EXPLORING THE USE AND INFLUENCE OF THE USPE-L LISTSERV

ON K-12 PHYSICAL EDUCATORS

by

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(ABSTRACT)

Two themes appear to be prevalent today in K-12 physical education-- the challenges of

workplace conditions in relationship to teachers professional development, and the increasing

use of the Internet and its services. These two themes are reflected in this study. The purpose of

this study was to explore how USPE-L was being used by its subscribers and describe the

influence, if any, it had on K-12 physical education teachers. USPE-L is a physical education

listserv which encourages teachers to discuss and share ideas about improving their teaching and

programs--and perhaps also gain support from distant colleagues when it may not be

immediately available in a local community.

This study used multiple sources of data collection including an on-line (electronic mail) survey

(N=113), follow-up phone interviews (N=10), and the investigator's fieldnotes. Data analysis

included quantitative descriptive statistics and a qualitative inductive content analysis. The

findings revealed two overarching themes--benefits of participation and factors limiting

participation. These findings indicated that teachers read messages almost daily, yet prefer to

interact with others through private e-mail. Participation on the listserv appeared to be a valued

resource leading subscribers to teaching activities, teaching resources, curricular materials, and

reduced feelings of isolation. Implications are provided for listserv owners and K-12 physical

educators.

DEDICATION

This dissertation is dedicated to my parents, Carl and Ruth Pennington. Because of their examples, sacrifices, and support I was able to pursue my dream of a career in higher education. Thank you for your courage in overcoming life's challenges which has given me the strength to accomplish this project!

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special thanks to my wife, Carolyn, for her love, support, and patience throughout this last year. Dreams do come true!

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CHAPTER 1
INTRODUCTION

When one thinks of physical education they very well may not associate it with the use of a computer, particularly one that is connected to the Internet. Initially a relationship between these two may be viewed as somewhat of an odd couple until looking deeper at its possible applications for teachers.

One of the possible applications for physical education teachers is the use of a computer as a tool in their professional development efforts. Professional development has been defined as "the knowledge, skills, abilities, and the necessary conditions for teacher learning on the job" (Lieberman & Miller, 1992, p. 1045). Physical educators face some significant challenges when it comes to the conditions necessary for learning on the job in relationship to their professional development. These challenges will now be presented followed by a discussion of the Internet and its telecommunications functions as a possible tool for physical education teachers professional development.

Challenges to teachers professional development in relationship to workplace conditions have come as a result of researchers seeking to identify factors that may influence the professional lives of physical educators (Stroot, Collier, O'Sullivan, & England, 1994). One of the common challenges identified in the physical education literature is that of teacher isolation (Lambdin, 1986; Locke, 1974; Napper-Owen & Phillips, 1995; O'Sullivan, 1989; Smyth, 1995; Solomon, Worthy, & Carter, 1993; Stroot, Faucette, & Schwager, 1993; Templin, 1988; 1989; Williams & Williamson, 1995). These researchers have reported that the challenge of teacher isolation may be manifest in various forms simultaneously such as physical, psychological, social, and professional.

Locke (1974) in his observation of one elementary physical education specialist suggests that physical isolation from subject matter peers and/or other adults in the school remove physical education teachers from the political heartland and business of the school. Locke (1974) further suggests that physical isolation may lead to psychological isolation leaving a teacher with no adults in which to share the challenges and successes in their daily work. The lack of adult colleagues allowing teachers to discuss their daily work may not only be a result of being physically isolated, but may also be a result of social isolation.

Social isolation was often reported in recent qualitative studies of first-year physical education teachers who found it difficult to have any significant interaction with teachers of other subject matter in their schools because these peers already had well established social groups (Cruz, 1991; Napper-Owen & Phillips, 1995; O'Sullivan, 1989; Smyth, 1995; Solomon, Worthy, & Carter, 1993; Stroot, Faucette, & Schwager, 1993; Williams & Williamson, 1995). Furthermore, these teachers reported that such feelings of social isolation may also have been a result of other teachers not valuing physical education as a subject matter. Along with the notion of physical education teachers being socially isolated from teachers of other subject matter in the school they may also experience feelings of professional isolation.

Professional isolation may be understood as teachers not only feeling isolated from teachers of other subject matter, but also from colleagues within physical education (Templin, 1988). These feelings of professional isolation may come as a result of both physical and social isolation. This may often be manifest through teachers being geographically isolated from their peers within the same building, and may be more prevalent at the elementary level where they are often the only physical education teacher at the school (Kurtz, 1983; Ryan, 1979; Templin, 1988).

Professional isolation may not only be a result of teachers being geographically isolated from their peers, but has also been reported by teachers who have daily interaction with other physical educators within their school (Napper-Owen & Phillips, 1995; Stroot et al., 1993; 1994; Templin, 1989). Teachers in these studies report that such professional isolation from colleagues within their same school and subject matter often results from philosophical differences about teaching and different levels of commitment to their work as teachers. As a result teachers choose to isolate themselves from their colleagues when it comes to discussions of their daily work. The different forms of isolation experienced by physical education teachers may also lead to teachers feelings of marginalization.

The challenge of teachers feelings of marginalization as a subject matter and as professionals come from the research on teachers workplace conditions and the experiences of first-year teachers (Lawson, 1989; Solomon et al., 1993; Sparkes, Templin, & Schempp, 1993; Stroot et al., 1993; 1994; Templin, 1989). Teachers in these qualitative studies reported feelings of marginalization as a result of both implicit and explicit messages from their interactions with other faculty in their schools. This message may be most visible at the elementary level where teachers of other subject matter may only value the physical education specialist because they provide them time away from their students for planning purposes (Lawson, 1989; O'Sullivan, 1989; Solomon et al., 1993; Sparkes et al., 1993; Stroot et al., 1994; Williams & Williamson, 1995). At the secondary level teachers reported fighting the same struggle for legitimacy as a subject matter in relationship to other faculty as to the importance of physical education in the students overall education (Stroot et al., 1994).

The message of marginalization is not only a result of teachers interactions with other faculty in the school, but has also been reported through the lack of support of administrators (Lawson, 1989; Smyth, 1995; Solomon et al., 1993; Sparkes, Templin, & Schempp, 1993; Stroot et al.,

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1994; Templin, 1989). The lack of support of administrators was most often reported by teachers in the scheduling of their classes with little concern for class size, inappropriate grouping of students, inadequate time for instruction, and fewer resources (equipment) than would be considered adequate for the classroom (Lawson, 1989; Smyth, 1995; Solomon et al., 1993; Sparkes, Templin, & Schempp, 1993; Stroot et al., 1994; Templin, 1989). The lack of support from administrators may also be evident in the final challenge to be discussed concerning teachers professional development which is that of time.

The lack of time as a challenge to teachers professional development has been reported by teachers who are often required to take a personal day in order to participate in professional development activities (Lambdin, 1986; Templin, 1989). Although not always the case, one teacher reported that the system set up by administration for a teacher to receive funding for professional development activities is a time consuming hassle with the intent of discouraging teachers from even pursuing such opportunities (Templin, 1989).

Another aspect of the challenge of time in relationship to teachers professional development is the demands of teachers workloads (Lawson, 1989; O'Sullivan, 1989; Stroot, 1996; Stroot et al., 1993; 1994; Templin, 1989). Secondary teachers often teach all day and then many are required to coach in the afternoons and evenings, although they receive supplementary contracts for these additional responsibilities (Stroot, 1996; Stroot et al., 1993; 1994, Templin, 1989). This type of workload has been reported to be a factor in teachers job performance (Stroot et al., 1994) leaving them little time and energy for planning and professional development activities (Templin, 1989). At the elementary level Stroot (1996) suggests that teachers often have additional nonteaching duties such as lunchroom duty, bus duty, and/or office duty along with teaching six to nine classes a day.

The challenges of teacher isolation, feelings of marginalization, and time in relationship to physical education teachers professional development are often addressed through traditional methods. These traditional methods are membership in professional associations, attendance at professional conferences, subscriptions to relevant journals, inservice training sponsored by the school or district, and pursuing an advanced degree (Doolittle & Schwager, 1989; Housner, 1996; Stroot, 1996; Templin, 1989). With the recent advent of the Internet and its services there may be a new tool to assist these traditional methods of addressing the challenges to physical education teachers professional development. A discussion of the Internet and its telecommunications functions will now follow.

The Internet

The Internet may be most easily understood as a giant network of networks which connects computers from all over the world (Steen, Roddy, Sheffield, & Stout, 1995). This network of computers provides a host of services to its users which include electronic mail (e-mail), electronic mailing lists, file transfer, gopher, newsgroups, remote access, search tools, and the World Wide Web (Steen, et al., 1995). This discussion will only focus on the telecommunications functions of the Internet.

Telecommunications

The most commonly used component of the Internet is the telecommunications function called electronic mail (E-mail) (Dyrli & Kinnaman, 1995). E-mail may best be understood as a means of communicating, regardless of location, with others who are also connected to the Internet (Finkenburg, 1997). One of the most attractive features of e-mail is that an individual's text message is transmitted to the intended destination typically in a matter of seconds (Finkenburg,

1997). Another attractive feature of e-mail communication is its capability of connecting the user with hundreds of others through the use of an electronic mailing list or listserv.

Electronic Mailing List (Listservs)

An electronic mailing list, or listserv, is an e-mail based discussion group consisting of people who share a common interest (Finkenberg, 1997). Individuals can subscribe to a listserv, generally free of charge, and once subscribed may send an e-mail message to all of the subscribed listserv members. As a member of the list one receives every e-mail message that other members send to the list (Hopey & Ginsburg, 1996). An individual may choose from thousands of listservs on countless topics ranging from the scholarly to the frivolous (Dyrli & Kinnaman, 1995).

There are many listservs specifically created for educators across many of the disciplines such as the Beginning Teachers Computer Network (BTCN) designed for first year teachers who graduated from Harvard (Merseth, 1991). Another example of a listserv is one designed for secondary science and math teachers as a part of the LabNet project with the specific purpose of fostering continued professional development (Spitzer and Wedding, 1995). The educational literature refers to these listservs for teachers as telecommunications networks. Recommendations for future research from the few completed studies on teachers use of educational telecommunications networks are discussed later in this chapter along with a more detailed review of these studies in Chapter Two.

Currently there are several telecommunications networks (electronic mailing lists) designed specifically for physical educators, but only one that has been studied as to its influence on its participants. Tannehill, Berkowitz, and LaMaster (1995) examined the influence of a

telecommunications network on twenty three inservice teachers, five teacher educators, and nine doctoral students in physical education.

This electronic network was a part of a professional development school composed of faculty in the physical education teacher education program at The Ohio State University and practicing physical education teachers from nine school districts in Franklin County, Ohio. The purpose of this electronic network was to train inservice teachers to use e-mail and to stimulate interaction of those in the professional development school for the period of a university quarter. This was accomplished by giving the nine doctoral students the responsibility of establishing relationships with the twenty three inservice teachers and then communicating through the electronic network on topics of interest to the inservice teachers and posting articles relevant to those topics.

Through the use of a questionnaire, teachers journals, and the doctoral students summary of their participation on the network they reported that the network appeared most valued by the teachers because is was a means to alleviating the isolation they felt in their gymnasiums. They further reported that teachers cited the benefits of participation on the network as learning how to use the e-mail system, e-mailing friends, ease of communication, and finding good resources. These findings are encouraging but it is important to point out that teachers also cited the lack of time to access the system in order to interact with colleagues as a critical constraint.

Although the use of such networks are not without challenges of their own, these findings are significant in that they point toward the potential for such networks to further assist teachers in overcoming the challenges to their professional development efforts. There are two large electronic networks for physical educators, PE Talk sponsored by Sportime Inc., and the USPE-L sponsored by the Virginia Tech Health and Physical Education program. This study will focus on the USPE-L listserv which is a much larger network than that studied by Tannehill, Berkowitz,

and LaMaster (1995). A discussion of the history and purpose of the USPE-L listserv will now follow.

The USPE-L Listserv

The Health and Physical Education Program at Virginia Tech created the USPE-L listserv in March of 1994. It was created and developed by Dr. George Graham and Ms. Sarah Westfall. The purpose of USPE-L is to provide a method for K-12 physical educators to discuss and share ideas about improving their teaching and programs--and also to gain support from colleagues when it is not immediately available in a school community. The USPE-L listserv began with approximately 25 participants in March of 1994 and has grown to over approximately 1000 professional physical educators as of January, 1998 (S. Westfall, personal communication, January 29, 1998). It is considered quite active in that it currently averages approximately 400 messages posted to the list each month (S. Westfall, personal communication, January 29, 1998). Given the steady increase of participants and the amount of activity on the list and the challenges of teacher isolation, feelings of marginalization, and time in relationship to teachers professional development there appeared to be a need to examine the influence of this electronic medium on its participants.

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Statement of Purpose

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The purpose of this study was to explore how USPE-L was being used by its subscribers and describe the influence, if any, it had on K-12 physical education teachers.

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Research Questions

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The following questions served as a guide for the study:

1. How did subscribers who are K-12 teachers use the USPE-L listserv?

2. Did K-12 teachers who subscribe to the USPE-L listserv report any influences on their teaching practices and programs?

3. Was there evidence of "professional development" as a result of participation on the USPE-L listserv?

4. Did teachers on the USPE-L listserv report any influence on feelings of isolation?

Significance of the Study

Research on the use of telecommunications networks in education is a fairly recent topic of study. The few completed studies have focused on training, access, or the lack thereof, frequency of use, and patterns of use to determine the impact of such telecommunications networks on teachers (Johnson, 1995; Merseth, 1991, Ruopp, Pfister, Drayton, & Gal, 1993; Tannehill et al, 1995). The research has focused on technical aspects to determine its impact because schools are not currently organized to support such activities which may be why many do not recognize the importance of network participation on the potential professional growth of teachers (Spitzer & Wedding, 1995).

Researchers have suggested that, as this technology continues to be made more readily available to teachers and their schools, more emphasis needs to be placed on the types of contributions, if any, such networks make to improved teaching (DiMauro & Gal, 1994; Jacobs & DiMauro; 1995; Ruopp et al, 1993; Spitzer & Wedding, 1995). Specifically, it is recommended that researchers ask how teachers might make "purposeful use" of a such a network in terms of its

contributions to teachers practice and professional learning (DiMauro & Gal, 1994; Spitzer & Wedding, 1995). Spitzer and Wedding (1995) suggest that a network must first have a "critical mass" of active participants which they define as network membership of approximately one thousand teachers. Networks of this size appear to be fertile ground for on-going professional learning, not necessarily as a substitute for traditional methods of professional development but as a way to enhance them (Spitzer & Wedding, 1995).

This study addressed each of these recommendations. First, it was designed to allow teachers who were subscribers of USPE-L listserv to describe how they used it, and to determine whether or not it had any influence on their teaching practices and professional development. Secondly, the USPE-L listserv had a "critical mass" of active participants with a membership of approximately one thousand subscribers, averaging approximately 400 messages posted to the list each month (S. Westfall, personal communication, January 29, 1998).

Limitations to the Study

The following limitations were recognized:

The participants' opinions about the influence of the USPE-L listserv on their teaching practices and professional development may not represent other K-12 physical education teachers on the list that choose not to participate in the study.

Due to the teachers access, or lack of, to their e-mail account they may not have been permitted to contribute through the on-line survey as they would liked.

Delimitations of the Study

The following delimitations were recognized:

Participants' were delimited to K-12 teachers who were subscribers to the USPE-L listserv at the time of the on-line survey and the subsequent follow-up interviews.

The selection of participants' for the follow-up interviews was delimited to those who granted permission to be interviewed.

Data collection was limited to those teachers who volunteered to respond to the on-line survey.

Data gathering was confined to the participants' responses to the on-line survey, follow-up interviews, and the investigators fieldnotes.

Basic Assumption

It is assumed that data collection reflected the participants' true opinions as to how they use the USPE-L listserv and its influence, if any, on their teaching practices and professional development.

Definition of Terms

Internet - a giant network of networks which connects computers from all over the world. This network of computers provides a host of services to its users which are electronic mail (e-mail), electronic mailing lists, file transfer, gopher, newsgroups, remote access, search tools, and the World Wide Web (Steen et al, 1995).

Telecommunications Network, Electronic Mailing list, and a Listserv - all three of these terms are defined as an electronic list of e-mail addresses on a computer. When one subscribes to a "listserv" or "electronic list", and sends a message to the listserv a message is sent out to all the listserv subscribers. Once subscribed, one receives every e-mail message that other subscribers send to the listserv (Hopey & Ginsburg, 1996).

Professional Development - "the knowledge, skills, abilities, and the necessary conditions for teacher learning on the job" (Lieberman & Miller, 1992, p. 1045).

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Chapter Summary

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This chapter began by presenting the challenges of teacher isolation, feelings of marginalization, and lack of time to participate in relationship to physical educators professional development. This was followed by a discussion of the Internet, electronic mailing lists (listservs), and the creation of the USPE-L listserv. It was suggested that the USPE-L listserv may be a vehicle to assist teachers in overcoming challenges to their professional development, thus this study focused on teachers use of the USPE-L listserv. The remainder of the chapter focused on this studies statement of purpose, research questions, significance, limitations, delimitations, assumption, and a definition of terms. The literature that served as the foundation for this study will be discussed next in Chapter 2.

