

2007

A study of elementary instructors' teaching of forearm passing as a part of volleyball instruction

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A STUDY OF ELEMENTARY INSTRUCTORS' TEACHING OF FOREARM
PASSING AS A PART OF VOLLEYBALL INSTRUCTION

A Dissertation

Submitted

in Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

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May 2007

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May 2007

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A STUDY OF ELEMENTARY INSTRUCTORS' TEACHING OF FOREARM
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An Abstract of a Dissertation
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Approved:

Dr. Radhi H. Al-Mabuk, Committee Chair

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ABSTRACT

The purpose of this study was to investigate the teaching of forearm passing as a key component of volleyball game performance. More specifically, this study investigated teachers' content knowledge and teaching knowledge (pedagogical content knowledge) related to forearm passing as described by the teachers and manifested in teaching practices in the teaching environment.

Six elementary physical education instructors participated in this study. Several methods were used for gathering different information about forearm passing research including systematic observation, videotaping, field notes, and formal and informal interviews.

The findings revealed that (a) teachers' teaching philosophy significantly influenced their teaching and designing volleyball lessons; (b) there was a significant relationship between teaching knowledge (lesson plan design, teaching progression, teaching strategies, communication skills and management skills) and content knowledge of forearm passing (six key components, identifying errors in the up- and low-body, and volleyball rules) as teachers taught forearm passing in the volleyball lessons; and (c) all teachers taught linear arms presentation instead of non-linear arms presentation of the forearm passing.

The implications of this study for pre-service and in-service volleyball teachers include the need to connect teaching knowledge with content knowledge especially when teaching forearm passing to elementary students. The study also provides a number of

implications for future research directions such as comparing teaching philosophy and practice of elementary and secondary school coaches.

ACKNOWLEDGEMENTS

This dissertation represents the culmination of the generous, enthusiastic, and energetic support of so many important people. First and foremost, my dissertation committee members, Dr. Radhi H. Al-Mabuk, Dr. Ripley E. Marston, Dr. David B. Landis, Dr. John W. Somerville and Dr. Nicholas J. Pace, have given me tremendous encouragement and expertise. Their enthusiasm for this research has been invaluable and their teamwork and professionalism inspiring.

I deeply appreciate the generous assistance of the co-chairs of my committee, Dr. Radhi H. Al-Mabuk and Dr. Ripley E. Marston. With their guidance, I was able to go through the whole process without much difficulty. I am also deeply appreciative of Dr. David B. Landis for helping me organize the methods and assisting me in analyzing the data. I thank Dr. Nicholas Pace and his family for their friendship, support, and care of my family. I would like to thank Mr. Reuben Mork for his invaluable help in revising the dissertation and being my English language mentor.

I also thank the six teachers who participated in my study for allowing me to observe their physical education classes and scheduling the individual interviews. They were kind to answer all of my questions during the investigation which allowed me to gather as much information for my dissertation as possible. Without their help, I could not have finished my study.

I'm so grateful for the support, patience, and understanding given to me by my family. I am thankful to my beloved parents, Sun-Lin and Chin-Ping Yeh, for their continuous support and love. I am also deeply indebted to my host mother, Elaine G.

Elsberry, for taking care of my family and me and for showering us with her love, kindness, and support throughout both my master and doctoral programs. I will forever be grateful for her generosity and love.

My work in the doctoral program, especially on this dissertation, would not have been possible without the loving support and patience of my husband, Hsueh-I (Martin). He has been a loving father for two daughters and a true partner during these years. He is always there when I need him, and I could not have completed this project without him. Finally, my lovely daughters, Elaine and Elizabeth, have been so cooperative and essential to me. I thank them for their understanding of my busy schedule as I was completing my doctoral study.

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CHAPTER 1

INTRODUCTION AND OVERVIEW OF THE STUDY

Introduction

To teach volleyball, there are several fundamental skills that need to be taught to beginning learners these skills include the serve, overhand passing, forearm passing, spiking, and the block. However, the forearm passing skill is the most important one to be learned first because it helps to establish the students' knowledge and confidence as they initially learn volleyball.

Even though different teachers teach different components of the forearm passing skill, in general, there are six key components. These key components are: ready base, mobility (stepping), performance base, arms presentation (linear or non-linear), passing action, and follow through (Dearing, 2003; Shondell, 2002). Depending upon what skills are perceived as more important, teachers may choose to emphasize different key components.

Besides key components, teachers may need to focus on the demonstration of forearm passing as the students learn the process of passing a ball. These representations include (1) passer's body position for receiving a ball; (2) how to read the server's intention and behavior; (3) early arms presentation as a passing platform; (4) passing level; (5) area of ball contact on the arms; (6) rebound trajectory; (7) accuracy of the passing; and (8) emergency passing.

Even though teachers may teach differently and emphasize different skills, they should still teach these key components and demonstrate the key points that are essential

for the students to learn forearm passing. In addition, though volleyball rules change and new techniques develop, there are specific components used in order to perform better in volleyball games. The most significant component of forearm passing is related to the arms presentation. There are two different forms of arms presentation that teachers or coaches may prefer to use: linear and non-linear arms contact. Linear arms presentation refers to the passer's body directly behind the ball with his/her arms extended over the knees. When passing the ball, the passer should pass the ball from the mid-line of the body. In linear arms contact, passers avoid moving the arms away from the body. However, the non-linear contact refers to the passer having a situation requiring the movement of the arms away from the body. The passer may move the arms to the right or left side, depending on the relationship between the body and the ball.

Besides discussing the content knowledge of forearm passing, the teaching knowledge (pedagogical content knowledge) is very important as well. Shulman (1986) explained that subject content knowledge refers to the manner in which teachers use concepts, principles, and skills with a particular subject discipline. During the teaching process, a teacher needs to consistently elaborate on the subject content knowledge, develop a variety of teaching methods for the concepts, and use appropriate resources to maximize its comprehensibility for student learning (Shulman, 1987).

As teachers present and transfer their subject content knowledge, they need to develop the teaching knowledge (pedagogical content knowledge) in order to facilitate the teaching and learning. The pedagogical content knowledge refers to the teacher's ability to use different techniques to present the subject content knowledge. Examples of

these techniques would include: analogies, illustrations, examples, demonstrations, explanations, learning cues, types of feedback, drills, and teaching strategies (Shulman, 1986). In order to enhance teaching effectiveness, teachers should not only have a solid subject content knowledge base but also possess a substantial pedagogical content knowledge that facilitates the use of various representations to help the students' understanding, learning, and the building of mental models for a particular subject (Gentner, 1981).

This study represents my attempts to (a) understand and describe teachers' forearm passing knowledge and concepts as they teach beginning learners, and (b) describe teachers' teaching methods as they present and transfer the knowledge of the forearm passing skill.

