters** will not be tolerated on OZTL_NET. Please refrain from sending such messages to this list. Offenders may be removed from the list… 10. **Flames**: a "flame" is an emotionally charged posting, and is often directed at someone. Be sure you really want to post it, and remember that OZTL_NET does not tolerate flames. We will immediately remove members posting rude, inflammatory or grossly inappropriate messages…11.To signal **humorous intent**, use some sort of "smiley", such as ☺. Facetiousness and sarcasm can be misunderstood easily in online communication… 12. Please **be considerate of others.** Through inexperience or limited local software, list members may inadvertently violate the above suggestions. A private message to the offender from an experienced friend or from the list administrators is more appropriate than a public flame." (Appendix B4 - OZTL_NET Netiquette, Version 4, 2003, p.2)

Table 4.39 indicated that "flaming", "unfair criticism of persons" and the inappropriate use of the listserv for commercial or political reasons frustrated and/or annoyed 13 of the subscriber survey sample:

> I am amazed that anyone would criticise the actions of any list member as happened at some stage in the last 12 months. Do it privately but not in public; really unprofessional I thought. [Subscriber 11]

> People who reply to the list rather than [to] individuals incessantly. One of these is obviously doing this for commercial purposes - to promote an online encyclopaedia. [Subscriber 77]

> Apart from the volume of postings I find it annoying when messages are political or politically biased. [Subscriber 113]

All ten of the interviewed subscribers cited at least one example of what they considered to be an inappropriate message posted to OZTL_NET. Almost all of these cases concerned messages that involved flaming or criticism of other subscribers and sometimes non-subscribers. For example, Amy became concerned whenever subscribers appeared to be critical of other teachers in their schools. Clare pointed

out that some subscribers might interpret messages posted by inexperienced subscribers to be inappropriate:

> Occasionally I have thought ooh! that could be taken the wrong way but I think that is just not being aware of how abrupt they might sound on email when if they said it in real life nobody would take offence because of tone of voice or how they said it or something like that. Sometimes people can sound a little sharp when they probably don't really mean to…people who are new to listservs will often be much more abrupt than they might be face to face because they imagine they're more anonymous but they're not. So I think that that can sometimes be again taken the wrong the way. [Clare]

While acknowledging that there has been a reduction in the number of what she perceived to be inappropriate messages, Gail has a definite view on how that result might be maintained or improved:

> It certainly has been a problem. I don't know if there is an easy solution. Personally I think they should be shot off and ousted but I know how easy it is for them to resubscribe under another name or email address or whatever so that doesn't really solve the problem. Unfortunately, I can remember an occasion, it was a couple of years ago, where people were so outraged that they responded their outrage to the list but in fact that actually generated and perpetuated a flame war happening and it was really difficult because if they responded to the individual nobody knows that that's happening and I think there was this feeling that they had to publicly damn this person for saying what they said but in fact that actually made the whole situation worse, I think. It was a very difficult one and I don't know how it could be handled but I just know that after the second day I just deleted my digest and didn't open it for a week. I just didn't want to be a part of it. [Gail]

However, the view of most subscribers was that, over time, members of the listserv had generally become more sophisticated in the appropriate use of OZTL_NET:

> I think people are starting these days to really understand netiquette a lot better. There certainly were some personal ones that came through in the very early days before people realised it wasn't a closed list and that you had to sort of stop and think "would I say this personally"? I think people are sort of realising the nature of the medium much better now so they are not getting into those personal type slanging matches. [Alice]

5.5.1.5 Other significant impacts on participation

An additional issue raised by the subscriber survey sample was that of the desirability of subscribers including their contact details in their email messages.

> "OZTL_NET is a public forum and we ask that all members posting messages to the list provide some form of identity or signature at the end of each post. This helps each of us identify **who** our fellow community members are, and it can provide us with a context as to the nature or perspective of some contributions (esp. potentially sensitive ones)." (Appendix B3 - Communicating with others on OZTL_NET, Version 5, 2003, p.5)

> "5. Many OZTL_NET members are not able to identify the address of the message sender unless it is included in the body of the message. At the end of your message, include your name and your electronic address (this is your **Internet signature**) and because it can be difficult to interpret email addresses, we request that you include the name/address of your institutional affiliation." (Appendix B4 - OZTL_NET Netiquette, Version 4, 2003, p.1)

Several of the interviewed subscribers mentioned the need for posters of messages to include their contact details and affiliation in their email signatures. The use of aliases or any other means to secure subscriber anonymity was considered inappropriate use. Disclosure of identity, affiliation and selected contact details was perceived to be both polite and reasonable practice in a relatively focused group like OZTL_NET. The provision of this information was considered important not only in terms of "netiquette" but also in terms of assisting readers situate the message content and its poster. For example, some of the subscribers felt that affiliation was important in helping to determine the likely value of advice through knowing whether the poster's workplace was in primary or secondary education or some other context. While generally agreeing with these principles, Sue and Clare were somewhat concerned that the opinion of the poster was seen to be their own and not that of their employer:

> It is necessary in some cases because people are going to send you stuff by snail mail. I don't have a problem with that, no. I think with some people it's a problem to the school that they do that. So that people have to do it privately and not in anyway make it appear to be something that the school thinks. So I think that for some people they can't actually put their details because it is a problem to the school. [Sue]

> I think that if you have got something to say you ought to be honest enough to put your name to it. That would be my opinion. On the other hand sometimes when you feel particularly put upon or angry you might want to express your general disgust with the world and not be identified as being from some institution or other. I guess there're two sides to that. [Clare]

Both Gail and Cheryl were strong advocates for subscriber disclosure of workplace affiliations and contact details in messages to OZTL_NET:

> I guess that is one bit of content that everyone should have in their signature - that they give their workplace if they have one. Obviously if they don't work they could choose to put their private address but if they do have a workplace I think it should

be in there and I think it is rude if they don't add it because when you read something its relevance can depend on whether it comes from a senior secondary college or a primary school or whatever and it influences the way you read it and take it on board. So I think that would be a good added bonus…As professionals I think we should say where we're from and where we are coming from and I think it should be there. But then there are also people who are not working and you can't enforce it on them. [Gail]

One of my hobbyhorses is the addresses, people giving their details at the bottom of the message, having a signature. I think that is most important… Name, position, institution, geographical location and contact details… Because it gives a context to the request or the information being disseminated…Or by giving a context it makes it easier for you to know whether you are going to act on something, whether you help someone or whether something is appropriate for you, all those sorts of things. If you have got a context it guides your reaction to the message. So if it is a video and it's someone in the Kimberley region and I know it is the Kimberley region I might trash that but if it is someone down the road asking for a video it is easier for me to help them - I will do that. The contact details would tell me. Sometimes when people are discussing employment conditions, the context, the sort of institution they are coming from just helps you in knowing how to respond to them or whether it is appropriate for you to respond to them. [Cheryl]

The preceding section of this analysis was concerned with the range of impacts on subscriber participation in OZTL_NET. The section that follows provides an analysis of the interview results that sought to determine the professional and personal impacts on subscribers as a result of their participation in OZTL_NET.

5.5.2 Professional and personal impacts of participation in OZTL_NET

5.5.2.1 Professional collegiality and relationship building

The quantitative analysis reported in Chapter Four revealed that the indicators that made up the COLLAB measure included group projects of benefit to workplace (BENWORK) and group projects of benefit to the profession (BENPROF). Table 4.4 showed that BENPROF and BENWORK were highly correlated with two other indicators, knowledge creation (KNOWCREA) and the use of discussion tools such as targets and hits (TARGET). The high degree of association between these measures reinforced the proposition that these were measures of teacher professional learning (TPL). An invitation to actively participate in OZTL_NET is extended to subscribers on the OZTL_NET Homepage (Appendix B1):

In terms of personal impacts as a result of participation in OZTL_NET, 45 per cent of survey respondents considered the listserv a form of collegial support that provided them with the opportunity to build professional relationships with other subscribers (Table 4.40). A further 23 per cent of the subscriber sample indicated that participation in OZTL_NET had helped them create empathy and understanding with their colleagues:

> Enjoyed the discussions about common issues and gained an understanding of how teacher librarians have to operate which has helped in building relationships with TLs in my community as well as our peculiar needs as a group (ie the diversity of roles one is expected to fill). Lessened the sense of isolation one can feel as the sole practitioner on a site. [Subscriber 1]

> It has created a sense of collegiality. I feel confident that someone out there has experienced my problems and can help. It's been a wealth of information and has made face-to-face contact at conferences very enjoyable. [Subscriber 51]

> It's great to arrive at a conference or function in another state and be able to find an OZTL mate that one already knows virtually. [Subscriber 77]

An interesting aspect of the preceding comments is that participation in OZTL_NET facilitated subsequent face-to-face meetings with colleagues for Subscribers 51 and 77 rather than face-to-face contact being a prerequisite for online interaction. All but two of the interviewed subscribers reported that they experienced a sense of professional collegiality and relationship building as a result of their participation in OZTL_NET. This result is consistent with those reported in Table 4.35 that indicated that 47 per cent of subscribers reported that they had experienced a strong sense of professional community on the basis of their participation in OZTL_NET and a further 50 per cent had experienced a moderate sense of community or some sense of

community. Overall, these results indicated that OZTL_NET subscribers reported having experienced a sense of community as a result of their participation in the listserv regardless of type or level of participation. The remaining eight interviewed subscribers also reported a strong feeling of belonging to a professional community. In particular, subscribers reported that they had been able to strengthen professional relationships initiated as a result of participation in OZTL_NET in real time meetings with colleagues at conferences and other professional development activities. Typically, the genesis of these relationships was through off-list responses from one subscriber to another that sparked a dialogue and eventually an off-list professional relationship:

> I think the fact that you can post a query and have responses within 30 minutes is wonderful. You feel like you are part of a supportive community. You know that if you're stuck that someone out there that has had a similar experience would come in and give you some sort of advice, support or information. I think that is really wonderful. It comes out at conferences when they say "oh you're Gail, I read your thing on such and such" and that actually happened at the last conference and people actually made a connection with me which was interesting because that was sort of 18 months ago. So I think it does make you part of a community. [Gail]

> It is evident probably through some personal responses, responses you get personally but not particularly responses that might come to the list. You tend to build up relationships, collegial relationships not necessarily personal relationships but collegial and professional relationships with certain people who may come from similar institutions or there is just something that strikes a cord; you find someone that has got a shared passion or a shared problem and it just happens. [Cheryl]

In addition to off-list professional relationships and the opportunity for real-time meetings, Alice explains how these relationships can be formed through interactions with "like minded thinkers" and through the initiation of collaborative activities with interested subscribers. As a "latent" subscriber Bob reveals how lurkers also experience a sense of professional collegiality through their participation in OZTL_NET:

> People who think similarly to you are obviously going to be the people that you tend to seek out because you don't want to get involved with people who squabble. There have also been projects that I have worked on or I have developed something and I have contacted somebody and said how do you want to work on this or do you want to be involved in that? So for me there is both aspects. There is the like minded thinkers and there is the collaboration because I know that this person has got a group of kids the same age as mine or this person is doing this in their school and so are we. [Alice]

I do think there is a sense that it is one really great communication tool to keep up with what is happening as a group of professionals facing a fairly wide scope of roles that we play in each of our schools. There is still that central idea that you are a teacher and teacher librarian and I think that is really important, we study for it, we work for it and we work in it so sharing those ideas, even if there is a group out there sharing and we're watching and listening to what information is floating around there, you feel as if you are part of a large community so yes there is a sense there. [Bob]

Both Sue and Karen reported that they felt no real sense of professional collegiality or relationship building as a result of participation in OZTL_NET. For Karen it appears that this may be because of the broad national focus of OZTL_NET:

Not really, because I don't participate properly. It is all so very, very big. Our list in South Australia that we operate is much better for that because it is smaller and because we know each other to start with. The more you do stuff that way the more you get that sense of collegiality. I just sometimes think that OZTL_NET is too big. There is that sense that you are all in the same profession and that you are all doing the same job, there is no doubt about that. But within the work that we all do it is just so varied. [Karen]

The results reported in this section indicate that there is a lot more to relationship building in online communities than simply issuing an invitation to subscribers to actively participate in discussion. Such communities are complex and multifaceted by nature. Once again, the critical role of effective and efficient textual communication online was re-affirmed suggesting the need to explore alternative possibilities for this type of communication. For example, the "cyber-language" used to send SMS messages by many mobile phone users might have the potential for adaptation as a type of "online shorthand" for use in text-based environments such as listservs. Such a form of communication would have particular benefits for synchronous online environments such as chat rooms and MOOs where there exists immediacy in the communication that takes place in real-time (Preece, 2000, p. 65). These are the kinds of online environments in which, despite the need to learn a more complex set of "rules of engagement", relationship building is more likely to take place because "participation generally occurs regularly over long periods of weeks or months" (Preece, 2000, p. 16) requiring significant participator commitment to active involvement.

5.5.2.2 Means of overcoming isolation and feeling supported

In terms of professional impacts, 13 per cent of survey respondents reported that participation in OZTL_NET helped them overcome professional isolation and increased professional collegiality, a sentiment re-affirmed in responses to the final survey question in which nine per cent of respondents indicated that participation in OZTL_NET was "critical" in terms of overcoming professional isolation. The majority of responses to this final question (n=28) indicated that participation in OZTL_NET was "a very useful resource/service and source of support." In terms of overcoming isolation, the following responses were typical:

> Professionally: The biggest impact is on removing the isolation and development of a network that supports you and your colleagues.
> [Subscriber 54]

> OZTL_NET has been great in the way that you can discuss various issues and get advice from other colleagues…it is nice to have a sense of community and support as the teacher librarianship profession can sometimes be isolating. [Subscriber 115]

> OZTL_NET has allowed me to maintain contact with the teacher librarian community, both on a state level and on a national level. As TLs are professionally isolated within their schools, it allows us to feel very much part of a community, a characteristic which is not obvious in other teaching professional associations. [Subscriber 143]

Beyond overcoming professional isolation, subscribers also reported the value they placed on collegial support through participation in OZTL_NET. This was a strong theme to emerge from the analysis with no fewer than 43 subscribers mentioning the sense of collegiality and 27 pointing to the feeling of support they experienced as a result of belonging to OZTL_NET:

> The listserv opens the entire world of librarianship and one can share in lots of expertise on a variety of topics. Being in a small state, sometimes our knowledge base is a bit thin so it is great to have access to nationwide experiences. The national aspect is impressive when you ask questions on behalf of teachers. It is nice to be supported when you have a problem - list members have never emailed me to tell me I'm silly! List members provide support when self-esteem is low or if we are struggling to prove our worth to others. The willingness to share information, documents, book lists, lesson plans, etc is fabulous. [Subscriber 31]

> In this day and age teacher librarians need all the support they can get, and the listserv helps in this. Whilst it is not a pressure group as such, we do have support from each other, through ideas and success stories. It makes me feel worthwhile and that I can do a good job. [Subscriber 152]

It provides a fantastic support structure in terms of quick responses to obscure requests! As a first year teacher librarian (third year now) I felt that OZTL_NET really had an impact on me, especially in giving me a grounding in the issues and problems relating to libraries/librarians as well what to expect! [Subscriber 169]

All ten of the interviewed subscribers reported that participation in OZTL_NET was important in terms of overcoming isolation and feeling supported. Some subscribers focused more on overcoming isolation than on feeling supported and vice versa. Only Gail felt that she did not feel isolated although she identified the benefits of participation in OZTL_NET for those who were:

That is a hard one for me because I never feel isolated but I think it is apparent that that does happen. There are people that do have great needs and when they are answered their thank you back to the list is really powerful. I guess there have been times when I have been able to solve a problem internally in my state and I have had help from the mainland and that has really made me feel a part of that larger group, so I think it is there. [Gail]

The next two extracts provide examples of how subscribers perceived that participation in OZTL_NET had specifically impacted subscribers in terms of overcoming isolation (Alice) and feeling supported (Clare):

I think it is the most critical thing, it really is. I don't know how teacher librarians existed before OZTL_NET and I don't know too many TLs who aren't on it even if they don't necessarily participate a lot. Like I said before you are not only isolated geographically but you are isolated professionally because you are the only one of you in your school. To be able to come out to a group and sort of have a bit of a say or a whinge if that is what you need to do with people who speak the same language and understand the same issues or as I said to gather information to support your stance on something so that you can show your colleagues that you are not just thinking of something out of thin air. I just think it is really critical. [Alice]

I found that very, very important when I went through a stage when I had a negative review with my work and I sent an email saying "help what will I do?" I was inundated with lots and lots of people saying "this is what you can do, don't feel bad, you are doing a good job", all this kind of stuff which was very, very supportive. Also, when I won a couple of awards and things like that I celebrated about that and people also celebrated with me which I found incredibly good and other people would not have necessarily done that but the list sort of appreciated how good it was for me. [Clare]

5.5.2.3 Form of ongoing professional development

Almost 12 per cent of the subscribers surveyed indicated that OZTL_NET provided a valuable means for keeping up-to-date with professional development opportunities

(Table 4.26). Although this item was not as highly considered in the list of most valued items resulting from participation in the web survey it did relate to some other variables in the quantitative analysis including membership of a professional association (p<0.036) (Table 4.1). The indicator PDOPP (knowledge of professional development opportunities) was also highly correlated with the indicators implementing ideas, seeking more information, discussion and debate and solving problems and as such was included as one of the five items in the production of the single measure of involvement (INVOLVE) as shown in Table 4.2. The subscriber survey also ranked OZTL_NET sixth as "an important source of daily professional development" in terms of professional impacts and as an "important form of ongoing professional development" ranked third in the final survey comments (Tables 4.40 and 4.41):

> Professionally can keep up to date, be stimulated, can give and take professional development, get information on changes, issues, get to know the leaders in our field online, feel like I know presenters at conferences from their emails. [Subscriber 131]

> The sense of community, collegiality and willingness to be of assistance in sharing knowledge has broadened my experience and provides ongoing professional development…Some outstanding TLs provide me with excellent role models and challenge my current ideas and practices. [Subscriber 174]

> I look at OZTL as my network. I relish the innovative ideas that are projected; it is daily professional development. I feel I am proactive in my role and stronger when it comes to lobbying and fighting. Teacher librarians are constantly fighting uphill battles. [Subscriber 181]

Most of the subscribers interviewed did not consider participation in OZTL_NET to be an ongoing form of professional development. Rather they saw it as an information source and sharing mechanism. Participation in OZTL_NET was also seen as a window on best practice and a useful way for individuals to compare their practice against that of others. Finally, participation in OZTL_NET was identified as a useful source of information about forthcoming professional development activities:

> Rather than professional development I think it is more an information source. If you count an information source as being gathering information as being professional development then it is a source of professional development but it is more an information source, a news source, a current affairs source and keeping up to date… whereas professional development I think is probably more of an educative nature, learning new skills, discussing ideas and I think OZTL_NET is a little bit different from that for me. [Cheryl]

On the other hand, Dave and Alice both considered that participation in OZTL_NET was a form of ongoing professional development that needed to be recognised within their school-based performance management processes:

> I think that sort of stuff is probably the biggest strength of lists like OZTL. In fact at my school we do reviews and appraisals and that sort of stuff and I tend to push that as my main form of connection with other people. We have the local network and we have a variety of other things but I find that the people on OZTL are the same as me, they know what I am talking about and I know what they are talking about so definitely, definitely. [Dave]

> Absolutely, and I write it into my professional pathways every year and it is recognised… professional pathways tend to be a personal document between you and your mentor but I always make sure that mine is there and the number of hours and the sorts of things that I do. [Alice]

5.5.2.4 Value as a forum for advice and information gathering and/or sharing

The survey responses reported in Tables 4.14 - 4.16 revealed that information seeking or gathering and information sharing were the major uses made by subscribers of OZTL_NET confirming the importance of this theme that remained strongly evident throughout the analysis. Table 4.40 responses revealed that, in terms of professional impacts of participation in OZTL_NET, information gathering and sharing and the seeking of advice accounted for 48 per cent of all impacts between them. The following examples indicate the value subscribers place on OZTL_NET as a means of information sharing, gathering/seeking, and advice, respectively:

> I love OZ_TL…I have posted requests for help and have been overwhelmed by the speed, number and quality of the responses. The generosity of sharing on this listserv is FANTASTIC. In short I could not exist without it. On the odd occasion it has been unavailable I have suffered withdrawal symptoms… Long live OZ_TL. [Subscriber 5]

> It is another avenue available to seek information from colleagues and allow information to be shared. This has been valuable and extremely time saving in many instances when lists of resources have been published online. This has provided both personal and professional satisfaction. [Subscriber 19]

> OZTL_NET has enabled me to move fairly smoothly from art teacher knowing nothing to TL course graduate feeling I know something. And, if I don't know, I know there is a great place where I can ask and receive some good advice from those with more experience than myself. [Subscriber 85]

All interviewed subscribers felt that OZTL_NET was a particularly useful tool for information gathering and sharing and for seeking advice. Dave's response indicates the usefulness of OZTL_NET in these terms:

> Excellent, 10/10. If you post a message you will get an answer. It may not be the one you wanted but you will always get half a dozen people or more giving you an opinion which you may or may not agree with but sometimes that is good even if you don't agree with it because you sort of modify your own thinking. [Dave]

Alice and Clare are similarly enthusiastic about the value of OZTL_NET for this purpose. Alice alludes to a degree of tolerance in terms of asking questions while Clare describes how participation in OZTL_NET has influenced her practice:

> I think it is outstanding. If you want to know something then you ask. I like the fact that to my mind, although I am not one of the shy retiring types so you might be better off asking them, but there is a culture that there is no such thing as a dumb question. [Alice]

> I think it really is totally invaluable. So much easier than trying to say, "who will I ring and ask about this?" You have a pool of hundreds of people at your fingertips saying "have you tried this, what about that?" I have put into practice practical suggestions that people have had just about ordinary things and I have been able to do that very, very easily because people have given guidelines on how you do that and also a number of changes to policies, changes to ways of doing things, changes to the ways I think about things from what people have suggested. [Clare]

Cheryl cautions that there are topics for which the number of responses may not be so great:

> Some of the questions that I have asked on OZTL_NET I get very little response to. Perhaps if I ask a simple question like "I am looking for picture books on trucks", I might get 20 or 30 responses. But if I ask a question, that comes back to the first section, a question that is more professional discussion or issues-based or something more, a sophisticated technology question, I get very little response so in quite a number of cases it is not terribly valuable as a forum for advice but for information gathering it is, which is a bit different. [Cheryl]

Most subscribers were satisfied with the level of sharing that occurred on OZTL_NET. Alice contends that sharing is a responsibility for subscribers in terms of developing others while Clare argues that increased sharing may be related to increased confidence of subscribers to post messages to the list:

> I have no problem with helping people and I know it has been an issue on other lists where student teachers come on then they ask a question and then they bugger off and I just think we are there to share and we are there to help and these guys are

going to be stepping into our footsteps when we retire in a few years time and it is just a matter of making them the best they can be. [Alice]

I think some people lack confidence in realising that what they have to offer is different and valuable. When you get down to talking about things face to face you sometimes say "why didn't you say such and such?" and they say "oh nobody would be interested in that." That is one of the things over time I have realised; that something I am doing may not seem all that flash to me is useful for somebody else. So that is a confidence raising thing that I think is very useful and so I think probably the sharing could be more but again it is something that comes with time with some people and it relates back to what you said before about people complaining about people dominating. There is a really easy solution to that you just put in your six pence worth and then you get to dominate. [Clare]

5.5.2.5 Enhanced performance and/or reputation as a practitioner

In response to Question 38 which requested specific examples to illustrate the impact of participation in OZTL_NET on the subscribers' workplaces, 10 per cent of mentions related to OZTL_NET as a means of improving personal competence and performance. In terms of personal impacts resulting from participation in OZTL_NET, only six per cent of subscriber mentions indicated that they felt that their image or reputation within their workplace had been enhanced as a consequence of their participation in OZTL_NET. It needs to be made clear that the following responses in relation to enhanced performance or reputation are from the subscribers themselves and, as such, it cannot be reliably concluded that their performance and/or reputation actually improved as described below because there is no evidence beyond subscriber self-reporting to actually support such claims:

> [OZTL_NET] has been very useful to me personally through the discussion of professional issues such as the role of the TL. I also feel that it has enhanced my role as TL and information manager within my school through the information on areas such as good websites which I have forwarded on to appropriate staff. [Subscriber 28]
>
> Thank you for a professional and personal lifeline. I feel my ability to function professionally as the TL in my school is enhanced by belonging to this listserv. [Subscriber 30]
>
> I have hosted dozens of visitors from Australia and overseas as a result of my OZTL membership to look at our library buildings, check out our software package and to see how we do things. This helped boost the school's reputation, promoted the importance of the library within the school community and gained important "brownie points" from a principal who loved showing off her school. [Subscriber 77]

There was some support from the subscribers interviewed for those survey respondents who indicated that participation in OZTL_NET had enhanced their performance and/or their reputation as a practitioner. There was certainly more subscriber claims of enhanced performance than there was for enhanced reputation. Sue and Gail recount the positive feedback from teachers in their schools who have benefited indirectly from their participation in OZTL_NET:

> I certainly passed lots of stuff I have got from OZTL on to teachers and lots of it has gone straight into my favourites, that has been really valuable… Certainly people have acknowledged on list that they have had to do something very quickly and someone from OZTL has given them the answer. They sort of go up two notches in everyone's estimation straightaway…from passing things on that I have got on OZTL people have certainly said "that has been really great, that was really excellent." [Sue]

> Teachers are impressed when you can demonstrate that you are thinking ahead of what they will want to be teaching and what they will need and if they ask and it is actually already there provided in a format then they are impressed, they're grateful, and they tell you you're wonderful and they tell everyone else as well, which is nice. So, yeah, it has made a difference…It's nice to be recognised for providing a service and what OZTL_NET does is that it can make it easier to provide that service. It can be very timesaving. [Gail]

The preceding responses suggest that participation in OZTL_NET may help subscribers "deliver" services to their school communities that reflect positively on their performance and their reputation. Typically, these situations arise when subscribers assist members of the school community in seeking information or to solve problems in a timely fashion, particularly if the subscriber has predicted the information needs of school library users prior to receipt of a request.

Dave and Amy reported that they felt that their performance had been enhanced as a result of their participation in OZTL_NET but that their reputations within their schools may not necessarily have been enhanced because their focus was on improvements in service provision rather than on the direct satisfaction of information needs:

> Well, not so much for me in finding a particular answer for a particular person but more in the way that I feel better about what it is that I do because I know that is what other people are doing and that there's general agreement that those are the best practices, so in that sense yes. [Dave]

> Because you are finding out you are getting information and advice that you otherwise wouldn't have so you would be performing better because you know more… I guess I didn't use it that much in that regard [for enhancing reputation]

because I tended to use it in terms of my management things rather than directly for a teacher. If a teacher asked me for resources I would find them or I would use Edna or something like that to find websites. I very often didn't use OZTL_NET to find resources for a particular topic. [Amy]

Responses from the remainder of the subscribers indicated varying degrees of enhanced performance and/or reputation as a result of their participation in OZTL_NET. Almost all of those who reported little or no sense of enhanced performance and/or reputation could see how other practitioners could report a definite sense in that regard as illustrated by Karen's response below. These results appear to suggest that enhanced performance and/or reputation of any particular practitioner may be linked to the use of OZTL_NET and to the level of subscriber participation in the listserv. That is, where members of the school community are direct beneficiaries of subscriber participation in OZTL_NET, it is likely that the subscriber will report a sense of enhanced performance and/or reputation:

> I personally can't say that [enhanced performance and/or reputation] has happened for me but I can see how it could. I have read messages from people who say that their staff think they are so good because they get a response immediately for something so I can see how it may definitely be an advantage if you have got that [OZTL_NET] at your fingertips if you can't answer a question straight away. [Karen]

5.6   Part 4: Experience of professional learning, knowledge creation and online community

At this point in the analysis a number of themes had emerged from the data. The first of these was that subscribers held a range of views in relation to the quality or level of professional discussion on OZTL_NET. Overall, subscribers wanted to see more professional discussion on the listserv although no subscriber suggested that the listserv should be completely dedicated to professional discussion. The dominant view was that a mixture of general and professional discussion was appropriate although, in light of the large number of messages posted to the listserv, some subscribers indicated that an increase in the proportion of what they determined to be "trivial" messages would lead them to re-consider their subscription to OZTL_NET.