CHAPTER 2
REVIEW OF LITERATURE

The purpose of this study was to explore how USPE-L was being used by its subscribers and describe the influence, if any, it had on K-12 physical education teachers. This chapter reviews the literature that served as the foundation for this study. It has been organized into three sections. The first section will be a discussion of the literature on teachers professional development and how its key elements may or may not apply to the use of, USPE-L, an electronic network for physical educators. Second, a review of Bronfenbrenner's systems theory as it is applied to teachers professional learning through the use of USPE-L will be presented. This will lead to a discussion of the literature identifying barriers to physical educators professional development. Section three will provide a background of the Internet and subsequently electronic mailing lists (listservs), as possible tools for teachers professional development, and a review of the relevant studies on inservice teachers use of such telecommunications networks.

Teachers Professional Development

Literature on the professional development of teachers was scarce about twenty years ago, but since then, there has been a steady stream of anecdotal, theoretical, and empirical exploration of the professional development of teachers. As researchers began investigating teachers professional development several large scale studies (McLaughlin, 1992) laid the foundation for what we know today about effective elements of professional development. This section will discuss these studies and what they revealed about effective professional development. After these elements are discussed, how they may or may not apply to teachers use of USPE-L will be shared.

Before discussing the research findings it is important to define what is meant by professional development. Professional development is defined as "the knowledge, skills, abilities, and the necessary conditions for teacher learning on the job" (Lieberman & Miller, 1992, p. 1045). One of the first major studies of the professional development of teachers was the Rand Change Agent Study (Berman & McLaughlin, 1978; McLaughlin & Marsh, 1979).

The Rand study examined professional development in the context of its relationship to school improvement. This was accomplished by examining 293 federally funded school improvement programs. The findings indicate that learning for professionals needs to be a part of an on-going program that allows teachers decision making power in their own development (McLaughlin & Marsh, 1979). Furthermore, based on their findings they propose five basic assumptions about teachers professional development: (a) teachers possess important clinical expertise; (b) professional learning is an adaptive and heuristic process; (c) professional learning is a long-term, non-linear process; (d) professional learning must be tied to school-site program-building efforts; and (e) professional learning is critically influenced by organizational factors in the school-site and in the district (p. 7).

Staff Development in California (Little, Gerwitz, Stern, Guthrie, Kirst, & Marsh, 1987), another large scale study, supports the findings of the Rand study and has brought forth additional insights into what we currently know about teachers professional development. The study examined teachers and administrators views on content, format, and value of staff development opportunities via mail surveys of teachers (n=749) and administrators (n=117) and follow-up phone interviews with teachers (n=460) and principals (n=100) from a sample of 30 districts.

This rather extensive study by Little et al. (1987) reported five major conclusions. First, teachers had a firm commitment to improving their professional knowledge and desired more professional

development opportunities that were related to the context of their daily work. The second finding was that teachers in rural area's had less professional development opportunities than their counterparts. Third, findings indicated that less than 10% of teacher participant staff development hours were spent in any leadership role that allowed them any influence on the content of their staff development. The fourth finding was that the demands on teachers time was very high with no compensation which appeared to lead to the lack of implementation. Lastly, they reported that there was no support system in place for any follow-up and as a result teachers did not feel accountable for implementation at the classroom level.

In addition to the Rand study and the Staff development in California study another significant study was conducted by The Center for Research on the Context of Secondary School Teaching (CRC) at Stanford University. This study focused on teachers professional growth and opportunity for professional development by examining secondary teachers from 16 diverse schools in two states. Data was collected over a three year period of time using mail surveys, follow-up interviews, and observations (Center for Research on the Context of Secondary School Teaching, 1989).

The findings of this study supported the notions of professional development found by McLaughlin & Marsh (1979) and Little et al. (1987) that teachers at the same grade level, subject-matter, and in the same district express fundamentally different needs and interests in terms of professional development. They conclude that effective professional development cannot be generic, rather it needs to be both subject specific and teacher specific.

They also provided further insight to the findings of McLaughlin & Marsh (1979) that professional development is critically influenced by organizational factors in the school-site and at the district level. The Center for Research on the Context of Secondary School Teaching

(1989) asserts that school leadership, specifically building principals, set the climate for the professional development of teachers. They report that schools that appeared to have a supportive and positive climate for teachers professional development was related to building principals encouraging professional growth through creating a safe environment for teachers to critically examine their practice and take risks. On the other hand, findings of the CRC (1989) support those of Little et al. (1987) indicating that school sites that did not have a system in place allowing teachers to communicate and participate in problem solving were not as motivated in terms of their professional development.

These three studies, the Rand study, the Staff development in California, and the study by The Center for Research on the Context of Secondary School Teaching (CRC) at Stanford University, may be considered landmark studies in professional development because of their magnitude and the insights they revealed concerning the professional development of teachers. Since their completion these same authors along with others have written further about effective elements of professional development which will be shared in the next section of this chapter in terms of their relationship to teachers use of an electronic network, USPE-L, for physical educators.

Professional Development and the USPE-L Listserv

This section will describe how the USPE-L listserv fits with the elements of effective professional development identified from the research and writings of the professional development literature. The USPE-L is a an electronic network for K-12 physical educators allowing them to discuss and share ideas about improving their teaching and programs--and also to gain support from colleagues when it is not immediately available in a school community. The following are the elements of effective professional development identified in the literature: (a) teachers sharing their expertise; (b) school and/or context based; (c) on-going; and (d) accountability.

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Sharing of Expertise

One of the elements of effective professional development is teachers being able to learn from one another through sharing what they have learned on the job, thus using their expertise (CRC, 1989; Lieberman, 1995; Little et al., 1987; McLaughlin & Marsh, 1979). Lieberman (1995) suggests that teachers professional learning takes place as a result of sharing with colleagues enabling them to draw on their experiences. She suggests that this might begin with teachers meeting together to discuss various topics such as assessment, curriculum, and problem solving strategies for their specific teaching context. Lieberman & McLaughlin (1996) report that professional networks allow teachers to be heard in which they value their professional knowledge through sharing, and are more willing to experiment with new practices.

An example of such a teacher network is the Foxfire network. This network began as a teacher outreach program where teachers participated in professional development classes in the summer. As these teachers returned to their schools they tried to implement the teaching strategies they engaged in as students in their summer classes. This strategy emphasized encouraging students to choose their own topics to research and write about with teachers serving as a guide, thus involving them in identifying their own learning needs (Lieberman, 1996). One of the keys to this network was that teachers from the summer classes continued to meet throughout the year discussing their concerns and progress in implementing these new strategies (Lieberman, 1996).

Given that the USPE-L listserv is a network, albeit electronic, it appears to fit well with this element of effective professional development because it allows teachers to ask questions, share concerns, and respond to others using their experiences in an effort to help other physical educators. Along with the opportunity for teachers to share their experiences is the possibility for

them to learn through reading messages of professional colleagues across the country. Lieberman & McLaughlin (1996) suggest that teacher networks are one of the best ways for teachers to reflect on their teaching and to have their voices heard which results in the creation of new knowledge and valuing it. Lieberman (1995) concluded that there is a need for more teacher networks as a culture of inquiry.

Context Based

Along with the opportunity to share is the element of effective professional development being context based, flexible, and embedded in the daily lives of teachers (CRC, 1989; Lieberman, 1995; Lieberman & McLaughlin, 1996; Little et al., 1987; McLaughlin, 1992; McLaughlin & Marsh, 1979). In terms of professional development being context based, Lieberman and McLaughlin (1996) suggest that most teachers are implicitly told what is important in terms of their professional learning through staff development programs that bring in "experts" without any real consideration of the teachers needs. Lieberman (1996) concludes that teachers definitions of the problems of practice in their daily work are often ignored leaving them with few choices for professional learning that is directed toward their specific context. This means that to increase the probability of professional learning occurring it needs to be meaningful and relevant to the dailiness of one's own work and context (Lieberman, 1995, 1996; Little, 1982; Loucks-Hoursley & Stiegelbauer, 1991).

Teachers participation on the USPE-L listserv allows them to discuss their teaching on a daily basis, if it is convenient for them, and creates the possibility of relating to others in a similar context. This electronic forum may provide teachers an avenue to seek insights into issues, concerns, and challenges from other professionals outside of their immediate school setting. Given this opportunity teachers may obtain insights that are meaningful to them in their specific

context. Thus, the element of effective professional development being context based may exist in an electronic network such as the USPE-L listserv.

<u>On-going</u>

In addition to being a part of teachers daily context, professional development also needs to be on-going in nature (CRC, 1989; Little et al., 1987; McLaughlin & Marsh, 1979). Research suggests that effective professional development requires sustained on-going effort as well as the opportunities to practice new skills in a safe environment (CRC, 1989; Joyce & Showers, 1980; Little et al., 1987; McLaughlin & Marsh, 1979). One of the positive aspects of participation on a listserv such as USPE-L is that one can participate, by writing and/or reading, as much or as little as they choose, thus making their participation on-going. Grimmett and Erikson (1988) concluded that effective professional development must provide teachers opportunities to reflect on their teaching practices with other teachers in an on-going way.

Although participation on the USPE-L listserv may appear to be on-going, this may only partially be true. One of the challenges to teachers professional development revealed by Little et al. (1987), in their study of California staff development, was the time demands of effective professional development. Teachers have limited time. For example, subscribers of the USPE-L listserv may only have access to electronic mail at school on one computer in the library, thus limiting the time they are able to spend on USPE-L. On the other hand, subscribers who have access to electronic mail at home may have more time, if they choose, to participate fully in an on-going way.

Accountability

As mentioned earlier in this section teachers may lend support and give feedback to one another via the listserv, but it does not allow for the actual observing of one's teaching. This may be one element of effective professional development that a listserv does not fit because the literature (Bull, Buechler, Didley & Krehbiel, 1994; CRC, 1989; Joyce & Showers, 1980; Little et al., 1987) suggests that effective professional development often uses coaching by peers and experts, providing the opportunity for teachers to observe one another and provide feedback and as a means of accountability. Lieberman & McLaughlin (1996) conclude that teacher networks, such as the Foxfire network, show great promise for professional development, yet state that they may often lack a form of accountability that is usually present in effective professional development.

Although participation on the USPE-L listserv may appear to be a vehicle for teachers to share their expertise while embedded in the school context, and has characteristics of being on-going, all of which have been cited as elements of effective professional development, Spitzer and Wedding (1995) point out that electronic networks are not to be viewed as a substitute for other forms of professional development. To understand how teachers professional learning may occur as a result of participation on the USPE-L listserv this chapter will now focus on Bronfenbrenner's systems theory as a theoretical explanation for such teachers professional learning.

Systems Theory

Bronfenbrenner's ecological systems theory of human development suggests that the human mind is fundamentally social. Systems theory asserts that neither individual characteristics of a person nor the characteristics of the different contexts in which they live by themselves explain development (Bronfenbrenner, 1979). Development within his theory depends on the interaction

between the social and physical contexts in which a person finds themselves and the personal characteristics they bring to those situations. The key elements of Bronfenbrenner's systems theory will now be shared along with a discussion of how it might explain teachers professional learning through the use of the USPE-L listserv.

Key Elements of Systems Theory

The principle of systems theory proposes that behavior evolves as a result of interplay between a person and the environment, focusing on both the person and the environment and the interaction between them. It then examines the evolving process of such interaction through which the behavior of the people in the system is instigated, developed, and sustained (Bronfenbrenner, 1979). As one of the key elements of systems theory this means that each person has different interests and natural tendencies to do things in relation to their interests, and development results because of these unique interactions with the environment. This key element is characterized by people having some choice over the contexts and environments in which they have interest.

The use of the USPE-L listserv is a fairly new environment, albeit electronic, for physical education teachers to interact. Within this electronic format teachers have the opportunity to choose what discussions to participate in through either posting messages to the rest of the group and/or reading the responses of other teachers. This environment also allows teachers the choice not to participate at all by deleting the messages in which they may have no interest.

Given this perspective, another one of the key elements of systems theory is that people are seen as dynamic individuals that continually move into and restructure the environment in which they reside, as opposed to passively waiting for the environment to make its impact. However, the influence of the environment is not dismissed, rather it is a process requiring mutual accommodation which is viewed as bi-directional (Bronfenbrenner, 1979). This key element is

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characterized by the notion of reciprocity in which a person is both a product and producer of developmental change.

According to systems theory this developmental change takes place concurrently in the perception and action domains. Bronfenbrenner (1979) asserts that in this perceptual domain change takes place in the nature and influence of the external context, and to what degree the persons view of the world goes beyond their immediate situation to include other settings in which they can actively participate. In the action domain the nature of change depends on how effectively a person uses the external context to reorganize existing knowledge, thus creating new knowledge of comparable or higher- order which may be more aligned with their desires and interests. Bronfenbrenner (1979) concludes that these interconnections between settings and external influences from larger surroundings is the process of development that covers a life span. He suggests that such a process occurs within four overlapping ecological contexts: (1) the microsystem, (2) the mesosystem, (3) the exosystem, and (4) the macrosystem. These four contexts are viewed as being "nested structures" with each one inside the next (Bronfenbrenner, 1979, p. 3). It may help in understanding these nested structures by thinking of them as if one were looking at a tree stump with the microsystem at the core and each system that follows as a ring further and further from the core. A description of each of these four systems and their relationship to teachers use of the USPE-L listserv will now be discussed.

Microsystem

Starting at the core of these levels, the innermost ring of the tree stump, is the microsystem. It is a person's immediate setting in which there is a pattern of activities, roles and interpersonal relations experienced by the developing person in a given setting with particular physical and material characteristics (Bronfenbrenner, 1979). An important concept to development in the microsystem is the interpersonal structures. Bronfenbrenner (1979) states "the environment

events that are the most immediate and potent in affecting a person's development are activities that are engaged in by others with that person or in their presence" (p. 6). He further states that "active engagement in, or even mere exposure to, what others are doing often inspires the person to undertake similar activities on their own" (p. 6). These immediate settings may be thought of as individual roles a person may play in life. A role according to systems theory is a set of behaviors and expectations associated with a position in society, such as that of a father, teacher, colleague, friend, etc., and the relations to others in while in these various roles.

A physical education teacher's workplace may be considered a microsystem because it is one of many single settings in which they reside. Within this role as a physical educator, he or she may subscribe to the USPE-L listserv and subsequently accept a set of behaviors or expectations as to their role as a subscriber to the listserv. According to this element of systems theory a physical educators active engagement in, or even mere exposure to, what others are doing as part of their participation on the USPE-L listserv may inspire the person to undertake similar activities on their own. If such professional learning were to occur from participation on the listserv, it would most likely be explained at the mesosystem level of systems theory.

Mesosystem

The mesosystem is the next level which comprises the interrelations among two or more single settings (microsystems) in which the person actively participates (Bronfenbrenner, 1979). An adults mesosystem may consist of interactions between family, work, and social life, thus influencing the developmental process. A mesosystem may be best understood as a system of microsystems. As people develop their needs and interests change as they participate in multiple settings or contexts that influence their development.

The opportunity for a physical education teacher to interact with other physical educators via an electronic forum, USPE-L, may create development at the mesosystem level which comprises the interrelations among two or more single settings (microsystems) in which the person actively participates (Bronfenbrenner, 1979). As a subscriber of such a listserv a physical education teacher can actively participate by either posting messages to the rest of the group and/or reading the responses of other teachers, thus the possibility of learning professionally through reciprocity exists, a key element of systems theory. One example from the USPE-L listserv may be demonstrated through the following message posted to the list. It read:

> I love this service, I rush to the library every morning to get my email and learn
> what the wonderful teachers on USPE are doing, and what I can glean and learn
> from all you guys. I loved hearing that other teachers have the same dilemma that
> I do, and that some other wise teacher has a very creative solution to the problem.
> Even though I did not ask for a solution to the same problem I have, I could learn
> how to deal with a similar problem. I feel that all of us could learn from the
> answers and solutions others have, even if the question wasn't asked by us. We
> are a teaching profession, and helping each other is what we are about...

It appears that systems theory may contribute to teachers professional learning, and also explain how teachers professional learning may influence others. Teachers professional learning possibly influencing the development of students and colleagues is explained at the next level of systems theory the exosystem.

Exosystem

Bronfenbrenner (1979) suggests that the exosystem refers to one or more settings that do not involve the developing person as an active participant, but in which events occur that affect, or

are affected by, what happens in the setting containing the developing person. An example of this may be a spouses workplace. A spouses development may be affected by the other's workplace. For example, when they arrive home from work they may be experiencing different emotional states as a result of events at work which may possibly influence the other's development, even though they may not be active participants in each other's work environment.

According to this element of systems theory a physical education teacher who is a subscriber to the USPE-L listserv may also influence the development of their student's as well as other teachers within their school that are not members of this electronic network. This would occur through the exosystem level of systems theory which suggests that a persons development may be influenced through another system that they do not participate in directly.

An example of exosystem influence would be a teacher on the USPE-L listserv learning a new teaching strategy as a result of posting a message to the group in which they ask for help with a specific problem. As a result of such an interaction they may influence their student's and/or other teachers who are not directly a part of this electronic network through the use of their new technique which may have been created through the electronic responses received and/or their reflection on their teaching via the listserv. Systems theory has one more level that of the macrosystem.

Macrosystem

The macrosystem is the final system that encompasses the "blueprint" of the ecological environment as a person views it through consistencies in the lower-order systems being the microsystem, mesosystem, and exosystem. Bronfenbrenner (1979) asserts that such a blueprint exists, or could exist, at the level of subculture or the culture as a whole, along with any belief systems or ideology underlying such consistencies. He further suggests that a person's blueprint

may be formed by their social organization, belief system, and lifestyle in every setting within their culture.