Statement of Research Problems

The purpose of this study was to investigate the teaching of forearm passing as a key component of volleyball game performance. Forearm passing is a basic but essential skill for volleyball players to perform a successful defense and assist their team to have a successful offense (Ahrabi-Fard, 2001; Shondell, 2002). According to Shondell (2002) and Dearing (2003), the forearm passing skill needs to be considered and taught in relation to six different key areas including: ready base, mobility (stepping), performance base, arms presentation (linear and non-linear), passing action, and follow through. However, teachers may emphasize different components and steps that in turn influence them to use various teaching methods.

In addition, there is a debate about what is the preferred arms presentation: linear or non-linear arms contact (Yoshida & Saindon, 2002). Yoshida prefers the linear passing. He said, “the player can have their most efficient power when they contact the ball between their knees.”

Saindon (Yoshida & Saindon, 2002), however, prefers the non-linear passing. He pointed out that scientific statistics show that non-linear is more successful than linear passing. He believes the fewer passers, on the volleyball court, the better. During the game, there is an ongoing possibility that miscommunication and hesitation will occur on any given ball and this will decrease the chances for successful passing. The idea of reducing the number of passers can result in a better performance and enhance the passers' responsibility to focus on the passing skill (Yoshida & Saindon, 2002). The research problem for this study resulted from juxtaposing statements about arms presentation.

The problem may be stated this way: Even though it is desirable to efficiently use power by contacting the ball in the central line of the body, game statistics and the possibility for miscommunication indicate that fewer passers may help players perform better. These different ideas about arms presentation (linear and non-linear styles) introduce opposing courses of action for PE teachers to consider. During a game situation, it is important for players to apply substantial power to the ball, yet it is also important to successfully pass the ball. A broad research question can be raised about this conflict. How should a teacher decide which arms presentation to teach? Deciding which actions to support during the teaching of forearm passing skill in the elementary level

may present a substantial challenge for physical education teachers. This broad question may be divided into several more specific questions:

Research Questions

1. What is the philosophy of teachers when teaching forearm passing?
2. Based on teaching actions:
 - A. How do teachers design the lesson plans of forearm passing?
 - B. What is the teaching progression of forearm passing?
 - C. What teaching strategies do teachers use for teaching forearm passing?
 - D. How do teachers communicate with students to facilitate learning of forearm passing?
 - E. How do teachers manage equipment, activities, groups, and students' behaviors to facilitate learning?
3. What are the different or similar key components of forearm passing taught by teachers?
4. What are the different or similar concepts of arms presentation (linear or non-linear) among teachers?

Background to the Research Questions

The following section describes boundaries of each question. Each question is discussed in order to provide focus to the study.

The first research question of my study is, "what is the philosophy of teachers when teaching forearm passing?" This question refers to the teachers' beliefs and expectations about students' performance after the students learn forearm passing skills.

Teachers' beliefs and expectations may relate to their teaching value orientations and philosophy, so it is very important to understand teachers' teaching value orientations and to know the way they design the teaching experience to present forearm passing skill.

The second question includes several subtitled questions related to teachers' teaching methods. Based on each teacher's content knowledge and teaching action, he/she uses various teaching methods to present knowledge to students. To address this question, the focus will be on the teachers' lesson plan design, teaching progression, teaching strategies, communication skills, and management abilities. Each teacher's approach to the content is unique. It is very important to understand the teaching methods that may encourage in-service or pre-service teachers to use the different methods to assist the student learning forearm passing skill.

The third question of this study is, "what are the different or similar key components of forearm passing taught by teachers?" The forearm passing skill includes several key components that teachers should teach. However, some teachers may emphasize some particular key components to the exclusion of other components. Some teachers may combine two or three components into one key component. In order to understand teachers' content knowledge of forearm passing, this question asks how teachers use different or similar key components and why they use these key components to describe forearm passing. In addition, to address more detailed information about the content of each component, this question also focuses on the concepts of each component that will be represented by the teachers.

The fourth question of my study is, “what are the different or similar concepts of arms presentation (linear or non-linear) among teachers?” This question refers to the specific type of arms presentation that teachers prefer to teach. Since volleyball games develop very quickly, different forms of arms contact are taught by teachers and coaches in order to perform better during volleyball competitions. Teachers may focus on teaching either linear or non-linear arms contact, or they may teach both styles to be able to appropriately apply to different situations as necessary. This question also needs to address the reasons why teachers select to teach specific styles of arms presentation. Further, if teachers prefer to apply two different styles, what are the rationales to support their decision?

Definition of Terms

Key terms include: natural setting, forearm passing, content knowledge, and pedagogical content knowledge. The following definitions will be used:

Natural setting: refers to a “non-contrived environment” (Guba, 1978, p. 16), which also means a regular classroom learning environment. For the purpose of this study, the researcher focuses on the daily used Physical Education classroom in which the setting is not an experimental laboratory. The teaching and learning environment will be a regular teaching area instead of a laboratory setting.

Forearm passing: may also be called “bumping”; it is an action to receive a ball from a server and to pass the ball into the target. Generally, the description of forearm passing includes (1) arms even together and the extended elbows become a type of platform; (2)

knees slightly bent; (3) feet standing slightly apart and back foot's heel slightly lifted; and (4) feet open the same width as shoulders (Appendix: The pictures of forearm passing).

Content knowledge: refers to the teachers' knowledge of the forearm passing skill including: key components, concepts of arms presentation, recognition of improvement performance within the forearm passing, norms and volleyball rules in the game, values, developing technologies within the forearm passing, and demonstrating errors within the forearm passing.

Pedagogical content knowledge: teachers' presentations and representations of content that combine knowledge of content, pedagogy, teaching methods, and students, through the verbalization and progression of tasks and feedback interactions (Shulman, 1987).

Significance of Study

According to Ahrabi-Fard (2001) and Shondell (2002), forearm passing, though a basic skill, is very essential for volleyball players who perform defense successfully to assist their team to have a successful offense. For different learners, physical education teachers play a very important role in teaching them new sport and motor skills. This study investigates teachers' content knowledge and teaching methods related to forearm passing as described by the teachers and manifested in teaching practices in the teaching environment.

The findings of this study may have important implications for physical education by assisting teachers to understand what different teaching emphases may exist among teachers while teaching the forearm passing skill. The findings may encourage new physical education teachers to enhance their understanding of the content knowledge and

the pedagogical content knowledge related to the forearm passing skill that needs to be emphasized and acquired.

Limitations of the Study

There are limitations of this study. First, it is limited in the number of subjects. Six physical educators located in northeast Iowa were recruited to participate. Therefore, the results from this study may not generalize to other teachers or settings. Second, this study is focused on forearm passing skill instead of other activities or sports, and the target participants were teaching students in fifth grade. Consequently, the teachers' pedagogical content knowledge and content knowledge of forearm passing may not transfer to other sports and activities and to other ages of students.