A second broad theme to emerge from the analysis related to aspects of the management of messages and content. The first part of this theme emphasised the need for subscriber understanding of the rules and expectations of engagement as critical to improving the quality of the communication that takes place on the

listserv. The analysis revealed that improvements in the quality of textual communication and subscriber understanding of the rules and expectations of engagement had the propensity for increasing active participation of subscribers in OZTL_NET. The second part of this theme concerned the technical aspects of message and content management. These included considerations of the technical limitations of OZTL_NET (listserv plus website) including the relationship between the two components. The conclusion here was that there needed to be better integration between the two components in order to improve subscriber experience of the listserv. Analysis of data relating to subscriber options such as subject line keywords, the digest message option and the use of the target-hit discussion tool provided insights into subscriber awareness and/or use of these functions. Generally, these subscriber options were poorly understood and used with the evidence indicating a decline in use over time. Infrastructure issues relating to access and use of the message archives and involvement of the listserv administrators were also examined. The results here indicated that subscribers generally prefer an un-moderated list although some suggested that more off-list interventions might be undertaken by the administrators under certain circumstances, usually relating to the posting of "inappropriate" messages by subscribers. The low level of archive use was of particular concern given the potential such a large archive has for the "re-use" of information by subscribers.

The third theme to emerge from the analysis related to the range of personal and professional impacts experienced by OZTL_NET subscribers. An important issue here was the relationship between lack of time to participate in the listserv and the consequent issues relating to the management of an increasing number of messages. A range of views was evident in relation to the issue of dominant subscribers who were perceived as "saints" by some and "sinners" by others. The analysis here also revealed the difficulty in defining what is a "quality" post and what is a "trivial" post. For example, the analysis confirmed that what is trivial for one subscriber may not be for another. This perspective may be informed by a number of factors such as whether subscribers are "experienced campaigners" or "newbies" and whether their preferred level of participation is peripheral ("lurkers") or takes a more active form.

A fourth theme was the value subscribers placed on the collegial support they experienced through their participation in OZTL_NET. In particular, subscribers considered that the listserv was an important means for overcoming professional isolation. Subscribers indicated that as a result of their participation in OZTL_NET they had experienced a strong feeling of belonging to a professional community. A fifth theme was the strongly held view by subscribers of OZTL_NET as a forum for information seeking or gathering and sharing. Participation in OZTL_NET was perceived as a window on best practice and a useful way for individuals to compare their practice against that of their colleagues.

5.6.1 Factors related to professional learning, the creation of knowledge and online community

The interpretation of data in this part of the analysis was informed by a framework conceived by Daniel, Schwier and McCalla (2003) that separated out and compared the key characteristics of virtual (online) learning communities (VLCs) and distributed communities of practice (DCoP) as detailed in Table 5.4. The selection of this framework was based on the need to consider which features of learning communities and communities of practice were evident in the *online context* of OZTL_NET. The online context was critical for this study and much of the literature on learning communities was more focused on face-to-face, often school-based learning communities of teachers (Johnson, 1999; Retallick, 1999c; Sergiovanni, 2000; Zepeda, 1999). Similarly, Daniel, Schwier and McCalla (2003) built upon the communities of practice concept originally described by Lave and Wenger (1991) to consider a distributed model that was not reliant on real-time, place dependent interactions of participants as described by Daniel, Schwier & McCalla (2003):

> A virtual learning community (VLC) is a group of people who gather together in cyberspace with the intention of pursuing learning goals while a distributed community of practice (DCoP) refers to a group of geographically distributed individuals who are informally bound together by shared expertise and shared interests or work. Such individuals depend on communication and information technologies to connect to each other.

Table 5.4:   Key features of virtual learning communities and distributed communities of practice

Virtual Learning Communities	Distributed Communities of Practice
- Less stable membership - Low degree of individual awareness - More formalised and more focused learning goals - More diverse language - Low shared understanding - Strong sense of identity - Strict distribution of responsibilities - Easily disbanded - Low level of trust - Life span determined by extent to which goals or requirements are satisfied - Pre-planned enterprise and fixed goals - Domain specific/interests	- Reasonably stable membership - High degree of individual awareness - Informal learning goals - Common language - High shared understanding - Loose sense of identity - No formal distribution of responsibilities - Less easily disbanded - Reasonable level of trust - Life span determined by the value the community provides to its members - A joint enterprise as understood and continuously negotiated by its members - Shared practice/profession

(Source: Daniel, Schwier & McCalla, 2003)

While commentary throughout the analysis includes appropriate references to the key characteristics of VLCs and DCoPs as provided in Table 5.4 as appropriate, final conclusions about how well or otherwise the characteristics of online communities of practice and online learning communities are portrayed in OZTL_NET will be provided in Chapter Six.

5.6.1.1 Sense of belonging to a community

Within the context of this study and following Lave and Wenger (1991), a community of practice was defined as a group of people who share a common interest in the theory and practice of teacher librarianship and related information professions (domain), who share a particular language for engaging in dialogue about the various aspects of these disciplines (practice), and who use tools and sense-making approaches for constructing knowledge and for capacity building (community). Beyond this "baseline" conception, a community of practice may be defined 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" (Barab, MaKinster & Scheckler, 2004, p. 55).

The preceding definition implies that participants in these communities may experience a sense of community as a result of their participation. This feeling of community is a characteristic often emphasised as critical in terms of designing and building online communities (Kim, 1999; Preece, 2000) although Kling and Courtright (2004, p. 99) caution that the underlying "sense of mutual engagement and openness among members" in these communities is not analytical. The results of the subscriber survey reported in Table 4.35 indicated that about 47 per cent of subscribers reported that they had experienced a "strong sense of community" on the basis of their participation in OZTL_NET. A further 50 per cent reported some sense or a moderate sense of community. In terms of personal impacts resulting from participation in OZTL_NET, 45 per cent of subscribers reported a strong sense of collegial support and belonging to a community that allowed them the opportunity to build professional relationships with other subscribers (Table 4.40).

In their development of a design framework for online learning communities, Brook and Oliver (2003, p. 2) cited a model proposed by McMillan and Chavis (1986) who defined sense of community as "a sense that members have a belonging, members matter to one another and to the group and a shared faith that members' needs will be met through their commitment to be together." The model divides the construct of sense of community into four elements; membership, influence, fulfilment of needs and shared emotional connection, each of which is characterised by a number of key attributes (see Table 5.5). Each of these elements and their relevant attributes present in this study are identified in the context of the analysis of the survey responses recounted in this section.

Table 5.5:   Elements of sense of community and their attributes

Element	Attribute
Membership	Boundaries that separate *us* from *them* Emotional safety A sense of belonging and identification A common symbol system
Influence	Individual members matter to the group The group matters to the individual Making a difference to the group Individual members influence the group The group influences the individual member
Fulfilment of needs	Benefits and rewards Members meeting their own needs Members meeting the needs of others Reinforcement and fulfilment of needs
Shared emotional connection	Identifying with a shared event, history, time, place or experience Regular and meaningful contact Closure to events Personal investment Honour Spiritual connection

(Source: Brook and Oliver, 2003)

For Subscriber 7 (below) the element of membership is quite strongly represented through the attribute of "emotional safety", (*a sense of reassurance and security*) and the element of shared emotional connection is less strongly represented through the attribute of "regular and meaningful contact", (*I feel as if I have got to know them through their messages*):

Belonging to a community of people with similar interests and concerns has provided me with a sense of reassurance and security. I love reading my OZTL_NET messages each day and even though I haven't been face-to-face with any fellow members, I feel as if I have got to know them through their messages. [Subscriber 7]

I feel because of OZTL_NET I am constantly challenged to be changing my practice when needed. [I am] always given new ideas and ways to be an integral part of [my] school community. I really am encouraged too by the sense of community among the members of the listserv. [Subscriber 67]

I have a better understanding as to how TLs work in other states. I also realise that TLs all over Australia have similar/different concerns. I personally like the feeling of community that OZTL_NET gives me. [Subscriber 160]

For Subscriber 67, the element of fulfilment of needs is represented through the attribute of "members meeting the needs of others", (*always given new ideas and ways to be an integral part of [my] school community*) and the element of membership is represented through the attribute "a sense of belonging and identification", (*I really am encouraged too by the sense of community among the*

members of the listserv). Finally, for Subscriber 160, the element of shared emotional connection is represented through the attribute of "identifying with a shared event, history, time, place or experience", (*I have a better understanding as to how TLs work in other states. I also realise that TLs all over Australia have similar/different concerns*) and the element of membership is represented through the attribute of "a sense of belonging and identification", (*I personally like the feeling of community that OZTL_NET gives me*).

What is clear from the preceding discussion is that subscribers' understanding of the term "community" in the context of this question indicated a very broad range of interpretations. This was confirmed in the interviews with subscribers all but one of whom reported experiencing a sense of community as a result of participation in OZTL_NET. Four interviewed subscribers reported that they experienced a very strong sense of community and five reported having experienced a strong sense of community. For the former group, mention of continuity, familiarity, security, belonging, collegiality and relationship building were prominent in their responses. This is consistent with the conception in the literature of learning communities that emphasises the social relationships among participants wherein "[online communication] tools are used to support and mediate social interaction and facilitate a "sense of togetherness" (Daniel, Schwier & McCalla, 2003):

> I have got a great sense of belonging and it comes back to the professional collegiality, the relationship building, you really feel as if you belong. You are meeting someone for the first time in Perth and you are old mates! It is just great! It is so valuable. Especially as the teacher librarian, sometimes you are the Lone Ranger in the school so for me it is really valuable. It has opened my eyes and it has given me vicarious experiences from other places I would probably never get. So that is my experience, it is just positive. [Cheryl]

> It is interesting coming back to it after a period where I was not subscribing, the same old names are there and that is very comforting and that helps your sense of community and there are some new names offering some really good suggestions so its fluid. I think that is really important. So the opportunity is there for people to be as involved as they want to be or to sit back…The online community, I guess I don't even think about it anymore because I just accept that that's how it is. [Jane]

> I do feel like I belong to a community. I feel that if I need help I can go out there and ask for it and I don't feel uncomfortable asking for it. I think that it is probably significant that you don't feel dumb asking a question. That probably sums it up. [Gail]

The preceding interview extracts indicate that these subscribers experienced a level of satisfaction and confidence about involvement in the listserv that is consistent with the learning communities' perspective "where everyone feels they belong and are respected" (Kling & Courtright, 2004, p. 100). For those who reported a strong sense of community, the value of participation was less about relationship building and collegiality and more about the benefits of belonging to a group of "like-minded people doing similar things with similar problems." These subscribers appeared to be more concerned about the pragmatic aspects of belonging to OZTL_NET such as raising awareness of the situations of other practitioners, overcoming isolation and being able to monitor broad trends in the profession that were indicative of what Lave and Wenger (1991) called "shared interests" or what Daniel, Schwier and McCalla (2003) defined as "shared purpose" where "individuals focus on an interest, need, information, service, or support, which provides a reason for belonging to the community":

> I think you do feel as though you belong to a group of people who are relatively like-minded who have similar aims if not the same, who have very similar concerns and similar goals. So I think there is a definite sense of shared values. [Clare]

> I value knowing that there are people basically doing similar things that I am doing and having similar problems that I have got. I think that is really valuable. [Sue]

> I am now very much more aware that there are Anglican schools and private schools and their teacher librarians face similar questions to us but they have a different sort of philosophy or mission statement. But although their mission statements are varied we do share very much some very key practices and concepts and philosophies of teaching and resourcing teaching and all those things so there is that sort of level of community beyond our little school. [Bob]

Amy was the only subscriber not to report a strong or very strong sense of community as a result of her participation in OZTL_NET. The extract below indicates that Amy's experience of participation was characterised by her perception of the listserv as a form of support rather than by any sense of community she may have experienced:

> Not really a real sense of belonging in terms of the word community. It is a good support network… I knew that a lot of people would find that sense of belonging to a community but I myself didn't…I found it useful at different times when I needed to seek support or advice. It wasn't something that I would be participating in all the time and I think if you are part of a community then you would be participating all the time. [Amy]

5.6.1.2 Learning through interaction with others

The survey responses summarised in Table 4.28 revealed that while participation in the various forms of interactions in OZTL_NET did not constitute primary value items of participation for the majority of subscribers, they were highly ranked as items of secondary value:

> [OZTL_NET is] a wonderful collegial service for professional issues, resources and contacts. [Subscriber 4]
>
> I am constantly amazed by the collegiality of the group. [Subscriber 25]
>
> The links to other people, other schools, other places and other ways has been incredibly useful. I have found much information, worksheets, thematic material and personally have learned MUCH more than I would have without it. [Subscriber 27]

All interviewed subscribers reported that their participation in OZTL_NET enabled them to learn through some kind of interaction. This is a key characteristic for subscriber participation in online learning communities wherein "people interact socially as they strive to satisfy their own learning needs" (Daniel, Schwier & McCalla, 2003). Typically, these interactions were directly with other subscribers either on or off the listserv but always initiated by the posting of a message to OZTL_NET. In her response, Alice indicates the importance of participation for personal reflection while Clare's response indicates that her learning over time as a result of participation in OZTL_NET has assumed transformative proportions:

> When somebody asks you a question and you think this is how I deal with that, when you are typing out your answer that gives you a time to reflect on what you do and either that reflection will reaffirm what you do or sometimes while you are writing it up and you are really focusing on it you might actually see a new aspect that you might want to try and incorporate. I find anyway that for me the typing up of a response is a time for personal reflection on my practices. [Alice]
>
> Oh, I think that is definitely true, you start from a point and say your bit and somebody else comes in and says "what about this, have you thought about that?", all of that kind of thing. You definitely do learn and change and alter and I'm sure that if I read some of my messages from early on I could see that I have changed my points of view on some things. Or even if somebody says something that you really disagree with then that makes you think, "oh, right, I don't think that is right at all" and then you have to try and work out why you don't [agree] so there is a definite place for learning stuff there. [Clare]

For some subscribers, the interactions were not so much with other subscribers but with what they were able to learn from their interactions with the information they were able to glean from participation in OZTL_NET:

> Well, it is one way. This is what people are doing; if I look at it and it is valuable, how do I use it? If I can't use it, by filtering through, it is no use to us or it is of use to us that is not an interaction because interaction looks at two way. I take resources and then share them but the interaction is not between me and the list. It is between me and how I can use those resources and follow up on those trails that make the difference. [Bob]

Often there were vicarious and comparative aspects to these responses wherein subscribers used their participation in OZTL_NET to measure their practice and their perspective on issues against those of their peers:

> I guess it is particular issues or problems that you might have had that someone is just able to put into perspective so that you can come to terms with it or you can get ideas from their ideas, bounce things off each other and that sort of thing. [Sue]

> I know I can always get an opinion or an idea or a "look you are being silly" sort of thing. Recently for example there have been some people who have made comment about issues that relate to their school and you measure yourself against that and you sort of think, I am in a better position or I am not in a good position or the same people point you in another direction that you hadn't considered. [Dave]

For Cheryl the issue was more about the degree of experience that subscribers bring to OZTL_NET. Cheryl's comments imply that, as an experienced practitioner, she does not have as much to learn through her participation in OZTL_NET compared to her participation in forums in which she has less expertise:

> It's not as strong as I might experience on other listservs that I have joined because I don't know anything [sic]. Maybe some technology listservs that I am on, I find that I might learn something on those in nearly every message whereas on OZTL_NET I don't. Because I have been around for a long time I don't learn as much through the interaction with others. [Cheryl]

5.6.1.3 Mechanism to aid critical reflection on practice

In the quantitative analysis reported in Chapter Four the indicators change to professional practice (PRACTICA) and useful means for problem solving (PROBSOLA) which existed as rating scales and contributed as the third and fourth indicators in the derivation of a single measure of teacher professional learning (TPL). As an item of value through participation the quantitative analysis in Chapter

Four revealed that the indicator solving problems (SOLVPROB) was related to membership of a professional association (p<0.240) (Table 4.1). SOLVPROB was also highly correlated with the indicators seeking more information, discussion and debate, implementing ideas and professional development opportunities and as such was included as one of the five items in the production of the single measure of involvement (INVOLVE) as shown in Table 4.2. Overall, the survey responses did not reveal a strong sense of critical reflection on practice although, as reported above, some subscribers used OZTL_NET as a basis for validating their practice in terms of reported best practice on the listserv:

> OZTL_NET …has made me aware of new services and other people's work practices. I have also found confidence in knowing that much of what I do is good practice. [Subscriber 24]

> OZTL_NET …makes me question and reassess how I'm doing my job and how I could improve my practices. [Subscriber 60]

> A number of discussions on OZTL_NET have confirmed some of the practices I have been using in libraries I have worked in, especially regarding management practices. [Subscriber 87]

While an emphasis on shared practice is a defining characteristic of distributed communities of practice (Daniel, Schwier & McCalla, 2003) the survey responses did not provide strong support for critical reflection on that practice *in* the listserv. It was somewhat surprising then that all of the interviewed subscribers reported that, in varying degrees, participation in OZTL_NET provided a means for critical reflection on practice. An important factor in this regard was the level of professional discussion on the listserv. The following subscriber extracts suggest that while critical reflection on practice was not explicitly discernible in the survey responses, there was some evidence among the interviewed subscribers to suggest that some critical reflection took place as a result of their participation. However, reflection was typically on an individual basis and not shared with other subscribers on the public list as could be expected in a distributed community of practice characterised by "a joint enterprise as understood and continually renegotiated by its members" (Daniel, Schwier & McCalla, 2003). In her response, Gail indicates the central role that professional discussion has in aiding critical reflection while Cheryl points to the need for more professional discussion to stimulate critical reflection:

When the discussions are happening it does make me more reflective when there are big topics being discussed, it does make you more reflective. I don't think I could say that it has changed my core beliefs but it's certainly made me think about them. I think one of the things it does, it certainly has with me, has helped me understand more about communities of practice and being tolerant of people online and being considerate of messages that could be taken [by the reader] inappropriately or whatever. [Gail]

If I do get, what I call a good response, by a good response I don't mean a lot of responses I mean the sort of responses that I think are quality responses, it does help me reflect on my practice but I guess it's the nature of the beast. Because it is quick, because it is email, because it is short messages, there isn't the type of discussion in many instances that causes me to reflect. [Cheryl]

Gail's response is also indicative of a theme that emerged from all responses to this question. While all subscribers indicated that participation in OZTL_NET aided critical reflection on practice, especially through professional discussion, no subscribers reported that participation resulted in any significant change to their personal beliefs, core values as educators or perspectives on education. What the subscribers found valuable was that participation in OZTL_NET provided a forum in which their personal beliefs, core values and perspectives on education were *challenged*. Typically, subscribers sought validation not only of their practice but also of their beliefs, values and perspectives through their participation in OZTL_NET:

OZTL_NET doesn't challenge my values as an educator but it might make me assess them or weigh them in same way ... nothing that I have read or that I have participated in has actually challenged my core values as an educator, no. It may make me make judgements perhaps about the values of other people. I might suddenly think "oh, good grief where are you coming from"? …Maybe that is very presumptuous but I know what my passions are, what are the things that drive me – it doesn't challenge me in terms of being a threat but it might actually make me think… In terms of assumptions or perspectives on education I am always open. There are always newer ways of doing things, there are always more effective ways. I think it was [Subscriber A] who used to have the signature, you know, "together we learn from each other." I think that is very true because if we are not out there listening to what other people are saying, weighing up the worth of the ideas and advice that they are giving then how are we ever going to improve on what we are doing? [Jane]

There are times when I have looked at something differently and put something into practice to make what I really believe work better but I haven't had my personal beliefs changed all that much. My belief is that we are there to share and that we are there for the kids and it doesn't get any more basic than that. [Alice]

[Critical reflection on practice] is a really good use because you do get set in your own kind of "this is how I think this should be done" and it does take you outside the square. Someone is having a viewpoint that you hadn't even thought about and

you can think "okay, well that is a different way of looking at it." Then you can explore that thought or concept and see whether it's something applicable to where you are. [Amy]

As a "lurker", Bob's response suggests that active participation in OZTL_NET is not a necessary prerequisite for obtaining the benefits of critical reflection. Subscribers who participate peripherally by diligently monitoring messages and discussions can also reflect critically on their practice, beliefs, values and perspectives in the same way as they might in other non-interactive contexts such as the reading of an article from a professional journal:

You take what is there, you see the conversations develop and flourish over time and you sort of keep an eye out for people you have looked at before and they have had similar ideas but then you also pick up…other comments and other emails there and you read through and you think "I didn't think of it that way" or "that is a different perspective, maybe we should think about that" or "I will run that idea around a couple of other people on staff and see what they have to say" so, yes, that really is important to us. [Bob]

5.6.1.4 Generation of new ideas through interactions online

The analysis of web survey responses highlighted the difficulties in attempting to ascertain whether participation in OZTL_NET resulted in the generation of new ideas through the interactions of subscribers. In the quantitative analysis the indicator IMPIDEA (implementing ideas) was related to membership of a professional association ($p<0.018$) (Table 4.1). IMPIDEA was also highly correlated with the indicators seeking more information, discussion and debate, solving problems and professional development opportunities and as such was included as one of the five items in the production of the single measure of involvement (INVOLVE) as shown in Table 4.2. The analysis of follow-up actions to OZTL_NET message postings (Table 4.25) revealed that there was likely a great deal of adoption/implementation of ideas and innovations gleaned from OZTL_NET by subscribers that cannot be quantified. The main reason for this appears to be a lack of sharing back to OZTL_NET of the outcomes/results of use of these ideas and innovations by those who had adopted and/or implemented them in their workplaces. In their responses to Question 36, several subscribers indicated that any decrease in sharing might result in the discontinuation of their subscription to OZTL_NET:

I would hate to see a reduction in the number of good sites shared, good ideas for literature activities or technology help for the technologically challenged. I find these of great value. [Subscriber 10]

If those who are regulars stopped replying and continuing the great discussion of ideas I'd unsubscribe - but only for a while! [Subscriber 85]

If I ceased to find useful ideas or suggestions which I could put into practice then I would no longer subscribe. [Subscriber 176]

There were as many responses indicating that the sharing of ideas was a strength of OZTL_NET:

Our school benefits from the great variety of ideas that are shared. I can provide great sites, great ideas to colleagues. [Subscriber 67]

As a librarian in a library that resources teachers in specific areas - ESL, Multicultural Ed, Studies of Asia etc, I am able to offer considerable knowledge and support, resource suggestions, booklists, etc. Through the use of OZTL_NET I have been able to share this specialised knowledge with teacher librarians as well as teachers. Personally I enjoy reading messages sent to the list. I think the list is very empowering for TLs. [Subscriber 70]

The best thing I find about OZTL_NET is the opportunity to learn about and follow issues and ideas pertinent to the role of TLs in schools, to hear what other TLs are doing and to feel part of a community of people with similar concerns and interests. [Subscriber 155]

Responses to this question by the interviewed subscribers revealed that the major impediments to the generation of new ideas through interactions in OZTL_NET were the lack of professional discussion to stimulate new ideas and the absence of a culture of sharing outcomes from the implementation of ideas, strategies and solutions gleaned by individual subscribers as a result of their participation in the listserv. A defining characteristic of distributed communities of practice is the sharing of information and knowledge whereby members "are willing to develop a culture of sharing, voluntarily responding to requests for help" (Daniel, Schwier & McCalla, 2003). The lack of feedback to the list regarding the outcomes of implementation is not encouraging of more active participation by subscribers in the listserv. Cheryl and Jane were particularly critical of this lack of sharing:

[The new ideas] are more practical ideas rather than big picture ideas. But it all comes back to professional discussion. I don't know that there is a lot of piggybacking, you know where someone takes this idea and someone takes that idea and says hey, Mary said this, Fred says this and Bob says that and if we look at those three things then this is what can be or something but not a lot of that happens. That might happen at an individual level but people don't share. People

do these "targets" get the "hit", go away and do it but maybe there is not a lot of follow up of what people do after there's a "hit." It would be interesting to hear months down the track about what people did with the "hit." [Cheryl]

I am not sure [that the generation of new ideas] is a great strength based on my experience. There's lots of sharing of ideas but do new ideas come out of them? They may well come out based on an individual response but whether that actually moves onto the online learning community in terms of people sharing "I think this, what do you think" or "how about we do this?" I haven't experienced that level of dialogue on OZTL_NET. [Jane]

All of the remaining interviewed subscribers were able to cite specific examples of ideas that they had become aware of through their participation in OZTL_NET and that they subsequently implemented in their workplaces. Examples include online projects for children, professional development activities for teachers and improvements in the provision of information services. Subscribers also identified the listserv technology as an excellent means for disseminating new ideas, particularly for canvassing creative solutions to difficult problems and for presenting a range of possibilities for comment and feedback. Overall, the feeling was that the technology provided the *opportunity* for the generation of ideas through interaction but that the opportunity was not taken up by subscribers to the extent that it could be. Alice cautioned against trying to artificially stimulate the conversation as a way of improving the level of discussion and the generation of new ideas:

I think we go right back to that very first question when we talked about the level of professional discussion. A couple of years ago there was a group of us who were actually trying to seed the discussion in terms of putting a position and getting others to respond to it so we were getting some of those new ideas out but it didn't work because the issues we were raising were not necessarily the issues that the teachers were dealing with at the time. So your new ideas tend to be in response to a need or a threat in your school. [Alice]

Jane had postulated that perhaps the lack of willingness to share the outcomes of the implementation of ideas disseminated and/or discussed on OZTL_NET was that the ideas had limited application outside of the original context in which they had been proven useful. Jane goes on to lament both the problem of defining what is a new idea and the difficulties involved in trying to capture them for wider use and have adopters of those ideas reflect their attempts at implementation in other contexts back to the listserv:

Sometimes ideas are shared. I guess the "hit" scenario or "target" scenario is where that might happen. But that is not necessarily new it is just gathering together what other people have said isn't it? Often someone might, they might not even ask for it, someone might just read a message somewhere and someone will say something which can them prompt them to go off and do something else and there is no way of actually capturing that intellectual wealth or that new idea because it is not shared with anybody in the online environment, it is just something that someone takes as a random and then uses for their own benefit or their own situation. I am not quite sure how we would capture those. [Jane]

5.6.1.5 Opportunity to contribute new knowledge to the profession

The survey responses revealed mild support only for the view that the contribution of new knowledge to the profession was an outcome of participation in OZTL_NET that impacted on the subscriber's school or workplace (Table 4.41). The survey responses revealed an emphasis on the contributions made by subscribers in terms of the sharing and dissemination of existing knowledge rather than on the contribution of new knowledge to the profession:

Professionally [OZTL_NET has had] a tremendous impact...gaining a sense of the wider TL community is very rewarding. Being able to have such a wealth of knowledge and insight at a moment's reach is very comforting. [Subscriber 20]

Time constraints and professional experience mean that my use of OZTL_NET is limited. I have broadened my knowledge base through browsing many of the issues raised. [Subscriber 147]

The broad consensus among the interviewed subscribers was that participation in OZTL_NET provided the *opportunity* for the contribution of new knowledge to the profession. These contributions could be from individuals but more often they could be outcomes of professional discussions. Almost all subscribers were of the view that while participation provided opportunities to contribute new knowledge, these were very often not taken up due to factors such as time constraints and in the case of the latent subscribers, a lack of confidence to become involved in the discussion even when they had a firm view regarding an issue.

I think OZTL_NET does provide that opportunity. I think that is one of its great strengths but the level to which that happens I guess depends on the nature and the expertise of the participants and what the burning issues are or the new interests or whatever may be. [Jane]

Whether people exploit it or not is another story. Just by being there, [it] is an easy means of getting to, contacting many people in the profession so it does provide an

opportunity to contribute new knowledge to the profession. Whether they take it on board or not is another story but I think it is a great vehicle. [Cheryl]

Yes, if people take it up and we are getting there, there is always new knowledge. I think people are starting to talk, particularly in the primary system and what have you they are talking flexible scheduling and cooperative teaching and it was not that long ago that those were quite new ideas so that the language is starting to become a common language but it always takes, what is it they say it takes about 10 to 15 years before you actually see any real change. Certainly there are always people who are broadening the boundaries …and a lot of people involved in various projects so it certainly has got a role and the opportunity is there. [Alice]

The preceding responses typify the subscriber view that participation in OZTL_NET has the *potential* for contributing to new knowledge. However, this potential will remain unrealised if subscribers do not actively participate in the listserv by sharing their tacit knowledge with other subscribers. From the communities of practice perspective the "sharing [of] tacit knowledge requires interaction and informal learning processes such as storytelling, conversation, coaching, and apprenticeship" (Wenger, McDermott & Snyder, 2002, p. 9). Where subscribers indicated that this potential had been realised, it was almost always at the level of practice rather than new knowledge contribution to the profession more generally:

I think there have been times when people have said to the list in general "how do we do this or what is the way of doing that?" and I thought about trying this or this from a different point of view and that has been useful because people have said "I hadn't thought about that" so I guess that is definitely, I guess you could say new knowledge in that sense. [Clare]

I mean an individual might change the way they do things but I don't think as a profession as a whole, I don't think so; I think my answer to that would be no. [Amy]

5.6.1.6 Evidence of knowledge creation/construction

In the quantitative analysis reported in Chapter Four the indicators that made up the COLLAB measure included knowledge creation (KNOWCREA). Table 4.4 showed that KNOWCREA was highly correlated with three other indicators, group projects of benefit to workplace (BENWORK), group projects of benefit to the profession (BENPROF) and use of discussion tools such as targets and hits (TARGET). The high degree of congruence between these measures reinforced the proposition that these were measures of teacher professional learning (TPL). About 18 per cent of survey respondents considered that knowledge creation/ construction constituted a

legitimate form of collaboration as a result of their participation in OZTL_NET (Table 4.34). While some survey respondents referred to knowledge acquisition as a consequence of participation in OZTL_NET there was very little evidence from the survey responses to indicate that subscribers consciously considered knowledge creation/construction to be an outcome of their participation. In online learning communities, active participation of subscribers is critical to knowledge construction:

> The knowledge construction process in virtual learning communities involves continuous engagement in social processes. Individuals share data and the data are processed into information. In turn, information can be situated in a particular context and turned into knowledge for a particular individual (Daniel, Schwier & McCalla, 2003).