At the macrosystem level teachers participation on the USPE-L listserv may influence a teachers philosophy of physical education and/or teaching. This may or may not occur depending on how active they are in the posting and/or reading of messages to the list, and how their role of a subscriber to USPE-L interacts with all other levels of development. A teachers interaction on the listserv may encourage change in their thinking, or on the other hand may validate their existing belief system. Given this understanding of the key elements of systems theory and its possible explanation of teachers professional learning through the use of USPE-L, it is important to examine the barriers physical educators face in relationship to their professional development.

Barriers to Physical Educator's Professional Development

Attempting to identify barriers that may inhibit the professional development of inservice teachers has come from physical education researchers study of physical educators workplace conditions using the organizational socialization paradigm (Stroot, Collier, O'Sullivan, & England, 1994). This paradigm has provided researchers a framework in which to identify factors that may influence the professional lives of physical educators (Stroot et al., 1994). In reviewing the literature on the workplace conditions of physical education teachers there appears to be three major barriers that may influence their professional development. These are the barriers of teacher isolation, feelings of marginalization, and time.

Teacher Isolation

Templin (1988) defines isolation as "the absence of routine and pedagogically based collegial interaction. Teachers rarely engage in activities whereby personal and professional support for

one another is given or whereby pedagogical problems may be solved". (p. 197) The literature refers to several types of isolation such as; physical, psychological, professional, and social. Each type of isolation will be discussed, yet it is important to note that these forms of isolation may be occurring simultaneously or as a result of one another.

A teacher who is physically isolated from their subject matter peers and/or from other teachers in the school may suffer from various forms of isolation as a result. This is often be the case with elementary physical education specialist. For example, Locke (1974) reports in his ecology of the gymnasium based on the observation of one elementary physical education specialist that being physically isolated in the gym moves the teacher away from the political heartland of the school which makes them peripheral to the real business of the school. He suggests that such physical isolation may result in or intensify feelings of psychological isolation. The results of such psychological isolation were stated best by Locke (1974):

> ...teachers are thrown to their own resources for processes which more commonly are social in nature. Physical education teachers must provide self-stimulation when their spirits flag, must generate their own celebrations when difficult tasks are accomplished, and must mourn alone when their best effort has failed. (p. 14)

In Lambdin's (1986) profile of a physical educator this notion of the effects of physical isolation are illustrated when she reports:

> Susan is by all accounts one of the best teachers in the district. The faculty in her school have elected her as their representative in the district council. But after 20 years of excellence, an opportunity for her to visit and interact with other physical educators is possible only if she uses a professional day. (p. 35)

In the case of Susan her physical isolation not only from other adults in the school, but from colleagues within her subject matter, lead to what may be considered professional isolation.

This notion of professional isolation from colleagues within the same field may not simply be a result of physical isolation. Templin (1989), in a case study of a the influence of workplace conditions on an experienced secondary physical educator, Sarah, suggests that professional isolation existed even though she was one of six physical educators at the school. He reports that Sarah felt isolated professionally because she could not discuss her concerns about teaching with her physical education colleagues because they did not share the same commitment to teaching.

More recently these findings of professional isolation have been partially supported by Stroot et al., (1994) in their study of workplace conditions of 11 secondary physical educators. They reported that the influence of co-workers on the perceptions of their workplace fell into three categories. These categories were described by teachers as departments that were cohesive and contributed to one anothers teaching with high levels of communication and team teaching, departments with a high level of social interaction with some philosophical differences existing, and departments that professionally separated themselves and had virtually no interaction with co-workers because they perceived co-worker's having a lack of expertise and/or a lack of commitment to teaching (Stroot et al., 1994).

Although feelings of professional isolation from colleagues may not exist in all cases as pointed out by Stroot et al. (1994), recent studies with first year teachers have consistently reported feelings of professional isolation (Cruz, 1991; Napper-Owen & Phillips, 1995; Smyth, 1995; Stroot, Faucette, & Schwager, 1993). A good example comes from the case study by Napper-

Owen and Phillips (1995) examining the impact of induction assistance on two beginning teachers in which they reported:

> Peter longed for a peer with whom he could discuss physical education concerns, but he indicated that the other physical education teachers in the district practiced a "throw out the ball" approach to teaching. (p. 325)

The final form of isolation that has been reported is that of social isolation, particularly in the case of first year teachers (Cruz, 1991; Napper-Owen & Phillips, 1995; O'Sullivan, 1989; Smyth, 1995; Solomon, Worthy, & Carter, 1993; Stroot, Faucette, & Schwager, 1993; Williams & Williamson, 1995). Feelings of social isolation were reported by Stroot et al., (1993) in their study of 3 first year teachers who shared comments like "I would sit in the faculty room and no one would speak to me. I mean literally no one would speak to me. A casual 'hello,' but I was never included in conversations" (p. 380). These feelings of social isolation are also illustrated by one of the two beginning teachers studied by O'Sullivan (1989) in describing their lives as first-year elementary specialists. One wrote in his log:

> You walk in to get a cup of coffee in the teachers' lounge, or you sit down to eat lunch and there is no real point of interest to get to know you. They have all been together years and years...They look at the gym teacher, as they put it, 'differently than they would a real teacher.' I have heard that. So there is isolation. (O'Sullivan, 1989, p. 235)

Physical educators that have experiences such as these may be experiencing social isolation while at the same time experiencing feelings of marginalization.

Marginalization

Physical education teachers have reported in workplace condition studies (Lawson, 1989; Solomon et al., 1993; Sparkes, Templin, & Schempp, 1993; Stroot et al., 1993; 1994; Templin, 1989) feeling marginalized as professionals through the lack of support they receive from administration through scheduling and their interaction with colleagues. It appears from the literature that this message of marginalization often occurs implicitly.

The feelings of marginalization that come from administration may come implicitly through experiences such as that reported by Lawson (1989) of a elementary physical educator who had also spent time teaching English at the same school. This teacher stated:

> This lack of prestige manifested itself in many ways. The first way was in regard
> to the principal. When I was in the gym, the principal rarely came to observe me
> teach. It seemed that the only time he came to the gymnasium was when a student
> was injured. In contrast, when I taught English I was regularly observed. (p. 156)

These feelings of marginalization as a result of the lack of support from administration, particularly principals, were also found by Sparkes, Templin, and Schempp (1993) in their study of the dimensions of marginality in which they examined the life histories of physical education teachers in England. One of the teachers they interviewed put it this way:

> I am sure the way things are going that our head [similar to the position of
> principal] does not see the need to have a head of a PE department who can do
> anything in the way of curriculum development...Basically the status of PE is a
> joke. (p. 389)

This message of marginalization from administration was also supported by Stroot et al., (1994) in their study of 11 secondary teachers concerning their perceptions of their workplace conditions described earlier. They found that teachers perceived support of their principals, with the exception of one, along with other administrators as being weak to nonexistent. This message was often sent through the lack of support evident in the scheduling of classes with little concern for size or with inappropriate groupings of students (Stroot et al., 1994).

Another form of marginalization, through class schedules, was a common theme reported by Smyth (1995) in her study of 12 first-year teachers perceptions of their workplace. She reports that the message of physical education being low status, when compared to the larger school community, was clear when teachers were forced to conduct classes in less than adequate time allocations for instruction and with fewer resources than would be considered adequate in the classroom. The case studies of 3 first-year teachers by Solomon et al., (1993) further support this notion in reporting their concerns early in the year with the lack of support of administration through scheduling problems dealing with class size and equipment. Two of the three teachers in this study expressed early in the year the desire to be viewed as professionals and to establish legitimacy for physical education as a subject-matter.

Along with the implicit message of marginalization through lack of administrative support, in scheduling, often seen through scheduling teachers have also appeared to receive the same message implicitly through their interaction with colleagues. This message is often sent at the elementary school level with the physical education specialist valued by other faculty only because they provide them a break from their students and a planning period (Lawson, 1989; O'Sullivan, 1989; Solomon et al., 1993; Sparkes et al., 1993; Stroot et al., 1994; Williams & Williamson, 1995). Lawson (1989) asserts that this message was clearly received by an elementary physical education teacher who stated:

Some of the faculty members would bring their classes to the gym early, and pick

them up late...The other faculty members also used physical education as a reward

and punishment tool. If a student was misbehaving, he ran the risk of losing his

physical education classes for a period of time. It was as if physical education was

a privilege, not a class. This was a practice which I tried very hard to stop, but the

principal didn't wish to confront the rest of the faculty on this matter. (p. 156)

Secondary physical education teachers have also reported feelings of marginalization. Again Stroot et al., (1994) reported that a major concern of these 11 teachers' was the lack of support they received from other faculty in the school as to the importance of physical education as a part of the students overall education. One teacher put it simply by saying "We are still fighting the age-old theory that all you do in gym is roll the ball out" (p. 353-354). Another teacher expressed her desire to work with other teachers in the school in an effort to educate the entire child, but felt that these faculty simply saw her as one who conducted recreation classes much like recess (Stroot et al., 1994).

<u>Time</u>

The final barrier that may stand in the way of physical educators professional development is that of time. The notion of time as a barrier to teachers professional development is also documented in the literature (Lawson, 1989; O'Sullivan, 1989; Stroot, 1996; Stroot et al., 1993; 1994; Templin, 1989). Stroot (1996) suggests that most teachers have six to nine classes a day along with additional nonteaching duties such as bus duty, lunchroom duty, and/or office duty. At the elementary level teachers often have to travel between two schools to fulfill their responsibilities. Secondary teachers often receive supplementary contracts and are expected to coach (Stroot, 1996).

Stroot et al., (1994) found that workload was a factor in their high school teachers' job performance and more specifically the scheduling of their conference and/or planning period. This conference/planning period was always scheduled as their last period of the day often to accommodate coaching responsibilities. The influence of such scheduling may have been put best by one teacher who said:

> I don't want a planning period ninth period. I don't plan anything ninth period. When it rolls around, I quit. I want it in the middle of the day where I can use it and be more effective...So by ninth period, I do not want to do anything related to work anymore. (p. 351)

This notion of teachers workload and its relationship to time being a barrier to their professional development is supported by Templin (1989) in his case study of an experienced secondary teacher of 14 years. She explained the demands of the workload by saying:

> My workload is very stressful. When I talked to the superintendent, I told him I am working harder now than when I started teaching. But nothing is being done to alleviate that stress. There could be some small changes that would alleviate the stressful situation-significant changes-that would alleviate the stressful situation...The bells ring and the students leave and another group come in and it's regimented all day long and by the time you get done with seven periods you're whipped...During the prep period you found yourself running a lot to get stuff organized, visual aids, printed material, computer stuff and I just found myself just spinning my wheels and not getting too much done. Just totally being worn out because of the pace you have to go at. Also, I found myself getting more and

more frustrated because there's no time to interact, sit down and work on things.
(p. 177-178)

Physical education teachers lack of time for professional development in their daily schedule may also be compounded by their coaching responsibilities at the secondary level (Stroot, 1996; Stroot et al., 1993; 1994; Templin, 1989). This is often seen in the amount of time teachers put into their coaching responsibilities after a full day of teaching. This may be characterized by leaving for school early in the morning, around 7:00 am and returning home between 9:00 or 10:00 p.m. at night with no real time or energy to prepare for their teaching responsibilities the next day (Stroot et al., 1993; 1994; Templin, 1989).

The lack of time for professional development also manifests itself in the lack of support by administrators for teachers professional development activities (Lambdin, 1986; Templin, 1989). This was evident in Lambdin's (1986) profile of a physical education teacher who, in order to participate in professional development activities with other physical educators in the district, would have to take a personal day in order to do so. Taking time away from teaching for professional development appeared to be discouraged in the case of an experienced secondary teacher in Templin's (1989) case study. This teacher described her experience stating:

...they [administration] don't really like teachers to be out for any reason. If you have been to one conference then that's pretty much your limit for the year. I quit asking because it was such a hassle to leave. They may fund the registration fee, but that is it. If you go, then they ask for implications for the school or program and nothing ever happens. Either scheduling can't be arranged or no funding. It's a hassle. (p. 193)

Traditional Methods of Professional Development

Given the barriers of teacher isolation, feelings of marginalization, and lack of time suggested in the literature efforts have been made to assist teachers in overcoming such barriers to their professional development. It appears that the traditional methods for addressing these barriers has been through membership in professional associations, attendance at professional conferences, subscriptions to relevant journals, inservice training sponsored by the school or district, and pursuing an advanced degree (Doolittle & Schwager, 1989; Housner, 1996; Stroot, 1996; Templin, 1989).

Housner (1996) refers to the challenge of overcoming such barriers as reversing deprofessionalization of physical educators and suggests several different strategies than the traditional methods mentioned previously. He suggests K-12 teachers become involved with university teacher educators through transforming their schools into clinical teaching sites, serving as adjunct faculty members, collaborating in research for practitioners, and establishing teacher centers and/or professional development schools. He also suggests K-12 teachers seek to reverse such deprofessionalization through proactive measures such as self-mentoring, using written or audiotaped reflective journals, and building exemplary programs. He asserts that such exemplary programs should be based on student interests and abilities, community involvement, and participate in on-going assessment of students and the program.

In addition to the traditional methods of professional development and those suggested by Housner (1996), recent advances in technology, the Internet, may be one possible tool to assist physical educators in overcoming barriers to professional development. More specifically, the Internet allows teachers to subscribe to telecommunications networks (Listservs), such as the USPE-L listserv made up of physical educators, through the use of electronic mail either from a computer at school or at home. Before sharing the literature on the use of telecommunications

networks as one possibility in assisting teachers in their professional development efforts it is important to understand what the Internet is and more specifically telecommunications networks. The next section of this chapter will provide the background of the Internet and subsequently a review of the literature on the use of telecommunication networks among inservice teachers.

The Internet

The Internet may be most easily understood as a very large network of networks which connects computers from all over the world (Steen, Roddy, Sheffield, & Stout, 1995). This network of computers provides a host of services to its users which are electronic mail (e-mail), electronic mailing lists, file transfer, gopher, newsgroups, remote access, search tools, and the World Wide Web (Steen, et al., 1995). These services allow people to locate information on just about any topic, and can be presented in various forms ranging from text only to video and audio features. The next section will describe briefly how such a network came to be followed by a discussion of one of its specific services, electronic mailing lists which are commonly referred to as a listserv.

History of the Internet

The Internet emerged from two research projects of the United States Department of Defense and its Defense Advanced Research Projects Agency (DARPA) in the late 1960s. The first of these projects was called the ARPAnet which was limited to DARPA-funded computer science researchers doing DARPA-funded research (Watts & Castle, 1992; Weis, 1992). This network was designed to research ways that networks could be built to withstand partial outages and still function (Fraase, 1995). As a result, three of the most popular applications of today were pioneered from this project which are remote computing, file transfer, and electronic mail (Weis, 1992).

It was the mid 1970s when researchers were convinced that they needed protocols that would allow physically different networks to be interconnected which meant they needed protocols to support a network of networks (Weis, 1992). As a result this lead to second major contribution of DARPA which was the TCP/IP protocols which link together different networks (National Research Council, 1994; Weis, 1992).

In the early 1980s the National Science Foundation (NSF) upgraded this network of networks (ARPAnet) to include five supercomputer centers around the United States to be used by researchers across the science and engineering research community (National Research Council, 1994). In 1986, the NSF initiated the NSF Connections program to broaden the base of network users and eventually to help universities and colleges achieve access to the supercomputers (National Research Council, 1994). It was 1987 when a team led by Merit Network and its partners MCI and IBM received a five-year agreement to push the leading edge of technology by connecting regional networks over phone lines at an extremely fast speed of 1.5 million bits-per-second (Weis, 1992). Through the combination of these efforts what is known today as the Internet was established (Steen et al., 1995). Given this brief history of the Internet the discussion will now focus on one of its services being electronic mailing lists (listservs).

Electronic Mailing Lists (Listservs)

A listserv is an electronic list of e-mail addresses on a computer in which one sends an e-mail message to the listserv and the message is sent out to all of the listserv members. As a member of the list one receives every e-mail message that other members send to the list (Hopey & Ginsburg, 1996). There are thousands of listservs on countless topics from astronomy to zoology, from the scholarly to the frivolous, and many that address specific curriculum areas of inservice teachers (Dyrli & Kinnaman, 1995). In the educational literature these listservs for

inservice teachers are often referred to as telecommunication networks. What is known through the educational literature concerning inservice teachers and telecommunications networks will be discussed next.

Telecommunication Networks in Education

Although the number of studies on inservice teachers and telecommunications networks are limited, there have been a handful of studies that provide insights into their possible influence. The findings of these studies appear to cluster around two major themes reducing feelings of teacher isolation and influencing teachers professional development. A discussion of these two themes and the studies that accompany them will follow.

Teacher Isolation

As discussed earlier in this chapter, one of the barriers to physical educators professional development identified in the literature is teacher isolation (Lambdin, 1986; Locke, 1974; Napper-Owen & Phillips, 1995; O'Sullivan, 1989; Smyth, 1995; Solomon, Worthy, & Carter, 1993; Stroot, Faucette, & Schwager, 1993; Templin, 1988; 1989; Williams & Williamson, 1995). Feelings of isolation are not unique to physical educators, rather teachers of other content areas ranging from teachers of the deaf and hearing impaired to science and math teachers have also reported feelings of isolation (Johnson, 1995; Spitzer & Wedding, 1995). Participation on a telecommunications network appears to reduce such feelings of professional isolation (Spitzer & Wedding, 1995). In their study teachers used a telecommunications network as a part of the LabNetwork project designed for primary and secondary math and science teachers. Along with reduced feelings of professional isolation their mail survey of over one thousand primary and secondary math and science teachers, who were subscribers to LabNetwork indicated the

gathering of materials, promoting project-based learning, and enhancing teaching and student learning as the other three benefits of participation on the network.