Conclusion

Since teaching volleyball is a complex activity, it is important to review various aspects in an attempt to understand teachers' teaching which directly influences students' learning and performance. Particularly, it is essential to understand teachers' content knowledge of volleyball and perceptions of forearm passing skill in teaching elementary level students because when teachers have the content knowledge of volleyball, they can effectively lead students to learn the forearm passing and establish their successful experience into the future. In addition, it is important to know how teachers use this knowledge to enhance their teaching to help students learn better through the volleyball lessons.

In order to provide detailed information regarding teaching, discovering how teachers view their teaching and implement their content knowledge and teaching

knowledge in the volleyball lessons, Chapter 2 will focus on general teaching knowledge, teaching factors in physical education, forearm passing content knowledge, and concepts of arms presentation as a passer presents the arms for contact.

CHAPTER 2

REVIEW OF LITERATURE

Providing further background and information is very important for developing an insightful discussion of the research questions of this study. Chapter 2 focuses on literature reviews of two specific areas. The first area discusses general knowledge that teachers should possess, and the teaching factors in physical education. The second area focuses on the content knowledge of forearm passing and the concepts of arms presentation.

In the first area, the literature discusses the general idea related to the teaching knowledge, particularly how different teaching factors influence and shape teachers' attitude toward teaching, which involves instructional planning, teaching progression, teaching strategies, communication, management, and value orientations and philosophy in teaching. This area of review addresses the first and second research questions: (1) What is the philosophy of teaching when teachers teach forearm passing? (2) Based on teaching actions, the second question included several subtitled questions focusing on the design of the forearm passing lesson plans, communication skills, the teaching progression of forearm passing, and teaching strategies for teaching forearm passing.

The second area of review deals with particular concerns about the content knowledge of forearm passing skill and the concepts of arms presentation. More specifically, the review will focus on the six components of forearm passing including: ready position, mobility, performance base, arms presentation, passing action, and follow-through. Also, there are some common errors of forearm passing including

rebound surface in arms, hands, and wrists, footwork and movement in feet and body needed to be addressed. The research on the arms presentation (linear or non-linear arms contact) is needed to be discussed for more understanding as well. This section of the review addresses the third and fourth research questions, (3) what are the different or similar key components taught by teachers? And (4) what are the different or similar concepts of arms presentation (linear or non-linear) among teachers?

The various experiences, learning background, and the school's culture, along with each individual teaching style produce a unique perception, teaching knowledge, and style that are important to explore. The research is intended to expand discussion of essential teaching in a classroom environment.

Teaching Knowledge (Pedagogical Content Knowledge)

Within different subjects, teachers may present their own professional knowledge that utilizes different teaching styles. Shulman (1987) mentioned that generally teachers should know how to transform understanding of performance skills, design an appropriate curriculum, and communicate effectively with students. There are many ideas and ways of communicating during the teaching process so that students can learn and understand from the beginning to the advanced level of performance. There are also many ways to assist students to comprehend knowledge, information, and skills into their learning. Therefore, to become a good teacher, one needs to understand what knowledge needs to be learned and how it is to be taught.

Teacher knowledge includes synthesized teaching possesses. In order to provide effective teaching, a teacher uses different knowledge in his/her classroom to improve

students' learning (Shulman 1986; 1987). These knowledge include: (1) content knowledge; (2) general pedagogical knowledge, with special reference to those broad principles and strategies of classroom management and organization that appear to transcend subject matter; (3) curricular knowledge, with particular group of the materials and programs that serve as "tools of the trade" for teachers; (4) pedagogical content knowledge, their own special form of professional understanding; (5) knowledge of learners and their characteristics; (6) knowledge of educational contexts, ranging from the workings of the groups or classroom, the governance and financing of school districts, to the character of communities and cultures; and (7) knowledge of educational purposes and values, and their philosophical and historical backgrounds.

Shulman (1987) mentioned that teachers' understanding of content is critical and paramount. However, the pedagogical content knowledge is the most special interest because it identifies the distinctive bodies of knowledge for teaching. It represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to diverse interests and abilities of learners. For example, when an instructor wants to teach forearm passing in volleyball, he/she needs to understand the content knowledge (e.g. ready position, stepping, performance base, arms presentation, passing action, follow-through, and some common errors that happened during practice) and based on the content knowledge and its characteristics, the instructor can organize the teaching process, design the lesson plans, manage equipments, and provide appropriate teaching strategies for students' learning. To possess different content knowledge of a specific activity may influence

teachers who have different pedagogical content knowledge during the teaching. Pedagogical content knowledge is the category most likely to distinguish the understanding of the content specialist from that of the pedagogue (Shulman, 1987, p. 8).

Gudmundsdottir (1987) mentioned that “content” in pedagogical content knowledge refers to the knowledge and organization of the subject matter. However, ‘pedagogical’ concerns the management, organization, and instructional techniques that are used for the transmission of content knowledge. Pedagogical content knowledge, described by Gudmundsdottir (1991), is a very essential area of knowledge base for teaching. She also provided an important concept that “without knowing, the researcher does not know what to look for or where” (p. 409). It is similar to the teaching. For instance, if a teacher does not know the specific content knowledge and pedagogical content knowledge, she/he may not know how to teach concepts and connect new ideas with existing knowledge in a particular subject.

Teachers possess different types of experiences that influence their decision-making about the content of their courses. In the teaching process, teachers are concerned about the content knowledge that refers to the structures of the subject matter. These structures include substantive and syntactic structures. The knowledge of the substantive structures refers to the teacher’s understanding of the facts, concepts within a domain, and organizing fundamental principles in a particular subject. When teachers possess enriched knowledge of substantive structures, they effectively explain, represent, and apply instances to meaningfully communicate subject matter to learners. The knowledge of syntactic structures, however, concerns methods in which teachers bring new

knowledge to their teaching field. This means that when teachers learn new information, they not only critically evaluate new theories, but also interpret the new information related to the subject matter (Grossman, Wilson, & Shulman, 1989).

In essence, it is the teacher who plans the “learning trajectories” of the students. Thus, the teacher is central and important to the learning episodes that occur in the classroom. In addition, “the manner in which that understanding is communicated conveys to students what is essential about a subject and what is peripheral. In the face of student diversity, the teacher must have a flexible and multifaceted comprehension, adequate to impart alternative explanations for the same concepts or principles” (Shulman, 1987, p.9).