This description suggests that knowledge is constructed by the individual in the context in which it is needed *outside* of the community in which it had its genesis. Subscribers take what they need from their participation and use it in the context of their practice. This highlights the importance of active subscriber participation for realising the potential of online communities as an effective means for knowledge construction. If active participation is low and if the quality of the communication in the community is poor, then the viability of the community will almost certainly be compromised. On the other hand, assuming subscribers value the potential role of OZTL_NET in knowledge creation, if they understand the critical role that active participation and effective communication have for the construction of new knowledge then more of them may be encouraged to become more actively involved than is currently the case.

There was considerable variation in the responses to this question from the interviewed subscribers. Three subscribers reported that they had not experienced any sense of knowledge construction as a result of their participation in OZTL_NET. Another three subscribers considered that there was some evidence to support a claim of knowledge construction through participation in OZTL_NET. For Gail, knowledge construction was not the major purpose of OZTL_NET but a by-product of participation and for Cheryl the benefits of participation were limited to individual knowledge construction rather than a contribution to the knowledge base of the profession:

I don't think [knowledge creation/construction] is its main goal but I do think it happens. I can think of situations where people have done things and they've shared it and it has given me great ideas. I just don't know whether that fits into new knowledge…it does generate new ideas and new approaches to things and I guess a number of my ideas for online learning have probably been stimulated from OZTL_NET and then I've taken them in the direction that suited me and my school. It is probably quite a number…the fermenting seed has started on OZTL_NET without me really reflecting on it. [Gail]

I think personal knowledge creation/construction there is a lot of evidence… but I can't see a lot of evidence of knowledge creation/construction [for the profession]. In the big picture I am just thinking of things like library management, information literacy, I can't think of any discussions about various models of information literacy and the effect of them and level, all that sort of thing and management. I don't think that there is huge evidence of knowledge creation/construction to the profession rather than to individuals. [Cheryl]

Jane and Alice were by far the most enthusiastic subscribers in terms of their views on the existence of evidence that participation in OZTL_NET resulted in knowledge construction. Both of these subscribers pointed to the propensity for information re-use as a key element in their responses. For Jane, the re-use of information was manifested by the use of the "target-hit" discussion tool and the off-list discussions initiated by messages posted to and discussions conducted on OZTL_NET. For Alice, re-use was in the form of summarised information and artefacts collected on the initiative of individuals and made more widely available to people via individual and public websites:

I think there is, probably the most obvious of those is the "target" or "hit" sort of questions which seek information and then put it back, some in greater detail than others depending on the responses they get, obviously. So from someone having just a little bit of knowledge about something we can actually grow something quite significant and quite meaningful for people and again probably the most recent example of that would be the focus area for English which someone has been working on and sharing with participants [in] OZTL_NET over the last couple of weeks or so. Other than that…again it comes down to that key word of evidence and how do we track what happens off the list because I'm sure it does and it does quite a lot. People take the advice, the information, the data, all of the things that are shared so willingly in that online environment and they use it or they store it and they resurrect it later. So many of the people that I know have an OZTL_NET folder in their email or they may even have it broken down further so particular themes or threads that are of concern to them that messages are posted on they will file them away there as a means of tracking. I mean I think I have about 50 folders in my personal email that track the things that are of interest to me and I know a lot of others do the same sort of thing so you may not use it straight up but it is kind of that watching brief environment where you know it is something you will be able to use later – so you keep tabs on it personally rather than relying on the archives or posting back to the list. That happens quite a bit, someone might say "can you help me I needed to keep track of this and I have lost it"? Or "I know someone gave me

advice about that", so people are using what someone has said to either answer an initial query but mostly it is to build on and to create something that will work for them. It is a pretty powerful little tool. [Jane]

I think so. If you have a look on the EdNA pages…there is a TL section where if you have got something like 25 reasons for stocktake or an information needs audit or something like that then we can go and send that to…EdNA and it is all there for us to share and all the rest of it. A lot of that stuff is new for some people so that has been a really good remarkable thing. I would have actually thought that maybe it could have been something that was part of the OZTL_NET website rather than EdNA but that's OK. If EdNA's doing it that is cool, it doesn't matter where it is as long as it is there…Somebody had a form that people sort of said "send me that, send me that I would love to see that." What they did instead of sending out a million attachments was EdNA uploaded it to the web and gave everybody the URL and said well, there it is if you want to use it. So that is how it works…I tend to put [material on my school] website on my resource centre pages because I have got that page there. Other people don't have that facility. So this is a way of meeting that need. [Alice]

In summary, there was not a lot of evidence to support a contention that the construction of knowledge was a primary function of OZTL_NET. This is not to say that there were no instances where knowledge building took place as a result of participation in the listserv through professional discussion requiring thoughtful debate. However, subscribers reported that these kinds of discussions did not occur frequently enough to support a claim that knowledge construction was representative of OZTL_NET activity. The social-constructivist perspective that "learning occurs through engagement in authentic experiences involving the active manipulation of and experimentation with ideas and artefacts, rather than through an accumulation of static knowledge" (Riel & Polin, 2004, p. 17) is not sufficiently realised in OZTL_NET for the listserv to be considered an online community of practice. However, there was sufficient evidence to suggest that OZTL_NET could be considered an online learning community. A full description and amplification of this assertion is supplied in the conclusions and recommendations that form the basis of Chapter Six.

5.7   Conclusion

The purpose of Chapter Four was to present the results of the subscriber survey. The outcomes of the analysis of the interviews were presented in Chapter Five. The analysis of interview data was further informed through the inclusion of relevant results from Chapter Four and by reference to the profile of OZTL_NET subscribers

and messages described in Chapter Three. Additionally, the analysis also benefited from the inclusion of qualitative data from the subscriber survey and by the provision of relevant extracts from the main OZTL_NET website.

This integrative approach to the analysis of data has had the effect of linking the profile of OZTL_NET in Chapter Three where appropriate and relevant with the results of the subscriber survey reported in Chapter Four, to the outcomes of the semi-structured interviews in the context of the analysis in Chapter Five. This rich analysis provides the necessary platform for the discussion and recommendations that constitute Chapter Six.

Chapter Six will extend the discussion of findings reported in Chapter Five through consideration of the research questions that formed the core of this study. The discussion of each question will take place in turn and conclude with the provision of one or more recommendations regarding the future of OZTL_NET. In addition to the outcomes of the analyses of data, both the discussion and the recommendations in Chapter Six will be informed by the relevant literature reviewed in Chapters Two and Three.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The purpose of this chapter is three-fold. First, it seeks to address the principal research question posited in Chapter One. In addition to the analyses of data reported in Chapters Four and Five, the discussion is informed by the literature on teacher professional learning and online communities reviewed in Chapter Two and by consideration of twelve points of comparison between the characteristics typically found in online learning communities (OLCs) and those that describe distributed communities of practice (DCoP) as proposed by Daniel, Schwier and McCalla (2003) as they apply to OZTL_NET. Second, it identifies the main findings of the study in the form of five major themes based on conclusions emanating from the detailed analyses of data presented in Chapters Four and Five. The presentation of each theme is followed by a list of recommendations designed to improve subscribers' experience of OZTL_NET. Finally, the chapter concludes with a list of areas for further research drawn from the findings of this study. The principal research question that has guided this study is addressed in the context of the conclusions drawn from the analyses presented in Chapters Four and Five relating to subscribers' experience of professional learning and online community in OZTL_NET, and from them the themes and recommendations were derived and the set of guiding principles based (Chapter Seven).

6.2 OZTL_NET as an online learning community and/or community of practice

The questions that guided this study sought to determine whether usage of OZTL_NET is associated with the enhancement of teacher librarians' professional learning. The following principal research question guided this study:

To what extent is usage of OZTL_NET by subscribers associated with the enhancement of the professional learning of teacher librarians?

In the process of addressing the principal research question, the following enabling questions were also addressed:

1. What are the characteristics of teacher professional learning? (Chapters One and Two)

2. What are the characteristics of online communities that may contribute to the enhancement of teacher professional learning? (Chapters One and Two)
3. What are the defining characteristics of OZTL_NET as a listserv-based online community? (Chapters Four and Five)

6.2.1   Principal research question: The association between subscriber usage of OZTL_NET and the enhancement of teacher librarians' professional learning

The indicators used in the development of TPL and USAGE were derived from the review of the literature in Chapter Two that examined the characteristics of contemporary conceptions of teacher professional learning and the possibilities presented by online communities. For the purposes of the quantitative analysis of web survey data reported in detail in Chapter Four, four measures of teacher professional learning (TPL) and five measures of listserv USAGE were developed. Two of the TPL measures (INVOLVE and COLLAB) were based on the combination of multiple correlated indicators of TPL (see Appendix L). The high levels of correlation between these items meant that it was appropriate to sum the indicators to produce single measures of involvement and collaboration. The degree of association between the indicators that comprised the INVOLVE and COLLAB measures reinforced the proposition that they were both measures of teacher professional learning (Tables 4.2 and 4.4). The third and fourth measures of teacher professional learning, professional practice (PRACTICA) and problem solving (PROBSOLA), were already present as rating scales. The subsequent principal components analysis revealed that the four measures all loaded on to a single factor accounting for 54.7 per cent of the total variance (see Table 4.8). Since the measures all had similar loadings (0.685-0.784) it was appropriate to use their unweighted sum as the overall measure of teacher professional learning (TPL) (see Table 4.9).

On the basis of an intercorrelation matrix of measures of subscriber usage, four variables (duration of subscription to OZTL_NET, time spent accessing OZTL_NET, frequency of message posting and number of times accessed OZTL_NET archives) were significantly related to the dependent variable (TPL) at $p < .01$ with the remaining variable (number of times accessed OZTL_NET website) significant at $p < .05$.

The final step in the quantitative analysis was a stepwise multiple regression using the usage measures as independent variables and TPL as the dependent variable. The analysis summarised in Table 4.12 and Appendix O revealed that four of the usage measures accounted for a very substantial share of the variance of the TPL measure with the first one, frequency of message posting (NEWFREQ) accounting for 23 per cent (r = .48). The results summarised in Table 4.12 and Appendix O suggest that subscribers who posted messages more frequently and who spent more time accessing the listserv were more likely to demonstrate teacher professional learning on these measures. All four of the usage measures produced significant R^2 changes. Even though one variable (WEBSITE) did not enter into the model it was also significantly related to TPL. Its failure to enter is the result of its correlation with the other independent variables.

The results of the regression analysis indicate a very strong association between usage of OZTL_NET by subscribers and the enhancement of teacher librarians' professional learning. These results provide compelling empirical justification of the interview analysis reported in Chapter Five in terms of the close linkage between usage of OZTL_NET and the professional learning of teacher librarians. The analysis of interview data in Chapter Five revealed four broad themes in relation to the usage of OZTL_NET as a means of enhancing the professional learning of teacher librarians. The following section of the chapter comprises a discussion of each of these themes followed by a list of recommendations designed to improve the professional learning experience of teacher librarians who subscribe to OZTL_NET.

6.2.1.1 Theme one: Quality and/or level of professional discussion on OZTL_NET

The dominant view among subscribers was that while a mixture of general and professional discussion was appropriate in OZTL_NET, any prospects for the enhancement of professional learning of teacher librarians as a result of usage of the listserv would benefit from, at the very least, the maintenance of existing levels or an increase in the amount of professional discussion. This is an important issue because "evidence of constructive discussions, information exchanges, and empathic support are the trademarks of most successful communities" (Preece, 2004, p. 59). A generally held opinion of subscribers was that an increase in the proportion of what

they considered to be "trivial" messages would lead them to re-consider their subscription to OZTL_NET. Subscribers also appreciated a listserv characterised by a tolerance of new subscribers and messages ranging from needs (and resources) requests through to those tackling issues (and concerns) of a broader professional nature (see Table 4.29). Overall, subscribers were also comfortable with the listserv not being moderated (except for commercial messages) and were satisfied with the level of involvement of the list administrators in OZTL_NET.

The quality of textual communication in the listserv emerged as a critical issue that contributed to considerations of overall quality of discussion and subscriber experience in the listserv. For example, the importance of effective and efficient textual communication in OZTL_NET is reflected in the DISCUSS indicator of teacher professional learning in the quantitative analysis wherein it was highly correlated with four other indicators (implementing ideas, seeking more information, solving problems and knowledge of professional development opportunities) as part of the INVOLVE measure (Table 4.2).

6.2.1.2 Theme one: Recommendations

- OZTL_NET should remain an un-moderated listserv except for the posting of commercial messages which should continue to be "moderated" in accordance with the OZTL_NET "Policy for Commercial Activity" (see Appendix B6). In this way subscribers can be confident that messages are not being vetted on the subjective determinations of one or more un-seen moderators or administrators. This approach promotes the listserv as an "open" online conversation space in which the posting of messages on a range of topics related to the general focus of OZTL_NET is welcomed and encouraged. In this way the listserv gains a reputation for transparency and honesty and subscribers feel confident that their messages do not have to pass by the "listserv police" for consideration as worthy of posting to the entire community. Such transparency also removes one more possible barrier from the process for subscribers, particularly "lurkers", some of whom may not feel confident in posting messages to OZTL_NET. Any variation from this un-moderated approach must be communicated quickly and clearly to the

entire list including the reasons taken for the decision if indeed the list had not been consulted as part of the decision making process. It was, for example, through consultation with OZTL_NET subscribers that the decision to moderate commercial postings was taken in 1998. It should also be noted that from the administrators' perspective moderation "can be demanding and time-consuming, particularly in active communities" (Preece, 2004, p. 59).

- An OZTL_NET "hospitality committee" or similar group of experienced volunteer subscribers needs to be established, as is the case with communities such as LM_NET (2004). The hospitality committee would assume a leadership role in working behind the scenes to heighten subscriber awareness of and contribute to the improvement of the overall quality of communication on OZTL_NET. In order not to over-burden particular individual subscribers volunteers would agree to serve on the committee for a set period of time.

- The administrators and hospitality committee need to reinforce the benefits to subscribers' experience of consistently using the available strategies and tools provided to improve the overall quality of textual communication in the listserv. Off-list and regular on-list reminder messages targeting the use of specific strategies or tools and the benefits of their use may result in, for example, a return to previous levels of the use of subject line keywords and a growth in the number of subscribers electing to use the digest message version. On the other hand, it also needs to be recognised that many subscribers felt that if carefully composed message subject lines were more commonly used then the use of subject line keywords, which should still remain in use, would not be as critical. In any event, the existing subject line keywords need to be reviewed. The analyses of data suggests that new subject line keywords are needed that provide subscribers with an idea of the *context* of each message in addition to the *content*. In particular, it is recommended that where a message is relevant only to the primary (PRIM) or secondary (SEC) context, subject line keywords would be most useful. Additionally, messages of relevance to a limited number of states or territories should use a relevant abbreviation. In terms of the digest message option, increased

subscriber awareness alone may not result in significant numbers of subscriber conversions to the option "because their use makes it difficult to reply to individual messages" (Preece, 2000, p. 239) requiring extra steps by subscribers in effective and efficient message management.

- Beyond the direct support provided by the administrators and hospitality committee, consideration should also be given to the establishment of a mentoring program to be made available to new subscribers who may wish to confide in more experienced subscribers about some aspect of participation in OZTL_NET. Mentoring is "helpful so that new members know what to expect from the community and feel supported by other community members" (Preece, Nonnecke & Andrews, 2004, p. 16). The mentoring program is a personalised, one-to-one form of support for new subscribers or existing subscribers who may, for example, be developing the confidence to post their first message to the listserv. Thus, constructive feedback from trusted mentors would increase a subscribers' confidence to the point where they would be willing to share their opinion with the entire membership.

- Any member of the OZTL_NET leadership group (administrators, mentors and members of the hospitality committee) may also call on "expert" opinion from within and external to the listserv in order to ensure responses to critical issues and concerns posted to the list. In addition to providing the listserv with added credibility and perhaps attracting new subscribers interested in the opinions of the "experts", this approach may also have the effect of "seeding" or encouraging greater participation among existing subscribers although it needs to be recognised that "ensuring high quality messages is a bit more difficult" (Preece, Nonnecke & Andrews, 2004, p. 21). This strategy may well be worth a trial as some subscribers in the study reported that they received little or no response to "high end" requests but were "deluged" by responses to simple requests. If the listserv was to grow its reputation in terms of being a useful source of information for challenging ("high end") enquiries then the result may be an overall increase in the quality of discussion on the listserv.

- Brief biographies of the administrators, mentors, members of the hospitality committee and any "experts" whose opinions are sought should be listed in a who's who directory on the main OZTL_NET website including links to personal web pages in order to increase subscriber empathy with those involved in these roles (Preece, Nonnecke & Andrews, 2004, p. 18). Subscribers will be more likely to seek assistance if they feel that they know something about the person who is going to provide the help.

- Every effort to improve the quality of communication in the listserv should be made. Frequently, poor etiquette in textual communication online is caused by an "absence of non-verbal feedback and [a] reduced sense of responsibility between people who may never have to address each other face-to-face" (Preece, 2004, p. 58). This poor communication can be off-putting to subscribers because it introduces unnecessary noise into the communication channel. Often this kind of communication is unintentional and may include "poorly developed skills (for example, not mixing caps and lower case, not editing email, poor grammar)…and absence of courtesy (not including hello and thank you)" (Preece, 2004, p. 58). More about appropriate subscriber behaviours appears in the discussion in relation to Theme Three below.

6.2.1.3 Theme two: Issues related to aspects of the management of messages and content in OZTL_NET

An important finding of the study was that a number of issues related to aspects of the management of messages and content in OZTL_NET adversely affected the quality of communication in the listserv. First, there needs to be significant improvement in subscribers' understanding of the rules and expectations of engagement in the listserv in regard to good online communication practices if there is to be an increase in active participation of subscribers in OZTL_NET. Second, the technical and administrative limitations of OZTL_NET as it is currently configured (listserv plus website) need to be considered. This includes the relationship between the two components which need to be better integrated if the overall subscriber experience of the listserv is to improve. In particular, lack of awareness and/or under-

use of existing subscriber options such as subject line keywords, the digest message option and the use of the target-hit discussion tools need to be addressed. Although subscribers were generally supportive of OZTL_NET as an un-moderated list some subscribers suggested that the administrators might initiate more off-list interventions under certain circumstances, such as the posting of "inappropriate" messages. The low level of archive use was of particular concern given the potential such a large archive has for the "re-use" of information by subscribers.

Heightened awareness and usage of the OZTL_NET website and archive is central to the professional learning of teacher librarians who subscribe to the listserv. The intercorrelation matrix of four measures of subscriber usage (Table 4.7) revealed that the indicator ARCHIVES (number of times accessed OZTL_NET archives) was significantly related to teacher professional learning at $p<.01$ while WEBSITE (number of times accessed OZTL_NET website) was significant at $p<.05$.

6.2.1.4 Theme two: Recommendations

1. Improved integration of the listserv with the website component is central to the improvement of subscribers' experience of OZTL_NET. Specifically it is recommended that:

   - The administrators explore the full functionality of the Mailman software in order to maximise the usability of the listserv (see examples below). The administrators also need to feed back to the developers of the software suggestions for improving the usability of Mailman from both the perspective of the administrators and the subscribers such that the subscriber experience of OZTL_NET is not unnecessarily limited by the functionality of the software.

   - The Mailman listserv software be configured such that the current standard message footer (see Appendix T) is replaced by a new message footer (similar to Appendix U) that raises awareness among subscribers of the existence and purpose of the main OZTL_NET website.

- The Mailman listserv software be configured such that the current individualised mailing list membership reminder email (see Appendix R) includes reference to the main OZTL_NET website to further raise awareness of the existence and purpose of the website.

- The screen dump used to illustrate individual subscriber's subscription options on the main OZTL_NET website (Appendix B2) be updated to that used with the current version of the Mailman listserv software (v. 2.1.4).

2. Issues relating to the re-use of information need to be examined in detail to ensure effective access to previous information and knowledge. Specifically it is recommended that:

- The "Glimpse" search engine be replaced by a more sophisticated and robust search facility such as "Google" for searching the public message archives which exceeds 150MB. Subscribers reported a number of limitations of "Glimpse" in this context including "time out" problems and the inability to search on dates or other numeric data. As Preece, Nonnecke and Andrews (2004, p. 18) suggest, "effective archive browsing tools" benefit subscribers in a number of ways additional to effective searching. They can be used, for example, by "lurkers" and new subscribers to browse through messages as part of becoming familiar with the types of messages typically posted to the listserv.

- Alternative spaces for the secure long-term storage of artefacts such as documents, presentations and other items for retrieval by subscribers be investigated. For example, the Teacher Librarians Community at Education Network Australia (EdNA) provides the facility to "share documents, news and websites of interest to the teacher librarian community" (EdNA, 2004). The policy of not allowing attachments is consistent with that of a number of other listserv communities and should remain in force since "unwanted messages and large attachments that slightly annoy high bandwidth users can

be distressing for users with unreliable, expensive, dial-up facilities in remote locations" (Preece, 2004, p. 57).

- Additional strategies for information sharing be included on the OZTL_NET website and encouraged among subscribers. Such strategies would include the direct supply of attachments to interested subscribers upon request off-list, mounting documents on publicly available websites or those of state and national professional associations and the creation of a Frequently Asked Questions (FAQs) facility based on an analysis of the most common requests made to the listserv and its administrators.

- The current individualised mailing list membership reminder emails (see Appendix R) and the section of the main OZTL_NET website relating to archives (see Appendix B5) include specific reference to the availability of the public archive and the password protected Mailman listserv archive (see Appendix Q) to ensure that subscribers are aware of both facilities.

- The Mailman listserv archive be made searchable. A search box can be added to the list archive webpage by using the appropriate patches for Pipermail (the Mailman internal archiver) available from the Mailman FAQ (2004). Alternative packaging of archive messages also needs to be explored. For example, given that messages in the public archive are not linked in any meaningful way (such as "threading"), messages on popular and/or recurring topics, issues or themes could be selected and grouped for re-use by subscribers. The most thoughtful, provocative and constructive or original messages could also be mounted on the OZTL_NET website in themes as "gems" of the month.

- An analysis of subscriber problems reported to the list administrators be used as the basis for scheduling on a regular basis (as often as weekly or fortnightly) a series of messages that contain "tips" or "hints" for subscribers about how they can improve their personal experience and the experience of others on OZTL_NET. These tips or hints would necessarily include

reference to the relevant section of the OZTL_NET website and be used to drive revision of the information on the website and formulation of the FAQs mentioned above. The major advantage of this approach is that it overcomes both the problem of low subscriber awareness of the main OZTL_NET website and it militates against the problem of subscribers who constantly "come and go" from the listserv. In order to keep the number of email messages to a minimum, tips or hints that are considered particularly important could be incorporated into the current individualised mailing list membership reminder emails (see Appendix R). From time-to-time the list administrators post messages to OZTL_NET using the ADMIN subject line keyword. These messages often provide information to subscribers about important issues such as virus alerts and notification of changes to the OZTL_NET website. Less often these messages serve as reminders about various aspects of OZTL_NET rules and expectations.

Adoption of the preceding recommendations will substantially reduce or eliminate the need for subscribers to archive messages in hard copy or in electronic form on a local drive for later reference as they will be confident that the message and/or artefact can be retrieved from a safe location resulting in a "just in time" rather than a "just in case" approach to message and content management.

6.2.1.5 Theme three: Personal and professional impacts of participation in OZTL_NET

An issue that arose from the analyses was the lack of time to participate in the listserv and the consequent issues relating to the management of an increasing number of messages. A range of views from highly supportive through to outright condemnation was evident in relation to the issue of so-called dominant subscribers on the listserv. The analyses also highlighted the difficulty in defining what constitutes a "quality" post compared to a "trivial" post; what is trivial for one subscriber may not be for another. This perspective may be informed by a number of factors such as whether subscribers are "experienced campaigners" or "newbies" and whether their preferred level of participation is peripheral ("lurkers") or takes a more active form.

Strategies need to be devised whereby peripheral participators who wish to take a more active role in discussion can be encouraged to increase their involvement in the listserv. While the study found that "lurking" was widely accepted in the literature and by subscribers as a legitimate form of participation, particularly for new subscribers who were "feeling their way", mechanisms that encourage more active participation will contribute to a broader pool of views and perspectives that more accurately reflects the range of views likely to exist among such a large number of subscribers.

Overall, the five indicators that made up the INVOLVE measure in the quantitative analysis (implementing ideas, seeking more information, discussion and debate, solving problems and knowledge of professional development opportunities) imply active rather than peripheral participation in the listserv although it should be acknowledged that both the literature and the interviews analysed in Chapter Five revealed that it was possible for "lurkers" to participate in OZTL_NET in a vicarious way and to benefit from their low-level participation in terms of the types of indicators listed above.

6.2.1.6 Theme three: Recommendations

The administrators, mentors and members of the hospitality committee or similar group of experienced volunteer subscribers would:

- Understand that reasonably large listservs such as OZTL_NET are often characterised by a small number of so-called dominant subscribers and large numbers of "lurkers." Commonly, "in many active, successful communities, a small core of participants generates most of the responses. Some people respond only occasionally, and many read and never contribute…Lurkers are reported to make up over 90% of several online groups" (Preece, Nonnecke & Andrews, 2004, p. 2). A useful strategy for the administrators would be to post a message to OZTL_NET seeking feedback from lurkers as "most of the issues raised by lurkers as reasons for not posting can be corrected or

ameliorated to create a better environment for both lurkers and posters" (Preece, Nonnecke & Andrews, 2004, p. 15).

- Appreciate that the rules and expectations of engagement in terms of sociability factors (netiquette) are critical to the subscriber experience of OZTL_NET. The "rules of etiquette are needed to preserve [the] spirit of flexibility while supporting reasonable behaviour and goodwill" (Preece, 2004, p. 57). Beyond "greeting" new subscribers to the listserv, the administrators should investigate ways of acknowledging and praising subscribers whose online "behaviour" has been exemplary as a way of encouraging "a climate of appreciation and respect that fosters etiquette" (Preece, 2004, p. 59).

- Investigate the possibilities for periodic informal real time face-to-face meetings of subscribers. These meetings could be held as part of a larger event or as stand alone meetings and would help to reinforce the sense of community reported by many subscribers. In the early days of the listserv, several successful "OZTL_NET breakfasts" were held in conjunction with conferences. These or similar activities might be re-introduced and be of particular benefit to new subscribers as "special events such as conferences, seminars, technology or trade fairs, social gatherings, brainstorming events, etc…further foster the bond among the community members" (Al-Hawamdeh, 2003, p. 135).

- Communicate directly off-list with subscribers regarding technical problems they may have experienced. For example, subscribers who post to the listserv complaining about "gobbledegook" in their messages or those who post "unsubscribe" messages to the public list rather than to the administrative email address.

- Communicate directly with subscribers off-list regarding breaches of netiquette such as flaming, unauthorised commercial posts and standard

queries such as how to locate the message archives or how to change their subscription status.

- Communicate directly with new subscribers (the Mailman listserv software alerts the list owner when new subscribers join) off-list and encourage them, after an appropriate period of subscription has elapsed, to introduce themselves to OZTL_NET by posting a message using the subject line keyword INTRO. As indicated in Chapter Three INTRO messages were quite common in the early days of the listserv. New subscribers would typically post an INTRO message soon after joining often in combination with a request. Inviting new subscribers on an individual, personalised basis to introduce themselves to the list helps to make them feel welcome (Preece, Nonnecke & Andrews, 2004, p. 16).