Another group of researchers Ruopp, Pfister, Drayton, and Gal (1993) examined the use of the LabNetwork in its early stages of development. They investigated the use of the network by 123 secondary physics teachers using both quantitative and qualitative data collection devices. They looked at teachers usage patterns (how many days a week they logged on and the amount of time they spent on-line each time) from September 1990 to December 1990. During this same three month period of time they did a qualitative analysis of the messages posted to the network. Usage patterns varied from teachers using the network twice a week to those who logged on daily. They concluded, from their qualitative analysis, that teachers experienced reduced feelings of isolation through the opportunity to discuss their day to day practice with other teachers (Ruopp, Pfister, Drayton, and Gal, 1993).

Reduced feelings of isolation as a result of participation on a telecommunications network is also supported by Merseth's (1991) study of a telecommunications network of thirty nine beginning teachers. She found, via a mail survey and follow-up interviews with ten of the beginning teachers on the network, that by reading the challenges of other teachers, such as having problems with discipline, they felt as though they were not alone, thus generating feelings of reduced isolation.

In the one completed study to date with physical educators Tannehill, Berkowitz, and LaMaster (1995) examined the influence of a telecommunications network on teachers perceptions relative to their feelings of isolation, their work with children and youth, as professionals, and as a part of the Franklin County Academy of Physical Educators. They examined a telecommunications network as a part of a professional development school connecting twenty three inservice

teachers along with five physical education teacher educators and nine doctoral students. The data was collected over the course of a university quarter through a questionnaire, teachers keeping a reflective journal concerning their participation on the network, and through summary reports of each of the nine doctoral students concerning their participation on the network. They found that the network appeared most valuable for meeting the teachers desire for increased communication with colleagues and alleviating the isolation they felt in their own gymnasiums.

The few studies of telecommunications networks for inservice teachers appear to consistently support the notion that such networks reduce teachers feelings of isolation. There are confounding variables, however. Johnson (1995), in his study of twenty eight teachers who were participants on a telecommunications network for teachers of the deaf and hard of hearing, reported through electronic mail exchanges and follow-up personal conversations that the teachers experienced some anxiety over their participation on such a network. They were apprehensive when asked to participate on this network because their professional preparation included little, if any, training on the use of computers. Furthermore, these teachers reported that simple technical problems (forgetting a password, or understanding the correct command to reply appropriately) discouraged them from participation beyond reading the network messages of others.

Although these 27 teachers experienced a fair amount of anxiety as a result of technical problems, Johnson (1995) reports that they felt a telecommunications network held the potential to reduce their feelings of interpersonal and informational isolation, but that they did not believe that the sharing of their knowledge base, instructional strategies, curriculum materials, and questions would be of any interest or benefit to other teachers on the network. The findings of these few completed studies concerning inservice teachers use of telecommunications networks point toward this electronic medium as one method for teachers to reduce feelings of isolation

(Jacobs & DiMauro, 1995; Johnson, 1995; Spitzer & Wedding, 1995; Ruopp et al., 1993; Tannehill et al., 1995).

Professional Development

Telecommunications networks as a tool that influences professional development is the second common theme of studies of inservice teachers participation on such networks. Jacobs and DiMauro (1995) interviewed twenty teachers who were participants of a telecommunications network of approximately one thousand secondary science teachers. These teachers reported that professional development was influenced through private professional conversations that originated on the network. Furthermore, they reported that their professional development was influenced through listening and learning.

One of the common findings, of the few completed studies of inservice teachers telecommunications networks, is related teaching activities and curricular materials. In their survey of secondary math and science teachers Spitzer and Wedding (1995) report that eighty percent of the teachers found the network to influence their professional development most in gathering ideas and curriculum materials. As one of five major findings Johnson (1995) reported that teachers of the deaf and hard of hearing will use telecommunications networks if it provides them access to additional instructional strategies and curriculum materials. Ruopp et al. (1993) support this finding. They analyzed the network messages of 123 secondary physics teachers posted over a three months. They found that teachers discussed the topics of teaching activities, teaching resources, and curriculum materials most often as it related to their professional development. Tannehill et al. (1995) also reported that one of the four benefits cited by teachers was that of finding good resources. The findings of the few completed studies of inservice teachers use of telecommunications networks most often define professional development benefits from participation on these networks as related teaching activities, teaching resources,

and curricular materials (Jacobs & DiMauro, 1995; Johnson, 1995; Spitzer & Wedding, 1995; Ruopp et al., 1993; Tannehill et al., 1995).

Chapter Summary

The purpose of this chapter was to examine the literature that served as the foundation for this study. This chapter related the relevant literature on teachers professional development in relationship to teachers use of USPE-L, Bronfenbrenner's systems theory as it is applied to teachers professional learning through the use of USPE-L, barriers to physical educators professional development, background of the Internet and subsequently electronic mailing lists (listservs), and the limited studies on inservice teachers use of telecommunications networks.

The majority of research on the influence of telecommunication networks for inservice teachers has focused on teachers in the science community with several exceptions. There has been only one study to date, Tannehill, Berkowitz, and LaMaster (1995), that has examined the influence of a telecommunications network on inservice teachers and teacher educators in physical education. Based on this review of literature, the influence of a telecommunications network on physical education inservice teachers appeared to be an important issue worthy of study.

CHAPTER 3
METHODOLOGY

The purpose of this study was to explore how USPE-L was being used by its subscribers and describe the influence, if any, it had on K-12 physical education teachers. This chapter details the various methods that were used to complete this study by discussing the (a) rationale for selection of the design; (b) the researchers role; (c) data sources including the on-line survey, selection of the follow-up interview participants, investigators fieldnotes; (d) analysis of the data; and (e) the methods to establish trustworthiness.

Rationale for Design

A qualitative design was selected because it best fit the exploratory nature of research on physical educators and their use of a telecommunications network. Within qualitative research there are different methods of inquiry based on the research question and its conceptual origins including phenomenology, ethnography, and descriptive approaches (Parse & Coyne, 1985). This study used a descriptive approach because of the exploratory nature of the research question. Descriptive qualitative research most often employs questionnaires and interviews for data collection in which the quality of the data depends on the researcher collecting, analyzing, and interpreting the data related to the research question (Parse & Coyne, 1985).

In addition to the qualitative methodologies answering the questions asked in this study similar methodologies have been used by researchers in examining K-12 teachers use of telecommunications networks in science and math. Jacobs and DiMauro (1995) examined the benefits of participation on a telecommunications network as a part of the LabNet project for science teachers by using a survey, follow-up interviews with a subsample of the respondents, and fieldnotes from those interviews. Merseth's (1991) study of a telecommunications network

for beginning teachers used similar methodologies by collecting survey data and subsequently conducting follow-up interviews with a subsample of the respondents.

A qualitative design using a descriptive approach was chosen for this study due to the exploratory nature of the research questions and was based similar studies examining the use of telecommunications networks by teachers of other disciplines. In using a qualitative design it is important to understand the role of the researcher because the quality of the study depends on the abilities of the researcher as the primary instrument (Parse & Coyne, 1985). A discussion of the role of the researcher will now follow.

Researcher Role

In performing qualitative research the researcher may assume different membership roles. Alder and Alder (1994) suggest there are three predominant researcher membership roles consisting of the complete member researcher, the active member researcher, and the peripheral member researcher. Researchers in the peripheral membership roles interact closely enough with the members they are studying to establish an insider's identity without participating in those activities that may constitute core group membership (Alder & Alder, 1994). Over the past year in preparing for data collection the researcher took on the role of peripheral membership by subscribing to the USPE-L listserv to get an insider's view as an active reader, but did not post messages to the list.

Along with the researchers role of peripheral membership he brought personal biases to the study through his beliefs, knowledge, and experiences in working with K-12 physical education teachers in supervising student teachers and spending time with them in their teaching environment. The researcher recognizes his bias towards the positive use of technology by K-12 physical education teachers because of his heavy involvement in the development and

implementation of the PE Central web site (http://pe.central.vt.edu). It is important to note that the researcher was aware of the importance of exploring these biases and established and followed guidelines in an effort to best describe the influences, if any, the USPE-L listserv had on K-12 physical educators through their experiences as subscribers to the list. A detailed description of these guidelines is found later in this chapter in the section titled "Establishing Trustworthiness." The next section will discuss the data sources utilized for this study.

Data Sources

This study used three different sources for data collection. These data collection sources were: (a) on-line survey data, (b) follow-up interviews, and (c) fieldnotes. A description of each will follow.

On-line Survey Data

The initial source of data came from an on-line survey. A list of all of the private e-mail addresses for the 1,043 subscribers to the USPE-L listserv as of March 1, 1998 were provided by the listserv administrator Ms. Sarah Westfall. These private e-mail addresses were put into six separate nickname mailing lists by the researcher using Eudora Pro e-mail software. A pre-contact message informing the potential survey respondents about the purpose of the study, the researcher, and when they would receive the e-mail survey was sent to all the subscribers of the list (see Appendix A). The pre-contact message was sent on March 4, 1998 by the researcher in which a private message was sent to his own e-mail address along with sending a blind carbon copy of the message to the six e-mail nickname mailing lists. This procedure was followed to give the appearance to the subscribers that they were receiving a private message from the researcher rather than a message sent to a large number of individuals.

On March 9, 1998 the on-line survey was sent to the 1,043 subscribers of the USPE-L listserv via e-mail using the same procedure described above giving the subscribers the appearance of receiving the on-line survey as a private message from the researcher. There were 49 e-mail messages of the 1,043 sent out that were returned as being e-mail accounts that were no longer functioning. The total or net number of on-line surveys that were actually received was 994. The on-line survey asked the participants to respond to the survey via electronic mail (e-mail) privately to the investigator, Todd Pennington at: tpenning@vt.edu, by March 23, 1998. On March 16, 1998 a follow-up message which included the on-line survey was sent out, using the same procedure previously described, reminding the subscribers to respond to the survey by March 23, 1998 (see Appendix B). Only the researcher knew the subscribers identities and pseudonyms were used throughout the study to guarantee anonymity.

The on-line survey questions were derived from six separate sources: (a) pre-pilot interviews with six teachers who were subscribers to the USPE-L list, (b) previous messages posted to the USPE-L list by teachers discussing its usefulness, (c) from Tannehill, Berkowitz, and LaMaster's (1995) study of a telecommunications network for physical educators as a part of a professional development school, (d) from Merseth's (1991) research of a telecommunications network for first year teachers, (e) from Spitzer and Wedding's (1995) work on an intentional electronic community for professional development, and (f) Jacob and DiMauro's (1995) research of the benefits of an educational telecommunications network on silent readers. The on-line survey questions attempted to ascertain how subscribers used the listserv and to describe the influence, if any, participation on the USPE-L listserv had on their teaching and professional life. A copy of the on-line survey can be found in Appendix C.

Follow-up Interviews

Follow-up telephone interviews were used as a source of data collection. The use of follow-up interviews is a technique suggested by Patton (1980) who asserts that the use of follow-up interviews with a subsample of respondents can provide meaningful additional detail to help make sense out of and interpret survey results. This technique was used by Jacobs and DiMauro (1995) and Merseth (1991) in their studies exploring the influence of telecommunications networks on inservice teachers of other disciplines.

The use of probes and follow-up questions based on the participants responses from the on-line survey were used for this source of data collection (Patton, 1980). The use of such probes is a technique suggested to deepen the response to a previous question and to increase the richness of the data being obtained (Patton, 1980). This approach to collecting data allows the investigator to ask for clarification and/or to explore further information given the willingness of the respondent (Patton, 1980). The follow-up questions and probes asked for examples and/or further explanation concerning the issues of how teachers used the listserv, teacher isolation, professional benefits, and use in their teaching practices and/or programs as indicated by the respondent in the on-line survey (see Appendix D).

Selection of Interview Participants

This study utilized a nonrandomized selection of interview participants implemented by purposeful and selective sampling (Bogdan & Biklen, 1992). This sampling technique allows the researcher to choose a particular population because they are believed to facilitate the expansion of the developing theory, and to ensure the participants in the study appear in the same proportion as they appear in the total population (Bogdan & Biklen, 1992). How the interview participants were selected will be discussed next.

The researcher selected interview participants' in an effort to reflect the total population of the 113 survey respondents (Bogdan & Biklen, 1992). Of the 113 survey respondents 70 indicated they were willing to be interviewed. After completing an initial analysis of the survey data there appeared to be a consistent and universal theme as to survey respondents sense of support of the listserv in relation to the issues of the need connect with others, professional development, and use in their teaching and/or physical education programs. Given this initial analysis the researcher identified 5 survey respondents that were considered non-supportive when compared to the rest of the survey data. These individuals were considered non-supportive in their responses to questions 9, 10, and 11 on the survey in which they indicated they were "unsure", "disagreed", or "strongly disagreed" to any of the questions about the listserv having a positive influence on issues of isolation, professional benefits, and use in their teaching and/or programs. The use of actively seeking negative cases is recommended by Bogdan and Biklen (1992) to assist in redefining and the reformulation of a universal theme.

The remaining 5 follow-up interview participants were selected based on their support of the listserv in their responses to questions 9, 10, and 11 on the survey in which they indicated they "strongly agreed" or "agreed" on all three of the questions about the listserv having a positive influence on issues of the need to connect with others, professional benefits, and use in their teaching and/or programs. The ten interview participants, 5 who appeared to be non-supportive and 5 who appeared to be supportive, were also purposely selected in an effort to represent the 113 survey respondents in terms of grade levels taught and years of teaching experience. Survey respondents represented K-12 physical educators at the elementary grade level (60%), middle

school level (20%), high school level (11%), and adapted physical educators (6%). Years of teaching experience of the survey respondents ranged from 1-33 years with a mean of 14.6 years.

Ten participants that appeared to best fit the above criteria served as the interview participants for this study. This sample size is based on Jacobs and DiMauro's (1995) study of an electronic network of science teachers in which they selected twenty teachers to interview from a network of a little over one thousand five hundred science teachers. A description of the ten follow-up interview participants will follow.

Interview Participants

The ten follow-up interview participants in this study were K-12 physical education teachers. Also, it is important to note that the researcher did not know any of the interview participants that were selected for this study. These participants represented K-12 physical education teachers at the elementary grade level (n=6), middle school level (n=2), high school level (n=1), and adapted physical educators (n=1). The interview participants ranged in years of teaching experience from a first year teacher to a teacher who had completed thirty-three years of teaching. The mean number of years of teaching experience of the interview participants was 16.5 years. These interview participants represented eight different states. An explanation of the interview protocols and dates will now follow.

Interview Dates and Protocol

Once the ten follow-up interview participants' for the study were selected they were contacted, via e-mail, by the researcher in order to set up a date and time for the telephone interview. The interview participants were also sent, via e-mail, a copy of the informed consent form discussing

the issue of confidentiality and were asked to print it out, sign it, and mail it back to the researcher.

Once the researcher received the signed informed consent form from the participant the scheduled interview took place. The first interview took place on March 31, 1998 and the nine subsequent interviews were completed by April 20, 1998. At the start of each interview, the investigator reviewed the purpose and the procedure of the study with each participant. At this time the probes and follow-up questions were asked based on the participants' responses to the on-line survey (Patton, 1980). Follow-up questions included asking participants' for example(s) of how the listserv had, or had not, influenced their feelings of isolation, professional benefits, and use of information from the list in their teaching practices and/or programs (see Appendix D). The ten follow-up interviews were taped telephone interviews ranging from 15 to 40 minutes in length. These taped interviews were subsequently transcribed. The final source of data was that of the researchers fieldnotes.

Fieldnotes

The fieldnotes were taken both during and after the follow-up interviews. Fieldnotes consisted of the researcher describing conversations, recording ideas, strategies, hunches, patterns that may emerge, and what they think in the course of collecting and reflecting on the data (Bogdan & Biklen, 1992). These fieldnotes were written in narrative form and entered into a word processing document by the researcher as recommended by Bogdan and Biklen (1992). These fieldnotes were not used in the written results of this study, rather they were used to guide the discussions of the researcher in meetings with the peer debriefer as a method to establish trustworthiness. The use of a peer debriefer is discussed later in this chapter in the section titled "Establishing Trustworthiness." The last section of this chapter describing the data analysis will now follow.

Data Analysis

The quantitative data generated from the on-line survey questions were analyzed using the descriptive statistics of percentages, range, and averages (mean, median, mode, and standard deviations) to describe the subscribers of USPE-L that responded to the on-line survey. The researcher utilized an inductive content analysis (Lincoln & Guba, 1985) for the qualitative data generated from the open-ended questions and comments from the on-line survey, follow-up interviews, and fieldnotes.

An important part of the analysis often overlooked is the actual handling and sorting of the data (Bogdan & Biklen, 1992). As the data was collected it was identified in several different ways. The raw data was sorted according to the source in which it was derived (e.g., on-line survey data, interview transcripts, and fieldnotes). Each participant was assigned their own number which was put on each source of data they generated. As each piece of data from the three sources was collected chronologically it was given a page number so that the original piece of data could always be identified (Bogdan & Biklen, 1992). In Chapters Five and Six discussing the qualitative results the participants written comments from the survey are indicated by the participants number followed by its chronological page number. Comments in these chapters resulting from the follow-up interviews are be indicated by the participants number followed by the capital letter "I" , and then its chronological page number. Once each piece of raw data was assigned a participant number and page number they were put into a computer folder, and a hard copy printed out and placed in a manila folder.

Once the raw data was identified as described above, the researcher analyzed the content of the survey data, verbatim interview transcripts, and fieldnotes by reading them at least twice as recommended by Bogdan and Biklen (1992). After becoming familiar with the data, the content

analysis focused on uncovering embedded information and making it explicit (Lincoln & Guba, 1985). This involved two subprocesses which were unitizing and categorizing (Lincoln & Guba, 1985).