Teaching Factors in Physical Education

Clark and Peterson (1986) mentioned that teachers’ thought processes and actions were related to “schema.” The characteristics of a schema in teaching refers to a sophisticated cognitive skill that teachers use to structure knowledge and summarize information into many particular categories, and then make them relate to each other (Borko & Livingston, 1989). Furthermore, as described by Shavelson (1973), each action of teaching is the result of a conscious or unconscious decision. Teachers, with their own complex cognitive processes of obtaining knowledge and information to direct behavior will make decisions related to teaching, classroom events, and students’ learning. Teachers can effectively present a lesson in many appropriate ways. We cannot say what specific way a teacher should present a lesson. Teachers have the freedom to choose the

ways to implement a lesson based on the teachers' pedagogical knowledge, students' information, and their own content knowledge and characteristics (Rink, 1998).

Because teachers have their own sophisticated cognitive processes of obtaining knowledge and information to direct their teaching and their students' learning, they may consider several factors when constructing the teaching process. These elements include teachers' value orientation and philosophy of teaching, instructional planning, teaching progression, communication, teaching strategies, using learning cues and feedback, and class management and organization. In order to have a significant influence on students' learning, teachers may design and present differently through these teaching elements. It is necessary to discuss each element in greater detail for better understanding.

Value Orientations and Philosophy in Teaching

Based on the theoretical framework of physical education, five value orientations are generally used by PE teachers to design their curriculum. The five value orientations are disciplinary mastery (DM), learning process (LP), self-actualization (SA), social responsibility (SR), and ecological integration (EI; Jewett, Bain, & Ennis, 1995). These five value orientations have their own characteristics that will be used for some specific design in curriculum by physical education teachers.

For instance, when teachers have a high priority on what students have to learn (e.g. sport skills, motor abilities, and fitness) and how they have to learn, they prefer to emphasize disciplinary mastery or learning process orientation. On the other hand, when concerned with the students' needs and interests, students' positive and interpersonal relationships, teachers may focus on the self-actualization and social responsibility

orientation. For instance, teachers may design the group activities or game playing situation in volleyball more than individual's practice passing on the wall because students have many opportunities to cooperate with teammates which encourage them to learn social responsibility.

In the ecological integration, teachers focus on the knowledge base, the learners, and social group, all of which are equally important in their teaching (Jewett et al., 1995). To base on this value orientation, teachers will not only focus on students who have a good performance and accurate skill in the forearm passing, but also emphasize how they can work together and help each other to increase the team performances and their social learning.

However, different cultural and educational backgrounds may influence teachers' value orientations. These result in different philosophies about curriculum and its organization which are evident in the teaching of professional physical education teachers. In addition, teachers also need to consider different issues related to what is the most important for schools to teach and how students can learn the best. Teachers must think and reflect on their roots in theories of teaching and learning in the whole. Physical education teachers need to consider students' characteristics, the learning environment, the school's culture and background, and then decide what kind of curriculum (higher-level sport skills, personal interactions skills, fitness, or movement skills) is best for students to learn (Rink, 1998).

To examine teachers' differences in their teaching philosophy and value orientation, research conducted by Chen and Ennis (1996) indicated that two teachers had

different value orientations and beliefs that influenced them when they established curriculum goals and physical education content. For instance, one teacher designed content knowledge that consisted of components showing how to analyze sport skills and construct relationship among the skill. This teacher said that if students understood how sport skills were learned, they would use this information to develop their sport skills performance. Thus, students are able to participate in sports or fitness activities effectively for the future.

However, another teacher believed that concepts and behaviors related to social responsibility were the main components in the teaching of physical education. In his class, students needed to learn, understand, and practice social responsibility concepts and behaviors. In social responsibility learning, students respect the teacher and others, follow the classroom rules, and cooperate with each other. This teacher's curriculum is a foundation for learning the social responsibility orientation (Chen & Ennis, 1996).

Another study (Rovegno, 1995) showed that each teacher had his/her own teaching style related to his/her goals and beliefs. One student teacher divided the skills content into different components of the biomechanical efficient body positions which formed the mature performances of forearm passing skill. For example, he demonstrated and explained how to keep the elbows straight, knees bent, feet apart, and thumbs together. He also mentioned that to learn the skill, the best way was to learn it individually. The student teacher checked each child's skill position, provided feedback, and gave positive reinforcement. Even though his university supervisor told him this

pedagogical method did not provide sufficient time for students to practice the skill, he believed that individual instruction was the best.

The student teacher focused on playing a game in every lesson to enhance the skill learning. He explained that playing games could emphasize rules and routines that enable children to learn volleyball rules and routines and participate in a real volleyball game. Furthermore, he believed competition facilitated learning, helped students to concentrate more, and gave them confidence about starting a game and playing the ball over the net. The student teacher explained his practice and gave reasons for his content decisions and other actions by referring to his pedagogical content knowledge. It provided evidence that teachers hold different teaching methodologies, which may involve different factors including the school context, teachers' value orientations, the teacher development process, and cultural issues within physical education and society (Rovegno, 1995).

Instructional Planning (Curriculum Design)

In order to present an effective lesson, teachers usually consider how to design the whole teaching process. The teaching process involves preactive, active, and postactive decision making. However, the preactive may be the most important work for teachers when designing and preparing class lessons. Preactive decisions are those included in planning curriculum, units and lessons (Rink, 1998). For different planning, there are different emphases. Lesson plans, for example, focus on elements such as: (1) goal and objective writing; (2) anticipated progression of task; (3) anticipated time; (4) how task will be communicated; and (5) organizational arrangements (Rink, 1998). The

organization and preparation of the lesson plan provides teachers with the meaningful thinking through of the classes in their imagination. It also helps teachers predict possible problems which may happen during the class and to decide on procedures for solving these problems.

From different studies, researchers Westerman (1991) and Housner and Griffey (1985) found that teachers would use many types of relevant information, such as knowledge of curriculum, subject matter, and students' interests to make a lesson plan. They integrated all the information from an image or a mental representation to form the lesson. Meanwhile, teachers were able to foresee possible problems when they planned a lesson, which made them more confident to plan, integrate, and make decisions to change the plan quickly as needed (Borko & Livingston, 1989).

Planning is an essential pedagogical function to enhance teaching practice and teachers' satisfaction and motivation. Through effective planning, teachers will maximize students' engagement time, select appropriate managerial tasks, and help students to reach their achievement (Wuest & Lombardo, 1994). However, instructional planning may not always be an effective and positive endeavor. Sometimes, teachers' instructional planning may not fit the real situation in classes. Several factors may affect planning design, including the student characteristics, class size, community influences, geography, budget, facilities and equipment, time, and scheduling patterns (Wuest & Lombardo, 1994). Concerning these factors and the nature of the subject, differences among teachers may result in how they design their instructional planning of forearm passing and how the planning relates to their content knowledge.

Teaching Progression

In order to facilitate learning, students need to experience the ordinal learning process from simple to complex motor skills. A major assumption of the learning process is called hierarchic (Fischer, 1980). The hierarchical learning process advocates that when students learn complex skills they have to follow specific rules. For example, they would gradually learn basic level skills before attempting advanced level skills. When students have mastered the beginning level skills, they would gradually increase the skill's levels of complexity (Fischer, 1980). Because students are not ready to learn the complex skill in the beginning, skills need to be broken down into simpler components before moving on to more advanced tasks (Rink, French, Werner, Lynn, & Mays, 1991).