6.2.1.7 Theme four: Experience of collegial support experienced through participation in OZTL_NET

Subscribers considered that their participation in OZTL_NET was an important means of overcoming professional isolation (see Tables 4.26 – 4.28 and Table 4.40). Additionally, 47 per cent of subscribers experienced a strong sense of belonging to a professional community and a further 50 per cent experienced a moderate sense of community or some sense of community (Table 4.35). If the recommendations listed above do indeed result in greater active participation in the listserv then it is likely that this strong feeling of collegial support will be maintained or enhanced. An increase in active subscriber participation is critical for the professional learning of teacher librarians because "it is possible that the community is missing out [on] an interesting alternative or more subtle explanation…it might be useful for the community to know how many people have similar ideas or to hear other opinions if particular participants dominate discussions" (Preece, Nonnecke & Andrews, 2004, p. 18). The portrayal of this theme of collegial support was particularly strong in OZTL_NET. Hence, a number of aspects of collegial support are embedded in the discussion of the second principal research question pertaining to how the concept of online learning communities and distributed communities of practice are portrayed in

OZTL_NET that follows later in this chapter. Consideration of this important theme is not therefore confined to the recommendations below.

6.2.1.8 Theme four: Recommendations

- Build further on the reputation this study has revealed OZTL_NET has for collegial support that assists practitioners in overcoming their professional isolation. Continue to preserve and build the spirit of cooperation and collaboration because "the glue that holds communities and other social networks together is…social capital. A key ingredient for developing social capital is trust" (Preece, 2004, p. 38). If subscribers begin to sense any threat to the level of trust to which they have been accustomed then the quality of the relationships among subscribers will be put at great risk. This is especially the case in communities of practice (Hildreth, 2004, p. 73; Preece, 2000, pp. 192-193). Conversely, building trust will likely result in an increase in active participation which in turn may contribute to the diversity of OZTL_NET as a community of learners.

- Review and reengineer the "target-hit" discussion tool to incorporate a final step wherein the poster of the "hit" reports back to OZTL_NET the outcomes of the application and implementation of what they have learnt from the "hit" in practice. Closing this loop will further engender trust among subscribers as the outcomes of subscribers' shared experiences and trials of new ideas, strategies and techniques in different contexts are reported and reflected upon.

6.2.2   Twelve points of comparison between the characteristics typically found in online learning communities (OLCs) and those that describe distributed communities of practice (DCoP)

A major finding of this study was that, potentially, online learning communities constitute a powerful, extended framework in which teachers have the opportunity to learn from each other and to grow professionally. The characteristics that describe online learning communities (OLCs) and distributed communities of practice (DCoP) were discussed in Chapter Two and are further elaborated in this chapter. The degree

to which these characteristics are exhibited in OZTL_NET provides critical insights into the extent to which the concepts that underpin and describe OLCs and DCoP as proposed by Daniel, Schwier and McCalla (2003) are portrayed in OZTL_NET.

Daniel, Schwier and McCalla (2003) identify 12 points of comparison between the characteristics typically found in OLCs and those that describe DCoP (see Table 5.4). In the discussion that follows, each of these characteristics or "key features" is discussed in relation to the degree to which they are portrayed in OZTL_NET. In some cases, where there is overlap or where the characteristics are closely linked, the discussion is concerned with more than one of the characteristics of OLCs and DCoP.

6.2.2.1 Stable membership and degree of individual awareness

Because there is no compulsion to meet other subscribers face-to-face and because OZTL_NET subscribers are broadly distributed across Australia and beyond (see Table 2.1 and Appendix P), "most individuals in virtual learning communities often hardly know each other [while] individuals in distributed communities of practice are typically well-known to each other" (Daniel, Schwier & McCalla, 2003, p. 8). It is in terms of membership that DCoP differ most from OLCs and other collectives such as "interest groups." DCoP are more likely to have a homogeneous membership including a discernible core group of members. While both DCoP and OLCs may be characterised by voluntary membership, the subscribers in OLCs are a more heterogenous group and membership is more open than that of many DCoP. This difference can be described in terms of "level of commitment and focus" whereby OLCs resemble "interest groups" which "tend to be diverse in nature and share a common interest without much commitment and conviction." On the other hand DCoP "are people who share a common interest and develop chemistry and lasting friendship" (Al-Hawamdeh, 2003, pp. 126-127).

The online learning communities perspective is portrayed in OZTL_NET to the extent that membership is fluid and less stable as subscribers "come and go" on a daily basis. OZTL_NET does not then resemble a DCoP where subscribers are likely to have met and be known to each other by virtue of their work or similar affiliation

and where membership may be pre-determined or "contrived." The level of "commitment and conviction" is down to the individual subscriber through voluntary membership of the listserv and affiliation with the teacher librarianship profession rather than as a function of their employment in a particular work unit, department or organisation. The relative freedom and flexibility associated with membership of an OLC compared to that of a DCoP is likely in the case of OZTL_NET to be a drawcard for subscribers who wish to define their personal level of participation in the listserv. Catering for a range of forms of participation reduces the number of barriers to membership for many OZTL_NET subscribers who, as pointed out by Wenger, McDermott and Snyder (2002), are motivated by a range of reasons to belong to the listserv:

Some people participate because they care about the domain and want to see it developed. Others are drawn by the value of having a community; they are looking mainly to interact with peers, people who share something important. For those who have devoted most of their lives to learning one profession, connecting with others who share that passion is rewarding in itself. Communities are also a place where people can make a contribution and know it will genuinely be appreciated. Other members simply want to learn about the practice: what standards have been established, what tools work well, what lessons have been learned by master practitioners. The community is an opportunity to learn new techniques and approaches in their personal desire to perfect their craft. (p. 44)

Social interactions in OZTL_NET were not a defining feature of activity on the listserv. Subscribers typically sent messages to the listserv that sought information, resources or advice from other subscribers. While the overall "flavour" of the discussions were reported by subscribers to be both supportive and collegial, on-list social interactions were not a major feature of the listserv. It is difficult to estimate the amount of off-list social interaction that takes place among subscribers although it is likely to be a significant amount since the study revealed that it is the practice of 45 per cent of subscribers to reply directly to the individual message sender rather than to the entire list (Table 4.24). While off-list communications could well be limited to the business at hand several subscribers reported that they formed strong professional links with other subscribers with similar concerns or in similar work contexts that sometimes resulted in face-to-face meetings at conferences or other professional development events (Section 3.2.1 of Chapter Five). The contribution that these off-list interactions make to teacher professional learning is an area for further research.

As pointed out in the recommendations above, there is more to online community than simply providing the infrastructure for subscriber interaction. The community in its broadest sense can assist subscribers with the technical skills required for accessing the community and assists in the process of enculturation of subscribers regarding expectations in terms of effective communication but it is much more difficult to assist subscribers in the development of their self-awareness as a participant, something that takes time to do for new people entering any type of community. Subscriber development of self awareness and personal knowledge is important in both DCoP and OLCs as they facilitate subscriber autonomy which subsequently results in an overall improved quality of communication and in the enhancement of contributions that may result in improved practice and potentially in the creation of new knowledge.

6.2.2.2 Formality of learning goals

This study revealed that subscribers to OZTL_NET were clearly interested in the broad "content domain" of teacher librarianship. Subscribers reported that OZTL_NET was clearly focused on teacher librarianship making the attraction of "mistaken" subscribers highly improbable. Because individuals must personally subscribe to OZTL_NET (subscription cannot be performed on behalf of others), joining and leaving the listserv are conscious decisions that subscribers need to make. Given the volume of messages and the requirement to join the listserv in order to receive messages, malicious posters such as hackers and spammers very rarely appear on the list. Spam and other inappropriate messages sent to the listserv address by non-subscribers are trapped in Mailman's pending message facility where the list administrators deal with them by either discarding, rejecting, deferring or accepting each message.

For Daniel, Schwier and McCalla (2003, p. 8), "a learning community implies that members have explicit goals involving learning" and as such OLCs more often exhibit formal and more focused learning goals than do DCoP. The results of this study revealed that "explicit" learning goals do not necessarily translate into "formal" learning goals for subscribers in a focused online community such as

OZTL_NET. Subscribers may come to the listserv with the broad learning goal of improving their practice as a teacher librarian. This is an explicit but informal learning goal and is consistent with the conception of learning communities discussed in Chapter Two which described OLCs as flexible and fluid entities, the creation of which is made possible by the provision of structures to facilitate the evolution of a community that is typically organised around the interconnections among people, relationships and ideas. Within this conception, OZTL_NET is closely aligned to an OLC as a structure to facilitate teacher professional learning. This structure incorporates approaches to teacher professional learning that are teacher-centred and characterised by teacher-to-teacher interactions, tolerance of risk and experiment, encouragement of reciprocity and the existence of formal and informal pathways for communication and reflection (Palloff & Pratt, 1999; Serim, 1996). The opportunity for critical reflection as a central process in transformative learning is particularly important for the learning goals of participants in informal online learning environments such as OZTL_NET as Mezirow (1997) points out:

We transform our frames of reference through *critical reflection on the assumptions* upon which our interpretations, beliefs, and habits of mind or points of view are based. We can become critically reflective of the assumptions we or others make when we learn to solve problems instrumentally or when we are involved in communicative learning. We may be critically reflective of assumptions when reading a book, hearing a point of view, engaging in task-oriented problem solving (objective reframing), or self-reflectively assessing our own ideas and beliefs (subjective reframing). Self-reflection can lead to significant personal transformations. (p. 7)

The final statement in the preceding quotation highlights the transformative role that online communities may potentially play in teacher professional learning. Transformation theory helps explain "the learning dynamics that are involved when we dig down to the roots of our assumptions and preconceptions and, as a result, change the way we construe the meaning of experience" (Mezirow, 1991, p. 196). If the assumptions and preconceptions of individuals and others remain unchallenged then teacher librarians are effectively limiting themselves to the confines of their daily practice as sole practitioners relying on what they already "know" and precluding the opportunity to grow professionally: "We do not make transformative

changes in the way we learn as long as what we learn fits comfortably in our existing frames of reference" (Mezirow, 1997, p. 7).

6.2.2.3 Common and diverse language

The use of common language and particularly stories and shared histories is a critical defining characteristic of communities of practice: "Language is part of practice, and it is in practice that people learn" (Lave & Wenger, 1991, p. 85). Daniel, Schwier and McCalla (2003) contend that there is a more diverse use of language in OLCs than in DCoP. In this regard, these authors assume that OLCs cannot be as focused as DCoP. Critical to any consideration of this characteristic is the need to acknowledge the difficulties in communicating with language effectively in text-based asynchronous online environments where the absence of non-verbal and other visual cues needs to be taken into account. Hung and Chen (2001) tackle these problems by asserting the need for proper "infrastructure" in online learning environments the proper development of which not only takes into account the usability features of these environments as championed by Preece (2000) but also provide a facilitating "social infrastructure" that in turn underpins "a professional structure, a language and framework that contributes to shared understandings and ways of working" (Mentis, Ryba & Annan, 2001).

The results of this study revealed that the posting of messages to a focused listserv community such as OZTL_NET can facilitate authentic discourse about practice in an informal context. The opportunity exists for the richness of the discourse to be deepened since the asynchronous nature of listservs allows time for subscriber reflection on message postings and the subsequent formulation of considered responses that in turn may "spark" discussion or debate. Of some concern, however, is that there was not a lot of evidence of this level of discourse on OZTL_NET which, by its nature, facilitates "deep" learning beyond the serendipitous kind that typically characterises informal and unstructured online communities compared to that in more formal learning environments. In more formal learning environments the concern is to confront and to overcome the perception that the rules and processes that commonly occur in face-to-face learning environments can be recreated in formal online learning environments (McDonald, Postle, Reushle & Vickery, 2003,

p. 109). Consideration of this criterion reinforces the earlier reported results of this study that indicated that the quality of discourse depends not only on the topics of discussion evident in the listserv but also on the adequacy of the infrastructure supplied to subscribers that enables or facilitates "deep" discussion and debate. In terms of OZTL_NET these usability issues were addressed above in the recommendations that flowed from Theme Two (management of messages and content). For subscribers, the adoption of those recommendations will mean that they can be confident that their membership of OZTL_NET can deliver a "just in time" rather than a "just in case" approach to message and content management wherein they will have ready access to the "collective wisdom" of the listserv through easy to use message archives and document repositories.

6.2.2.4 Shared understanding

In online learning communities, "individuals focus on an interest, need, information, service, or support, which provides a reason for belonging to the community" (Daniel, Schwier & McCalla, 2003, p. 10). Shared purpose, it is argued, is a defining characteristic of OLCs although it is more explicitly portrayed in DCoP where there exists among members the *intent* to "share information and knowledge, or they are willing to develop a culture of sharing, voluntarily responding to requests for help" (Daniel, Schwier & McCalla, 2003, p. 9). For Wenger (1998b), learning takes place through participant engagement in social practice. Participants are socialised into the community as they evolve common understandings through their participation. A "critical mass" of active participants is therefore critical "to ensure common understanding of the information communicated through frequent interaction and regular discussions" (Al-Hawamdeh, 2003, p. 135).

These conceptions of sharing were evident in OZTL_NET to the extent that voluntary assistance in the form of information, resources and advice was strongly supported by subscribers as a major strength of the listserv particularly where requests were not highly complex in nature. Subscribers also identified the listserv technology as an excellent means for disseminating new ideas and for canvassing for creative solutions to difficult problems which subsequently presented a range of possibilities for implementation or for further comment and feedback. Overall,

however, the feeling was that while the technology provided the *opportunity* for the generation of ideas through interaction in this way the opportunity was not taken up by subscribers to the extent that it could have been. At a deeper level the results of the subscriber interviews revealed that in addition to an overall lack of professional discussion the absence of a culture of sharing outcomes from the application and implementation of ideas, strategies and solutions gleaned by individual subscribers as a result of their participation in the listserv was a major impediment to the generation of new ideas and shared understandings through interactions in OZTL_NET (Section 4.1.4 of Chapter Five). Since a defining characteristic of DCoP is the sharing of information and knowledge among members this lack of accountability in the provision of feedback to the list regarding the outcomes of application and implementation is of some concern and may not bode well for more active subscriber participation in the listserv in the future.

Similarly, the study revealed that subscribers considered that active participation in OZTL_NET had the potential for knowledge creation. The quantitative analysis revealed that the indicators that made up the COLLAB measure included knowledge creation (KNOWCREA). Table 4.4 showed that KNOWCREA was highly correlated with three other indicators, group projects of benefit to workplace (BENWORK), group projects of benefit to the profession (BENPROF) and use of discussion tools such as targets and hits (TARGET). The high degree of congruence between these measures reinforced their validity as indicators of teacher professional learning (TPL). Additionally, knowledge creation ranked second among survey respondents as a form of collaboration resulting from their participation in OZTL_NET (Table 4.34).

The realisation of the potential for knowledge creation in OZTL_NET is dependent on an increase in active subscriber participation in the listserv which contributes to continuous subscriber interactions that in turn result in an increase in the amount of tacit knowledge shared with all subscribers. In communities of practice the "sharing [of] tacit knowledge requires interaction and informal learning processes such as storytelling, conversation, coaching, and apprenticeship" (Wenger, McDermott & Snyder, 2002, p. 9). This ability to harness the tacit knowledge of many people is one of the most powerful characteristics of DCoP and OLCs as they provide efficient

channels through which individuals can share their experiences with others including personal insights, feelings and values, knowledge that is otherwise notoriously difficult to articulate formally and to communicate and share (Daniel, Schwier & McCalla, 2003). Moreover, this kind of "living knowledge" is lost unless it is sustained through frequent discussion as, unlike explicit knowledge, tacit knowledge is difficult to codify and store in conventional information retrieval systems such as databases: "Knowledge lies less in databases than in people" (Hung & Chen, 2001, p. 10). The real power emanating from the ongoing sharing of tacit knowledge is in its conversion to explicit knowledge through practice and the subsequent sharing of that experience back to the source from which it was originally harvested by its beneficiaries. It will be at this point that participation in OZTL_NET will begin to take on transformative proportions for the practice of its subscribers. As indicated above in the recommendations emanating from Themes One, Three and Four, the expectation of sharing knowledge gained from the application and implementation of ideas resulting from participation in OZTL_NET needs to be woven into the fabric of the listserv. One way of doing this is to make this kind of sharing an explicit objective of OZTL_NET to be encouraged by the administrators, mentors and the proposed hospitality committee. As subscribers see the benefits to them and to others that accrue from "closing the loop" then the practice will be adopted more widely on the list and may in fact result in an overall increase in active subscriber participation.

6.2.2.5 Sense of identity

In communities of practice "members develop shared understanding and common identity" (Daniel, Schwier & McCalla, 2003, p. 8). The concept of community of practice as a theory of learning proposes that engagement in social practice through discourse is at the heart of learning. Learning is situated within a framework of social participation wherein theory and practice reside together and wherein the nexus of community, social practice, meaning and identity provides the means for personal and professional growth through reflection, interaction and participation. Rather than being viewed simply as a way to come to *know about* the social world, learning is seen as a way of *being part* of the social world; learners are simultaneously engaged in the learning context and the broader social world. Communities are shaped via participation of new and experienced members in a community of practice

characterised by dynamic patterns of work and learning (Lave & Wenger, 1991; Wenger, 1998b).

Communities of practice "provide homes for identities." Identities assumed by members of these communities may also provide insights that inform decisions about level of participation in the community and as posited by Wenger (1998b) are closely linked to members as learners in the community:

Because learning transforms who we are and what we can do, it is an experience of identity. It is not just an accumulation of skills and information, but a process of becoming…We accumulate skills and information, not in the abstract as ends in themselves, but in the service of an identity. It is in that formation of an identity that learning can become a source of meaningfulness and of personal and social energy. (p. 215)

This conception of "learning as becoming" is at once emancipatory in terms of the insights it provides in relation to learning through social interaction and challenging in terms of the assumed interdependency between the participant and the community in identity formation. Learning "involves the construction of identities [which are] long-term, living relations between persons and their place and participation in communities of practice. Thus identity, knowing, and social membership entail one another" (Lave & Wenger, 1991, p. 53). In terms of OZTL_NET, subscribers need the listserv but OZTL_NET also needs the subscribers: "One needs an identity of participation in order to learn, yet needs to learn in order to acquire an identity of participation" (Wenger, 1998b, p. 277).

For Hung and Chen (2001, p. 8) these dimensions of learning are manifested in the principle of "commonality" where learning is both "an identity formation or act of membership" and a "social act/construction mediated between social beings through language, signs, genres and tools." On one level the principle of commonality is strongly portrayed in OZTL_NET which is tightly focused on issues relating to teacher librarianship. As Appendix P revealed, the vast majority of subscribers were either teacher librarians or individuals with an interest in teacher librarianship. However, the number of subscribers to OZTL_NET (approximately 2100) and the increasing number of messages posted to the listserv may constitute significant threats to the degree to which the principle of commonality is portrayed in the

listserv. For example, some subscribers in this study suggested that OZTL_NET should be divided into two lists for primary and secondary teacher librarians to increase the focus of each, a move that would also increase the degree of commonality among the membership of both lists.

As pointed out above and reinforced by McDonald, Postle, Reushle and Vickery (2003, p. 107) in their study of formal learning environments, while text-based communication was "a common tool [that] promoted commonality, it was also a source for concern" if guidelines for written discussion were either not available or, as was the case with OZTL_NET, subscribers were not aware of those provided or chose to ignore them. In the latter case, the sheer volume of messages was also cause for concern for many subscribers (Tables 4.19 and 4.38) and was a factor that may have diminished the principle of commonality in OZTL_NET.

More than the establishment of individual identity in a community of like-minded individuals, a core criterion for OLCs is that learning takes place *as a result* of interactions. This requires a conception of learning online that is less concerned about the cognitive or psychological processes involved in individual learning and more focused on the social practices and interactions that facilitate learning in authentic situated contexts. This social constructivist perspective underpins the central concept of knowledge construction that characterises OLCs.

The analysis reported in Chapter Five revealed that there was not a lot of evidence to support a contention that the construction of knowledge was a primary function of OZTL_NET. While knowledge creation as a result of participation in the listserv was discernible in terms of the contribution the KNOWCREA indicator made to the overall INVOLVE measure of teacher professional learning described in Chapter Four, there was a lack of consistent evidence of knowledge creation through subscriber interactions evident in Chapter Five to the extent where a claim that knowledge creation was representative of OZTL_NET activity could be supported. In addition to this lack of subscriber interaction, the social-constructivist perspective that "learning occurs through engagement in authentic experiences involving the active manipulation of and experimentation with ideas and artefacts, rather than through an accumulation of static knowledge" (Riel & Polin, 2004, p. 17) was also

not sufficiently realised in OZTL_NET for the listserv to be considered a DCoP. While membership of OZTL_NET provided an *opportunity* for knowledge creation through active participation in professional discussions these opportunities often remained unexploited due to a number of factors including time constraints and, in the case of some subscribers, a lack of confidence to become actively involved in discussions even when they held a firm view regarding an issue.

The implications of this for OZTL_NET are complex and come back to the very purpose of the listserv. Improved protocols for textual communication in concert with an increase in subscriber participation and interactions on the listserv may lead to more opportunities for knowledge creation but ultimately it will be the subscribers who determine where the focus of the listserv should be. The debate will be around the primary purpose of the listserv and the course of its evolution into the future and whether subscribers feel that, in the case of OZTL_NET and similar listservs, "the transformative practice of a learning community offers an ideal context for developing new understandings because the community sustains change as part of an identity of participation" (Wenger 1998b, p. 215).

6.2.2.6 Distribution of responsibilities and ease of disbandment

Depending on the design and evolution of the OLC or DCoP formal distribution of responsibilities in these contexts may vary from "strict" to informal or even non-existent (Daniel, Schwier & McCalla, 2003). In this regard, the distribution of responsibilities in OZTL_NET was quite "strict" as there were no formal responsibilities undertaken by subscribers in the administration of the listserv. These responsibilities were undertaken by the co-administrators, the commercial administrator, archives manager and other technical support staff members. In this sense, OZTL_NET was more akin to an OLC than a DCoP wherein members assume formal or informal roles to support each other in their voluntary participation. Whatever the distribution of roles and responsibilities, it is important that they are clearly stated and well known by subscribers (Palloff & Pratt, 1999, p. 36).

Thoughtful leadership is important to both OLCs and DCoP. The community coordinators or administrators play an integral role in providing and improving the

necessary infrastructure that supports and sustains the community. However, "the emergence of internal leadership in each community is also important" (Al-Hawamdeh, 2003, p. 135). In OZTL_NET these "thought leaders" (Wenger, McDermott & Snyder, 2002, pp. 78-79) will likely be experienced and well respected subscribers who will emerge, for example, through their expressed concerns about the direction the listserv is taking in terms of maintaining its domain focus or retaining or growing its membership. Wenger, McDermott and Snyder (2002) warn that a lack of involvement of members in determining the future of the community is fraught with danger:

All communities of practice depend on internal leadership, but healthy communities do not depend entirely on the leadership of one person. Leadership is distributed and is a characteristic of the whole community. Recognised experts certainly help to legitimise the community's role and voice, but they are not necessarily the ones who bring the community together or take the initiative to explore new territory. Rather than think in terms of specific leaders and followers, it is more useful to think of such roles in terms of an ecology of leadership. (p. 36)

This recognition of the important contribution that internal leadership can have in both OLCs and DCoP is consistent with the notion of "teacher leaders" proposed by Andrews and Crowther (2002) and Crowther, Kaagan, Ferguson and Hann (2002). Active participation in OLCs and DCoP provides opportunities for the emergence of teacher leaders in OZTL_NET, an environment characterised by information sharing and ongoing collegial support. These leaders will be critical to the future development of OZTL_NET particularly in terms of providing the necessary impetus for the establishment of appropriate conditions wherein the individual practices of many may connect with and form shared practice, a condition described by Sergiovanni (2000, p. 140) as "deep community."

Because membership of communities of practice may be pre-determined or "contrived" disbanding them is usually more difficult than it is for OLCs which can disappear at virtually any time. In communities of practice, particularly in the business context, the purpose or task for which they had originally been formed may no longer exist or have been completed (Riel & Polin, 2004, pp. 21-23). This is a natural part of the life cycle of communities of practice: "Even the healthiest communities come to a natural end…The issues that spawned the community may

get resolved" (Wenger, McDermott & Snyder, 2002, p. 109). The steady growth in OZTL_NET membership from its inception in 1995 and continued strong subscriber base (see Figures 3.1 and 3.2) suggests that, from the subscriber perspective at least, disbanding the listserv does not appear to be an issue of concern at this time. In these terms, OZTL_NET more closely approximates an OLC where the "business" of the listserv is ongoing and characterised by spontaneous discussion and subscriber need. While membership of approximately 2100 suggests a relatively stable membership, it will be important to ensure that OZTL_NET maintains and improves its momentum in terms of subscriber participation and quality of discussion and communication if its future is to be assured. It will be important then that the recommendations listed earlier in this chapter are embraced and implemented if OZTL_NET is to continue to evolve to meet the changing needs of its subscribers. Central to this process will be the involvement of subscribers in decisions about the direction in which OZTL_NET may go, particularly in terms of their involvement in leadership of the listserv as described above.

6.2.2.7 Level of trust

Daniel, Schwier and McCalla (2003, p. 9) contend that in the context of developing social capital in online groups there must be "opportunities for individuals to evaluate the trustworthiness of others in the community." They contend that levels of trust in OLCs are lower than for DCoP where members are more likely to have met face-to-face and be known to each other through their work or other affiliation. As Kling and Courtright (2004, pp. 102-103) put it, "working online complicates the formation of sustainable trust between people…the participants have to work hard (through writing) to communicate something about themselves, and about each of their reactions."

In this study, there was little evidence to suggest that lack of trust was a significant issue in OZTL_NET. One reason for this is the longevity of the listserv. Since the inception of OZTL_NET in 1995 a culture of trust appropriate to a professional community of practitioners has been built and re-affirmed on a continuous basis. Longevity in and stability of online communities is important as "social capital is built over time" (Nichani & Hung, 2002, p. 53). The emergence of this culture can be

attributed, at least in part, to variants of the rules and expectations of engagement on OZTL_NET that have been in place since the inception of the listserv. Some changes have been made over time but the same netiquette and communication protocols have basically been in place since inception. This has resulted in a professional "climate" on the listserv where the number of critical incidents in terms of interactions among members has been low. While subscribers were able to point to isolated instances of flaming and other inappropriate behaviour, the overwhelming view was that OZTL_NET provided a "safe" online environment for subscribers. "Communities in which accepted behaviour is defined and monitored are safer places, thus trust in them is easier to develop" (Preece, 2000, p. 192). This high level of trust also helps to explain why the theme of collegiality and support was so strongly evident in the analysis of data for both the web survey and semi-structured interviews. The challenges are to ensure that subscribers are periodically reminded of these expectations such that the amenable atmosphere remains intact and to continue to provide and enhance the structure and strategies whereby more participants feel prepared to "risk" more active participation in OZTL_NET. Improved quality of communication and an increase in the number of active subscribers helps to build trust even further thereby sustaining participation in the listserv. Despite the geographic spread of subscribers, more face-to-face meetings could be arranged as part of larger activities such as conferences since such events can be helpful, "particularly in creating trust and cementing the relationships within the community" (Al-Hawamdeh, 2003, p. 125).

6.2.2.8 Determination of life span

In terms of this characteristic, OZTL_NET is aligned with both the OLC and DCoP perspectives insofar as its life span is determined by the extent to which subscribers and administrators consider that it satisfies the overall objectives of the listserv and that subscribers consider that it is of value to them in effectively meeting their professional and personal needs. It is important to note that overall subscribers felt that OZTL_NET met their needs especially if the amount of professional discussion did not decrease. OZTL_NET should remain relevant and valuable to subscribers for some time into the future especially if the recommendations listed earlier in this chapter in relation to increasing the quality of communication and active

participation in the listserv are adopted and implemented. These will be important for OZTL_NET as it seeks to maintain its relevance to subscribers who have competing demands on their time. Asynchronous communications can create a feeling of discontinuity for subscribers in relation to the rhythm of their busy daily practice that may result in active participation in OZTL_NET receiving a low priority. Subscribers therefore need to have good reasons to belong and to participate actively. Primary among these is the relevance and importance of the domain of teacher librarianship to subscribers. The ongoing centrality of this domain to the practice of OZTL_NET subscribers situates it as the only national listserv for the teacher librarianship community in Australia. As mentioned in the discussion of disbandment above, it will be critical for the future of OZTL_NET that it maintains and improves its momentum in terms of increasing active subscriber participation and quality of discussion and communication as outlined in the themes and recommendations described earlier in this chapter.