The unitizing process also may be understood as coding, a process in which raw data are systematically transformed and aggregated into units (Lincoln & Guba, 1985). In order to use a piece of information from the actual raw data sources, it had to meet two criteria established by Lincoln and Guba (1985). First, the piece of information had to be aimed at an understanding or action that the inquirer needed to have or to take. Second, it was the smallest piece of information that could stand by itself and was interpretable in the absence of any additional information. These units of information were extrapolated from the raw data, consisting of a few words in a sentence to an extended paragraph. Once these units of information were selected for further analysis they were copied and pasted into a new computer file and a hard copy was printed out. They were filed by data source while still retaining the original identification of the participants number along with the original page number from which the unit of information was derived.

Once the raw data was transformed into units, the next step in the analysis was categorizing. The process of categorizing also has been described as the "constant comparative method" (Glasser & Strauss, 1967). Essentially, this process consists of comparing and contrasting each unit of information with all other units of information to unite those with similar meaning and to separate those with different meanings (Glasser & Strauss, 1967; Patton, 1980). Once the units of information were temporarily assigned a category a new computer file was created containing these units of information while still maintaining their original identification. The newly created categories containing similar units of information were cut and pasted into a new computer file as well as printed out and placed on large poster boards for further analysis. It is important to

note that a unit of information may be placed in more than one category (Bogdan & Biklen, 1992).

As a result of this process, provisional categories were established, and the researcher endeavored to write a propositional statement and/or assertion that served as the basis of inclusion or exclusion of units of information into a particular category (Lincoln & Guba, 1985). These propositional statements and/or assertions for each category were subject to revision until all the units of information were analyzed (Lincoln & Guba, 1985). At this point, all units of information were permanently assigned to a category, and had to be admissible under the final form of the propositional statement (Lincoln & Guba, 1985).

The propositional statements are underlying uniformities of the units of information in which each category was analyzed to identify common themes of greater generality or higher-order themes (Lincoln & Guba, 1985). Each category and higher-order theme that emerged provided descriptive or inferential information about the context or setting from which the original units of information were derived (Lincoln & Guba, 1985). The methods and guidelines established to maintain rigor will be discussed next.

Establishing Trustworthiness

In order to maintain methodological rigor, trustworthiness is established to the extent in which a particular study is worthy of consideration by the reader (Lincoln & Guba, 1985). Any kind of science, qualitative or quantitative, can be done as rigorous and systematic inquiry or can be done poorly (Locke, 1989). The remaining section of this chapter will discuss the techniques used to establish trustworthiness for this study which include member checking, peer debriefing, thick description, and an inquiry audit.

The technique of member checking (source checking) contributes to establishing credibility. Member checking was performed several times throughout the study. The first checking took place after the follow-up interviews had been transcribed into a verbatim written document which was subsequently sent via e-mail to the participant for comment and verification. Member checks were also used during the data analysis with both survey respondents and interview participants when particular unitized information appeared to fit into multiple categories or needed further explanation. In this case, participants were asked for comment and clarification via e-mail.

The researcher utilized Dr. Jon Poole as the peer debriefer. Dr. Poole is a professor in the Health and Physical Education Program in the Department of Teaching and Learning at Virginia Polytechnic Institute and State University and has qualitative research experience. The role of the peer debriefer included exploring the researcher's biases, clarifying the researcher's interpretations, and playing the role of devil's advocate (Hanson & Newburg, 1992). In using a peer debriefer, the researcher gained a clearer understanding of his biases and more fully appreciated the process of qualitative inquiry through discussions guided by his fieldnotes in relationship to data interpretations, thematic analysis, and other methodological issues (Gluch, 1993). This was accomplished by the researcher and the peer debriefer meeting at a set time once a week after data collection began and continued until the analysis was completed.

The idea of external validity found in conventional studies is comparable to transferability in qualitative designs. Transferability is the notion that the researcher provides sufficient information about the context and conditions of the study in order to allow the reader to make an informed decision whether the information presented is relevant to the situation (Lincoln & Guba, 1985). The technique of thick description was used to aid in transferability. The purpose of thick description is to provide sufficient information about the context and conditions under

which the study is conducted in order to allow the reader to make an informed decision whether the information presented is relevant to the situation (Hanson & Newburg, 1992). Thick description was accomplished by the researcher providing a detailed account of the data collection, data analysis procedures, and results.

The last technique to give the study credibility is that of an inquiry audit, which is metaphorically based on a fiscal audit. As outlined by Lincoln and Guba (1985), the task of an inquiry auditor is twofold: (a) In examining the process of the inquiry and determining its acceptability, the auditor attests to the dependability of the inquiry; and (b) in examining the product meaning of the data, findings, interpretations, and recommendations, the auditor attests that they were supported by the data and internally coherent.

In order for the inquiry audit to occur, the researcher prepared and maintain an audit trail. This audit trail consisted of five categories: (a) raw data, (b) data reduction and analysis products, (c) data reconstruction and synthesis products, (d) process notes, and (e) instrument development information (Lincoln & Guba, 1985). The inquiry audit was performed by Dr. George Graham, a professor in the Health and Physical Education Program in the Department of Teaching and Learning at Virginia Polytechnic Institute and State University.

Chapter Summary

This chapter explained the various methods that were used to complete this study. This was accomplished by discussing the rationale for selection of the design, the researchers role, data sources including the on-line survey, selection of the follow-up interview participants, investigators fieldnotes, analysis of the data, and the methods used to establish trustworthiness. A discussion of the quantitative results from the on-line survey will be discussed next in Chapter 4.

CHAPTER 4
QUANTITATIVE RESULTS

The purpose of this study was to explore how USPE-L was being used by its subscribers and describe the influence, if any, it had on K-12 physical education teachers. This chapter will report the quantitative results from the on-line survey. The quantitative data generated from the on-line survey questions were analyzed using descriptive statistics. Bogdan & Biklen (1992) suggest that qualitative researchers often use quantitative data to provide further descriptions of the population served by a particular educational program. In this study it will be accomplished by organizing data into three categories: (a) demographic information about the on-line survey respondents; (b) computer and listserv usage characteristics of the respondents; and (c) possible listserv influence on teacher isolation, use in teaching practices and programs, and professional benefits.

Demographic Information

The on-line survey generated a total of 113 responses from K-12 physical education teachers. These survey respondents represented physical educators at four different grade levels, elementary level, grades Pre K-5 (60%), middle level, grades 6-8 (23%), high school level, grades 9-12 (11%), and adapted physical educators (6%). Teachers who responded to the survey had an average of 14.6 years of teaching physical education with a range of 1-33 years of teaching experience, and a standard deviation of 8.56 years. In terms of geographic location of the respondents, 4 different countries and 41 different states within the United States were represented (Appendix E).

Computer & Listserv User Characteristics

This section analyzes the length of time respondents had been a subscriber, their access to e-mail, time spent on the listserv, and interaction with other listserv subscribers via private e-mail messages. The USPE-L listserv had been in existence for almost four years at the time of the survey. The length of time respondents had been subscribers can be seen in Table 4.1.

Table 4.1

Number of Years Subscribed to USPE-L

Years	No. Responses (N = 113)
0 - 1	48 (42%)
1 - 2	49 (43%)
2 - 3	4 (4%)
3 +	12 (11%)

These results reveal that a majority, (85%), of the survey respondents were subscribers of 2 years or less while only (15%) were subscribers of 2 years or more.

When asked about where they had access and/or checked their e-mail a majority, (54%), responded they only checked it at home, while (12%) only had access or checked it at school (see Table 4.2).

Table 4.2

<u>Location of Participant E-mail Access</u>

Location	No. Responses (N=113)
School	14 (12%)
Home	61 (54%)
Both	38 (34%)

In terms of the number of days each week survey respondents spent reading messages from the listserv a majority (81%) reported they read messages between 4-7 days a week as shown in Table 4.3.

Table 4.3

<u>Number of Days per Week Spent Reading Listserv Messages</u>

No. of Days	Teachers Responses (N=113)
0 - 1	3 (3%)
2 - 3	18 (16%)
4 - 5	35 (31%)
5 - 7	57 (50%)

When asked further about the amount of time they spent each day or session they read messages from the list (80%) reported they spent between 0-30 minutes on the days they read messages (see Table 4.4).

Table 4.4

Duration of Time Spent Reading Messages per Session or Day

Minutes	No. Responses (N=113)
0 - 15	45 (40%)
16 - 30	45 (40%)
31 - 45	13 (11%)
45 +	10 (9%)

Listserv interaction was thought to take place not only through subscribers posting messages to the entire list but through subscribers exchanging private e-mail messages with other subscribers. When asked if they had ever sent a private e-mail message to another listserv subscriber as a result of a message sent to the entire list an overwhelming majority (98%) reported they had sent a private message to another subscriber of the listserv (Appendix F). The number of private messages sent as a result of teachers interactions originating on the list is reflected in Table 4.5 on the next page.

Table 4.5

Private E-mail Correspondence Originating from Listserv Postings

No. of Private Messages	No. Responses (n=98)
1 - 10	60 (61%)
11 - 20	25 (26%)
21 - 30	6 (6%)
31 +	7 (7%)

Teacher Isolation, Teaching Practices, and Professional Benefits

Several questions on the on-line survey were designed to gain insight into the possible influence of the USPE-L listserv on the issues of teacher isolation, professional benefits, and teachers use of information from the list in their teaching practices and programs. In terms of teacher isolation (38%) of survey respondents reported that they were the only physical education teacher in their school, and (62%) reported they had one or more physical education colleague in their school (Appendix F).

Along with reporting whether they had other physical educators to work with in their school, survey respondents were asked to rate their agreement to disagreement on a 5 point likert scale as to whether the USPE-L listserv helped them connect with other physical education teachers outside of their school (see Table 4.6, Question #9).

Table 4.6

Survey Responses Concerning Issues of Connecting with Others, Professional Benefits, and Use in Teaching

Likert Scale Choices	Question #9 Connecting with Others	Question #10 Professional Benefits	Question #11 Use in Teaching
	No. of Responses (N= 113)		
Strongly Agree	50 (44.0%)	46 (41%)	51 (45%)
Agree	54 (48.0%)	58 (51%)	54 (48%)
Unsure	4 (3.5%)	8 (7%)	3 (3%)
Disagree	4 (3.5%)	1 (1%)	4 (3%)
Strongly Disagree	1 (1.0%)	0 (0%)	1 (1%)

These results indicate that (92%) either "strongly agree" or "agree" that the USPE-L listserv has helped them connect with other physical education teachers outside of their school. This data appears to support the notion that participation on the listserv may highlight teachers desires to connect with others. Along with feeling as though they connected with others, survey respondents indicated they had used information from the listserv in the their teaching and/or program.

A question was designed to try and determine whether the USPE-L listserv had any influence on teachers practices and/or programs. Again survey respondents were asked to rate their agreement to disagreement on a 5 point likert scale as to whether the USPE-L listserv had provided them

information to use in their teaching and/or health and physical education program (e.g. teaching strategies, methods, curricular content, etc.). Results indicated that a majority, 93%, of survey respondents "strongly agree" or "agree" that the USPE-L listserv provided them with information to use in their teaching and/or programs (see Table 4.6, Question #11, on the previous page).

There were two questions that were designed to understand the professional benefits, if any, the USPE-L listserv provided its subscribers. Survey respondents were asked to rate their agreement to disagreement on a 5 point likert scale as to whether the USPE-L listserv had benefited them professionally. Results indicated that 92% either "strongly agree" or "agree" that the USPE-L listserv has benefited them professionally (see Table 4.6, Question #10, pg 73).

When asked to rank order "usefulness of information" on the USPE-L listserv with four other outlets for professional information, with one being most useful, results indicated that the listserv was found to be the second "most useful" in terms of the information it provided survey respondents (see Table 4.7 on the next page).

Table 4.7

Ranking "Usefulness of Information" of Professional Development Outlets

Rank Order	Mean	Standard Deviation
	(1= Most useful 5= Least useful)	
1. Professional Conferences	2.07	1.42
2. USPE-L Listserv	2.68	1.10
3. Professional Journals	3.06	1.19
4. Books	3.09	1.42
5. District/School Inservice	4.19	1.17

Chapter Summary

The purpose of this chapter was to share the quantitative results from the on-line survey. This chapter shared the on-line survey results indicating the respondents represented 4 countries and 41 states within the United States. A majority were subscribers of two years or less and reported reading the listserv messages almost daily. Results indicated that the listserv did highlight teachers desires to connect with others, benefited them professionally, and provided them with information they used in their teaching practices and programs. The next chapter, Chapter 5, will be an in-depth discussion of the qualitative results from the on-line survey open-ended questions and the follow-up interviews.

CHAPTER 5

QUALITATIVE RESULTS & DISCUSSION-OVERARCHING THEME: BENEFITS OF PARTICIPATION

The purpose of this study was to explore how USPE-L was being used by its subscribers and describe the influence, if any, it had on K-12 physical education teachers. The 113 survey respondents and the 10 follow-up interview participants formed the basis for the inductive content analysis. These 775 raw data units consisted of comments and quotations varying from a few words to a complete paragraph. Two overarching themes emerged from the inductive content analysis. These were "benefits of participation" and "factors limiting participation" on the USPE-L listserv. This chapter will share the results of the first overarching theme followed by a discussion of the related literature. The results which made up the second overarching theme, factors limiting participation, will be shared in Chapter 6.

Benefits of Participation

The first overarching theme, benefits of participation, is made up of five categories that emerged from the raw data units. These categories are: (a) the opportunity to interact with other professionals, (b) feelings of support and encouragement, (c) immediate access to other professionals, (d) new ideas, and (e) staying abreast of current trends. This chapter will now describe the results of each of these categories using the responses of the teachers which minor editing for grammatical mistakes took place.

Category #1 Interaction with other Professionals

The first category that makes up the overarching theme of benefits of participation was defined as: **the opportunity that the USPE-L listserv provided K-12 teachers to interact with other**

professionals through giving and/or receiving information. One hundred and eighty-four responses were extracted from the raw data units regarding teachers interacting with other professionals.

The benefit of interacting with others was reflected in the words of one teacher who wrote: "I like the opportunity for receiving many new and different ideas, and a chance to talk with others in my profession." (Participant 064, p. 140) Another teacher wrote: "just being able to communicate." (Participant 074, p. 158) This opportunity to communicate with other teachers in the profession may have been best described by the teacher who wrote: "I am the only PE teacher at my school, so being able to communicate with others, and hear what other PE teachers have to say is most helpful." (Participant 094, p. 159) Another teacher expressed similar feelings:

> I feel that the listserv allows for PE teachers, who are usually confined to their
> gymnasiums, to communicate with other professionals in their field... share how
> to promote their programs, and learn new ideas (e.g. just like going to
> conferences and meeting new people and hearing new ideas). (Participant 089, p.
> 142)

The opportunity for teachers to interact was more than just receiving information. It was also the chance to share ideas and insights. For example, "It's fun to share information and receive it to!" (Participant 019, p. 156) Another teacher commented:

> It's just wonderful... it's nice because you can respond and give some of your
> insights...And whether you ever respond back to the listserv or not, you're on the
> receiving end. (Participant 62, I, p. 184)

One teacher having been out of the field for an extended period of time wrote this about their experience:

> I teach in a district that has 106 schools. The supervisor of PE is totally useless. Although we had one meeting with all the PE teachers, since I was new to the district, I didn't know any one. Since this is my first year back in teaching after 18 years out in the business community, I really needed some help, but got none from school. I requested a list of the names and phone numbers of other teachers in the district and even offered to type it for him if he'd send me the information, but nothing. I asked him some specific questions about the physical fitness test and his answer was just to do it whatever way I wanted...the only help I've received from other PE teachers has been on this listserv. It has been a lifesaver!!!. (Participant 033, p. 153)

One teacher shared his experience of the daily opportunity to interact with others in solving a specific problem by writing: "I asked questions about troubles that my school was having with scheduling and received some great responses to help resolve those problems." (Participant 021, p. 161)

Although many welcomed the opportunity to interact with other teachers by giving and receiving information, not all participants felt it was safe to interact with others via the listserv. The hesitation for some teachers to interact and more specifically share information with the list was inhibited by what was considered a "lack of professionalism" by subscribers on the list. Teachers descriptions of the lack of professionalism is Category Seven which will be discussed in Chapter 6. The opportunity to interact with other professionals may have lead to the second category which is feelings of support and encouragement.