Considering more effective learning, the teaching progression becomes the most significant factor that physical education teachers must consider for complex skill learning. The teaching progression refers to how teachers use different movement tasks and how to link each movement task to develop content and motor skill learning (Rink, 1998). To do effective teaching progression, teachers must possess knowledge of the content and knowledge of general pedagogical skills, however, with this knowledge, teachers need to know how to connect content and pedagogy in order to transfer the content to the learners.

To build teaching progressions, teachers need to understand their instructional goals and objectives, knowledge of the content, and their ability to analyze the content, and the knowledge to assess learners' needs in relation to the content. With an appropriate teaching progression, teachers could facilitate an increased level of student

learning in many ways. For instance, teachers may increase students' motivation, which in turn increases their attention and endeavors. Second, when teachers modify task conditions, they eliminate repetitive practice and increase attention. Third, when teachers narrow the focus on students' attention on a particular performance, they can eliminate the changing conditions of practice (Rink et al., 1991).

The findings of a previous study on practice conditions for a complex motor skill in the physical education setting, conducted by French and his colleagues (1991), suggested that students who received a teaching progression of increasingly difficult tasks performed better on a final test of the volleyball set and serve than did students who only practiced the final test for the same number of practice trials. This study used two different teaching progression conditions in the two groups. The first group with the condition was required to succeed at 80 % before moving on to the next level. However, the second group was given another condition that required moving on to the next level after a set number of practice trials without a certain success rate. No difference between the two groups was shown in the final test of the volleyball set and serve, however there was a significant difference between two groups that used a progression of increasingly difficult tasks and the group that practiced the final test.

Rink et al. (1991) also conducted a study that investigated the specific role of progression, refinement, and motivation in learning the volleyball set and serve. Five groups were randomly selected and given the following different conditions: (1) control; (2) final-test practice with refinement tasks after every five trials; (3) final-test practice with motivational feedback only; (4) four-step progression (extension group); and (5)

four-step progression with refinement after every five trials (combination group). The results of the study indicated that the progression conditions in both the extension and combination groups facilitated students' learning with a higher success rate and a higher level of retention. Rink et al. also mentioned that when students were given additional information in the progression, students had a much greater success rate in the practice volleyball set. Even though volleyball serve and set were not easy skills for students, the progression and refinement information facilitated students' learning to achieve these skills.

Teaching Strategies

A major consideration of all teachers is how to create and provide an instructional methodology consistent with the needs and characteristics of their students in the classroom (Sharpe, 1994). An instructional methodology refers to the teaching strategy. Teaching strategy described by Rink (1998) is reflected in a teacher's instructional framework. In group instruction, a teacher organizes both student and teacher roles. More specifically, when organizing learning experiences in different ways, teachers consider the levels of responsibility and engagement of the students with the particular content. With different organizational formats such as individual, group, partners, or whole class, teachers have more choices to meet the needs of students and meet objectives for a particular content and context. As teachers select specific teaching strategies for a learning objective, the teaching strategies reflect their perspectives on how students learn and what is an essential experience for them to achieve (Rink, 1998).

Teaching strategies can be used to enhance physical skill performance and students' knowledge of learning process. With appropriate teaching strategies, students may have better cognitive, emotional, and physical control over their own skill development (Anderson, 1999). In addition, through the teaching strategies, teachers create a learning environment which learners enjoy as well as increase their confidence and ability to develop the skills that promote the lifetime of activity (Carleton & Henrich, 2000).

In designing effective strategies, teachers need to consider several elements that directly or indirectly influence students learning. These elements include students' learning ability (high- or low-skilled), age, gender, family background, and disabilities (Carleton & Henrich, 2000; Sharpe, 1994; Tipps, 1988). Research conducted by Tipps (1988) indicated that the effectiveness of teaching strategies was greatly determined by specific activity unit and age group. For example, when the teacher taught an individualized method, the activity units of gymnastics and conditioning showed higher levels of motor appropriate behavior. Also, for the gender and age difference, 12th grade females preferred direct (group) methods of teaching more than individualized method.

Several basic teaching strategies may be designed to facilitate students' learning experiences including: direct and indirect instruction, interactive teaching, station teaching, peer teaching, cooperative learning, self-instructional strategies, cognitive strategies, and team teaching (Rink, 1998). Besides these strategies, others are used for different approaches. For instance, the tactical model and skill teaching help students to learn volleyball skills (Harrison, Blakemore, Richards, Oliver, Wilkinson, & Fellingham,

2004). Social learning (SL) and structural-development (SD) teaching strategies influenced the moral development of elementary students in physical education (Gibbons & Ebbeck, 1997).

Research on teaching strategies provides information to show its effectiveness. For example, a study by Harrison et al. (2004) indicated that the tactical model and skill teaching had a positive effective on skill development, game play, knowledge, and self-efficacy for 169 beginning university volleyball students.

Teachers used the tactical approaches, such as games for understanding (GFU), to emphasize student understanding of game strategies in volleyball. Different game types have their own certain strategies to relate different skill learning such as forearm passing, set, and spiking. Another skill teaching model focused on successful performance of psychomotor skills like drills in the first step, and then modified game rules that allow students to choose their practice ball, net height, and serving distances from the net. Both teaching strategies had significant improvement for students' learning in volleyball skills and knowledge, especially, for low-skilled students as they improved the most on the serve and passing skills test and self-efficacy. High-level students improved more on the spike skills test and legal and successful spikes per serve.

Dyson (2001) studied the cooperative learning in an elementary physical education program and indicated that cooperative learning benefits the development of social and psychomotor skills. Students reported they encouraged each other and worked and learned together. They knew their task and roles and expected to contribute to the group. The teacher believed the cooperative learning allowed opportunities for students

with different learning abilities to enhance motor skills, social skills, working together as a team, and taking responsibility for their own learning. The cooperative learning strategy is not only for regular students to gain learning experience, but for disabled students also. This strategy provides the means to interact with peers and promotes the psychomotor, cognitive, and effective goals during the learning process (Grenier, Dyson, & Yeaton, 2005).

In addition, Gibbons and Ebbeck (1997) conducted research that examined the effectiveness of social learning (SL) or structural-developmental (SD) teaching strategies on the moral development of elementary students in the physical education program. The results indicated that using these teaching strategies, in experimental groups, had an effective impact for learners to develop their moral learning. The scores of moral judgment, moral intention, and pro-social behavior were significantly higher for students in SL and SD groups than students in the control group. However, the scores of moral reason were significantly higher only in the SD group.