6.2.2.9 Enterprise

With mutual engagement and shared repertoire, joint enterprise is one of three dimensions of communities of practice described by Wenger (1998b, pp. 72-85). Within these communities, "mutual engagement" refers to the shared enterprise or goal towards which members strive. In this context, community is not synonymous with team, group or network but is "a matter of mutual engagement. That is what defines the community." This idea of community coherence is further supported by the notion of "joint enterprise" that is negotiated within the community through the engagement of members seeking to work towards a common goal.

In addition to the negotiation of a common goal, joint enterprise includes elements of joint accountability derived from the participation of people in the process of negotiation. "Shared repertoire" refers to the collection of resources developed over the time it takes to negotiate meaning in the pursuit of joint enterprise. The repertoire can include "routines, words, tools, ways of doing things, stories, gestures, symbols, genres, actions or concepts that the community has produced or adopted in the course of its existence, and which have become part of its practice" (Wenger, 1998b, pp. 72-85).

In OZTL_NET the "joint enterprise" is the practice of teacher librarianship as understood and continuously renegotiated by the teacher librarians who subscribe to the listserv as they seek meaning from their participation. In this regard, OZTL_NET more closely approximates an OLC than a DCoP since the critical processes of "participation and reification" as described by Wenger (1998b, pp. 62-71) are not sufficiently explicit in the listserv to conclude that the interaction between the two processes has significantly contributed to the creation of negotiated meanings and shared histories in OZTL_NET. If OZTL_NET was to more closely approximate a DCoP in the future, then the administrators and subscribers would need to continue to build better access to the shared repertoire of the listserv and work toward mutual engagement through the development of a common goal for the listserv.

6.2.2.10   *Domain specific/shared practice*

Medium to long-term subscriber commitment to OZTL_NET seems reasonably assured if the recommendations outlined earlier in this chapter relating to the quality of communication and level of subscriber participation are implemented. Another encouraging sign is that OZTL_NET subscribers identify closely with the domain of the community which in turn adds value as subscribers are connected to other communities through cross-posting of messages and the sharing of information and ideas: "The domain creates common ground and a sense of common identity. A well-defined domain legitimizes the community by affirming its purpose and value to members…The domain inspires members to contribute and participate, guides their learning, and gives meaning to their actions" (Wenger, McDermott & Snyder, 2002, pp. 327-328).

In terms of shared practice, the importance of strong subscriber relationships cannot be underestimated. This is a particularly critical point for administrators and other community leaders: "Coordinators connect people; they do not convey information. They broker relationships, not knowledge. Once the relationships are established, people can make contact directly" (Wenger, McDermott & Snyder, 2002, p. 128). The results of this study confirm that many subscribers directly contacted others as a consequence of reading messages posted to OZTL_NET. These off-list

communications had a range of consequences including arrangements to meet face-to-face, the posting of "hits", and the sharing of documents between subscribers. Since the amount of off-list communications between and among subscribers appears to be high (Table 4.24), this provides an area for further research in terms of seeking to determine the contribution that these communications might make to the enhancement of subscriber practice and the creation of new knowledge.

6.3   Conclusion

The thesis of this study is that usage of OZTL_NET is associated with the enhancement of teacher librarians' professional learning. The results of the data analyses reported in Chapters Four and Five and the preceding discussion in this chapter in relation to the specific case of OZTL_NET support the assertion that online learning communities have the *potential* to enhance the professional learning of teachers and provide *opportunities* for teachers to learn online. The study also revealed that community building online is a complex and demanding activity. Usability and sociability factors (Preece, 2000) must be carefully considered and developed over the lifetime of the community. This process should include input from the community, the leadership of which should be broad-based and inclusive. To simply design and build an online community in isolation from its potential membership (or representation thereof) is likely to be fraught with danger. This, however, was not the case with OZTL_NET. In 1995, the co-administrators drew heavily on the model devised by Mike Eisenberg and Bob Berkowitz in their design of LM_NET (Hay & Dillon, 1998). To this extent, OZTL_NET was based on a successful model. However, as discussed above the challenge for OZTL_NET in the future will be to continue to evolve and improve in terms of the four themes and recommendations identified and discussed earlier in this chapter.

The outcomes of this research concluded that in terms of the principal and enabling research questions that guided this study online learning communities may provide appropriate contexts for teacher professional learning and that, in relation to the case of OZTL_NET, various aspects of the concept of online learning communities and to a lesser extent communities of practice, are portrayed in the listserv. Two broad principles emerged from the research that provide guidance for the management of listservs for teacher professional learning online. First, the study revealed that

involvement and collaboration were critical ingredients in teacher professional learning online. Involvement was portrayed not only in the learning that ensued from the *interactivity* that necessarily underpins the sharing of tacit knowledge through information exchange and professional discussion between and among subscribers online but also by individuals through less obvious means such as lurking, archive searches and off-list communications. In terms of collaboration, this study found that in addition to high levels of trust, subscribers experienced a strong sense of collegiality and support as members of OZTL_NET. Given that there are approximately 2100 voluntary subscribers these characteristics suggest that the "climate" of the listserv is conducive to reasonably high levels of collaboration. A major finding of this study was that usage of OZTL_NET (duration of subscription, time spent accessing OZTL_NET, frequency of message posting, number of times accessed archives, number of times accessed website) is significantly related to the enhancement of teacher professional learning (involvement, collaboration, professional practice and problem solving).

Second, the major finding above confirms that involvement and collaboration are strongly related to individual and collective orientations of teacher professional learning. The broad concept of *individual or collective orientation* recognises that teacher professional learning occurs in both orientations online as it does offline. Teachers have long recognised their colleagues as their major source of professional information (Dillon, 1997). The difficulty in the past has been in the identification of a means by which teachers can readily access a wider pool of colleagues with whom they can discuss important issues, seek advice and so on. This is particularly important for teachers who are professionally isolated as a consequence of their teaching speciality (such as teacher librarians) and those who are geographically isolated making real time meetings with colleagues expensive and/or impracticable. Teachers may practice in isolation from the beginning of their careers through to the point where they are experienced and accomplished without necessarily interacting professionally with other teachers beyond their own school environment. This professional isolation is challenged in the collective orientation. At the base level, teachers may participate in groups and teams, their membership of which may simply be a function of their position in the school. Even at this basic level, it is likely that specialist teachers such as teacher librarians may not automatically be included as

members of these teams or groups. In this context listservs such as OZTL_NET can have a critical role to play in providing the infrastructure to support distributed models of teacher professional learning online. Chapter Seven lists seven specific principles underlying the use of listservs to support teacher professional learning. Their purpose is to provide guidance to those who seek to use listservs for this purpose and for those who may already use them and wish to improve their operation and effectiveness.

6.4   Future Research

The results of this study suggested five areas in which further research is required in order to improve understanding of the ways in which teacher professional learning may be enhanced by participation in online learning communities. First, there needs to be research into the potential contribution that the concept of "social capital" may have in conceptualising the experience and motivations for belonging of voluntary subscribers in online learning communities and communities of practice. As Wenger McDermott and Snyder (2002, p. 37) point out, social capital in communities can be conceived as a kind of goodwill built up over time from which contributors will benefit at some time in the future. In other words, unlike financial capital which is based on a transactional metaphor, social capital is an investment in the future of the community and is characterised by delayed gratification on behalf of the individual who draws on the mutual goodwill of other community members if and when the need arises. Central to the development of social capital is the building of trust among community members. While the current study explored some aspects of social capital in online learning communities and communities of practice, it would appear that there is still much to be done before the issues at play in terms of social capital are better understood by those concerned with building and maintaining successful online communities.

Second, the role of the affective dimension in participant behaviour in online learning communities and communities of practice needs more consideration. While this study identified trust and tolerance as two important factors in the development of good relationships among subscribers and in the maintenance of a positive and supportive culture online, more research needs to be conducted about how individuals *feel* as a result of their participation. What are the barriers to more active

participation for some subscribers? What impact, if any, does participation have on subscriber self-esteem? What role does empathy with other subscribers play in resolving workplace problems? These are the types of questions that future research into the individual effects of participation in online learning communities may seek to address.

Third, the present study revealed that the vast majority of subscribers responded directly to the poster of a message rather than to the entire list. Given the significant amount of communication that this approach would generate it would be illuminating to explore in some depth the significance of these off-list interactions to the subscribers concerned. For example, some of these communications may have been "one-off" messages offering advice, support or information. Others may have acted as catalysts for the formation of professional relationships online. In any event, the contribution that off-list communications "sparked" by a message to an online learning community have for teacher professional learning is an as yet, unexplored area of research.

Fourth, the present study revealed a change in the content of OZTL_NET messages over time. This raises some interesting issues as to the changing expectations of subscribers as to the use of listservs for communication and the different ways in which new professionals adopt communications technologies for their personal and professional needs. This warrants further consideration in future research.

Finally, the present study indicated that many subscribers participated in the listserv as a means to improve their professional practice. Whether it was asking questions or requesting information on behalf of students or teachers or whether it was "grazing" the message postings in pursuit of ideas to improve the level and range of information services subscribers provided to their school communities there was a very strong sense that the major motivation for participation was the improvement of practice. Beyond this motivation it would be interesting to explore what the outcomes of participation were portrayed in terms of the impacts on student learning outcomes. If evidence were to be obtained through carefully conceived research that subscriber participation in listservs such as OZTL_NET did indeed have direct

positive impacts on student learning outcomes then such a result would constitute a powerful endorsement for teacher professional learning online.

CHAPTER 7:   GUIDING PRINCIPLES

7.1   Introduction

The purpose of this chapter is to distil the findings of the study into a series of principles, the intention of which is to guide the development, management and leadership of a listserv supported by a website for teacher professional learning. The principal research question that guided this study was addressed in the context of the conclusions drawn from the analyses presented in Chapters Four and Five and the conclusions and recommendations provided in Chapter Six relating to subscribers' experience of professional learning and online community in OZTL_NET and from them the themes and recommendations described in Chapter Six were derived. Finally, the themes, conclusions and recommendations described in Chapters Four-Six gave rise to the following set of guiding principles for the management of listserv communities for teacher professional learning.

7.2   Seven guiding principles for the management of listserv communities for teacher professional learning

The following seven principles flow from the conception of online learning communities as practice orientated and characterised by opportunities for establishing learning relationships through the exchange of information and professional discourse in a collegial, supportive and safe environment wherein the rules and expectations of engagement are clear and well known. These communities are characterised by voluntary subscriber membership, high levels of active participation and good quality textual communication. The mentoring of new members and general tolerance of peripheral participation are also characteristics as is a social constructivist perspective that provides opportunities for capacity building and knowledge creation through shared experiences and the re-use of tacit knowledge in the form of message archives and artefacts stored in accessible and secure locations.

7.2.1   Principle one: Structure of the listserv

At a minimum the listserv should be supported by a website that contains all of the information required by subscribers for a quality online experience. It is imperative

that there is tight integration between the listserv and the website such that subscribers are aware of the latter. This increases subscriber understanding of the various options available to them which in turn results in their participation in the list on the basis that suits their personal preferences. A number of strategies for building and maintaining links between the listserv and its supporting website were recommended in the previous chapter. These include customising the membership reminder email and OZTL_NET message footers to include reference to the website, regular periodic reminder emails from the administrators about selected expectations of engagement and exploring the full functionality of the listserv software in the quest to improve usability. Feedback to the listserv software developers regarding enhancements is also important for future versions so that the infrastructure becomes more responsive to the needs of subscribers over the progress of time.

7.2.2   Principle two: Transparency of the listserv

Unmoderated listservs provide an online space for information exchange, discussion and debate. Subscribers need to feel comfortable that their views will be aired within the rules and expectations that govern participation. These rules and expectations need to be made available on a supporting website and subscribers need to be reminded of them periodically. Subscribers should be involved in the development and revision of these rules and expectations as the listserv evolves. Subscribers should also know basic information about subscribers who post messages to the list including name and affiliation. If the subscriber is concerned about their personal view being interpreted as their school's view, then there should be advice in the rules and expectations about the need for a disclaimer in the footer of such messages. The use of aliases should be actively discouraged in professional listservs as it is counter to the transparency required to build trust in professional online communities.

7.2.3   Principle three: Re-use of information

Because subscribers come and go in listserv communities, it is essential that robust and reliable mechanisms are provided for the timely and efficient retrieval of information in the form of messages and artefacts such as documents. A fully searchable public archive of all messages to the listserv should therefore be provided

that deploys a sophisticated search engine. Since many listservs discourage or even forbid the posting of messages with attachments (often related to the fear of viruses) a dedicated web space should be made available for the posting of documents, presentations, trial software and other files and artefacts. This web space might form part of the listserv's supporting website or be hosted by one or more suitable third party websites linked from the supporting website. A fundamental characteristic of online professional learning environments is the provision of one or more mechanisms to support the expectation that subscribers share back to the listserv the outcomes of their adoption and implementation of ideas, resources and strategies acquired from the list. Such an approach adds an evaluation/feedback component to the sharing that typically characterises professional listserv communities and provides the pre-conditions for individual capacity building of subscribers and the propensity for knowledge creation among subscribers.

7.2.4 Principle four: The benefits of quality textual communication

The importance of the quality of textual communication in listservs is often underestimated. Better quality textual communication can contribute positively to the overall quality of discussion and subscriber experience on the listserv which in turn leads to increased subscriber participation. Subscribers pressed for time appreciate thoughtfully composed messages with clear subject lines that accurately reflect the content and context of the message. If tools such as subject line keywords are used then it is critical that their use is widely promoted and encouraged in order that their use becomes embedded in the practice of active participation. The use of emoticons and "cyber-language" is becoming increasingly acceptable in text based environments as subscriber experience of other online technologies such as mobile phones exposes them to alternative forms of textual communication.

7.2.5 Principle five: Fostering a collegial and supportive culture

Collegial and supportive cultures are fundamental to successful listserv communities. Such cultures cannot be built but need to be fostered and nurtured over time. This is easier to do when the subscriber base is a group of professionals with shared interests and common goals. In unmoderated listservs many subscribers need to feel confident

that the discussion is at least being monitored by an administrator or other nominated person with the responsibility and authority to intervene if a critical incident should occur. In addition to one or more administrators, an experienced group of subscribers such as a "hospitality committee" should be in place to provide assistance to subscribers in relation to their participation in the listserv. A mentoring program should also be considered particularly if it appears likely that one of its outcomes is likely to be an increase in active subscriber participation in the listserv. Other supportive strategies include "greeting" new subscribers by personal email and periodic informal face-to-face events where subscribers can meet each other and one or more members of the listserv leadership team.

7.2.6   Principle six: Effective leadership

Effective leadership of the listserv is fundamental to the retention of existing subscribers and for attracting new subscribers. The listserv should adopt a distributed leadership model that involves subscribers in making decisions about the future directions that the listserv might take. This could include the hospitality committee mentioned above or a similar means for involving experienced subscribers in assisting their new and less experienced colleagues. From time-to-time expert opinion from outside the listserv may be sought when the discussion warrants it. Brief biographies of all those involved in the listserv's management and leadership should be provided on the supporting website for the information of all existing and potential subscribers.

7.2.7   Principle seven: Consideration of the affective dimension

There is an affective dimension to joining a listserv. Subscribers need to experience a reasonably strong sense of belonging to a community of peers. They need to feel that the "climate" of the listserv is non-threatening and that their presence and active participation are both welcomed and encouraged. Two important elements in this regard are trust and tolerance. Trust is not only critical to the quality of the relationships among subscribers it also goes to the heart of the reputation of the listserv itself. Tolerance is crucial in listservs which are characterised by a broad range of subscriber experiences from new members to "veterans." There also needs

to be tolerance in terms of subscribers' level of participation in the listserv ranging from peripheral participation to so-called dominant subscribers. The level of trust and tolerance in the list as perceived by subscribers will have a direct impact on their level of active participation in the listserv. All subscribers need to feel "safe" as a result of their participation in the listserv.

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Stage 1: Potential

- As the community begins, the key *domain* issue it faces is defining the scope of the domain in a way that elicits the heart-felt interests of members and aligns with important issues for the organisation as a whole.
- The key *community* issue is finding people who already network on the topic and helping them to imagine how increased networking and knowledge sharing could be valuable.
- The key *practice* issue is identifying common knowledge needs.

Stage 2: Coalescing

- The key *domain* issue of the coalescing stage is to establish the value of sharing knowledge about that domain.
- The key *community* issue is to develop relationships and sufficient trust to discuss genuinely sticky practice problems. Trust is paramount in this coalescing process; without it, it is difficult for community members to discover what aspects of the domain are most important and identify the real value of the community.
- The key *practice* issue is to discover specifically what knowledge should be shared and how.

Stage 3: Maturing

- The key *domain* issue as a community grows is defining its role in the organisation and its relationship to other domains.
- The key *community* issue at this stage is managing the boundary of the community, which is no longer just a network of professional friends. In defining new and wider boundaries, the community must ensure that it is not distracted from its core purpose.
- The key *practice* issue at this point shifts from simply sharing ideas and insights to organising the community's knowledge and taking stewardship seriously. As the community develops a stronger sense of itself, the core members frequently begin to see gaps in the community's knowledge, identify its cutting edge, and feel a need to be more systematic in their definition of the community's core practice. During this stage, communities often find that their domain, membership, and practice are all expanding simultaneously.

Stage 4: Stewardship

- The key *domain* issue in this stage of community development is to maintain the relevance of the domain and to find a voice in the organisation.
- The key *community* issue is to keep the tone and intellectual focus of the community lively and engaging.
- The key *practice* issue for communities in the stewardship stage is to keep the community on the cutting edge.

Stage 5: Transformation

Communities can transform themselves in many ways:

- Many communities simply fade away, losing members and energy until one day no one shows up to the community events or posts to its common Web space. A community of project engineers, after resolving some pressing problems in the company's approach to project engineering, slowly lost momentum.
- Communities also die by turning into a social club. A once-powerful community of IT managers became isolated from emerging ideas and influence in the organisation. The core group had developed strong personal connections and continued to meet, but their focus slowly shifted from IT issues to organisational ones, and then to their personal lives. Although they felt well connected to each other, they lost their sense of stewarding a practice.
- Sometimes communities split into distinct communities or merge with others. One global community discovered that its topic overlapped considerably with another smaller community. Rather than continue side-by-side, these two communities merged.
- Some communities require so many resources that they become institutionalised. They are transformed into centres of excellence with a small staff that maintains a particular competence and links to the rest of the organisation through community members. Or they become actual departments in the organisation, taking on all the structures and functions of formal units, including reporting relationships, resource allocation responsibilities, recruiting, hiring, and individual performance reviews. Of course, even as a functional department they can be a vehicle for informal peer-to-peer knowledge sharing, but the institutional structure does not constitute a radical transformation of the community itself and of its relationship to the organisation.

http://www.csu.edu.au/faculty/sciagr/sis/cstl/oztl_net/index.html

The main OZTL_NET website is comprised of six sections:

Appendix B1: OZTL_NET: A list community for information professionals in Australian schools (HomePage) (Hay and Dillon, 2003)

Appendix B2: Welcome to OZTL_NET (Hay, 2003)

Appendix B3: Communicating with others on OZTL_NET (Hay and Dillon, 2003)

Appendix B4: Netiquette guidelines (Hay and Dillon, 2003)

Appendix B5: OZTL_NET archives (Hay and Dillon, 2003)

Appendix B6: Policy for commercial activity (Henri and Hay, 2003)

APPENDIX B1

Centre for Studies in Teacher Librarianship

WELCOME
PROCEDURES
NETIQUETTE
ARCHIVES
COMMERCIAL

OZTL_NET

A list community for information professionals in Australian schools

OZTL_NET is a discussion list for information professionals working in Australian schools. The teacher librarianship academic staff at the School of Information Studies , Charles Sturt University are pleased to have you on board.

Lyn Hay and Ken Dillon are the OZTL_NET Administrators - their role is to manage all aspects of the service other than commercial activity , which is the responsibility of the 'Commercial OZTL_NET Administrator',

Joy McGregor .

OZTL_NET is intended to be an effective management tool for practising TLs. It is an electronic service uniquely designed to meet the professional information needs of Australia's school library managers and educators.

The conversation on OZTL_NET will focus on topics of interest to the Australian teacher librarianship community, including the latest issues and developments that relate to and impact on school library services, operations and activities. Discussion on OZTL_NET may include: library, school and departmental policies, practices and procedures; location and use of Internet resources; information literacy issues, programs and strategies; reference questions of teachers and students; products and resources for school libraries; general discussion of teacher librarianship issues; training tips and use of information and communication technologies; and workshop and conference announcements.

Please join us in OZTL_NET discussions...

Discussion is open to all members of the Australian TL community and any people with a genuine interest in teacher librarianship and/or school libraries. This may include: practising TLs in all K-12 schools across all Australian states and territories; university students enrolled in and recent graduates of TL courses, including University courses and

Department of School Education Certificate courses; trained and qualified TLs currently not practising in school libraries; academics in teacher librarianship, library and information science and/or education fields; public, academic and special librarians involved with school library services and users; administrators of professional associations and journals relating to TLs and school libraries; school library support staff; school library consultants; and commercial suppliers of goods and services to school libraries.

While it is important for Australian TLs to broaden their horizons via the Internet and 'go global', local action is essential in developing a strong professional TL movement in Australia. OZTL_NET's strategic intention is to unite all parties who share a considerable interest in the latest developments, issues and initiatives in teacher librarianship and school libraries in Australia.

OZTL_NET provides our TL community with an online voice...

TLs are major stakeholders in the knowledge economy, and as key players must lead Australian schools -- teachers, students and their parents -- into the educational milieu of the 21st century.

Participate, Motivate, Educate!!

Want to join? Subscribe to OZTL_NET now

We urge new members to become familiar with OZTL_NET PROCEDURES before posting their first message to OZTL_NET.

We hope you enjoy life as an OZTL!

Lyn Hay and Ken Dillon
OZTL_NET Administrators

OZTL_NET Home
Version 4/03
Updated by Lyn Hay   6 February 2003

Centre for Studies in Teacher Librarianship

Welcome to OZTL_NET

WELCOME PROCEDURES

NETIQUETTE ARCHIVES COMMERCIAL

How to join...

To receive individual posts
To receive the Daily Digest
To change your existing subscription to the Daily Digest
I forgot my URL/password to change subscription options

To receive individual posts:

1. Send an email to address OZTL_NET-request@listserv.csu.edu.au
   NB: the underscore and dash in the listname.

2. In the Subject line of your message type the command 'subscribe'
   followed by a word that you wish to use as your OZTL_NET
   password, eg.:

   subscribe treetop3

3. Do not include anything in the body of the messge.

4. You will receive a 'confirmation of subscription' message asking you
   to reply to the OZTL_NET-request@listserv.csu.edu.au address
   to confirm that you wish this subscription to proceed. Please send
   this reply, upon which you will receive a Welcome message.

5. Please keep the Welcome message, as it contains personal
   subscription data, which you may need to refer to in the future.

6. You will begin receiving individual OZTL_NET posts within 24 hours
   of sending your subscription request.

To receive the Daily Digest:
Some OZTLs prefer to subscribe to our Daily Digest option. This means
that all messages posted to OZTL_NET in one day will be sent to you
in usually one email message per day (depending on the file size),
rather than receiving each post individually. This can considerably
reduce the number of daily emails arriving in your mailbox.

If you are seeking ways of controlling your daily email, the OZTL_NET
Daily Digest option could be for you.

Each day you will receive an OZTL_NET Daily Digest which will look like this:

> Send OZTL_NET mailing list submissions to oztl_net@listserv.csu.edu.au
>
> To subscribe or unsubscribe via the World Wide Web, visit
> http://listserv.csu.edu.au/mailman/listinfo/oztl_net .....
>
> You can reach the person managing the list at
> oztl_net-admin@listserv.csu.edu.au
>
> When replying, please edit your Subject line so it is more specific than
> "Re: Contents of OZTL_NET digest…"

If you have left the default MIME format, three attachments will contain:

> Today's Topics:
> > [OZTL_NET] Video: Cloudstreet?
> > Re: Victorian schools and ILPO
> > RE: [OZTL_NET] Promoting our role
> > [OZTL_NET] Olympic Resources
> > [OZTL_NET] poetry search
> > [OZTL_NET] Olympic countries
> > Re: [OZTL_NET] Olympic Resources
> > [OZTL_NET] Teenage angst
> > [OZTL_NET] Novels - insomnia
> > [OZTL_NET] Fairy Tales / Folk Tales
> > [OZTL_NET] Teenage Angst
> > Re: [OZTL_NET] Olympic Resources
> > Re: [OZTL_NET] Olympic Resources
> > Re: [OZTL_NET] Fairy Tales / Folk Tales
> > RE: lending out of CD ROMs

an attachment with all the posted messages as separate files, followed by a brief Digest footer.

Alternatively, you can choose a 'Plain Text' format, where you receive all of the above messages compiled as a single large

If you have chosen Plain format, you will receive the above in one list (with many messages in HTML code). Note that MIME is set as the default.

Follow these steps to subscribe to the Daily Digest Option:

1. Send an email to address OZTL_NET-request@listserv.csu.edu.au
   NB: the underscore and dash in the listname.

2. In the Subject line of your message type the command 'subscribe' followed by a word that you wish to use as your OZTL_NET password, and then the word 'digest', eg.:

   subscribe treetop3 digest

3. Do not include anything in the body of the message.

4. You will receive a 'confirmation of subscription' message asking you to reply to the OZTL_NET-request@listserv.csu.edu.au address to confirm that you wish this subscription to proceed. Please send this reply, upon which you will receive a Welcome message.

5. Please keep the Welcome message, as it contains personal subscription data, which you may need to refer to in the future.

6. You will begin receiving individual OZTL_NET posts within 24 hours of sending your subscription request.

What do I do if I am currently receiving individual OZTL_NET posts and wish to change my subscription to the Daily Digest Option?

1. If you are currently subscribed to receive individual OZTL_NET posts, and wish to receive Digests instead, go to your personal subscription webpage. You will have received the URL and password to your personal subscription webpage within your Welcome message (received upon subscription). If you did not keep this message, then you can create your own URL based on the following formula using the username and domain name within your email address, ie.

http://listserv.csu.edu.au/mailman/options/oztl_net/username--at--domain

For example, if your email address is <jsmith@tcb.edu.au>, you would go to the following URL:

http://listserv.csu.edu.au/mailman/options/oztl_net/jsmith--at--tcb.edu.au

Please ensure you use the double dashes and the word 'at' as above. Click here for an image of this personal subscription webpage example.

2. Select the 'On' button for the 'Set Digest Mode' option (as below) and   then submit this change by entering your password and clicking on the 'Submit My Changes' button.

Current values are checked.

Disable mail delivery
Turn this on if you want mail to not be delivered to you for a little while.
◉ Off ○ On

Set Digest Mode
If you turn digest mode on, you'll get posts bundled together once a day, instead singly when they're sent. If digest mode is changed from on to off, you will receive one last digest.
○ Off ◉ On

Get MIME or Plain Text Digests?
If you have any problems with MIME digests, select plain text.
◉ MIME ○ Plain Text

Receive posts you send to the list?
◉ Yes ○ No

Receive acknowledgement mail when you send mail to the list?
◉ No ○ Yes

Conceal yourself from subscriber list?
◉ No ○ Yes

Password: [********]   [Submit My Changes]

I forgot my URL and password to change my subscription setting :

As a subscriber of OZTL_NET posts, you can now change/edit your subscription settings, including how you receive OZTL_NET posts -- either individual or Digest (including either plain text or MIME); temporarily disabling mail delivery; and unsubscribing from OZTL_NET.

This can all be achieved via your personal subscription webpage.

You will have received the URL and password to your personal subscription webpage within your Welcome message (received upon subscription). You will also receive a friendly reminder on the first date of each month from the address <mailman-owner@listserv.csu.edu.au>.

If you did not keep either of these messages, then you can compile your own URL based on the following formula (below) using the username and domain name within your email address, ie.

http://listserv.csu.edu.au/mailman/options/oztl_net/username--at--domain

For example, if your email address is <jsmith@tcb.edu.au>, you would go to the following URL:

http://listserv.csu.edu.au/mailman/options/oztl_net/jsmith--at--tcb.edu.au

Please ensure you use the double dashes and the word 'at' as above. Click here for an image of this personal subscription webpage example.