Category #2 Feelings of Support and Encouragement

The second category was defined as: **the feelings of support and encouragement as a result of teachers participation on the USPE-L listserv**. Eighty-five responses were extracted from the raw data units making up this category. As one teacher wrote "With the touch of a finger...there is support and encouragement!" (Participant 110, p. 160)

These reported feelings of support and encouragement appeared to come from teachers feeling as though there were others who understood their situations and challenges. One teacher shared:

> It helps to hear that others struggle with similar situations that I have, also, the expertise and advice to avoid problems is great. We use the experiences of others to better our programs. (Participant 110, p. 160)

Similar feelings were expressed by a teacher who shared her experience:

> I feel like I'm not by myself... I know at my school I feel like I'm the one getting picked on here but, it's happening country wide. They take our gym, for example, and convert it into a testing center... There's thirteen times within the school year that our gym is turned into a testing center. And I thought we were the only one's who had that problem, but we're not...We have one classroom with sometimes five PE classes going on at the same time, and then we are not able to use our gym because of testing. I felt better about that as far as there's people around this country that run into the same problems all the time, so I felt connected to them that way. (Participant 79, I, p. 178-179)

These teachers appeared to not only feel as though others understood the challenges and situations they faced but also reported feelings of encouragement about their own teaching. As one teacher wrote: "I receive a boosting of morale... I'm doing things right!... I have been willing to take more 'risks' knowing there is support " (Participant 110, p. 143) A veteran teacher of 28 years described her experience:

> I feel as one of the older teachers, sometimes you get lulled into a sense of doing what you've always done. In one respect its given me new insight into how to approach maybe the same area of teaching but in a little bit different way and on the other hand, its been reinforcing and given me some self confidence that some of the things I'm doing are right, and that other people are doing the same things out there. Its helped me in both ways. Its rejuvenated me and I've been able to celebrate, hey, you know, I'm not way off and doing things just my own way. (Participant 90, I, p. 180)

These feelings of support and encouragement may have been summed up best in these words:

> I do enjoy seeing the enthusiasm and dedication of professionals all over the country. It is inspiring to see so many people willing to take the time to share with others. (Participant 080, p. 164)

These feelings may not only have come as a result of teachers interacting, but also from the feeling that they had immediate access to other professionals which will be discussed next.

<u>**Category #3 Immediate Access to other Professionals**</u>

The feeling that teachers had immediate access to other professionals was the third category. It was defined as: **the feelings of immediate access to other professionals not available through other professional development methods**. One hundred and two responses were extracted from the raw data units making up this category. One teacher, for example, shared: "feeling like I can easily get in contact with other professionals since I have access to their e-mail addresses on the list." (Participant 057, p. 157) Another teacher wrote: "I like the immediate feedback I can receive with the listserv--often I can get a response faster with the listserv than I can within my own district." (Participant 052, p. 154)

Teachers expressed the feelings of having immediate access to other professionals as a benefit of the listserv particularly when compared to other traditional methods of professional development (e.g. conferences, journals, books, district/school inservices). When comparing the listserv to other professional development methods one teacher wrote:

> It is easy to access someone who has left a message on the listserv. So if you need more information or you just have a question you can get it answered in a short period of time. Professional Journals and books may have good ideas and activities, but it is difficult to talk with the writer unless the article happens to give their e-mail address...Part of the frustration in my district is they do not provide inservice for specialists (which include library, music and PE) beyond general classroom management (geared toward the classroom teacher) and some special education stuff (not specifically geared toward PE) we don't have a thing. (Participant 025, p. 152)

This feeling was echoed by another teacher who shared her experience:

I know down here we don't have access to a lot of conferences. Like going to Reno for the National convention, it was totally out of the question for me. As far as getting there, I asked the school, and of course they said no, because we're in some type of financial freeze. But, being able to open up my e-mail from the listserv and seeing that there are people available with different ideas and different concepts being taught, and even updates on old one's. I find that very beneficial. (Participant 79, I, p. 179)

Another benefit was immediate access to others related to their daily teaching concerns. For example:

...it is the only source from which I can ask questions related to the daily running of the school day because many experienced teachers are available on the listserv, and ready to discuss and share their insights. Books sometimes don't answer my questions/dilemmas. (Participant 091, p. 155)

Another teacher shared her feelings while comparing the listserv's usefulness on a daily basis to other professional development methods:

I really like the listserv because it is easy to ask a specific question and most of the time get answers within a day or two. Professional conferences are always super, but they are not always around at the times one needs help. Journals are also usually informative, but not always timely or pertinent to your particular curriculum. District/school inservices are, most of the time, irrelevant to P.E. (Participant 104, p. 155)

The feeling of having immediate access to other professionals allowed teachers the opportunity to communicate about the daily concerns of their teaching. It also appeared that teachers developed new ideas as a result of having access to other professionals.

<u>Category #4 New Ideas</u>

The fourth category was defined as: **teachers developing new ideas for use in their teaching and/or programs**. One hundred and twenty responses were extracted from the raw data units making up this category. This was illustrated by a teacher who shared this experience: "I am able to use new ideas in the classroom/ gym that I had to previously wait to see at workshops/conferences." (Participant 105, p. 143) Another teacher described the use of new ideas in helping with his program: "having information and ideas in writing has allowed me to better use a volunteer to produce materials and activities which are ready for application in the class setting." (Participant 011, p. 166) This category of new ideas was made up of two sub-categories which were curricular content ideas and teaching methods and/or practices (pedagogy).

<u>Category #4a Curricular Content Ideas</u>

The sub-category of curricular content ideas was defined as: **the curricular content ideas used by teachers in their lessons and/or programs**. This sub-category consisted of sixty five responses extracted from the raw data units. Within this sub-category teachers described a wide range of new curricular content ideas for use in their lessons. The content ranged from use of activities for implementing heart rate monitors, dance, integrated lessons, to holiday and field day activities. For example:

One thing that I think has been helpful is one of my own personal teaching goals this year was to integrate more language arts and I was able to get some very, very good ideas on how to integrate some activities that actually integrate language arts. One example would be a little game I got off the listserv in October about a ghost hunt and how the kids would have to sit down and read, and then, they had to think up their own keywords after they did an activity, and come up with a keyword that would kind of exemplify that activity. So that's one good example of where I was able to get something that would actually help one of my teaching goals. (Participant 90, I, p. 180)

Another example was a teacher who wrote: "I collaborated with another teacher to construct an Olympic field day for my school." (Participant 086, p. 159).

Within this sub-category there was several who shared concerns about the use of such information from the list by teachers in their classes. One teacher said:

Hearing all these activities and it's, I'll try this and I'll try that, but there's no guidance in the activities. You know you can't just throw a game out there and play it. There's got to be some sort of focus, some sort of objective behind it, a clear goal set. (Participant 23, I, p. 183)

These feelings were supported by another teacher who shared:

... if people see poison ball come up on the listserv, and think, that seems like a great thing to try Monday morning, I think we are in trouble. I find that doing work shops around the country, I do a much different workshop than most of a the

people on the program with me, and I'm always hesitant because I'm not providing people with what they want, like activities they can use on Monday morning. It's my judgment that I'm trying to provide people with what they need, and I know that's real judgmental on my part, but I think if people are using the listserv as Monday morning ideas we are using the listserv wrong. (Participant 45, I, p. 178)

Along with teachers developing new curricular content ideas for use in their lessons and/or programs, a second sub-category emerged from the category of new ideas.

Category #4b Different Methods and/or Teaching Practices

The second sub-category of new ideas was that of different methods and/or teaching practices. This sub-category was defined as: **new ideas used by teachers in relationship to different teaching methods and/or practices**. Forty seven responses were extracted from the raw data units making up this sub-category.

Teachers varied in their descriptions of the new and/or different teaching methods or practices they developed from the listserv. These ranged from "a renewed interest in the how's of introducing and teaching skill progressions" (Participant 025, p.167) to assessment strategies that "got me to use rubrics along with using journals in PE." (Participant 094, p. 169) Of this range of topics ten teachers mentioned the topic of discipline strategies more than any other topic in terms of new methods and/or practices. For example, "discipline ideas put fourth on the listserv have been very helpful when I had a problem...it was like taking a good refresher course at a good school." (Participant 056, p. 168) Another teacher further explained "the discussions about

behaviors of students has really been a help as students have gotten harder to handle and the size of classes and work loads continue to increase." (Participant 087, p. 169)

There were a couple of teachers that shared examples of the influence of the list on their teaching methods and/or practices. The first of these teachers shared:

> I've also decided if the kids don't come to gym class with gym shoes on, I can no longer have them participate. Usually I had them take their shoes and socks off and go bare footed. And after the discussions for several weeks on going bare footed, it seems like if I were taken to court, and they called up one of these people as an expert witness I would be sued and lose. (Participant 45, I, p. 178)

The second teacher related this experience:

> When the whole dodge ball issue began early in November, there were some things that I adapted because of thinking through what people had to say concerning that whole issue, and so I adapted and did away with some of those games that I used to have the children play. (Participant 101, I, p. 185)

These experiences may best describe teachers use of new teaching methods and/or practices. Along with teachers sharing their use of such information concerning their teaching practices, they also reported that participation on the list kept them abreast of the current trends in the field.

Category #5 Staying Abreast of Current Trends

The final category, making up the overarching theme of benefits of participation, was defined as: **teachers use of the listserv to stay abreast of current trends**. Thirty-six responses extracted

from the raw data units made up this category. One teacher may have defined it best by writing "it has helped me to keep abreast with developments in the field (e.g. issues on gender, curriculum, organization of field days, etc.) (Participant 091, p. 165)

Several teachers described their use of the list as a resource to keep abreast of the current trends in relationship to other professional development methods. For example, "it has helped me stay current even though I am not able to attend many conferences and workshops as I would like." (Participant 018, p. 161) Another teacher described keeping up with the current trends as being aware of all of the changes in the field:

> ...it's a way to keep up with all the changes that are going on, and to me I think that is the best thing. You know I feel like some of my co-workers in the county don't use it, they don't know of it, they don't know about it, and you know all the things that I come up with I basically borrow from the listserv, and the people on the listserv. My co-workers think the ideas are really cool, and I try to refer them to it. So I feel like while I'm getting ahead they're getting farther behind. (Participant 27, I, p. 173)

This chapter discussed the five categories that emerged from the inductive content analysis of the qualitative data creating the overarching theme of benefits of participation. These five categories consisted of the opportunity to interact with other professionals, feelings of support and encouragement, immediate access to other professionals, new ideas, and staying abreast of current trends. The following section discusses the categories and the related literature.

Discussion of Related Literature

The overarching theme of benefits of participation was made up of five categories that emerged from the inductive content analysis. A discussion of these categories in relationship to the literature on professional development, systems theory, teacher isolation, and feelings of marginalization will now follow.

Professional Development

Teachers described their enthusiasm for the opportunity to interact with other professionals (Category One) and the opportunity for immediate access to those in similar contexts (Category Three) as two of the benefits of participation. These findings corroborate a key element of professional development reported as being context based, flexible, and related to the daily lives of teachers (CRC, 1989; Lieberman, 1995; Lieberman & McLaughlin, 1996; Little et al., 1987; McLaughlin, 1992; McLaughlin & Marsh, 1979). In these studies teachers described the need for professional development opportunities that were not generic, rather they needed to be more subject specific and related to their daily teaching context. Teachers participation on the listserv may begin to meet this need allowing teachers to gain insight from others that work in a similar conditions and with many of the same daily challenges--and to do so rapidly.

In addition to being context based, teachers felt the listserv provided immediate access to other colleagues not available through traditional methods of professional development (Category Three). This finding suggests that the listserv may be considered "on-going" because teachers participate as much or as little as they choose. Several studies (CRC, 1989; Little et al., 1987; McLaughlin & Marsh, 1979) suggest that effective professional development activities require sustained on-going effort. Furthermore, Grimmett and Erikson (1988) concluded that effective professional development provides teachers on-going opportunities to reflect on their teaching

practices with other teachers. Although there appears to be evidence of the listserv being on-going in nature, teachers also described lack of time to participate (Category Nine) as one of the limiting factors which will be discussed in Chapter 6.

Teachers descriptions of their use of the listserv in relationship to gathering new ideas, in the form of curricular content and teaching methods and/or practices (Category Four), is also supported in the research on telecommunications networks and inservice teachers. The research on inservice teachers use of telecommunications networks often defines professional development as teachers participation resulting in the gathering of teaching activities, teaching resources, and curricular materials (Jacobs & DiMauro, 1995; Johnson, 1995; Spitzer & Wedding, 1995; Ruopp et al., 1993; Tannehill et al., 1995). Teachers in these studies reported using telecommunications networks to locate information on curricular materials such as textbooks, plan new courses, and gather ideas on how to teach old concepts using new activities. Likewise, teachers in this study described using the listserv to gather teaching resources that ranged from discipline strategies to new activities for field days (Category Four).

Systems Theory

In addition to gathering new ideas (Category Four) there also appears to be support for Bronfenbrenner's (1979) systems theory. Teachers in this study reported learning through interacting with others (Category One), specifically new curricular content and teaching methods and/or practices (Category Four). These results support Bronfenbrenner's (1979) ecological systems theory of human development which asserts that development occurs as a result of the interplay between a person and the environment. He suggests that development within this theory takes place over a lifetime and occurs within four ecological contexts.

According to systems theory teachers development of new ideas (Category Four) through their interaction with other teachers on the listserv (Category One) may create development at the mesosystem level which comprises the interrelations among two or more single settings (microsystems) in which the person actively participates (Bronfenbrenner, 1979). Along with the possibility of professional learning occurring as a result of such interaction at the mesosystem level there is also evidence that development may be occurring at the exosystem level.

Bronfenbrenner (1979) describes the exosystem as one or more settings that do not involve the developing person as an active participant, but in which events occur that affect, or are affected by, what happens in the setting containing the developing person. For example, in this study, students at the exosystem level may be influenced by an environment (i.e., the listserv) even though they do not directly and/or actively participate. Evidence of this type of influence is found in teachers descriptions of learning and using new ideas in the form of curricular content and teaching methods and/or practices (Category Four). Along with the evidence supporting development according to systems theory at the mesosystem and exosystem levels, participation on the listserv appears to assist physical educators in overcoming two barriers in relationship to their professional development-- feelings of isolation and marginalization.

Teacher Isolation

The opportunity to interact with other professionals via the listserv (Category One), along with immediate access to other professionals (Category Three), supports the notion that such interaction on the listserv reduces feelings of isolation. This finding supports the one completed study (Tannehill et al., 1995) to date with physical educators and their use of a telecommunications network, reporting that the network appeared most valuable for meeting the teachers desire for increased communication with colleagues and alleviating feelings of isolation.

Furthermore, studies with inservice teachers of other subject matters consistently report that participation on such networks appear to reduce feelings of isolation (Jacobs & DiMauro, 1995; Johnson, 1995; Spitzer & Wedding, 1995; Ruopp et al., 1993). The opportunity for teachers to interact through the listserv may also lead to reduced feelings of marginalization.

Marginalization

Opportunities to interact with colleagues in the field via the listserv (Category One) resulting in feelings of support and encouragement (Category Two) may lead to reduced feelings of marginalization. Studies examining the workplace conditions of physical educators (Lawson, 1989; Solomon et al., 1993; Sparkes, Templin, & Schempp, 1993; Stroot et al., 1993; 1994; Templin, 1989) report teachers feeling marginalized as professionals through the lack of support they receive from interactions with colleagues, administration, parents, and students. More specifically, teachers in these studies described these feelings resulting from scheduling with little concern for class size, workload, and other faculty perceptions that physical education is supervised recreation or recess. Participation on the listserv in this particular study may provide teachers a daily resource enabling them to communicate concerning these challenges, thus receiving the support they need not often found in their school environment.

As a result of teachers participation on the listserv feelings of marginalization, often reported in the physical education workplace conditions literature, may be reduced. Not for all teachers, however, as some described feelings of discouragement as a result of their participation on the listserv because of the lack of professionalism (Category Seven) which will be discussed in Chapter 6.

Chapter Summary

This chapter began with an explanation of the two overarching themes, "benefits of participation" and "factors limiting participation" that emerged from the inductive content analysis. The five categories making up the overarching theme benefits of participation were then described. The remainder of the chapter was a discussion of these categories in connection to the related literature. A discussion of the results making up the overarching theme factors limiting participation are discussed next in Chapter 6.

CHAPTER 6

QUALITATIVE RESULTS & DISCUSSION - OVERARCHING THEME: FACTORS LIMITING PARTICIPATION

The purpose of this study was to explore how USPE-L was being used by its subscribers and describe the influence, if any, it had on K-12 physical education teachers. The 775 raw data units from the 113 survey respondents and the 10 follow-up interview participants formed the basis for the inductive content analysis. These raw data units consisted of comments and quotations varying from a few words to a complete paragraph. Two overarching themes emerged from the inductive content analysis. These were "benefits of participation" and "factors limiting participation" on the USPE-L listserv. This chapter will share the results of the second overarching theme factors limiting participation on the USPE-L listserv followed by a discussion of the related literature. As was the case in Chapter 5, some minor editing for grammitical mistakes of teachers responses took place.

Factors Limiting Participation

The second overarching theme factors limiting participation is made up of four categories that emerged from the raw data units. These categories are: (a) frustration with other subscribers lack of technology skills, (b) lack of professionalism, (c) repetition of topics, and (d) lack of time. This chapter will now describe the results of each of these categories.

Category #6 Frustration with others Lack of Technology Skills

The sixth category from the inductive content analysis and the first category that makes up the overarching theme factors limiting participation was defined as: **the frustration that teachers experienced with other subscribers lack of technology skills**. Forty-seven responses were

extracted from the raw data units regarding teachers experiencing frustration with other subscribers.

The frustration teachers described with other subscribers was manifest in their apparent lack of skills in using e-mail as a function of being on a listserv. More specifically, the inability to send a private or personal e-mail message to someone after seeing a message posted on the listserv. This inability often results in personal messages being sent to all the subscribers on the list. One teacher wrote:

>I find it VERY irritating to download 30 or so messages and 20-25 of them are personal messages sent from one person to another. My wife is on another professional listserv and this behavior is frowned upon." (Participant 039, p. 171)

Along with the practice of sending personal messages to the entire list teachers expressed frustration with others lack of technology skills in terms of being unable to unsubscribe to the listserv. For example: "...the continual wanting to unsubscribe when directions are right under the message." (Participant 062, p. 148) Teachers frustration with others lack of technology skills was summed up best by a teacher who wrote:

>What I like least is irrelevant messages, such as personal messages, but most of all, I get very upset with those who don't read the directions at the bottom of each message that gives directions for unsubscribing!!! It makes me think that we have some professionals who aren't very smart. (Participant 098, p. 150)

Teachers not only experienced frustration with others lack of technology skills but expressed discouragement over the lack of professionalism demonstrated by some of their colleagues.