Though the teaching strategies were intended to benefit different students in the learning process, it is necessary for teachers to know the advantages and disadvantages of different teaching strategies. Teachers need to understand the features of each strategy and appropriately use it with different learning situations, objectives, the nature of content, and characteristics of the learners to better facilitate student learning (Dyson, 2001; Rink, 1998).

Communication

During the teaching process, communication refers to how a teacher conveys the instructional lesson plan and transfers the particular content knowledge to students in an appropriate way. In this section, communication includes organized information, demonstrations, learning cues, and providing feedback.

In order to have a clear picture of the whole lesson, teachers usually organize information that conveys the teachers' ideas of the lesson plan to students before the main activities start. The organized information includes giving lesson overviews, identifying the major points of a lesson, and describing the lesson's activities (Schempp, 2003). The purpose of organizing information is to help students understand what they will learn and why. Students know what will happen and why the learning activities are meaningful for them. Also, students know what will be expected from the particular learning activities. With a detailed description of organized information, students will follow their teacher's direction more effectively and make the whole class flow well (Schempp, 2003).

After the information introduction, the demonstration is the second way to communicate with students the main skill to be learned. Usually teachers have an oral presentation to explain the new skill to be learned and practiced. A demonstration, however, is the most essential visual means for physical education instructors to use for any specific skill. Through demonstration, teachers provide a picture of the new skill, describe its key points, show how to use the body's power, and show how to coordinate hands, legs, and body to perform the skill correctly. Students observe the skill first and

then imitate the skill into their own performance. They try to perform the new skill as correctly as possible. Students learn to experience a new skill through the process of observation and imitation (Schempp, 2003).

Using demonstration in conjunction with verbal explanations helps instructors, when their language is deficient or when a skill is difficult to describe verbally (Rink, 1998). To use demonstration, instructors should be careful to organize the format that will be required in practice, emphasize important information about the skill, and provide an accurate demonstration thereby providing an essential way to communicate with students (Rink, 1998).

Zetou, Fragouli, and Tzetzis (1999) and Zetou, Tzetzis, Vernadakis, and Kioumourtzoglou (2002) had examined two types of modeling. In one, a group observed a videotape of an expert model performance while another group observed a videotaped replay of their own performance. The results indicated that students who observed a videotape of an expert model demonstration of volleyball set and serve skills improved more on acquisition and retention than students who observed a videotape of their own performance. These studies showed that modeling demonstration had a better influence on learning when students watched an expert performance or a correct demonstration.

A learning cue described by Rink (1998) is a word and brief information that communicates to a learner “the critical features of a movement skill or task” (p.97). During practice, teachers usually do not use the language of information-processing theory. Instead, they use instructional cues that are intended to focus students’ attention on how to improve or acquire more skill (Housner & Griffey, 1994). In order to have

more specific learning cues, instructors will depend on different subjects to provide different learning cues. For example, when teaching proper weight shift in the tennis stroke, the instructor uses the verbal cues such as “shift weight,” “step forward,” or “lean into it” (Konukman & Petrakis, 2001). For learning the vertical jump, the teacher may use cues such as “relax shoulders,” “bending knees,” and “moving arms to back and swing it to help jump” (Strohmeyer, Eckrich, & Bird, 2000).

Instructors have to understand their subject content to choose appropriate and accurate cues for students to improve the new skill and experience. Teachers also need to consider different ages and their learning levels to provide good learning cues. For instance, for beginning learners or low-skill level students, too much information or analysis of the new skill may not be appropriate. The more specific the learning cues, the more benefit students may realize in their practice of the skill (Rink, 1998).

Research on learning cues has provided different results. Zetou et al. (2002) conducted a study that provided different observational and instructional conditions to investigate differences between two groups. The results showed that students who watched the expert demonstration and got instructional cues performed better on volleyball set and serve than students who watched their own performance and received instructional error correction cues. However, research on vertical jump mechanics conducted by Strohmeyer et al. (2000) indicated that there were no differences between spatial variables (shoulders, hip, knees, and trunk ranges of motion) and temporal variables (time to jump, maximum shoulder, hip, and knee angular velocities). Although there was no significant difference between the spatial and temporal learning cues, the

jumping time decreased in both spatial and temporal instructional groups, which means that jumping time may possibly be decreased at no cost to vertical jump height. When this information was found in choosing variables, effective techniques could be achieved through appropriate instruction (Strohmeyer et al., 2000).

Providing feedback is also a very important factor to assist students to improve the skill being learned. When receiving a teacher's feedback, students learn about their learning performance, and then they modify their technique if it is not correct. Students can easily focus on the learning task and be motivated to perform the task better. The function of feedback is to help learners improve the quality of their performance. It motivates students and reinforces the new skill, which influences success in practice as well. Therefore, providing appropriate feedback can contribute to task-orientation and produce a good learning environment (Rink, 1998).

Many kinds of feedback can be used for different situations, such as general, specific, negative, positive, whole class, small group, individual, congruent, or incongruent. The feedback can also be provided like an evaluation or corrective feedback for students' responses. In general feedback, for instance, teachers may say "good job" to evaluate students' performance or "don't do it that way" to correct students' learning (Rink, 1998). Research studies by Pellett, Henschel-Pellett, and Harrison (1994) indicated that teachers who provided specific and corrective feedback could improve students' success in practice. When teachers provided specific and corrective feedback, they presented their content knowledge, which required an understanding of the critical factors and common errors of the particular skill. Another important result showed that the

timing of teacher feedback was essential to students' needs, which means that teachers identified the learners in the class who needed help and provided information which was meaningful to them, at that moment.

Teacher feedback also has different results between high- and low-skilled students. Rikard (1991) indicated that high-skilled students were more successful than low-skilled students in practice both before and after receiving feedback. However, students with low-level skills showed more change in practice success than high-skilled students after receiving feedback. Receiving feedback is important for students' success in practice. Therefore, students with different learning abilities may desire appropriate teacher feedback.

During the teaching-learning process, teachers use different communication techniques to explain, demonstrate, and guide students' learning. Students also develop a mental image of correctness. They follow their teacher's example and compare the image of correctness to their actual performance during practice. Students cannot see themselves perform, so providing feedback and learning cues by teachers gives them some information to guide their learning. Therefore, the effective use of learning cues and feedback are necessary and essential elements (Konukman & Petrakis, 2001).

Management

Since teaching is a complicated activity (many equipment needs, controlling students' behaviors, and planning different activities), good management skills are important and necessary for teachers. The proper management of any class is necessary to make it function well. For instance, students can easily interact with a teacher's lesson

and still interact with each other during different activities, which help to maintain student enthusiasm to engage in the learning experience. The process of teaching and learning is sometimes referred to as an ecological system, because the idea of the ecological system is that it involves many systems that are interdependent and need to work at the same time, such as the content of subject matter and management systems (Rink, 1998).