To generate a password reminder, simply click on the 'Email My Password to Me' button. You will receive this reminder from the OZTL_NET admin address, which is oztl_net-request@listserv.csu.edu.au . For security reasons, it is recommended that subscribers regularly change their password.

OZTL_NET subscription details
Version 5/03
U pdated by Lyn Hay 12 November 2003

Centre for Studies in Teacher Librarianship

Communicating with others on OZTL_NET

**WELCOME
PROCEDURES
NETIQUETTE
ARCHIVES
COMMERCIAL**

Posting to the public list **Posting your first message**
Two list addresses **Subject line keywords**
Stopping mail **Using Target/Hit**

Posting your messages to the public OZTL_NET list

When posting a message to OZTL_NET, you must use the Internet listserv address OZTL_NET@listserv.csu.edu.au . If you post a message to OZTL_NET, please note that you WILL also receive a copy of your message from the list.

Posting your first message to OZTL_NET

OZTL_NET is an online discussion forum for the Australian TL community.
We encourage new members to introduce themselves to all OZTL_NET members by:

1. posting your first message to OZTL_NET@listserv.csu.edu.au

2. in the subject line, type INTRO, eg. INTRO: Lyn Hay

3. in the message field include a brief personal note. Include any details about yourself and/or your school/work situation, eg.

> "Hi OZTL_NET members. My name is Lyn Hay. I am a lecturer in teacher librarianship at Charles Sturt University. My teaching and research interests include teacher librarian and principal roles in supporting information literacy and services in schools; integration of ICT in organisations (particularly online communities and workgroups); information leadership in schools; and information policy issues. I am also Content Editor of the International Association of School Librarianship (IASL) Newsletter, and have coordinated a number of Internet-

based professional development initiatives for
the teacher librarianship community, including
administration of OZTL_NET ."

4. End your message with an email signature , including your name,
email address, school/work address and contact information, eg.

```
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
         Lyn Hay        <lhay@csu.edu.au>
             Lecturer in Teacher Librarianship
    School of Information Studies, Charles Sturt University
    Locked Bag 675, Wagga Wagga, N.S.W. 2678 Australia
        Ph: + 61 2 69332808  Fax: +61 2 69332733
               Co-Administrator of OZTL_NET
                 www.csu.edu.au/cstl/oztl_net/
 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
```

OZTL_NET address: There are two, each for a different purpose

Many features of this discussion list are automated. The mailing list
server automatically handles two types of messages using separate
addresses through which it receives its email message commands:

1. To send messages to the public OZTL_NET list, use the address:
   OZTL_NET@listserv.csu.edu.au

2. For administrative listserv requests (ie. to the listserv computer)
   use the Internet address OZTL_NET-request@listserv.csu.edu.au

3. We specifically request that members **do not** post administrative
   and techical requests (such as 'unsubscribe' commands or 'test'

   messages to the public OZTL_NET list address.

Subject line keywords

Subject line keywords are designed to allow individuals the opportunity
to gauge the relevance of posted messages listed in their mailbox. This
is a form of mail control which assists OZTL_NET members to sort
through their email based on content-related keywords. The current
subject line keywords include:

ADMIN: official messages from OZTL_NET Administrators

CH LIT: postings which fous on children's literature, literacy and related issues

CLASS: 'CLASSified' posts are electronic advertisements which will be moderated by the [Commercial List Administrator](#). Originators of CLASS posts are charged a standard fee for profit and non-profit organisations such as schools, professional associations, education systems and individuals.
Please see the [Policy for Commercial Activity on OZTL_NET](#) .

COLL DEV: postings which deal with collection development issues, including resource sharing, censorship, copyright and resource management

GEN: postings of a general nature, ie. which don't conform to other subject line keywords

GREET: use this for requests for greetings, penpals/keypals and teacher exchanges

HUMOUR: anecdotes, jokes, poems, etc.

INFO LIT: postings which focus on information literacy

INTRO: introductory messages from new members

JOBS: employment opportunities (excluding job adverts from commercial locums)

REF: requests for all types of reference questions

TECH: postings about information and communication technologies, incl. hardware, software, policy, troubleshooting, etc

TL ROLE: postings that deal with TL role-related issues

WHAT'S ON: announcements of forthcoming conferences, seminars, etc. This keyword should only be used for free or nominally priced events. Activities such as conferences, seminars and workshops which require a registration fee should use the subject line keyword CLASS and be submitted via the [Commercial OZTL_NET Administrator](#) (see CLASS above).

NOTE: Wherever possible, members are encouraged to use at least one (or more) subject line keywords, where appropriate.

Stopping mail from OZTL_NET

There are **two methods** of stopping mail from OZTL_NET.

1. Temporarily:

If you wish to stop receiving mail from OZTL_NET **temporarily** (eg. before going on holidays) you can now edit your subscription settings via your personal subscription webpage.

You will have received the URL and password to your personal subscription webpage within your Welcome message (received upon subscription). As an OZTL_NET member, you also receive a friendly reminder on the first date of each month from the address <mailman-owner@listserv.csu.edu.au> with this information.

If you did not keep either of these messages, you can compile your own
URL based on the following formula (below) using the username and domain name within your email address, ie.

 http://listserv.csu.edu.au/mailman/options/oztl_net/username--at--domain

For example, if your email address is <jsmith@tcb.edu.au>, you would
go to the following URL:

 http://listserv.csu.edu.au/mailman/options/oztl_net/jsmith--at--tcb.edu.au

Please ensure you use the double dashes and the word 'at' as above.
Click **here** for an image of this personal subscription webpage example.

Select the 'On' button for the 'Disable Mail Delivery' option and then submit this change by entering your password and clicking on the 'Submit My Changes' button.

NB: OZTL_NET will cease delivery of all future mail until you visit your personal subscription webpage again, and select the 'Off' button for the 'Disable Mail Delivery' option and then submit this change by entering your password and clicking on the 'Submit My Changes' button.

2. Permanently:

If you wish to stop receiving mail from OZTL_NET **permanently** (ie. unsubscribe), you can now do this via your personal subscription webpage (see **section 1** for details re access to your own personal subscription URL).

Simply type in your password before clicking on the 'Unsubscribe' button.

NB: you will stop receiving OZTL_NET posts (almost) immediately. And you will need to complete the **subscribe procedures again** to join OZTL_NET in future.

Using the Target/Hit as a discussion tool

OZTL_NET adopts the LM_NET** initiative of the TARGET/HIT as a discussion tool. The OZTL_NET administrators recommend that OZTLs specifically TARGET-> their queries, and use a HIT-> summary to share their responses received.

That is, when someone wants information about a topic (eg. AFW stocktake) they would ask for people to respond to them directly, and after a period of time, post a summary or compilation of responses. The originator of the TARGET-> question uses that term in the subject line of the initial question that is posted to the entire list.

For example, "TARGET-> AFW Stocktaking Procedures" would appear in the subject line of the message. In the body of the message the person might say something like the following:

> "Hi, OZTLs. I would like to TARGET-> AFW stocktaking procedures. It is coming up to the end of Term 3 and I'm planning how to implement my first AFW automated stocktake. I'd like to find out how other OZTLs implement their stocktake, ie. do you do it in one go, or do a bit at the end of each term? Do you allow users to borrow or do you close the library? What problems or advantages do you face using your current set of procedures? If people will respond to me, I'll compile your responses and post A HIT-> on the topic back to the list. TIA, John Smith < jsmith@tcb.edu.au >"

When enough responses are collected, the originator summarizes or compiles the responses, and posts the summary as a HIT-> so everyone on the list can read, if they are interested. This is an excellent way to streamline list traffic on requests for information, as well as OZTLs providing an information service for their colleagues.

RESPECTING MEMBER'S PRIVACY AND IP IN A HIT
When posting a request for ideas/suggestions with the intention of compiling responses into a HIT, please ask respondents in your original request to state whether they wish their name to be included (or not) in the HIT posted back to the public list.

Please note that some people offer good ideas and wish for their contribution to be acknowledged, whereas other members may prefer to

share information with the list without their identity being made public. As a professional online community, we need to respect the privacy and intellectual property of all.

OZTL_NET administration therefore recommends that members responding to a HIT request must clearly indicate their preference to be acknowledged (or not) for their contribution to a HIT.

For example, if you state 'Please cite' (or similar), this **will** require the person compiling the HIT to include your name/affiliation with your contribution. If you state 'Do not cite me re this' (or similar), this will mean that the compiler of the HIT **must not** include your name/affiliation with your contribution.

What happens if people DO NOT indicate one way or the other?

OZTL_NET is a public forum and we ask that all members posting messages to the list provide some form of identity or signature at the end of each post. This helps each of us identify **who** our fellow community members are, and it can provide us with a context as to the nature or perspective of some contributions (esp. potentially sensitive ones).

In the past, it has been assumed that members' contributions to a HIT also be identified… after all, it's nice to know where all these good ideas originate!

OZTL_NET ADMIN therefore recommends that all responses to a Target/Hit request be considered 'available for public consumption' unless the respondent clearly states they wish to remain anonymous. The bottom line here is this: If a response to a HIT **does not** follow protocol and indicate whether the respondent's identity is to be included (or not), the compiler **will assume** that both the content of the response and the respondents details be included as part of the HIT.

On the other hand, if a member wishes to post a HIT of compiled responses as a result of a request that **was not** originally flagged as a Target/Hit, that member should firstly seek permission from respondents to include contributions in the form of a HIT.

SUMMARY: TARGET/HIT-> is a four-step process:

1. The TARGET-> originator proposes the subject for answering/ commenting, i.e. TARGET-> AFW Stocktake Procedures.

2. Those interested in the subject send their responses to the _originator_ of the TARGET-> question. Please do NOT post the response to the group.

3. TARGET-> originator summarizes or collates the responses; and

then,

4. Posts the summarized responses to the entire list, using the original subject of their message as a HIT->. i.e., HIT-> AFW Stocktake Procedures.

** We thank Peter Milbury and Mike Eisenberg, LM_NET Co-owners for developing this innovation to support Internet discussions on a list such as OZTL_NET.

OZTL_NET procedures
Version 5/2003
U pdated by Lyn Hay   11 February 2003

Centre for Studies in Teacher Librarianship

Netiquette Guidelines

Lyn Hay and Ken Dillon , Administrators of OZTL_NET

1. Be extremely careful when **replying to the sender** of an OZTL_NET message. Many email systems will send your reply to the OZTL_NET list address if you simply use a reply command. This could be embarrassing if the message is of a personal nature.

NEVER post a reply message to the list address which would not be of interest to most members. Just send it to the individual who posted the original message to which you are responding.

2. Use the **Subject Line Keywords** wherever possible. It is considered a waste of time for list members to be pestered with meaningless (to them!) messages which are of value only to a small number of people. Using the **Subject Line Keywords** can alleviate this problem.

3. **Think before you post**. Do I really want to say this to the entire world (OZTL_NET)? Reread what you wrote. Did you really say what you intended to?

Once a message is sent, it cannot be retrieved

Sending to the individual or to the entire group is an important consideration. Normally one can send replies to the entire group, however, an individual person who requests the information may offer to post a HIT to the list. This will mean that all replies should be send to the individual requester and it is their responsibility to collate and post the collective response to the group.

4. When **replying** to an OZTL_NET message, please do not include the entire message quoted. Paraphrasing or quoting selectively are both kinder to people's eyes and email boxes.

5. Many OZTL_NET members are not able to identify the address of the message sender unless it is included in the body of the message. At the end of your message, include your name and your electronic mail address (this is your **Internet signature**) and because it can be difficult to interpret email addresses, we request that you include the name/address of your institutional affiliation.

Long email signatures are discouraged. They may be humorous the first time, but get old quickly (and take up bandwidth). Some people tire of the time spent having to skim over them. No more than 6 lines should be sufficient to include any necessary information.

6. Please include a **subject line** in your postings (it's a good idea for ALL email).

Note: When sending commands to the listserv address OZTL_NET-request@listserv.csu.edu.au subject line commands must be used.

7. **Be sure of the address you have typed.**
Did you intend it for all OZTL_NET members to read? Or were you sending a command to the listserv (eg. to UNSUBSCRIBE, etc.) ?

The administrative list (server) address is OZTL_NET-request@listserv.csu.edu.au

To post to the public OZTL_NET list, use OZTL_NET@listserv.csu.edu.au

8. **Chain letters** will not be tolerated on OZTL_NET. Please refrain from sending such messages to this list. Offenders may be removed from the list.

9. **Please refrain from sending messages as attachments**.
Successful extraction of attachments is dependent upon the type of mailing software used by members -- not being able to successfully open attachments is a major cause of frustration for some members, and there is no guarantee that the attachment can be read by Digest subscribers. Attachments can also be a major cause of spreading computer viruses. We, therefore, request that OZTL_NET **do not** send messages as attachments, but rather paste their complete message as text in the main body of an email message.

10. **Flames**: a 'flame' is an emotionally charged posting, and is often directed at someone. Be sure you really want to post it, and remember that OZTL_NET does not tolerate flames. We will immediately remove members posting rude, inflammatory or grossly inappropriate messages.

11. To signal **humorous intent**, use some sort of 'smiley', such as :-). Facetiousness and sarcasm can be misunderstood easily in online communication.

12. Please **be considerate of others**. Through inexperience or limited local software, list members may inadvertently violate the above suggestions. A private message to the offender from an experienced friend or from the list administrators is more appropriate than a public flame.

13. Keep **each line** in your message **shorter than 70 characters** by pressing <Return> or <Enter> at the end of each line. Longer lines can cause problems with some email systems. Before sending, check your message for 'typos' and other errors that may make it hard for others to read or understand.

Tip: **USING ALL CAPS** IS CONSIDERED YELLING.

14. OZTL_NET has its own character, just like any 'real' group of people (such as a party, or a meeting). The list will function best when people **respect the character of the list**. It's also good to respect the differences among list members and have a certain tolerance for our individual eccentricities. While the majority of OZTLs are Australian, some OZTLs are from other countries and cultures, so please aware of the needs or nature of different cultural groups on the list.

15. **Please participate!** *Your ideas are important*. Just because you think everyone knows something, doesn't mean that they do. If you're not sure, send the posting to an experienced friend on the list (or one of the OZTL_NET Administrators) to see if the information may be valuable.

16. Producers, authors, speakers, consultants, and other vendors who wish to advertise their products/services are directed to the **Policy for Commercial Activity on OZTL_NET** .

However, if a user posts the question "Does anyone have information about program X?", the producer of program X should send information **DIRECTLY to that person** by email, rather than posting the information to the list. If the person finds value in your products/services, they will probably share their pleasure with other OZTL_NET members.

And, if a user posts the question "I'm looking for a program that does X, Y, and Z", **reply directly to the individual** .

Producers should avoid negative comments about their competitors' products. If producers, or any list member, are uncertain of the appropriateness of a message to be posted, they should feel free to contact one of the OZTL_NET Administrators .

Centre for Studies in Teacher Librarianship

OZTL_NET Archives

WELCOME
PROCEDURES
NETIQUETTE
ARCHIVES
COMMERCIAL

All OZTL_NET posts dating back to 1995 are available to members via our archive facility. When searching the archives please use specific search terms, subject line keywords, dates and names, or a combination of these, to achieve a satisfactory search result.

I want to search the OZTL_NET archive now

Search terms and time

The current version of the search engine uses the following notation for boolean search construction -- ";" for AND, "," for OR and "~" for NOT.

We suggest you restrict the majority of your searches using the AND notation, eg. enter in the search box:

queensland;job

We estimate such a search will take up to 30 seconds. Single word searches are very fast.

The following provides a brief description of each subject line keyword to assist in refining your search:

ADMIN:	official messages from OZTL_NET Administrators
CH LIT:	postings which fous on children's literature, literacy and related issues
CLASS:	'CLASSified' posts are moderated advertisements by profit and non-profit organisations such as schools, professional associations, education systems and individuals. Please see the Policy for Commercial Activity on OZTL_NET .
COLL DEV:	postings which deal with collection development issues, including resource sharing, censorship, copyright and resource management
GEN:	postings of a general nature, ie. which don't conform to other subject line keywords
GREET:	use this for requests for greetings, penpals/keypals and teacher exchanges
HUMOUR:	anecdotes, jokes, poems, etc.

INFO LIT:	postings which focus on information literacy
INTRO:	introductory messages from new members
JOBS:	employment opportunities (excluding job adverts from commercial locums)
REF:	requests for all types of reference questions
TECH:	postings about ICT hardware, software, policy, troubleshooting, etc
TL ROLE:	postings that deal with TL role-related issues
WHAT'S ON:	announcements of forthcoming conferences, seminars, etc. Other events may also be found under the CLASS keyword

Special thanks

The OZTL_NET administrators would like to acknowledge the continual technical support of [Geoff Fellows](#) . Geoff is a lecturer in Information Technology with the School of Information Studies and has supported OZTL_NET as a collegial favour to the CSU TL academic team since its inception.

[OZTL_NET archives](#)
Version 4/2003
U pdated by [Lyn Hay](#)   11 February 2003

Centre for Studies in Teacher Librarianship

Policy for Commercial Activity

**WELCOME
PROCEDURES
NETIQUETTE
ARCHIVES
COMMERCIAL**

There are three types of commercial activity available through the OZTL_NET service:

1. Free unmoderated posts to the OZTL_NET list
These posts will include 'giveaway' announcements, job advertisements from individual schools and educational authorities (not private employment agencies or locums) and announcements from those seeking work.

Giveaways should use the 'GEN' subject line keyword while employment related posts should use the subject line keyword 'JOBS'.

2. 'Moderated' commercial posts to OZTL_NET
Moderated commercial posts were introduced September 1998 in an effort to streamline and formalise 'classified ad' style posts. Commercial posts to OZTL_NET must be moderated by the Commercial OZTL_NET Administrator, Joy McGregor .

Therefore, any posts that are potentially of a commercial nature should be sent to OZTL_NETCOMM@csu.edu.au PRIOR TO being posted to the list.

The message will be moderated and if accepted and payment has been received, it will then be forwarded to the list by the Commercial OZTL_NET Administrator using the subject line keyword 'CLASS'.

The message should not be forwarded directly to the OZTL_NET public list. All posts of a commercial nature sent directly to the public OZTL_NET list and NOT to the Commercial OZTL_NET Administrator will be invoiced at $250 per post.

Please note that the form for commercial messages is located at http://www.csu.edu.au/cstl/oztl_net/ccform.html .

The form must be faxed and payment by credit card only will be accepted.

CLASS posts will be charged a standard fee of $110 (GST inclusive) for profit and non-profit organisations such as schools, professional associations, education systems and individuals. CLASS

posts are one-off posts. Lengthy posts should be avoided since this is likely to offend and will therefore be counterproductive.

ALL 'CLASS' POSTS MUST BE PREPAID.
An additional charge of $5.50 will apply where a receipt is required.

3. Advertising on OZTL_NET's website
Advertisers on the OZTL_NET website will be provided with the following service:

- Space on the webpage for a graphic which links to their website and a 50 word introductory blurb
- The business name and URL will be posted in a once a week commercial post to the listserv by the Commercial OZTL_NET Administrator.
- This service will be available for a period of 12 weeks for a cost of $1,000.

All enquiries about advertising on the OZTL_NET website should be emailed to:
OZTL_NETCOMM@csu.edu.au

ALL OZTL_NET WEB ADVERTISING MUST BE PREPAID.

APPENDIX C: COMPARISON OF TOTAL TEACHERS BY STATE (2002) WITH OZTL_NET SAMPLE

Table E1: Total schools (Australia) and total schools (OZTL_NET sample)

State/Territory	Total Schools	Schools in Sample	Total Schools %	Sample %
ACT	138	7	1.44	4.12
NSW	3095	42	32.2	24.71
QLD	1726	35	17.96	20.59
TAS	280	8	2.92	4.71
SA	810	10	8.43	5.88
VIC	2320	47	24.12	27.65
WA	1060	18	11.03	10.59
Offshore		3		1.75
Total	**9612**	**170**	**100**	**100**

Table E2: Observed and expected values, one-sample chi-square

State/Territory	Observed	Expected
ACT	7	2.5
NSW	42	54.74
QLD	35	30.5
TAS	8	4.96
SA	10	14.3
VIC	47	41
WA	18	18.75
Offshore		3
Total	**9612**	**170**

χ^2 =15.79 df=6 p=.02

APPENDIX D: OZTL_NET USER SURVEY

Your participation in this survey will provide extremely useful information for planning improvements to OZTL_NET and will provide guidance as to where OZTL_NET should head in the future. You do not need to be a teacher librarian to complete the survey. The reliability of findings and final recommendations require input from a wide cross section of OZTL_NET participants.

The survey is divided into three sections:

Part A: About you (Questions 1-6)

Part B: About your workplace (Questions 7-11)

Part C: About how you use OZTL_NET (Questions 12-42)

Definition of Terms

In this survey use is made of several common terms that have been defined here in specific ways:

- **teacher librarian**: an educator and an information manager with integrated understandings from both of these areas
- **subscriber**: a person who by virtue of initiating voluntary membership of OZTL_NET, *subscribes* to either the regular version (one message at a time) or the digest version (wherein a number of messages are *collapsed* into a single message headed by a table of contents)
- **participation**: here defined in terms of being subscribed and receiving messages from OZTL_NET. Participation is here defined to include *monitoring* of OZTL_NET messages or *lurking* and in no way implies that participation is defined by the act of posting or responding to messages

Instructions

Thank you for taking the next 15-20 minutes to complete the following survey. Most questions require you to select an appropriate response from two or more alternatives. Where you select the *Other* response, a text box is provided for you to enter the appropriate details. Some questions require a brief written response rather than a selection from a number of alternatives. Text boxes for these questions have also been provided so that you may enter your responses.

In the unlikely event of system or network failure, please print this survey and fax to Ken Dillon on (02) 6933 2733.

Survey Identification

Please copy-and-paste the survey identifier sent to you:

Part A: About You

For each of the items in Part A below, please select the single appropriate response that best describes you:

1. I am:
○Female
○Male

2. I am:

○Less than 25 years of ag   **}**○Between 25-34 years of age
○Between 35-44 years of age
○Between 45-54 years of age
○Between 55-64 years of age
○More than 64 years of age

3. I have been a teacher librarian for:
○Less than 4 years
○Between 5-9 years
○Between 10-14 years
○Between 15-19 years
○More than 19 years
○I am **not** currently a teacher librarian

4. How would you describe your current position or situation? You may select more than one item.
☐ Teacher Librarian
☐ Classroom Teacher
☐ School IT or ICT Coordinator
☐ Curriculum Leader/Coordinator
☐ Teacher Responsible for the Library
☐ Library Technician/Assistant
☐ University Student
☐ Principal or Other School Executive
☐ University Academic
☐ Librarian (but not teacher librarian)
☐ Publisher, supplier or vendor
☐ Retired or former educator
☐ *Other* (please define your position or situation)

```
                                                    
```

5. I am currently enrolled in a university course in teacher librarianship or a related discipline eg. librarianship:
○Yes
○No

6. I am a member of at least one professional association besides my union eg. the Australian School Library Association (ASLA), the Australian Council for Computers in Education (ACCE), the Australian Library and Information Association (ALIA).
○Yes
○No

Part B: About Your Workplace

For each of the items in Part B below, please place select the single appropriate response that best describes your workplace. If you are currently not working in a school, please select that option for questions 8-11.

7. My workplace is located in:
○Australian Capital Territory
○New South Wales
○Northern Territory
○Queensland
○Tasmania
○South Australia
○Victoria
○Western Australia
○*Other* (please provide name of the country)

[   ]

8. My school is:
○A government (state) school
○A Catholic systemic school
○An independent school
○I am **not** in a school

9. My school is a:
○Primary school
○Secondary school
○K-10 (or P-10) school
○K-12 (or P-12) school
○*Other type of school* (please provide details)

[   ]

○I am **not** in a school

10. My school is located in a:
○Capital city
○City with more than 15,000 people
○City with between 3,000 and 15,000 people
○Town with between 500 and 3,000 people
○Town with less than 500 people
○I am **not** in a school

11. The student enrolment of my school is:
○Less than 50
○50-199
○200-449
○450-699
○More than 700
○I am **not** in a school

Part C: About how you use OZTL_Net

For most of the items in Part C below please select the single appropriate response that best describes how you use OZTL_NET. Some questions provide the opportunity for open responses and text boxes have therefore been provided for your convenience.

12. How did you first become aware of OZTL_NET?
- ○ At a conference, workshop or meeting
- ○ From a colleague
- ○ Via another listserv or online discussion forum
- ○ Through university course work
- ○ By word of mouth
- ○ From reading an article
- ○ Via a search of the WWW
- ○ I do not recall
- ○ *Other* (please provide details)

[ ]

13. For how long have you been an OZTL_NET subscriber?
- ○ Less than 3 months in total
- ○ 3-12 months in total
- ○ 1-2 years in total
- ○ 2-3 years in total
- ○ 3-4 years in total
- ○ 4-5 years in total
- ○ More than 5 years in total

14. Do you use the digest version of OZTL_NET?
- ○ Yes
- ○ No

15. If you answered Yes **for question 14, why** do **you use the digest version?**

[ ]

16. If you answered No **for question 14, why** don't **you use the digest version?**

```


```

17. On average how long do you spend per week accessing, reading, or responding to OZTL_NET messages?
- ○ Less than 1 hour
- ○ Between 1-2 hours
- ○ Between 3-4 hours
- ○ More than 4 hours

18. From where do you most frequently access OZTL_NET?
- ○ At work
- ○ At home
- ○ About equally at work and home

19. How useful is OZTL_NET to you in your work?
- ○ Extremely useful
- ○ Very useful
- ○ Useful
- ○ Limited

20. Which of the following statements most accurately describes the frequency with which you post messages to OZTL_NET? Please select one.
- ○ Regular poster of messages (average greater than 20 messages per year)
- ○ Average poster of messages (average between 10-20 messages per year)
- ○ Irregular poster of messages (average between 3-10 messages per year)
- ○ Have posted fewer than 3 messages per year, happy to monitor the discussion
- ○ Haven't had reason to post any messages as yet, happy to monitor the discussion
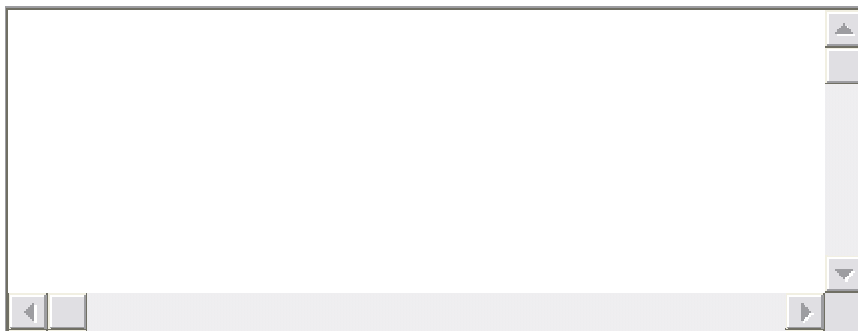
21. Which of the following statements most accurately describes the way you *usually* **respond to OZTL_NET messages? Please select one.**
- ○ I prefer to respond directly to the public list rather than directly to the sender of a message
- ○ I prefer to respond directly to the sender of a message rather than to the public list
- ○ I respond both to the list and the individual depending on the content and context of the question
- ○ I'm happy to monitor discussion and respond to messages infrequently
- ○ I don't have any intention of responding to messages - I'm just interested in observing the discussion
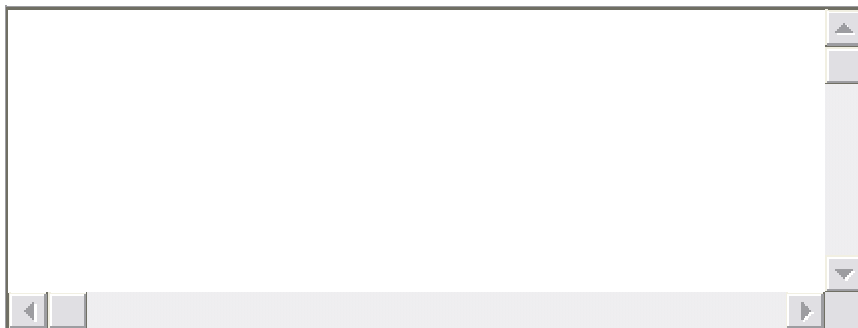
22. Which of these follow-up actions have you taken in response to OZTL_NET messages? Please select all that apply.