Category #7 Lack of Professionalism

The lack of professionalism was Category Seven that emerged from the inductive content analysis and the second category making up the overarching theme factors limiting participation. This was defined as: **teachers feelings of discouragement from participation on the listserv because of the lack of professionalism**. There were thirty-eight responses extracted from the raw data units which made up this category.

The lack of professionalism was often alluded to when an idea or comment was shared with the entire list and then followed by a response where they are put down or criticized. For example, "far too many people slam others for their opinions." (Participant 029, p. 146) Another teacher put it this way:

> Sometimes it seems there is too much bickering--criticizing of people's ideas--
> wish we could all be more professional and understanding of our differences. We
> don't have to agree and have the right to express our opinions, but not to criticize
> others. (Participant 033, p. 146)

It also appears that the lack of professionalism inhibited some teachers from participating on the list, especially when it comes to the sharing of their ideas. This was illustrated in the words of a teacher who wrote:

> I have the fear of posting something on the listserv for the sake of receiving a
> response that would make me out to be some uneducated fool in our field based
> on some of the responses I have read. (Participant 089, p. 172)

Another teacher expressed similar feelings by stating:

> I think the reason that I haven't ever posted anything is because sometimes
> people really get shredded on there... they go after the jugular and I don't really
> want that to happen to me... It's pretty amazing but, if I didn't figure somebody
> was going to do that to me I probably would share a lot more. So, I just look at
> their E-mail address and send them a private message, I usually have a little
> more success that way. (Participant 85, I, p. 176)

The lack of professionalism may discourage some from sharing their ideas publicly on the list, thus limiting the opportunity for others to learn from their insights and ideas. Teachers also expressed concern that the repetition of topics was a limiting factor to their participation.

Category #8 Repetition of Topics

The eighth category from the inductive content analysis and the third category that makes up the overarching theme factors limiting participation was defined as: **the frustration that teachers experienced with the same topics of discussion being repeated over and over**. Twenty-two responses were extracted from the raw data units regarding teachers experiencing frustration with the repetition of topics.

The feelings of frustration were expressed by a teacher who shared "people getting on one subject and beating it to death". (Participant 043, p. 147) Similar feelings of frustration were shared as a result of "lots of repeat mail" (Participant 065, p. 148) and "trying to read through repeated messages." (Participant 087, p. 149) Another teacher expressed that the repetition of topics limited their use of the listserv by writing "sometimes I have the fear of posting something on the listserv for the sake of being redundant." (Participant 089, p. 172) The frustration teachers

experienced because of the time it took to read through repeated messages leads to the final factor limiting participation, the lack of time.

Category #9 Lack of Time

The final category that emerged from the inductive content analysis and the fourth category of the overarching theme factors limiting participation was defined as: **teachers feelings of frustration as a result of the lack of time for participation**. There were twenty-nine responses extracted from the raw data units in relationship to teachers frustration with the lack of time for participation. These factors ranged from the number of messages posted to the list, the time it took to sort through messages pertinent to their situation, and very busy schedules. This was reflected in comments such as: "too many messages to read and not enough time to read them." (Participant 007, p. 144) And:

> Not having the time to spend on reading all the messages the way I'd like to...I
> have so many messages that I feel rushed just to get through so I can read them
> all during the time allotted for this listserv--that's a personal constraint due to my
> schedule. (Participant 003, p. 150)

A secondary teacher gave a more detailed description in relationship to having a busy schedule:

> I'm on the high school level, and there's not as many participating (on the
> listserv)... I just wish more high school teachers would get involved... I don't
> know how it is as far as the country's concerned, in different states, but a lot of
> our high school teachers have double and triple coaching duties. I know that takes
> up a lot of our time. For example, I teach, I'm a JV coach for volleyball and
> basketball. Those are back to back seasons, and sometimes we seem to get too

busy and tied up in that and we forget about our PE classes, and I think that's why

we don't have as much high school participation on it (the listserv). (Participant

79, I, p. 179-180)

This chapter has described the reasons why participation may be limited on the listserv including

frustration with others lack of technology skills, lack of professionalism, repetition of topics, and

the lack of time. The next section of this chapter will be a discussion of these categories and the

related literature.

Discussion of Related Literature

The overarching theme of factors limiting participation was made up of four categories that

emerged from the inductive content analysis. A discussion of these categories in relationship to

the completed studies on telecommunications networks in education, lack of time, and feelings

of marginalization will now follow.

Telecommunications Networks in Education

The findings of this study indicate that teachers may not always be greeted professionally when

sharing information with the entire listserv (Category Seven). This was manifest in teachers

being publicly criticized over the listserv for something they shared (Category Seven) which may

result in limited participation. Spitzer and Wedding (1995) found that network subscribers

receiving a warm welcome from others was a key ingredient to teachers full participation. This

was accomplished through the use of moderators sending a timely private e-mail message to new

subscribers and intercepting messages to the network not deemed professional, thus creating a

more friendly environment--not always present on the USPE-L listserv.

Teachers full participation may not only have been limited because of the absence of a warm welcome, but also through subscribers frustration with others lack of technology skills (Category Six). Johnson (1995) and Tannehill et al., (1995) also found that teachers participation on an electronic network was limited because of their lack of training in that they did not now how to use it to read, respond, or post a message to the group. Teachers participation may not only have been limited by their lack of technical skills, but also by their lack of time.

Lack of Time

The lack of time as a constraint in relationship to teachers being able to participate on the listserv (Category Nine) is supported by Johnson (1995) who reports, as one of his five major findings, that teachers do not have sufficient time in the day to use telecommunications networks. Tannehill et al., (1995) also concluded that teachers lack of time to access the system and to interact with colleagues was a critical constraint. Physical educators lack of time to participate on the listserv is consistent with several studies (Lawson, 1989; O'Sullivan, 1989; Stroot, 1996; Stroot et al., 1993; 1994; Templin, 1989) reporting teachers do not have time for professional development activities because of their workloads. These studies indicate that teachers workloads often inhibit participation because of their nonteaching duties that include coaching responsibilities, bus duty, lunchroom duty, and/or office duty (Stroot, 1996). Another factor limiting participation may have been teachers feelings of marginalization.

Feelings of Marginalization

A lack of professionalism (Category Seven) led to teachers experiencing feelings of marginalization because of they way they were treated while participating on the list. Similarly, teachers have described feelings of marginalization as a result of their interactions with faculty of other subject matter in their workplace (Lawson, 1989; Stroot et al., 1993; 1994). Teachers in

these studies reported feelings of not being valued by other faculty who used physical education as a reward or punishment for their students at the elementary level. Additionally, these feelings were experienced at the secondary level by teachers who did not receive support from other faculty in their efforts to work with them to educate the entire child (Stroot et al., 1994). It appears that teachers not only may feel marginalized as professionals due to interactions with other faculty in their workplace, but unfortunately may also experience the same feelings when seeking assistance from colleagues within their subject matter via the listserv.

Chapter Summary

This chapter began with a brief review of the two overarching themes that emerged from the inductive content analysis. These were "benefits of participation" and "factors limiting participation" on the USPE-L listserv. The results producing the four categories making up the overarching theme factors limiting participation were then described. The remainder of the chapter was a discussion of these categories in connection to the related literature. A summary along with a discussion of the conclusions, implications, and recommendations for future research will be discussed in Chapter 7.

CHAPTER 7
SUMMARY, CONCLUSIONS, IMPLICATIONS, AND
FUTURE RESEARCH DIRECTIONS

This chapter summarizes the study, followed by a discussion of the conclusions and implications. It concludes by presenting the researcher's recommendations for future research.

Summary

The purpose of this study was to explore how USPE-L was being used by its subscribers and describe the influence, if any, it had on K-12 physical education teachers. Professional development has been defined as "the knowledge, skills, abilities, and the necessary conditions for teacher learning on the job" (Lieberman & Miller, 1992, p. 1045). Physical educators face some significant challenges when it comes to the conditions necessary for learning on the job (Stroot, Collier, O'Sullivan, & England, 1994). Three of the most common challenges identified in the physical education literature are teacher isolation, feelings of marginalization, and lack of time (Lambdin, 1986; Locke, 1974; Napper-Owen & Phillips, 1995; O'Sullivan, 1989; Smyth, 1995; Solomon, Worthy, & Carter, 1993; Stroot, Faucette, & Schwager, 1993; Templin, 1988; 1989; Williams & Williamson, 1995).

With the recent advent of the Internet, and more specifically the use of telecommunications networks (listservs), physical educators may have a new resource to assist them in overcoming the challenges to their professional development. One such resource is the USPE-L listserv created by The Health and Physical Education Program at Virginia Tech in March of 1994. It was created and developed by Dr. George Graham and Ms. Sarah Westfall. The purpose of USPE-L is to provide a method for K-12 physical educators to discuss and share ideas about

improving their teaching and programs--and also gain support from colleagues when it is not immediately available in their school community.

The USPE-L listserv began with approximately 25 participants in March of 1994 and has grown to over approximately 1000 professional physical educators as of January, 1998 (S. Westfall, personal communication, January 29, 1998). It is considered quite active in that it currently averages approximately 400 messages posted to the list each month (S. Westfall, personal communication, January 29, 1998).

Research on the use of telecommunications networks in education is a fairly recent topic of study. The few completed studies have suggested that, as this technology becomes more readily available to teachers and their schools, more emphasis needs to be placed on the types of contributions, if any, such networks make to improved teaching and professional development (DiMauro & Gal, 1994; Jacobs & DiMauro; 1995; Ruopp et al, 1993; Spitzer & Wedding, 1995). Spitzer and Wedding (1995) suggest that a network must first have a "critical mass" of active participants which they define as network membership of approximately one thousand teachers.

This study was one attempt to address these recommendations. It was designed to allow teachers who were subscribers to the USPE-L listserv to describe how they used it, and to determine whether or not it had any apparent influence on their teaching practices and professional development. The researcher used multiple sources of data collection including on-line survey, follow-up phone interviews, and fieldnotes. This study paid particular attention to subscribers usage characteristics, possible influence on teaching practices and programs, professional development, and teacher isolation. The researchers conclusions in relationship to the four major research questions will be discussed next.

Conclusions

The researchers conclusions are based on the quantitative results of the on-line survey and the qualitative data generated from the on-line survey, follow-up interviews, and the researchers fieldnotes. These conclusions will be shared as they relate to the four major research questions which served as a guide for this study.

#1 Patterns of Use

The first research question focused on how teachers used the listserv. It appears that most teachers read messages from the list almost daily, yet much of the interaction between teachers appears to take place behind the scenes. This means conversations that took place through private e-mail that originated from a message posted publicly to the listserv (see Appendix F). Also, it appears that the same limited number of teachers may do a majority of the sharing when it comes posting messages publicly.

There appears to be several reasons for teachers interacting privately rather than sharing with the entire group. One of the reasons appears to be the fear of being publicly embarrassed or humiliated in front of the entire group (Category Seven). Others may not share with the entire list because they are new to e-mail and/or listserv technology and lack the technical expertise (Category Six). Lastly, some teachers feel they do not have the time to participate as they would like (Category Nine).

#2 Influence on Teaching Practices and Programs

The second research question focused on the influence, if any, participation had on teaching practices and programs. A majority of teachers reported that the listserv provided them with

information they did use in their teaching and program (see Appendix F). They further described this information to be primarily in the form of new ideas (Category Four) which were related to their curricular content and teaching methods and/or practices.

Although it appeared that teachers were provided with information they could use in their teaching and programs, there is a concern that such information may not always be developmentally appropriate for children and/or fit into a yearly plan with clear learning objectives. The open format of the listserv, without any mechanism for quality control of the content, places responsibility for how the information is used squarely on the shoulders of the teachers. The quality and appropriateness of the information reportedly used by teachers in their teaching practices and programs was beyond the scope of this study.

Many of the subscribers reported that participation on the listserv kept them abreast of the current trends in the field (Category Five). This raises an interesting question concerning the content of the information shared over the listserv. What makes teachers feel as though what others are sharing over the listserv is "cutting edge" or the most current information in the field? Because the information is being shared via a recent technology does not guarantee that the content is either current or appropriate.

#3 Evidence of Professional Development

The third research question focused on whether or not there was evidence of professional development taking place as a result of participation on the listserv. It appears that the listserv may best be described as a "tool" to assist teachers in their professional development goals and/or activities, but subscribing to the listserv, in and of itself, may not be considered professional development. For example, a teacher may have professional development goals as a part of a long term development plan in which they utilize the listserv as a tool to assist them in

accomplishing these goals in conjunction with other forms of professional development. The use of the listserv may be very beneficial in this manner because it was found to be a medium that was highly contextualized and related to the daily work of teachers (Categories One, Two, and Three). Although the listserv appears to fit a couple key elements to teachers professional development (i.e., context based and on-going) it is missing the key ingredient of accountability.

Accountability has been cited as a key element in professional development that produces a change in teachers behavior over a period of time and ultimately results in enhanced student learning (Bull, Buechler, Didley & Krehbiel, 1994; CRC, 1989; Joyce & Showers, 1980; Lieberman & McLaughlin, 1996; Little et al., 1987) These studies further suggest that accountability as a key element of professional development uses coaching by peers and experts, providing the opportunity for teachers to observe one another and provide feedback and as a means of accountability. Teachers may lend support (Category Two) and share information (Categories One, Three, and Four) with one another via the listserv, but it does not allow for the actual observing of one's teaching, thus facilitating change in a programmatic manner.

Although teachers participation on the listserv may not be considered formal professional development according to the professional development literature, this does not take away from the benefits of participation. The findings are encouraging in that they indicate teachers want to learn and are anxious to improve as professionals (see Appendix F, and Chapter Five-Benefits of Participation).

#4 Teacher Isolation

The final research question focused on whether teachers participation on the listserv had any influence on feelings of isolation. It appears that teachers experienced reduced feelings of isolation as a result of participation on the listserv. These feelings of reduced isolation were a

result of teachers feeling connected to other teachers outside of their school (see Appendix F, Categories One, Two, and Three). This study, however, did not discriminate between the four types of isolation (physical, psychological, professional, and social) reported in the literature.

Implications

This section will discuss the implications of this study for listserv owners and administrators, and K-12 physical educators. These implications are based on the results and conclusions from the four guiding research questions. The researcher makes the following recommendations for change to the USPE-L listserv:

Listserv Owners & Administrators

The first implication would be the need for a moderator. The role of a moderator would be to screen personal messages, those seeking to unsubscribe, and messages that are deemed unprofessional in their tone. A moderator, however, would not screen messages in relationship to their physical education content. This may create a more user friendly environment that may also foster more public participation while maintaining the open forum the currently exists.

The development of an archive system made available through the World Wide Web. This archive system would allow teachers to search the archives of messages and questions already posted to the listserv, thus reducing the amount of repetition of messages posted to the list. This may also reduce the amount of time teachers spend searching for messages on a specific topic.

-

K-12 Physical Educators

The following are the implications for K-12 physical educators:

One of the implications for physical educators is the need for more training in two aspects of technology. First, is the need for more training with the use of e-mail and listserv technology. The second is the need for more training in the tone of written messages, being able to disagree in a more professional manner, often referred to as listserv etiquette. The need for more training with the use of technology was also recommended by Tannehill et al., (1995) in their study of physical educators use of a telecommunications network.

Physical educators are encouraged to subscribe and participate on the USPE-L listserv because of the access it provides to colleagues that may be working in similar conditions and facing similar challenges. This is unique when compared to other traditional professional development methods because of the immediacy and interaction with other professionals not always available in one's own work environment.

Subscribing to the USPE-L listserv may be used as a "tool" to assist teachers in their professional development goals as the relate to teaching activities, teaching resources, and curricular materials. The use of a telecommunications network to assist teachers in their professional development efforts is supported by the few completed studies of such networks for inservice teachers (Jacobs & DiMauro, 1995; Johnson, 1995; Spitzer & Wedding, 1995; Ruopp et al., 1993; Tannehill et al., 1995).

Physical educators who experience feelings of isolation from others in the profession may reduce such feelings through participating as a subscriber to the USPE-L listserv. This implication is supported by the one completed study of physical educators use of a telecommunications network Tannehill et al., (1995) as well as the other completed studies of inservice teachers use

of telecommunications networks as a means to alleviating feelings of isolation (Jacobs & DiMauro, 1995; Johnson, 1995; Spitzer & Wedding, 1995; Ruopp et al., 1993).

Future Research Directions

The present study was exploratory and descriptive in nature; thus, a need exists for further research in relationship to physical educators use of the USPE-L listserv. Many exciting directions remain to be examined, three of which are discussed further in this section.

First, a logical step in following up the present study would be to examine what appears to be two distinctly different participation patterns of subscribers. The most dominant pattern of participation appears to be those who are "active readers" but never post any messages publicly to the listserv. The second pattern of participation is a relatively small group of subscribers who almost always post and/or respond to messages on the listserv. A study of these two groups would provide further insight into what subscribers gain from their participation on the listserv.

Along with there being two apparent types of subscribers is the indication that much of the interaction between subscribers takes place, behind the scenes of the listserv, through private e-mail conversations. A study examining this communication pattern of teachers sharing privately would build upon the findings of this present study to gain a more in-depth understanding as to what teachers are getting out of their participation as subscribers to the listserv. A study of this nature would also provide further insights as to the reasons many teachers do not share their insights with the entire listserv.