In order to develop and maintain a learning environment, knowing how to manage the whole class, equipment, students' behaviors, and activities becomes very important factors for all instructors. Management is one essential teaching element that physical education teachers need to consider because of the different learning environment as compared to other subjects.

For example, there are various events, multiple tasks, large numbers of students, different practice rooms for different activities and sports, a vast area of available space, and many pieces of equipment for different purposes (Sariscsany & Pettigrew, 1997). When physical education teachers teach different physical activities and sports, they use specific equipment, rules, activities, group/individual practice, and time spent in order to provide the most effective learning environment (Rink, 1998).

Research on the management of volleyball teaching showed that orderly management was suggested by the practice expectation, posting of scheduled practice tasks, and the teacher being clearly "in charge" (Griffin, Siedentop, & Tannehill, 1998). When the teacher indicated the explicit and specific tasks and had clear and different

expectations for students by role and responsibility, students increased the probability of practice involvements and cooperated with each other often.

However, teachers might use different management systems that may not adequately support the main content. For example, research conducted by Reynolds (1992) indicated that inexperienced teachers often plan and teach lessons using pedagogical skills which did not connect and develop the main content and did not attain the classroom objectives. In addition, Beauchamp, Darst, and Thompson (1990) studied teacher's management skills and found that during the whole class time, students spent 20 percent of their time waiting. The problem of spending too much time waiting might be due to transitions and optimizing instructions. For instance, a teacher did not plan an effective transition that could increase the management time to organize drills and instruction. Also, teachers did not provide different games for rotating groups, resulting in too much time waiting for practice.

Behets (1997) conducted research on the comparison of more and less effective teaching behaviors in secondary physical education which showed that the most effective teachers had significantly higher scores for active learning time and lower scores for instruction time. This study suggests that providing maximum time for student practice was a very important factor, so that the most effective teachers would limit the instructional time. Perhaps, they believe the best approach to physical education is *learning by doing*. These studies were very clear in how physical education teachers spent the time during the teaching-learning process. It may suggest that when teachers provide maximum time for practice, it will have a big difference on students' learning.

In regards to the classroom, students' behaviors are also a major consideration. Students' misbehaviors may appear during the lesson, which usually affects the whole flow of the teaching-learning process. Therefore, teachers need to organize different rules to maintain the classroom order. Teachers possess the rich knowledge of students and activity background so that they can set appropriate expectations for curriculum and student behaviors. In addition, teachers set classroom rules and consequences for student behaviors at the beginning of each class so that students are reminded of them on a regular basis during the whole school year. Similarly, Perron and Downey (1997) found that most teachers will establish rules, routines, and expectations early in the school year. Teachers wanted their students to obey gymnasium rules, expected them to follow teacher's directions, and to be punctual. The rules, routines, and expectations were designed to enhance students' appropriate behaviors and facilitate the flow of the lesson.

Summary

Teachers have different teaching philosophy and value orientations to influence them having different emphases. For instance, if teachers have a high priority on learning forearm passing, they may focus on the students' need to perform well in passing a ball into the target directly, follow the direction for increasing accuracy, and practice the forearm passing repeat. On the other hand, when concerned about students' positive and interpersonal relationships, teachers may design the group activities or game playing situations so that the students will have many opportunities to cooperate with teammates which would encourage them to learn social responsibility. Moreover, by different teaching and learning background, teachers also have different considerations related to

how to design lesson plans and teaching progressions, how to provide appropriate teaching strategies, how to communicate and how to manage the class and students' behaviors. For example, through effective planning, teachers will maximize students' engagement time, select appropriate managerial tasks, and help students to reach their goal (Wuest & Lombardo, 1994).

This section addressed the first and second research questions: What is the philosophy of teaching when teachers teach forearm passing? Based on teaching actions, the second question included several subtitle questions to examine teaching factors including: instructional planning, teaching progression, teaching strategies, communication, and management skills that provided reasons and information for teachers' development of particular knowledge. When teachers possess different methodologies of teaching, the presentation and conveyance of a particular content knowledge occurs by varied teaching designs and organizations. Expectations of teaching and the classroom design differ among teachers, and this will bring different teaching and learning results.

The next section focuses on the content knowledge of forearm passing. More detailed discussion is related to six key components of forearm passing, common errors, and different research debates about arms presentation (linear and non-linear arm contact).

Forearm Passing (Content Knowledge)

In volleyball, there are two fundamental passing skills: overhand and forearm. Both basic passing skills need to be taught to beginning learners for them to improve so

that they may perform well in volleyball games. However, forearm passing is more frequently used than overhand passing. It is also more successful in passing the ball to the target. According to Ahrabi-Fard (2001) and Shondell (2002), forearm passing, is a very essential skill for players who perform defense successfully to assist their teams in a successful offense. When a passer receives the ball from the opposing team, the forearm passing must be executed efficiently if his/her team is to be successful. Because it changes the situation from defense to offense, good forearm passing is important (Viera & Ferguson, 1989). In the defensive situation, the forearm passing skill also can result in a successful pass from a hard spiked ball or passing a ball that is lower than the nose or away from the midline of the player's body (Schaafsma & Heck, 1971). These authors also considered forearm passing as the most important skill for a volleyball player to have.

Different authors or coaches emphasize various key components of forearm passing. Two studies (Schaafsma & Heck, 1971; Viera & Ferguson, 1989) mentioned that the forearm passing included three components: ready position (preparation phase), contact (execution phase), and follow-through (follow-through phase). On the other hand, other studies (e.g. Dearing, 2003; Shondell, 2002) concluded that the forearm pass had more components needing to be considered and taught such as: ready base (passing posture), mobility (stepping/ moving to the ball), performance base (locking in/ making a platform), arms presentation (linear or non-linear contact), passing action (keep arms extended), and follow-through (tracking the ball). Even though they use different terms for each component, the basic technique of forearm passing is similar.

General Description of Each Component

1. Ready base: When a teacher teaches ready base, he/she focuses on passing posture, which means to prepare for receiving a ball from the opposite team or opposite direction. Several key points are emphasized including: (1) feet standing slightly wider than shoulders, toes pointing directly ahead or toward the ball; (2) right foot slightly forward in a heel-toe relationship and left foot slightly backward and lifting the heel slightly; (3) weight forward and knees slightly bent so that they are forward of the toes; (4) the shoulders are slightly in front of knees; (5) arms extended in front of body and even to the upper leg; and (6) palms up. When a passer prepares to receive and pass a ball, the upper body and shoulders should be relaxed and the legs kept as a long distance runner so that he/she can quickly move to receive a ball (Dearing, 2003; Shondell, 2002).