☐ Responded to the list
☐ Responded to one or more individuals
☐ Faxed information
☐ Sent information via snail mail
☐ Made telephone contact
☐ Read an article/book
☐ Visited a website
☐ Made personal contact
☐ Implemented an idea or innovation
☐ Requested further information
☐ Forwarded a message to colleagues or school staff
☐ Supplied information by e-mail attachment to others
☐ Supplied a requested resource
☐ *Other* (please describe)

23. Please select any of the following items you consider valuable to you as a participant in OZTL_NET. Please select all that apply.

☐ Gaining access to resources
☐ Obtaining answers to questions
☐ Discussing and debating issues
☐ Reducing isolation
☐ Meeting people online
☐ Sharing information with others
☐ Solving problems
☐ Providing advice, assistance, support
☐ Keeping up-to-date with professional development opportunities
☐ Being aware of forthcoming online projects
☐ *Other* (please describe)

24. From the list of items you indicated as valuable in Question 23, please select the two most valuable to you as a participant in OZTL_NET from the list below.

Most valuable `-- Select the most valuable --` ▼

Second most valuable
`-- Select the second most valuable --` ▼

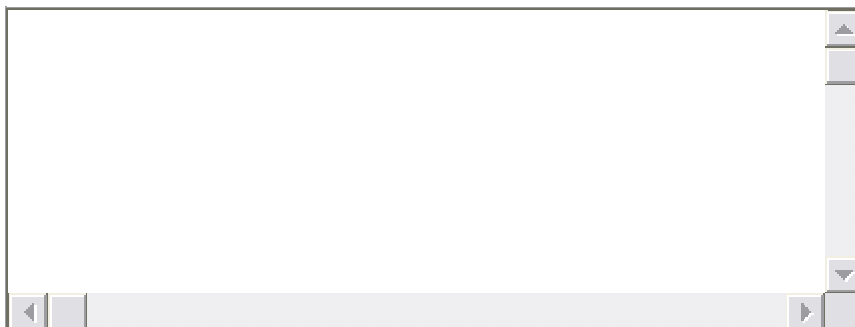**25. As a result of my participation in OZTL_NET my professional practice has changed:**
- ○ Significantly
- ○ A bit
- ○ Not really
- ○ I'm not sure

26. OZTL_NET provides a useful means for participants to solve problems:
- ○ Definitely
- ○ Sometimes
- ○ Rarely
- ○ I'm not sure

27. As a result of my involvement in OZTL_NET I have participated in activities with others that have resulted in collaborations best described as (please select all that apply):
- ☐ Group projects of benefit to the profession more generally
- ☐ Group projects of benefit to my workplace
- ☐ Knowledge creation/construction
- ☐ Lobbying and advocacy activities
- ☐ I don't consider that I've participated in collaborative activities as a result of my involvement in OZTL_NET
- ☐ Collection and dissemination of information through the use of *targets* or *hits*
- ☐ Participation in activities involving students, eg. book raps
- ☐ *Other opportunities* (Please provide details)

28. On the basis of your participation in OZTL_NET, what degree of *professional community* do you feel you've experienced:
- ○ Strong sense of community
- ○ Moderate sense of community
- ○ Some sense of community
- ○ No sense of community

29. The approximate number of times I have accessed the OZTL_NET website is:
- ○ Never
- ○ 1-5 times
- ○ 6-20 times
- ○ More than 20 times

30. The approximate number of times I have accessed the OZTL_NET archives is:
- ○ Never
- ○ 1-5 times
- ○ 6-20 times
- ○ More than 20 times

31. The approximate number of times I have contacted an OZTL_NET administrator is:
- ○ Never
- ○ 1-5 times
- ○ 6-20 times
- ○ More than 20 times

32. Do you belong to any other e-mail discussion lists?
- ○ Yes
- ○ No

33. If you answered Yes **to Question 32, how does OZTL_NET compare in terms of its usefulness to you in your professional life?**
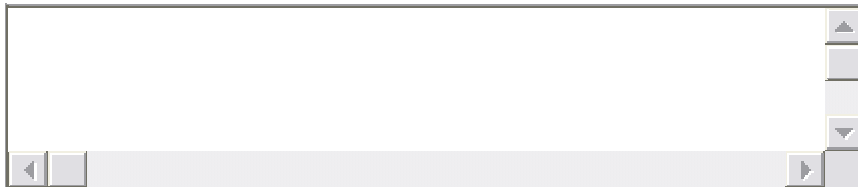- ○ Better
- ○ About the same
- ○ Worse

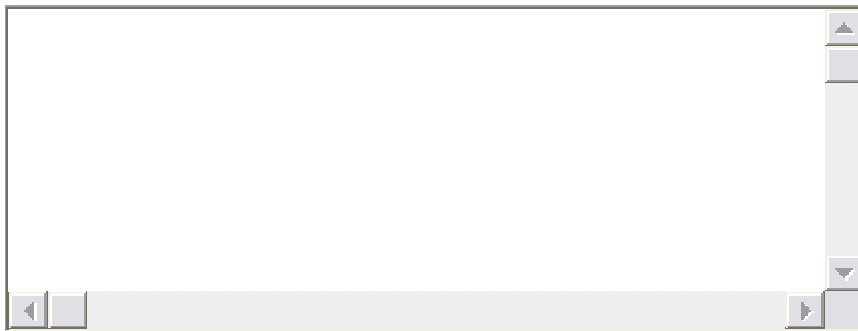**34. Have you experienced barriers to greater participation in OZTL_NET?**
- ○ Yes
- ○ No

35. If you answered Yes **to Question 34, what kinds of barriers to participation in OZTL_NET did you experience? Please select all that apply.**
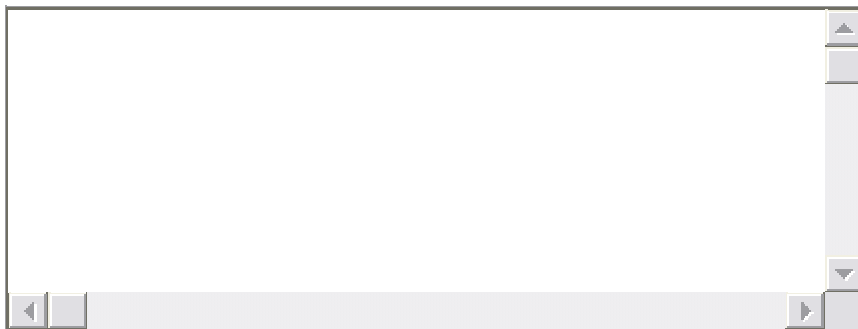
☐ Time constraints
☐ Connection problems
☐ Limited computer access
☐ Lack of computer skills
☐ Lack of confidence online
☐ *Other*
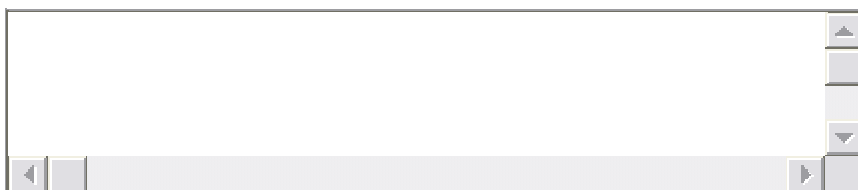
36. What would lead you to unsubscribe from OZTL_NET or use it less often?

37. How would you describe the impact that OZTL_NET has had on you *personally and professionally*? Please be specific and include specific examples as you state and describe the impact OZTL_NET has had on you:

38. Please provide a specific example that illustrates the impact that your participation in OZTL_NET has had on your *school or workplace*.

39. Do you have a favourite OZTL_NET story or anecdote to share?

40. Is there something in particular about OZTL_NET you find annoying or that frustrates you?

41. Please list any suggestions you have for improvements to OZTL_NET.

42. Any other comments about OZTL_NET you would like to make?

Submit

Check your responses and then press

If there are any system or network problems please print the survey and fax to Ken Dillon on (02) 6933 2733.

Please complete this online survey by Wednesday December 11. Thank You.

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APPENDIX E: COVER EMAIL, OZTL_NET USER SURVEY

Dear OZTL_NET subscriber. This email comes to you as a randomly selected subscriber to OZTL_NET. As Co-Administrator of OZTL_NET since its inception in 1995, I am very interested in receiving feedback about how you use OZTL_NET. The purpose of the online survey is to derive a profile of OZTL_NET participants and to obtain data to help determine an answer to the question: "For what purpose/s do participants use OZTL_NET?"

The survey constitutes the first phase of data collection in my doctoral program at the University of Southern Queensland. Your participation in this survey will provide extremely useful information for planning improvements to OZTL_NET and will provide guidance as to where OZTL_NET should head in the future. I would therefore greatly appreciate it if you could take some time to complete the survey online (details below) as responses from every survey are critical for the reliability of the data.

Would you please complete and submit the online survey by **December 9, 2002**?   The submission of surveys will be 'tracked' for the purposes of administration only. Confidentiality of responses and respondents is assured. An 'executive' summary of the results of the survey will be made available to respondents via OZTL_NET at the conclusion of the data analysis. I would be more than happy to answer any question/s you might have by email, phone or fax (details below).

Many thanks for your assistance. Ken Dillon.

The survey is online at http://farrer.riv.csu.edu.au/surveys/oztlnet/

Username: kdillon
Password: single

APPENDIX F: FOLLOW-UP EMAIL TO SURVEY NON-RESPONDENTS

Dear OZTL_NET Subscriber. At the end of last year you were among a random sample of OZTL_NET subscribers who received a request to complete an important survey about your use of OZTL_NET. Unfortunately, a number of you were unable to participate due to end-of-year commitments, etc. **IT IS NOT TOO LATE** to complete and submit the "OZTL_NET User Survey" online! If you receive this message then you have either:

1) not yet replied to the survey

2) did not cut'n'paste your survey identifier number into the web page prior to submitting the completed survey.

I appreciate that you are very busy at this time but I would greatly value your input into how you use OZTL_NET and what improvements you would like to see made to YOUR listserv!

Kind regards, Ken Dillon.

This e-mail comes to you as a randomly-selected subscriber to OZTL_NET. As Co-Administrator of OZTL_NET since its inception in 1995, I am very interested in receiving feedback about how you use OZTL_NET. The purpose of this online survey, the "OZTL_NET User Survey", is to derive a profile of OZTL_NET participants and to obtain data to help determine an answer to the question: "For what purpose/s do participants use OZTL_NET?"

Your participation in this survey will provide extremely useful information for planning improvements to OZTL_NET and will provide guidance as to where OZTL_NET should head in the future. Please take this opportunity to contribute your input into this very important survey. The survey will take between about 15-20 minutes to complete. The reliability of findings and recommendations require input from a wide cross section of respondents. The survey constitutes the first phase of data collection in my doctoral program at the University of Southern Queensland.

Would you please complete and submit the online survey by **Monday, February 24 2003?** The submission of surveys will be 'tracked' for the purposes of administration only. Confidentiality of responses and respondents is assured. An 'executive' summary of the results of the survey will be made available to respondents via OZTL_NET at the conclusion of the data analysis. I would be more than happy to answer any question/s you might have by e-mail, 'phone or fax (details below).

The survey is online at

http://farrer.riv.csu.edu.au/surveys/oztlnet/

It requires a login:

Username: survey

Password: N****   (must use upper case 'N')

Your survey identifier is: **46572**

Please copy-and-paste this numeric identifier into the survey form where indicated.

Many thanks for your assistance, Ken Dillon

kdillon@csu.edu.au <mailto:kdillon@csu.edu.au>

~~~~~~
Ken Dillon
Head, School of Information Studies
Charles Sturt University-Wagga Wagga
Locked Bag 675
Wagga Wagga NSW 2678 Australia
(02) 6933 2522 (W)
(02) 6933 2733 (Fax)
kdillon@csu.edu.au
~~~~~~

APPENDIX G: DEMOGRAPHIC DATA FOR INTERVIEWEES

Interviewee (Pseudonym)	Gender	Age (Range)	Years as a TL	Enrolled in Uni Course	Member Prof'l Ass'n	Current Position *
Gail	F	45-54	>19	N	Y	5,7,8
Jane	F	45-54	10-14	N	Y	1,10
Cheryl	F	45-54	5-9	N	Y	1,3,4
Alice	F	45-54	5-9	N	Y	1
Clare	F	55-64	>19	N	Y	1
Sue	F	>64	<4	N	Y	1
Amy	F	45-54	5-9	N	N	3,10
Dave	M	55-64	>19	N	N	1,3
Karen	F	55-64	15-19	N	Y	1
Bob	M	45-54	10-14	N	N	1,2,3

* Current position was a multiple response question:

1. Teacher Librarian
2. Classroom Teacher
3. School IT or ICT Coordinator
4. Curriculum Leader/Coordinator
5. Teacher Responsible for the Library
6. Library Technician/Assistant
7. University Student
8. Principal or Other School Executive
9. University Academic
10. Librarian (but not teacher librarian)
11. Publisher, supplier or vendor
12. Retired or former educator
13. Other (please define your position or situation)

APPENDIX H: INTERVIEW SCHEDULE

[Background: Thank you for agreeing to participate in this interview. Responses to a recent survey of randomly selected OZTL_NET subscribers indicated a number of unresolved issues relating to aspects of how the listserv is used. Your open responses to the following questions will assist me in my attempts to better understand how subscribers use OZTL_NET. Your responses will also assist me in better understanding what participation in OZTL_NET has **meant to you** both personally and professionally].

The interview is in four parts:

Part One is about professional discussion on OZTL_NET.
Part Two is about management of OZTL_NET messages and content.
Part Three is about professional and personal impacts on your participation in OZTL_NET.
Part Four is about your experience of professional learning, knowledge creation and online community as a result of participation in OZTL_NET.

Part 1: Professional Discussion on OZTL_NET

1.1 What do you understand constitutes professional discussion as opposed to other types of messages posted to OZTL_NET?
1.2 Can you recall and describe a specific professional discussion experience you have had as a subscriber to OZTL_NET?
    1.2.1 What was the topic of this discussion?
        Prompts:
- How was it initiated and sustained?
- Who was involved?
- How did the discussion conclude?
- What were the outcomes of the discussion?
- What did you learn from the discussion?

1.3 Relevant to other messages, is the number/amount of messages devoted to professional discussion on OZTL_NET appropriate? Why/ why not?

Part 2: Management of OZTL_NET Messages and Content

2.1 Are there any aspects of the management of OZTL_NET messages and content that need improvement? eg. some survey respondents revealed concerns about the following issues, each of which I'd appreciate a brief comment on from your perspective:
    2.1.1 Use of message subject lines
    2.1.2 Use of subject line keywords
    2.1.3 Use of digest message option
    2.1.4 Access to OZTL_NET archives
    2.1.5 Awareness of OZTL_NET website
    2.1.6 Use of "target-hit" discussion tool
    2.1.7 Level of involvement of list administrators
    2.1.8 Other issues related to content/message management?

Part 3: Professional and Personal Impacts on Your Participation in OZTL_NET

3.1 The survey of subscribers revealed that each of the following factors had a significant impact upon the experience of participation in OZTL_NET. I'd be grateful for your comments regarding each of these impacts on your participation:

      3.1.1 Time to participate

      3.1.2 Number of messages

      3.1.3 Dominance of some individual subscribers

      3.1.4 Quality & level of discussion & ideas

      3.1.5 Posting of inappropriate messages

      3.1.6 Other significant impacts on participation?

3.2 Survey respondents also reported a number of professional and personal impacts as a result of their participation in OZTL_NET. I'm interested in your views about each of the following based on your experience with OZTL_NET:

      3.2.1 Professional collegiality and relationship building

      3.2.2 Means of overcoming isolation and feeling supported

      3.2.3 Form of ongoing professional development

      3.2.4 Value as a forum for advice & information gathering &/or sharing

      3.2.5 Enhanced performance &/or reputation as a practitioner

Part 4: Experience of Professional Learning, Knowledge Creation and Online Community

4.1 Finally, analysis of the survey responses identified a number of factors related to professional learning, the creation of knowledge and online community resulting from participation in OZTL_NET. Based on your participation in OZTL_NET, what is your experience in terms of the following factors?

      4.1.1 Sense of belonging to a community

      4.1.2 Learning through interaction with others

      4.1.3 Mechanism to aid critical reflection on practice

         Prompts:

            • eg. challenges to personal beliefs, core values as an educator, assumptions or perspectives on education?

      4.1.4 Generation of new ideas through interactions online

      4.1.5 Opportunity to contribute new knowledge to the profession

      4.1.6 Evidence of knowledge creation/construction.

Many thanks for your involvement in this interview. Your views are greatly appreciated and valued.

APPENDIX I: FOLLOW-UP EMAIL TO INTERVIEWEES

Dear XXXX.

I invite you to take part in a research study that examines your experience of participation in OZTL_NET. I am interested in your feedback about how you use OZTL_NET and what outcomes participation in OZTL_NET has had for you. Your participation will involve you answering a series of questions grouped into four parts. The interview will be conducted by telephone at a time convenient to you. You will be emailed a copy of the questions about 60 minutes prior to the commencement of the interview for the purposes of familiarization. Your open responses to these questions will assist me in better understanding aspects of OZTL_NET use and participation reported by subscribers to a recent online survey, the "OZTL_NET User Survey", which sought to help determine an answer to the question: "For what purpose/s do participants use OZTL_NET?"

Your participation in this telephone interview will provide further useful information for planning improvements to OZTL_NET and will provide guidance as to where OZTL_NET should head in the future. The telephone interview will take approximately 50-60 minutes to complete. The interview constitutes the second phase of data collection in my doctoral program at the University of Southern Queensland. The study and methods used have the approval of the Office of Research and Higher Degrees at USQ through the USQ Ethics Committee.

Every effort will be made to assure confidentiality of responses and privacy of interviewees. Whilst the interviews will be taped, pseudonyms will be used in interview transcripts and the identity of any individuals mentioned in the transcripts will be protected. Please be aware that selected quotes from interview transcripts may be used in the writing of the thesis.

Should you be willing to participate in a telephone interview under the conditions described in this message, please confirm your availability by responding to this email so that I can schedule a time with you for the interview.

FYI, an 'executive summary' will be made available via OZTL_NET at the conclusion of the study. I would be more than happy to answer any question/s you might have by e-mail, 'phone or fax (details below).

Many thanks, Ken.

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APPENDIX J: MAJOR MILESTONES IN THE EVOLUTION OF OZTL_NET

1994-October	Lyn Hay first posits idea to start OZTL_NET
1994-December 14	Hay's proposal regarding OZTL_NET receives support from CSU teacher librarianship discipline
1995-August 4	First "public" message sent to OZTL_NET
1995-August 31	Subscribers = 124
1995-December	Lowest monthly number of messages posted (n=23)
1996-June 8	First OZTL_NET Breakfast, Sydney
1996-June 8	Subscribers = 641
1996-August 4	Daily digest message version becomes available
1997-March 6	Mail server changed from "Harpo" to listserv.csu.edu.au
1997-April	OZTL_NET website goes live
1998-September	Policy for commercial activity on OZTL_NET introduced
1999-May 19	First OZTL_NET message footer added
1999-June	OZTL_NET exceeds 10000 message postings
2000-July	Highest number of archive searches (n=579)
2000-August 4	Fifth birthday of OZTL_NET
2000-August	Number of unique subscriber addresses exceeds 2050
2000-August	Number of digest subscribers peaks at 685
2001-March	OZTL_NET exceeds 20000 message postings
2002-February 4	Listserv software changed from Smartlist to Mailman
2002-May	Highest monthly number of messages posted (n=685)
2002-October	Lowest number of archive searches (n=39)
2002-November	OZTL_NET exceeds 30000 message postings
2004-August	Number of unique subscriber addresses exceeds 2100
2005-August 4	OZTL_NET turns ten

APPENDIX K: LISTSERVS FOR AUSTRALIAN TEACHER LIBRARIANS

ALIAschoolsvic

1.   Listserv name: ALIAschoolsvic
2.   Name of list owner/moderator: Administrators – Barbara Bugg
3.   Email address of list owner/moderator: bugg.barbara.r@edumail.vic.gov.au
4.   Website address: http://www.alia.org.au/alianet/e-lists/
5.   Purpose of listserv: We are trying to use the list as a means of communicating with members but only about 35 people belong to the list of about 200 members. We tried an online conference last year with a little success. But it needs more work I think.
6.   Target audience for listserv: Teacher librarians who are members of ALIA (Australian Library and Information Association)
7.   Approximate membership of listserv: 35-40 as at 19 April 2005.

NATLA

1.   Listserv name: NATLA
2.   Name of list owner/moderator: Ruth Higginbottom
3.   Email address of list owner/moderator: ruth.higginbottom@det.nsw.edu.au
4.   Website address: http://www.natla.com.au
5.   Purpose of listserv: Established for all teacher librarians in the Hunter area. Free to join. Used to disseminate information, collegiate and technology support and sharing of resources.
6.   Target audience for listserv: All teacher librarians in Hunter region of NSW.
7.   Approximate membership of listserv: 120

NSWTL

1.   Listserv name: NSWTL = NSW Teacher Librarians
2.   Name of list owner/moderator: Administrators - Sue Lacey & Laureen Sheppard
3.   Email address of list owner/moderator: - Personal
     slacey@ozemail.com.au; laureensheppard@yahoo.com.au;
     For administration of the listserv
     nswtla@yahoo.com.au; nswtlsheppard@yahoo.com.au
4.   Website address:
     http://nswceg.org.au/cgi-bin/mailman/listinfo/nswtl
5.   Purpose of listserv:
     It is not uncommon for DET library staff in any school to feel isolated and unable to share concerns with colleagues on a daily basis. Although other staff members can sympathise with the challenges facing today's library staff, it often takes someone else in exactly the same position to fully understand them. DET library staff grapples daily with time management, funding, technology and educational issues that are unique to them (often in that order unfortunately). Why not discuss them with your colleagues? The Teacher/Librarian's listserv has been established so information can be shared. Unlike other listservs, this will be confined to *NSW DET schools*

only. This has been done to keep down the volume of messages, and ensure that the majority of messages will be relevant to the majority of the library staff on the listserv. For the same reason, subscribers will be limited to library staff only ie. no commercial advertisers.

6.   Target audience for listserv: Library staff (TLs & Library Officers) in NSW DET schools.
7.   Approximate membership of listserv: 510 as at 13 March 2005.

TASLIB-LINK

1.   Listserv name: Taslib-link
2.   Name of list owner/moderator: Jane Hofto/Tricia Scott
3.   Email address of list owner/moderator: jane.hofto@education.tas.gov.au; tricia.scott@education.tas.gov.au
4.   Website address:
      http://www.education.tas.gov.au/delic/professional/tasliblink.htm
5.   Purpose of listserv: Taslib-link is a Tasmanian-based and focused email forum established to provide a means of communication, education and support for library staff in all library arenas across the state.
6.   Target audience for listserv: All Tasmanian library staff.
7.   Approximate membership of listserv: 280 as at 13 March 2005.

WATLNET

1.   Listserv name: Watlnet
2.   Name of list owner/moderator: Bev Blackwell
3.   Email address of list owner/moderator: bev.blackwell@det.wa.edu.au
4.   Website address: http://www.eddept.wa.edu.au/cmis/cat/watlnet.htm
5.   Purpose of listserv: Watlnet's purpose is to encourage discussion and sharing between West Australians interested in school libraries. Its intention is to provide information and networking opportunities at the local level.
6.   Target audience for listserv: Teacher librarians, Resource Teachers, Library Officers and any other West Australians interested in school libraries.
7.   Approximate membership of listserv: 494 subscribers at 14 March 2005.

APPENDIX L: DESCRIPTION OF THE VARIABLES USED IN THE QUANTITATIVE ANALYSIS

1. VARIABLE LABELS AND NAMES

VARIABLE LABEL	VARIABLE NAME
1. PRACTICA	Professional practice
2. PROBSOLA	Problem solving
3. INVOLVE	Type of involvement
IMPIDEA	Implementing ideas
MOREINFO	Seeking more information
DISCUSS	Discussing and debating issues
SOLVPROB	Solving problems
PDOPP	Professional development opportunities
4. COLLAB	Collaboration
BENPROF	Group projects of benefit to the profession
BENWORK	Group projects of benefit to workplace
KNOWCREA	Knowledge creation
TARGET	Use of discussion tools such as targets and hits
5. NEWFREQ	Frequency of message posting
6. SUBTIME	Duration of subscription to OZTL_NET
7. TIMEACC	Time spent accessing OZTL_NET
8. WEBSITE	Times accessed OZTL_NET website
9. ARCHIVES	Times accessed OZTL_NET archives

2. TEACHER PROFESSIONAL LEARNING (TPL) VARIABLES

VARIABLE LABEL	VARIABLE CODING
1. PRACTICA	Ordinal scale with values 1-4
2. PROBSOLA	Ordinal scale with values 1-4
3. INVOLVE	
IMPIDEA	Dichotomous items 0/1
MOREINFO	Dichotomous items 0/1
DISCUSS	Dichotomous items 0/1
SOLVPROB	Dichotomous items 0/1
PDOPP	Dichotomous items 0/1
4. COLLAB	
BENPROF	Dichotomous items 0/1
BENWORK	Dichotomous items 0/1
KNOWCREA	Dichotomous items 0/1
TARGET	Dichotomous items 0/1

3. USAGE VARIABLES

VARIABLE LABEL	VARIABLE NAME AND CODING
1. NEWFREQ	Ordinal scale with values 1-4
2. SUBTIME	Ordinal scale with values 1-4
3. TIMEACC	Ordinal scale with values 1-4
4. WEBSITE	Ordinal scale with values 1-4
5. ARCHIVES	Ordinal scale with values 1-4

APPENDIX M: RELATIONSHIPS BETWEEN MEMBERSHIP OF PROFESSIONAL ASSOCIATION AND SELECTED INDICATORS OF TEACHER PROFESSIONAL LEARNING

1. PRACTICA * PROFASS Crosstabulation

Count

		PROFASS		
		0	1	Total
PRACTICA	1.00	2	2	4
	2.00	10	17	27
	3.00	24	77	101
	4.00	9	28	37
Total		45	124	169

2. PRACTICA * PROFASS Mann-Whitney U Test

Ranks

	PROFASS	N	Mean Rank	Sum of Ranks
PRACTICA	0	45	78.04	3512.00
	1	124	87.52	10853.00
	Total	169		

3. IMPIDEA * PROFASS Crosstabulation

Count

		PROFASS		
		0	1	Total
IMPIDEA	0	17	25	42
	1	28	100	128
Total		45	125	170

4. SOLVPROB * PROFASS Crosstabulation

Count

		PROFASS		
		0	1	Total
SOLVPROB	0	18	38	56
	1	27	87	114
Total		45	125	170

5. DISCUSS * PROFASS Crosstabulation

Count

		PROFASS		
		0	1	Total
DISCUSS	0	22	42	64
	1	23	83	106
Total		45	125	170

6. PDOPP * PROFASS Crosstabulation

Count

		PROFASS		
		0	1	Total
PDOPP	0	16	25	41
	1	29	100	129
Total		45	125	170

Group Statistics – T-Test (COLLAB and PRACTICA)

	PROFASS	N	Mean	Std. Deviation	Std. Error Mean
COLLAB	0	45	.9111	1.01852	.15183
	1	125	1.4400	1.04264	.09326
PRACTICA	0	45	2.8889	.77525	.11557
	1	124	3.0565	.65397	.05873

Independent Samples Test

|		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
COLLAB	Equal variances assumed	1.689	.196	-2.936	168	.004	-.5289	.18017	-.88458	-.17320
	Equal variances not assumed			-2.968	79.448	.004	-.5289	.17818	-.88352	-.17425
PRACTICA	Equal variances assumed	2.443	.120	-1.399	167	.164	-.1676	.11973	-.40395	.06882
	Equal variances not assumed			-1.293	68.037	.201	-.1676	.12963	-.42624	.09111