Along with studies that would further the understanding of what teachers are getting out of their participation is the lack of research on the actual content of what is shared via the listserv. Although this present study indicated that teachers receive new ideas in relationship to curricular

content and new methods and/or teaching practices, a more in-depth study of the content shared with the entire listserv is needed. A qualitative study examining the content of the messages posted to the list, through an analysis of the archives, may reveal some important insights as to teachers needs, concerns, and what they actually talk about when given the opportunity to interact with colleagues in the field.

In conclusion, the growing interest in the use of e-mail and listserv technology among K-12 physical educators suggests a need to further understand how such participation may assist teachers in overcoming the challenges often faced in relationship to their professional development. In this section three recommendations for further research have been made. These recommendations have been made with the hope of adding to the findings of this present study to further assist teachers in their professional development efforts thus further providing quality physical education to children and youth.

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Appendix A

On-line Survey Pre-contact Message

Date: Wed, 4 Mar 1998 08:28:43 -0400
To: tpenning@vt.edu
From: Todd Pennington <tpenning@vt.edu>
Subject: Your Insights?
Cc:
Bcc: USPE-1, USPE-2, USPE-3, USPE-4, USPE-5, USPE-6

Hello-

My name is Todd Pennington and I am a doctoral student at Virginia Tech in
Health and Physical Education. I am interested in studying how people use
the USPE-L e-mail discussion group as a part of their professional experience.

On Monday March 9, 1998 you will receive a private e-mail message from me
that will contain a short survey about the USPE-L Listserv. The survey is
designed to better understand how subscribers are using the listserv and to
determine if, and how, you are using the information that is shared on
USPE-L. The survey contains 18 questions and will take you approximately
20-25 minutes to complete. It will all be done via e-mail.

Hopefully you will have a few minutes after you get the survey to complete
it. I would sure appreciate your insights. Thanks in advance.

Todd Pennington

Appendix B

On-line Survey Follow-up Message

Date: Mon, 16 Mar 1998 19:33:30 -0400
To: tpenning
From: Todd Pennington <tpenning@vt.edu>
Subject: Thanks/Reminder
Cc:
Bcc: USPE-1, USPE-2, USPE-3, USPE-4, USPE-5, USPE-6

Hello-

I wanted to THANK all of you who took the time to share your insights about
the USPE-L discussion group by completing the e-mail survey that I sent out
last week. Your time and effort is greatly appreciated!!

Also, if you have not had time to complete the survey I would ask you to
please share your insights by completing the survey by Monday March 23,
1998. The directions for completing the survey are given below followed by
the questions. Thanks in advance for sharing your insights as a part of my
doctoral dissertation.

Todd Pennington

The directions and survey were attached here. (See Appendix C)

Appendix C

USPE-L On-line Survey

Date: Mon, 9 Mar 1998 00:56:33 -0400
To: tpenning@vt.edu
From: Todd Pennington <tpenning@vt.edu>
Subject: Your Insights/USPE-L
Cc:
Bcc: USPE-1, USPE-2, USPE-3, USPE-4, USPE-5, USPE-6

Hello-

The following is the short survey about the USPE-L discussion group that I mentioned in a message to you last week, and is a part of my doctoral dissertation. I hope you will take a few minutes to complete the survey along with sharing your comments and/or examples where requested. The directions for completing the survey are given below followed by the questions. Thanks in advance for sharing your insights!

Introduction & Directions

Welcome to the USPE-L Survey. We hope that you will take a few minutes to complete this on-line survey. Your efforts will help us learn more about how subscribers are using the listserv as well as give us insights into its possible influence, and improvements.

The survey contains 18 questions and will take you approximately 20-25 minutes to complete. Most of the questions ask for a response by typing an "X" in the parentheses of the best answer, and then a short typed response and/or example(s) to support your answer. Your typed comments will help us as we attempt to more completely understand how subscribers of the USPE-L listserv are using this electronic medium. (Please do not alter any of the questions by deleting or rearranging the questions or any part of the survey).

Lastly, if you complete and submit the survey you are agreeing that the information you provide may be used by those who manage USPE-L to make improvements to the listserv in the future. Additionally, you will also be agreeing to allow the results of the survey to be reported through professional outlets such as journals, conferences, reports, etc. Any personal information (name, e-mail address, other personal info, etc.) that you provide will be held in the strictest confidence and will not be included when sharing results of the survey.

You may respond to the survey in one of two ways. First, if you hit "Reply" it will come directly to us privately and "will not" go to the entire list of subscribers. Second, if your e-mail software does not allow you to reply and/or copy and paste, please print out the survey and respond to the questions through a private e-mail message sent to (tpenning@vt.edu). If you have further inquiries about any of this information feel free to e-mail Todd Pennington, at any time, at the e-mail address given above. Please complete and respond to the survey by March 23, 1998. Thanks for taking the time to fill out the survey!

 (Type an "X" in the parentheses of the best answer to indicate your response, followed by a comment and/or example(s) where requested).

1. Where do you check your e-mail?
    ( ) School
    ( ) Home
    ( ) Both (if at another location, please explain)

2. Approximately how many days a week do you read the messages posted to the USPE-L listserv?
    ( ) 0-1
    ( ) 2-3
    ( ) 4-5
    ( ) 6-7

3. Approximately how many minutes do you spend each time you read the messages from USPE-L?
    ( ) 0-15
    ( ) 16-30
    ( ) 31-45
    ( ) 45 +

4. Have you ever e-mailed someone privately concerning a message they posted to the USPE-L list?
    ( ) Yes
    ( ) No
 (If so, approximately how many times have you e-mailed individuals privately from the USPE-L list?)
    ( ) 0-10
    ( ) 11-20

( ) 21-30
( ) 30 +

(If so, please share one or more example?)

5. How long have you been a subscriber to the USPE-L listserv? (It has been in existence for approximately 4 years)
     ( ) 0-1 year
     ( ) 1-2 years
     ( ) 2-3 years
     ( ) 3 +

6. Describe up to 3 things you like best about being a subscriber to the USPE-L listserv?

7. Describe up to 3 things you like least about being a subscriber to USPE-L listserv?

8. Where do you rank the "usefulness of the information" on the USPE-L listserv when compared to other outlets for professional information? (Please rank order the following items from 1 to 5, with 1 being the "most useful" by typing the number to the left of the response).

Example Response: Your Response:

     (5) Books( ) Books
     (1) Professional Conferences( ) Professional Conferences
     (2) Professional Journals( ) Professional Journals
     (4) USPE-L List( ) USPE-L Listserv
     (3) District and/or School Inservice( ) District/School Inservice

(Please include any comments you have concerning how your ranked these items:)

Please rate your own agreement/disagreement on the following statements by typing an "X" in the parentheses of the comment that best indicates your response.

9. Participation on the USPE-L listserv has helped me connect with other teachers outside of my school? (If so, please share any example(s) below)

( ) Strongly Agree
( ) Agree
( ) Unsure
( ) Disagree
( ) Strongly Disagree

Example(s):

10. The USPE-L listserv has benefited me professionally? (If so, please share any example(s) below)
     ( ) Strongly Agree
     ( ) Agree
     ( ) Unsure
     ( ) Disagree
     ( ) Strongly Disagree

Example(s):

11. Participation on the USPE-L listserv has provided me information to use in my teaching and/or Health and Physical Education program (e.g., teaching strategies, methods, curricular content, etc.) (If so, please share any example(s) below)
     ( ) Strongly Agree
     ( ) Agree
     ( ) Unsure
     ( ) Disagree
     ( ) Strongly Disagree

Example(s):

12. Is there anything you would like to share concerning your participation as a subscriber to the USPE-L listserv that has not been covered in this survey? (If so, please include your comments here:)

13. Please indicate your current work position: (If your position is not represented in the choices please write it in next to the choice of "other").

( ) K-12 Physical Education Teacher
( ) K-12 Classroom Teacher
( ) Undergraduate Student
( ) Student Teacher
( ) Graduate Student
( ) University Professor
( ) Other

If you are a K-12 Physical Education and/or Classroom teacher please answer the following questions, if not skip to question #18 to complete the survey.

14. Name of the State where you teach:

15. What grade levels do you teach?
       ( ) Pre K-5
       ( ) 6-8
       ( ) 9-12
       ( ) Adaptive
       ( ) Other

16. Are you the only PE teacher in your school?
       ( ) Yes
       ( ) No
(If No, indicate how many other PE teachers are at your school?)
       ( ) 1
       ( ) 2-3
       ( ) 4-5
       ( ) 6 or more

17. How many years have you completed as a K-12 physical education teacher?

18. Would you be willing to take part in a telephone interview allowing you to share further any insights you may have concerning your participation as a subscriber to the USPE-L listserv?
       ( ) Yes
       ( ) No

If so, please indicate your name along with where and what time you preferred to be contacted:

Name:

Contact Preference:
       ( ) Home
       ( ) School
       ( ) Either

Phone Number(s):

Best time to be reached:

THANK YOU for completing the USPE-L listserv Survey!

Appendix D

Follow-up Interview Guide

Thanks for filling out the Survey. As I mentioned in my e-mail I would like to take 15-30 minutes or so and ask you some questions about your participation on USPE-L listserv and your responses to the recent survey.

As it was mentioned in the informed consent form that you signed and sent back to me I will be recording this conversation but you will not be identified in any way. Our conversation will be transcribed and I will e-mail you a copy of the interview transcript for you to make any comments, clarifications, and/or changes.

Again, as it was written in the informed consent form the purpose of this study is to explore how USPE-L is being used by its subscribers and describe the influence, if any, it has on K-12 physical education teachers.

I am going to ask you several questions that are a follow-up to some of your responses on the survey. If you do not feel comfortable with answering any of the questions just tell me and we will go on to the next question. Please feel free to stop the interview at any time if you do not want to continue.

1. There was a question about connecting with others- you had indicated.... what do you think? Can you tell me any more about that? Can you think of any examples?

2. There was a question about professional benefits- you had indicated.... what do you think? Can you tell me any more about that? Can you think of any examples?

3. There was a question about the possible use of information from the USPE-l listserv in your teaching and/or health and physical education program- you had indicated.... Can you tell me any more about that? Can you think of any examples?

4. You indicated you liked......best about being a subscriber to the USPE-L Listserv can your tell me anymore about that?

5. You indicated you disliked......about being a subscriber to the USPE-L Listserv can your tell me anymore about that?

6. Describe what you get out of being a subscriber to USPE-L?

7. Is there anything on the survey or in our interview that I have not covered concerning your participation as a subscriber to the USPE-L listserv that you would like to share?

Thanks again for taking the time to visit with me about the USPE-L listserv. When I have finished the transcription of our interview I will e-mail you a copy for your comments and/or changes. Thanks.

Appendix E

On-line Survey Demographic Information

Number of Responses	State and/or Providence	Country
2	Alberta	Canada
1	Malta	Malta
1	Johannesburg	South Africa
1	Arizona	United States
1	Arkansas	United States
6	California	United States
1	Colorado	United States
1	Connecticut	United States
1	Delaware	United States
5	Florida	United States
5	Georgia	United States
1	Hawaii	United States
7	Illinois	United States
1	Indiana	United States
1	Iowa	United States
2	Kansas	United States
1	Kentucky	United States
2	Louisiana	United States
2	Maryland	United States
2	Massachusetts	United States
2	Michigan	United States
1	Minnesota	United States
4	Missouri	United States
1	Nebraska	United States
1	New Hampshire	United States
3	New Jersey	United States
1	New York	United States
4	North Carolina	United States
3	North Dakota	United States
4	Ohio	United States
1	Oklahoma	United States

3	Oregon	United States
5	Pennsylvania	United States
5	South Carolina	United States
3	Tennessee	United States
5	Texas	United States
1	Utah	United States
1	Vermont	United States
9	Virginia	United States
4	Washington	United States
1	Washington DC	United States
1	West Virginia	United States
5	Wisconsin	United States
1	Wyoming	United States
Total = 113	Total = 44	Total = 4

Appendix F

On-line Survey Results

1. Where do you check your e-mail?
>   (12%) School
>   (54%) Home
>   (34%) Both (if at another location, please explain)

2. Approximately how many days a week do you read the messages posted to the USPE-L listserv?
>   (3%) 0-1
>   (16%) 2-3
>   (31%) 4-5
>   (50%) 6-7

3. Approximately how many minutes do you spend each time you read the messages from USPE-L?
>   (40%) 0-15
>   (40%) 16-30
>   (11%) 31-45
>   (9%) 45 or more

4. Have you ever e-mailed someone privately concerning a message they posted to the USPE-L list?
>   (87%) Yes
>   (13%) No

 (If so, approximately how many times have you e-mailed individuals privately from the USPE-L list?)
>   (61%) 0-10
>   (26%) 11-20
>   (6%) 21-30
>   (7%) 30 or more

(If so, please share one or more example?)

5. How long have you been a subscriber to the USPE-L listserv? (It has been in existence for approximately 4 years)
>   (42%) 0-1 year

          (43%) 1-2 years

          (4%) 2-3 years

          (11%) 3 years or more

6. Describe up to 3 things you like best about being a subscriber to the USPE-L listserv?

7. Describe up to 3 things you like least about being a subscriber to USPE-L listserv?

8. Where do you rank the "usefulness of the information" on the USPE-L listserv when compared to other outlets for professional information?
(Please rank order the following items from 1 to 5, with 1 being the "most useful" by typing the number to the left of the response).

Final Ranking Results:

          (1) Professional Conferences (Mean ranking= 2.07, SD= 1.28, range= 1-5)

          (2) USPE-L Listserv (Mean ranking= 2.68, SD= 1.16, range= 1-5)

          (3) Professional Journals (Mean ranking= 3.06, SD= 1.19, range= 1-5)

          (4) Books (Mean ranking= 3.09, SD= 1.42, range= 1-5)

          (5) District and/or School Inservice (Mean ranking= 4.19, SD= 1.17, range= 1-5)

(Please include any comments you have concerning how your ranked these items:)

Please rate your own agreement/disagreement on the following statements by typing an "X" in the parentheses of the comment that best indicates your response.

9. Participation on the USPE-L listserv has helped me connect with other teachers outside of my school? (If so, please share any example(s) below)

          (44.0%) Strongly Agree

          (48.0%) Agree

          (3.5%) Unsure

          (3.5%) Disagree

          (1.0%) Strongly Disagree

(Mean score= 4.31, SD= .78, range= "Strongly Agree" to "Strongly Disagree")

Example(s):

10. The USPE-L listserv has benefited me professionally? (If so, please share any example(s) below)

          (41%) Strongly Agree

(51%) Agree
(7%) Unsure
(1%) Disagree
(0%) Strongly Disagree

(Mean score= 4.32, SD= .64, range= "Strongly Agree" to " Disagree")

Example(s):

11. Participation on the USPE-L listserv has provided me information to use in my teaching and/or Health and Physical Education program (e.g., teaching strategies, methods, curricular content, etc.) (If so, please share any example(s) below)
(45%) Strongly Agree
(48%) Agree
(3%) Unsure
(3%) Disagree
(1%) Strongly Disagree

(Mean score= 4.31, SD= .80, range= "Strongly Agree" to "Strongly Disagree")

Example(s):

12. Is there anything you would like to share concerning your participation as a subscriber to the USPE-L listserv that has not been covered in this survey? (If so, please include your comments here):

13. Please indicate your current work position: (If your position is not represented in the choices please write it in next to the choice of "other").

(69%) K-12 Physical Education Teacher
(3%) K-12 Classroom Teacher & Physical Education
(4%) Undergraduate Student
(1%) Student Teacher
(3%) Graduate Student
(15%) University Professor
(5%) Other

If you are a K-12 Physical Education and/or Classroom teacher please answer the following questions, if not skip to question #18 to complete the survey.

14. Name of the State where you teach:

15. What grade levels do you teach?
      (60%) Pre K-5
      (23%) 6-8
      (11%) 9-12
      (6%) Adaptive
      (0%) Other

16. Are you the only PE teacher in your school?
      (38%) Yes
      (62%) No
(If No, indicate how many other PE teachers are at your school?)
      (43%) 1
      (30%) 2-3
      (14%) 4-5
      (13%) 6 or more

17. How many years have you completed as a K-12 physical education teacher?
    (Mean number of years= 14.6, SD= 8.56, range= 1-33)

18. Would you be willing to take part in a telephone interview allowing you to share further any insights you may have concerning your participation as a subscriber to the USPE-L listserv?
      (62%) Yes
      (38%) No

VITA

TODD ROBERT PENNINGTON

Born November 5, 1965, I attended public schools in California, and graduated in 1983 from Granite Hills High School in El Cajon, CA. I attended Brigham Young University, graduating in 1991 with a BS degree in Psychology and a minor in Physical Education. In the fall of 1991 I began pursuing a Masters degree at the University of Utah in Exercise and Sport Science. While pursuing this degree I served as a graduate teaching assistant in the Department of Exercise and Sports Science. My final year at the University of Utah, 1994-95, I was hired as an adjunct instructor while completing my MS in June of 1995. During this time, I also substitute taught physical education at the Waterford school and served as their head women's volleyball coach and sixth grade boy's basketball coach. With a new found enthusiasm for teaching I began pursuing a doctoral degree at Virginia Tech in the fall of 1995. While attending Virginia Tech I was involved as a teacher educator supervising student teachers for 3 semesters. In August, 1998, I completed the requirements of a Ph.D. in Curriculum and Instruction with a specialty in Physical Education Pedagogy.

Currently, I have accepted a position as an Assistant Professor at Brigham Young University in the department of Physical Education. My continued focus will be on physical educators professional development, and the use of technology to enhance their efforts in providing quality physical education to children and youth.