318
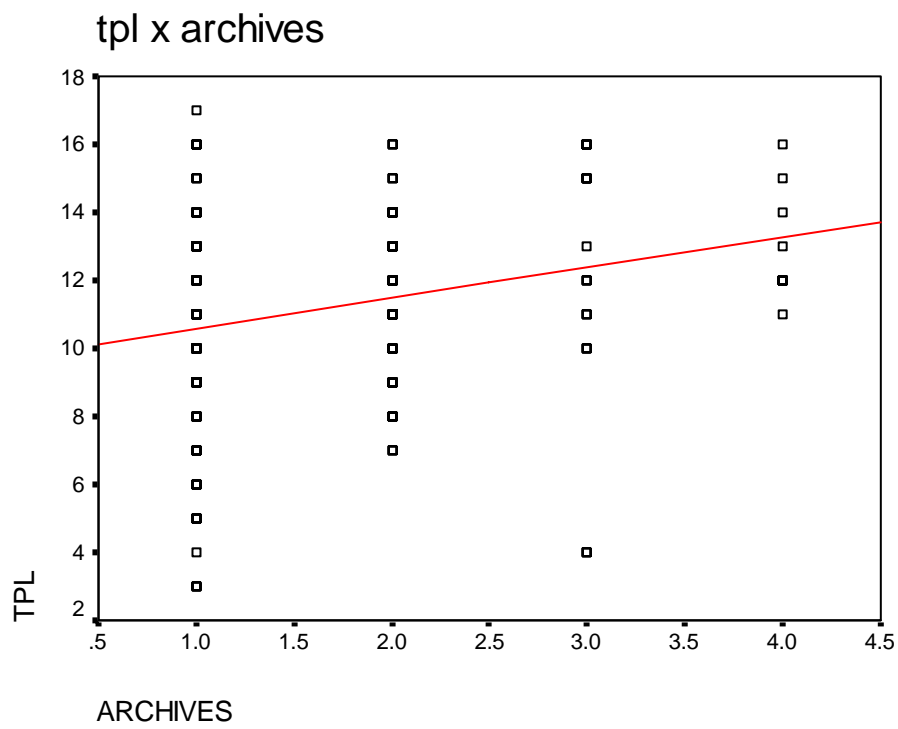
1. Frequency of access AND teacher professional learning
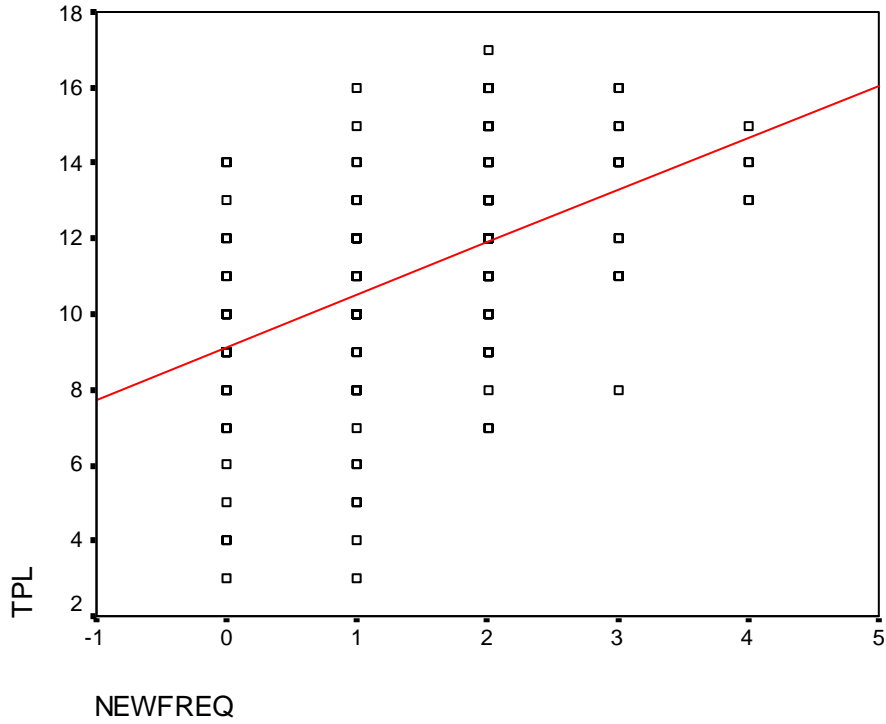
2. Time accessing OZTL_NET AND teacher professional learning

tpl x timeacc
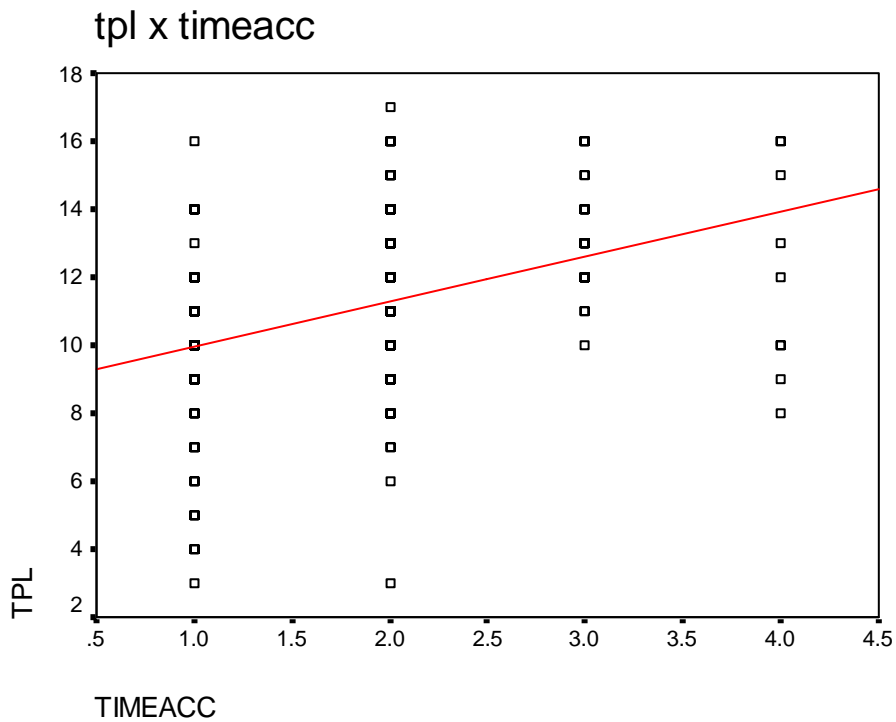
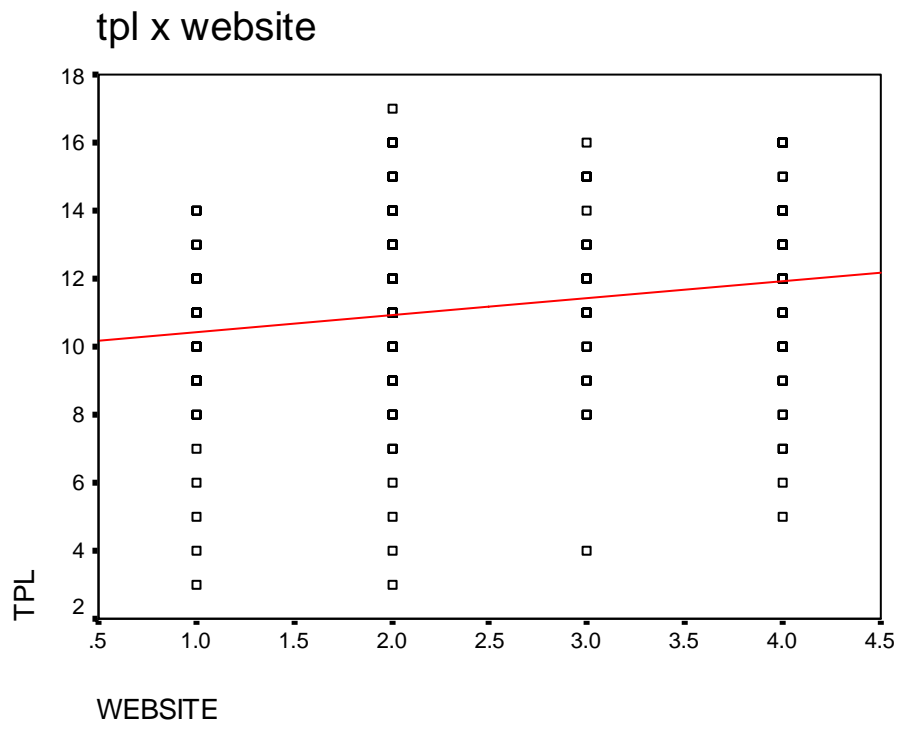3. Time subscribed to OZTL_NET AND teacher professional learning

tpl x subtime

SUBTIME
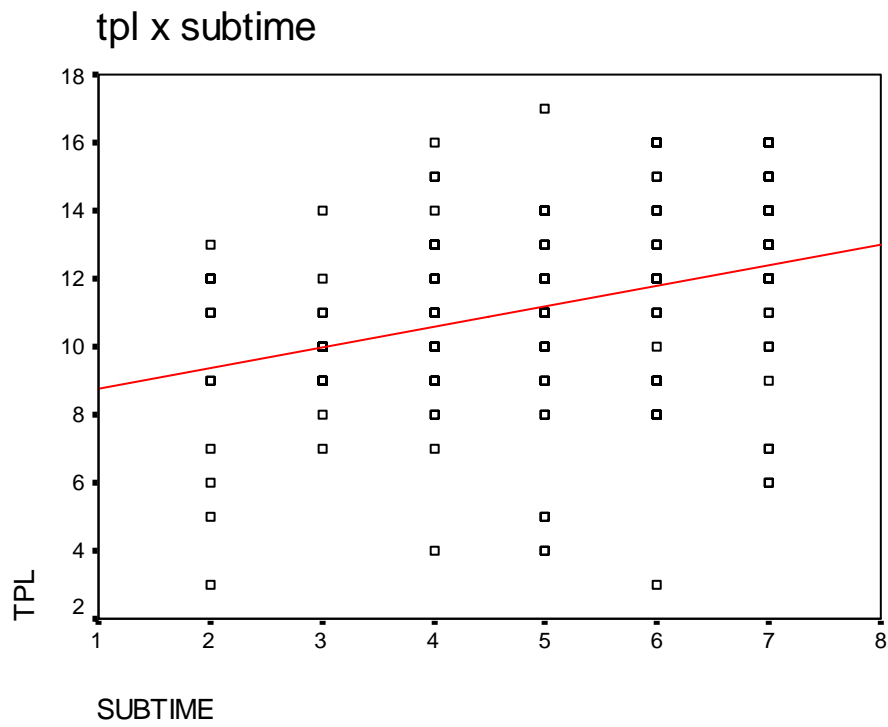
4. Frequency of archives access AND teacher professional learning

tpl x archives

ARCHIVES

5. Frequency of website visits AND teacher professional learning

tpl x website

Table N1: Multiple regression analysis of teacher professional learning

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				
					R^2 Change	F Change	df1	df2	Sig. F Change
1	.483(a)	.233	.229	2.52805	.233	50.796	1	167	.000
2	.538(b)	.289	.280	2.44182	.056	13.002	1	166	.000
3	.578(c)	.334	.321	2.37101	.045	11.064	1	165	.001
4	.595(d)	.354	.338	2.34184	.020	5.136	1	164	.025

a Predictors: (Constant), NEWFREQ
b Predictors: (Constant), NEWFREQ, TIMEACC
c Predictors: (Constant), NEWFREQ, TIMEACC, SUBTIME
d Predictors: (Constant), NEWFREQ, TIMEACC, SUBTIME, ARCHIVES

Table N2: Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.122	.349		26.122	.000
	NEWFREQ	1.381	.194	.483	7.127	.000
2	(Constant)	7.771	.504		15.418	.000
	NEWFREQ	1.157	.197	.405	5.869	.000
	TIMEACC	.877	.243	.249	3.606	.000
3	(Constant)	5.949	.735		8.096	.000
	NEWFREQ	.987	.198	.345	4.982	.000
	TIMEACC	.893	.236	.253	3.784	.000
	SUBTIME	.406	.122	.219	3.326	.001
4	(Constant)	5.373	.769		6.989	.000
	NEWFREQ	.908	.199	.318	4.568	.000
	TIMEACC	.888	.233	.252	3.807	.000
	SUBTIME	.380	.121	.206	3.143	.002
	ARCHIVES	.494	.218	.146	2.266	.025

a Dependent Variable: TPL

APPENDIX P: OZTL_NET SUBSCRIBER PROFILE

Unfortunately a statistical profile of Australian teacher librarians does not exist so it was not possible to make obvious comparisons between the demographic profile of the sample used for this study and that of the broader population of Australian teacher librarians. However, some demographic trends are evident in the literature making possible some indicative points of comparison between the characteristics of the sample, the population of teacher librarians and the broader population of Australian teachers.

The sample was comprised of 150 females (88.24 per cent) and 20 males (11.76 per cent). These proportions are somewhat inconsistent with those that exist in the broader population of Australian teachers wherein 69.11 per cent of practitioners are females and 30.89 per cent are males (Australian Bureau of Statistics, 2003a). Anecdotal evidence, however, supports the view that the percentage of female teacher librarians is actually substantially higher than the proportion for all Australian teachers (Kaye, 2000) and that the proportions that comprise the current sample more accurately reflect the proportions that exist in the specialisation of teacher librarianship.

Similarly, the results displayed in Table P1 indicate that in excess of 70 per cent of the sample was aged 45 or more. These data are reasonably consistent with the proportion reported by Alderman (2001: 12) whose sample showed that 82.67 per cent of teacher librarians in the Australian Capital Territory were aged 40 or greater. However, the result for the sample differs substantially from the national age profile of teachers that indicates 41.5 per cent of Australian teachers are aged 45 or more (Australian Bureau of Statistics, 2003b). It would appear then that Alderman (2001, 2003), Kaye (2000) and Nimon (2004) are justified in identifying the "greying of the profession" as an immediate challenge for educational authorities, professional associations and educators of teacher librarians.

Table P1:   Age distribution of OZTL_NET subscriber sample

Age (Years)	Freq	Percent
< 25	2	1.18
25-34	10	5.88
35-44	35	20.59
45-54	102	60.00
55-64	20	11.76
> 64	1	0.59
	170	**100.00**

Length of experience as a teacher librarian varied across the sample. Table P2 indicates that in excess of one-third of the sample had had 15 or more years experience as a teacher librarian (34.71 per cent) and about one-fifth had more than 19 years experience in the role. Whilst 13.53 per cent of the sample had less than four years experience as a teacher librarian, it is likely that they were experienced classroom teachers before undertaking further study to become a teacher librarian. (Typically, teacher librarians are experienced teachers who undertake formal postgraduate qualifications to become teacher librarians or, alternatively, have undertaken a training course sponsored and supplied by an educational authority or have otherwise been "appointed" to the position without formal qualifications). Seventeen per cent of the sample indicated that they were not currently practicing as teacher librarians. This result confirms anecdotal evidence that suggests that the OZTL_NET membership contains one or more groups of subscribers who are not practicing teacher librarians.

Table P2:   Length of experience as a teacher librarian of OZTL_NET subscriber sample

Years as a TL	Freq	Percent
Less than 4	23	13.53
5 to 9	31	18.24
10 to 14	28	16.47
15 to 19	24	14.12
More than 19	35	20.59
Not a TL	29	17.05
	170	**100.00**

Question four of the web survey sought to determine the subscriber's current position or situation. In addition to the group of subscribers who were not practising teacher librarians, the literature (Lonsdale, 2003) also pointed to the multiplicity of roles that

many teacher librarians undertake in their daily practice. An enhanced understanding of the complexity of these roles and of the roles of non-teacher librarians who subscribe to OZTL_NET assists in providing a more realistic profile of the sample and helps inform both the formulation of questions for the interview and their analysis as subscriber needs and motivations became more transparent.

Table P3 shows that about 40 per cent of subscribers described their current position or situation as teacher librarian only. A further 67 respondents (39.41 per cent) described themselves as teacher librarians with at least one other area of responsibility within the school. Of these, eight were in the "other" category. The respondents who did not describe themselves as teacher librarians included library technicians/assistants (n=8), librarians (n=6), classroom teachers (n=3), teacher responsible for the library (n=2) and classroom teacher/IT or ICT coordinator (n=2). There was one 'no response' to this question.

Table P3:   Current position or situation of OZTL_NET subscriber sample

Current position or situation	Freq.	Percent
Teacher librarian	71	41.77
Teacher librarian & IT/ICT coordinator	13	7.65
Teacher librarian & Other	13	7.65
Library technician/assistant	8	4.7
Teacher librarian & Teacher responsible for library	8	4.7
Librarian	6	3.53
Teacher librarian & Classroom teacher	5	2.94
Teacher librarian & Classroom teacher & Other	5	2.94
Teacher librarian & Curriculum leader	5	2.94
Classroom teacher	3	1.76
Teacher librarian & Classroom teacher & IT/ICT coordinator	3	1.76
Teacher librarian & IT/ICT coordinator & Curriculum leader	3	1.76
Teacher responsible for library	2	1.18
Teacher librarian & IT/ICT coordinator & Teacher responsible for library	2	1.18
Teacher librarian & Librarian	2	1.18
Classroom teacher & IT/ICT coordinator	2	1.18
Other	19	11.18
Total	**170**	**100.00**

Responses to question five of the web survey revealed that there were 21 respondents or 12.35 per cent of the sample enrolled in a university course in teacher librarianship or a related discipline such as librarianship. This result may have some implications for use of OZTL_NET, a listserv hosted by a university that provides courses in

teacher librarianship, in terms of student subscribers. The shortage of qualified teacher librarians has been an issue confronting educational systems and the profession for some considerable time (Alderman, 2001, 2003; Kaye, 2000 and Nimon, 2004). For example, Reynolds and Carroll (2001) found that the number of qualified teacher librarians in their survey of Victorian primary school libraries had decreased from 55 to 13 per cent in the period 1983-2001. Use of OZTL_NET might then be on the basis of a need for information to inform the professional practice of a significant group of teacher librarians who have no formal qualifications in the discipline.   Responses to question six of the web survey indicated that there were 42 subscribers (24.7 per cent) who did not belong to at least one professional association besides their industrial union.

Table P4 shows that all states and territories were represented in the sample except for the Northern Territory. Most respondents came from Victoria (27.65 per cent) and NSW (24.71 per cent) with these two states accounting for 52.36 per cent of the total sample between them. On the assumption that the vast majority of schools have one person designated as the teacher librarian, Victorian subscribers were marginally over-represented in the sample whilst NSW subscribers were slightly under-represented. The next most well represented states were Queensland (20.59 per cent), which was marginally over-represented, and Western Australia (10.59 per cent, marginally under-represented). The Australian Capital Territory, Tasmania and South Australia accounted for the remaining Australian proportion with 14.71 per cent of the sample among them, a slightly greater representation than their combined representation of 12.78 in the population of Australian schools (Australian Bureau of Statistics, 2004). The three 'other' respondents were from Hong Kong, Singapore and South Africa.

Table P4:   Geographical distribution of OZTL_NET subscriber sample

State/Territory	Sample Freq	Sample Percent	Population Freq	Population Percent
ACT	7	4.12	138	1.44
NSW	42	24.71	3092	32.18
NT	0	0.00	183	1.90
QLD	35	20.59	1728	17.99
TAS	8	4.71	281	2.92
SA	10	5.88	809	8.42
VIC	47	27.65	2312	24.07
WA	18	10.59	1064	11.08
Other	3	1.75	0	0.00
	170	**100.00**	**100**	**100.00**

Table P5 indicates that exactly 50 per cent of the subscribers work in non-government schools, 42.35 per cent work in state schools, and 7.65 per cent of the sample does not work in schools. This result in combination with the data reported in Table P4 confirms the national status of OZTL_NET in that the listserv draws subscribers from almost all states and territories and educational systems of Australia.

Table P5:   Distribution of OZTL_NET subscriber sample by educational system

School System	Freq	Percent
State	72	42.35
Catholic	34	20.00
Independent	51	30.00
Not in school	13	7.65
	170	**100.00**

Almost 35 per cent of the sample works in secondary schools whilst 31.12 per cent work in primary schools. Table P6 shows that just in excess of one-fifth of respondents are from P-12 or K-12 schools while 7.65 per cent do not work in schools. Of the ten respondents who worked in "other" schools, six of these were senior high schools or colleges with Year 11 and 12 enrolments only. These results show that subscribers are also drawn from a range of school types and other workplaces.

Table P6:   Distribution of OZTL_NET subscriber sample by school type

School Type	Freq	Percent
Primary	53	31.12
Secondary	59	34.70
K or P-12	35	20.56
Other	10	5.97
Not in school	13	7.65
	170	**100.00**

More than half of the sample worked in capital cities whilst about 30 per cent worked in 'provincial' cities of 3000 or more people. 8.83 per cent of the sample worked in 'rural and remote' towns of less than 3000 people. Twelve people did not work in schools. In combination with the results from Tables P4-P6, Table P7 results appear to re-affirm the broad national base from which OZTL_NET draws its subscribers.

Table P7:   Distribution of OZTL_NET subscriber sample by school location

School Location	Freq	Percent
Capital city	90	52.94
City > 15K	37	21.76
City 3K-15K	16	9.41
Town 500-3K	13	7.65
Town < 500	2	1.18
Not in school	12	7.06
	170	**100.00**

Table P8 indicates that almost half of the subscriber sample works in schools of 700 or more student enrolments whilst less than 8 per cent are located in small schools of less than 200 enrolments. Slightly in excess of one-third of respondents worked in a school with between 200 and 700 student enrolments.

Table P8:   Distribution of OZTL_NET subscriber sample by student enrolment

Student Enrolment	Sample Freq	Sample Percent
< 50	2	1.17
50-199	10	5.88
200-449	36	21.18
450-699	28	16.47
> 700	82	48.24
Not in school	12	7.06
	170	**100.00**

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APPENDIX R: OZTL_NET MEMBERSHIP REMINDER EMAIL

```
This  is  a  reminder,  sent  out  once  a  month,  about  your
listserv.csu.edu.au  mailing  list  memberships.   It  includes  your
subscription info and how to use it to change it or unsubscribe from
a list.

You  can  visit  the  URLs  to  change  your  membership  status  or
configuration,  including  unsubscribing,  setting  digest-style
delivery or disabling delivery altogether (e.g., for a vacation),
and so on.

In addition to the URL interfaces, you can also use email to make
such  changes.   For  more  info,  send  a  message  to  the  '-request'
address     of     the     list     (for     example,     mailman-
request@listserv.csu.edu.au) containing just the word 'help' in the
message  body,  and  an  email  message  will  be  sent  to  you  with
instructions.

If  you  have  questions,  problems,  comments,  etc,  send  them  to
mailman-owner@listserv.csu.edu.au.   Thanks!

Passwords for kdillon@csu.edu.au:

List                                  Password // URL
----                                  --------
oztl_net@listserv.csu.edu.au          ******
```

http://listserv.csu.edu.au/mailman/options/oztl_net/kdillon%40csu.edu.au

APPENDIX R: OZTL_NET MEMBERSHIP REMINDER EMAIL

```
This  is  a  reminder,  sent  out  once  a  month,  about  your
listserv.csu.edu.au  mailing  list  memberships.   It  includes  your
subscription info and how to use it to change it or unsubscribe from
a list.

You  can  visit  the  URLs  to  change  your  membership  status  or
configuration,  including  unsubscribing,  setting  digest-style
delivery or disabling delivery altogether (e.g., for a vacation),
and so on.

In addition to the URL interfaces, you can also use email to make
such  changes.   For  more  info,  send  a  message  to  the  '-request'
address     of     the     list     (for     example,     mailman-
request@listserv.csu.edu.au) containing just the word 'help' in the
message  body,  and  an  email  message  will  be  sent  to  you  with
instructions.

If  you  have  questions,  problems,  comments,  etc,  send  them  to
mailman-owner@listserv.csu.edu.au.   Thanks!

Passwords for kdillon@csu.edu.au:

List                                  Password // URL
----                                  --------
oztl_net@listserv.csu.edu.au          ******
```

http://listserv.csu.edu.au/mailman/options/oztl_net/kdillon%40csu.edu.au

OZTL_NET mailing list membership configuration for kdillon at csu.edu.au

kdillon at csu.edu.au's subscription status, password, and options for the OZTL_NET mailing list.

Log out

We have received some recent bounces from your address. Your current *bounce score* is 2.0 out of a maximum of 10.0. Please double check that your subscribed address is correct and that there are no problems with delivery to this address. Your bounce score will be automatically reset if the problems are corrected soon.

Changing your OZTL_NET membership information

You can change the address that you are subscribed to the mailing list with by entering the new address in the fields below. Note that a confirmation email will be sent to the new address, and the change must be confirmed before it is processed.

Confirmations time out after about 3 days.

You can also optionally set or change your real name (i.e. *John Smith*).

If you want to make the membership changes for all the lists that you are subscribed to at listserv.csu.edu.au, turn on the *Change globally* check box.

New address: [   ]

Again to confirm: [   ]

Your name (optional): [   ]

Change My Address and Name

☐ Change globally

Unsubscribing from OZTL_NET

Your other listserv.csu.edu.au subscriptions

Turn on the confirmation checkbox and hit this button to unsubscribe from this mailing list. **Warning:** This action will be taken immediately!

You can view a list of all the other mailing lists at listserv.csu.edu.au for which you are a member. Use this if you want to make the same membership option changes to this other

Unsubscribe		subscriptions.
		List my other subscriptions
☐ *Yes, I really want to unsubscribe*		

Your OZTL_NET Password

Forgotten Your Password?
Click this button to have your password emailed to your membership address.

Email My Password To Me

Change Your Password

| New password: | [_____] |
| Again   to confirm: | [_____] |

Change My Password

☐ Change globally.

Your OZTL_NET Subscription Options

Current values are checked.

Note that some of the options have a *Set globally* checkbox. Checking this field will cause the changes to be made to every mailing list that you are a member of on listserv.csu.edu.au. Click on *List my other subscriptions* above to see which other mailing lists you are subscribed to.

Mail delivery Set this option to *Enabled* to receive messages posted to this mailing list. Set it to *Disabled* if you want to stay subscribed, but don't want mail delivered to you for a while (e.g. you're going on vacation). If you disable mail delivery, don't forget to re-enable it when you come back; it will not be automatically re-enabled.	◉ Enabled ○ Disabled ☐ *Set globally*
Set Digest Mode If you turn digest mode on, you'll get posts bundled together (usually one per day but possibly more on busy lists), instead of singly when they're sent. If digest mode is changed from on to off, you may receive one last digest.	◉ Off ○ On
Get MIME or Plain Text Digests?	○ MIME

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Your mail reader may or may not support MIME digests. In general MIME digests are preferred, but if you have a problem reading them, select plain text digests.	⦿ Plain Text ☐ *Set globally*
Receive your own posts to the list? Ordinarily, you will get a copy of every message you post to the list. If you don't want to receive this copy, set this option to *No*.	○ No ⦿ Yes
Receive acknowledgement mail when you send mail to the list?	⦿ No ○ Yes
Get password reminder email for this list? Once a month, you will get an email containing a password reminder for every list at this host to which you are subscribed. You can turn this off on a per-list basis by selecting *No* for this option. If you turn off password reminders for all the lists you are subscribed to, no reminder email will be sent to you.	○ No ⦿ Yes ☐ *Set globally*
Conceal yourself from subscriber list? When someone views the list membership, your email address is normally shown (in an obscured fashion to thwart spam harvesters). If you do not want your email address to show up on this membership roster at all, select *Yes* for this option.	⦿ No ○ Yes
What language do you prefer?	English (USA)
Which topic categories would you like to subscribe to? By selecting one or more topics, you can filter the traffic on the mailing list, so as to receive only a subset of the messages. If a message matches one of your selected topics, then you will get the message, otherwise you will not. If a message does not match any topic, the delivery rule	*No topics defined*

depends on the setting of the option below. If you do not select any topics of interest, you will get all the messages sent to the mailing list.	
Do you want to receive messages that do not match any topic filter? This option only takes effect if you've subscribed to at least one topic above. It describes what the default delivery rule is for messages that don't match any topic filter. Selecting *No* says that if the message does not match any topic filters, then you won't get the message, while selecting *Yes* says to delivery such non-matching messages to you. If no topics of interest are selected above, then you will receive every message sent to the mailing list.	◉ No ◯ Yes
Avoid duplicate copies of messages? When you are listed explicitly in the `To:` or `Cc:` headers of a list message, you can opt to not receive another copy from the mailing list. Select *Yes* to avoid receiving copies from the mailing list; select *No* to receive copies. If the list has member personalized messages enabled, and you elect to receive copies, every copy will have a `X-Mailman-Copy: yes` header added to it.	◉ No ◯ Yes ☐ *Set globally*

Submit My Changes

APPENDIX T: STANDARD OZTL_NET MESSAGE FOOTER

_____
```
OZTL_NET mailing list
OZTL_NET@listserv.csu.edu.au
```
_____

APPENDIX U: PREVIOUS OZTL_NET MESSAGE FOOTER

_____
 ** You have received this message as a subscriber to OZTL_NET **

To stop receiving OZTL_NET posts, send an 'unsubscribe' command
in the Subject Line to <OZTL_NET-request@listserv.csu.edu.au>.

Visit our website <http://www.csu.edu.au/research/cstl/oztl_net/> for
more information on list protocols.

NB: All posts of a commercial nature sent to OZTL_NET are moderated.
These posts should be sent directly to <OZTL_NETCOMM@csu.edu.au>.
_____