2. Mobility (stepping): This component refers to how to move the body to receive a ball. In receiving the serve, a passer should follow four steps to have effective mobility: (1) take no more than three steps; (2) step toward the ball and then plant two feet in the separate position before making contact; the separate position is the passer's beginning position before the serve; (3) move toward the ball, and keep the head at the same level; and (4) as a passer gets both feet to the ball, the shoulders have to be square to the coming ball so that the ball is passed directly into the target (Shondell, 2002).

3. Performance base (locking in/ making a platform): This step considers how a passer coordinates his/her arms and hands together before contacting the ball. There are different positions of hands together. Dearing (2003) mentioned that when a passer completes the movement, the hands are brought together with the thumbs and wrists

touching to create a platform. One hand grabs another, putting the thumbs and wrists together with the thumbs pointing toward the floor, and then the arms are even and work as a platform. However, Shondell (2002) said that the hands “lock in,” which means the fingers of both hands are interlocked. The thumbs are side by side or even and the wrists are together. Finally, pushing the heels of hands down will help lock the elbows and assist in elevating the shoulders forward. This will assist a passer who presents an extended platform with the arms.

4. Arms presentation (linear or non-linear contact): In this step, a passer must know that when contacting the ball, he/she lifts the arms instead of swinging the arms into it. There is a big difference between lifting and swinging the arms into the ball. For example, when the passer lifts the arms into the ball with a shoulder shrug, constant rebound angle is maintained. Therefore, a more accurate pass is produced. On the other hand, when the passer swings the arms into the ball, he/she may add a great amount of impetus to the ball, consequently changing the angle of the rebound at the contact and making an unstable situation in contacting the ball (Shondell, 2002).

There are also two different contacts that teachers or coaches may prefer to use, including linear and non-linear contact. Linear arms presentation refers to the passer's body that is directly behind the ball with the arms between the knees. When the passer passes the ball, the passer should pass the ball from the middle of the body. When passing the ball with linear contact, the passer avoids moving the arms away from the body. However, the non-linear contact refers to the passer who may move the arms to the side of the body. The passer may move the arms to the right or left, depending on the

relationship of the body to the ball. The most important concept is to contact the ball before it is lost and to reduce misconceptions between the passers.

5. *Passing action (keep arms extended)*: This action refers to the arms extended. It means that when the passer's arms are extended, the arms cannot bend, which keeps a good platform for passing the ball into the target (Dearing, 2003).

6. *Follow-through (tracking the ball)*: When a passer does the last step, follow-through, several key elements need to be remembered: (1) keep hands together; (2) keep the arms platform and following the ball to the target; (3) the arms cannot be higher than the shoulders; (4) move legs forward into the target; and (5) eyes follow the ball to the target (Viera & Ferguson, 1989).

There is a detailed description of forearm passing techniques and progression for volleyball learners to understand. However, knowing the common errors is also important to assist beginning learners in avoiding mistakes.

Common Errors of Forearm Passing

As a good physical education teacher, it is essential to not only focus on the detailed description of each technique, but to also point out errors that easily happen to the students in the classroom. Following are several common errors that occur while executing the forearm pass. The errors are focused on the rebound surface, footwork and movement to the ball (Schaafsma & Heck, 1971; Viera & Ferguson, 1989).

1. *Rebound surface (arms, hands, and wrists)*:

- a. **Ball in hands**: When a player was taught to pass a ball with hands together, this action was remembered. However, sometimes a passer may forget to put the

hands together and will use the fingers and palms to pass a ball, which results in an illegal pass and a lack of control of the contact surface.

- b. **Contact on hands:** This refers to how a passer contacts the ball. Though a passer knows how to hold the hands together, with the thumbs and arms parallel with each other, the ball is contacted on the forearms. Many situations, however, will happen when players contact the ball on their thumbs, wrists, or heels of hands. When they have contact at the lower level of the hands, the ball usually travels in an unpredictable direction with a loss of control. Another mistake will happen when contacting the ball above the arms or over the elbows. This results in difficulty to move the arms for effective passing.
- c. **Unparallel forearms:** Uneven forearms will result in contacting only the top arm instead of on two arms. Even though this mistake may not cause a serious error of passing a ball, the arms and shoulders will be uncomfortable and will not improve even with practice.
- d. **Swinging arms:** For a correct contact with a ball, the player must lift rather than swing the arms into the ball. When a passer swings the arms to catch the ball, the ball will travel too far or in an undesirable trajectory. Moreover, the passers may lose the direction of the target and have an unstable upper body.

2. Footwork and movement (feet and legs):

- a. **Ball too close or too far from the body:** Forearm passing should be performed slightly further in front of the body. It should not be too close or too far from the body. Beginning learners frequently fail to have an appropriate distance when

they try to contact the ball. They may have misjudged the path or speed of the approaching ball. If the ball is too close to the body, it may be difficult to move the arms at an appropriate time and will result in an undesirable trajectory. If the ball is too far from the body, passers may feel it difficult to pass the ball for a long distance because the large angle between body and arms will not allow the arms to have the power to pass the ball.

- b. Moving with hands held together: When passers move their legs into the coming ball, they need to move with open hands, or there will be a reduction in speed, and the passer may not move as quickly as needed.
- c. Passing with straight legs: Often, beginners forget to bend their knees which may reduce power to pass the ball into the target. When the passers are in the deeper court, they need to use the legs to increase the power for passing the ball a long distance.
- d. Jumping at ball: In the beginning, there is a very detailed description about how to contact the ball. The key is to keep the whole body in a stable position and to wait for the ball to drop and then pass it. If the passer jumps off the floor to pass the ball, it will result in lack of control of the body and the ball and then passing the ball will be difficult.
- e. Feet even with shoulders: When the passer's feet stand even with the shoulders, it causes two different situations that make it difficult to move the body and pass the ball. First, standing with feet parallel to each other or to one's shoulders may make it difficult to move the legs quickly in different directions. Second, one may

lose one's balance when passing the ball and especially when receiving a very hard ball or attempting to pass the ball very far.

Research on Arms Presentation (Linear or Non-linear Contact)

How one does perform better when receiving and contacting the ball in a volleyball game? There are two different contacts that teachers or coaches may prefer to use. They are linear and non-linear contact. Linear arms presentation refers to the passer's body directly behind the ball and with the arms between the knees. When the passer passes the ball, the passer should pass the ball from the middle of the body. With linear arms contact, passers avoid moving the arms away from the body. However, the non-linear contact refers to the passer having different situations to move the arms out from the body. The passer may move the arms to a right or left angle, depending on the relationship between the body and the ball.

There is a debate about the preferred arms presentation: linear or non-linear style (Yoshida & Saindon, 2002). Yoshida, women's national team head coach in the U.S.A, provided elaborate information on linear arms contact, which he prefers to use to coach his players. He provided the key word: "Tanden," a Japanese word, referring to an area three-five centimeters below the belly button in the mid-line of the body. The power from tanden supports the body to move but remain stable. Many specific sport skills such as baseball throwing, baseball batting, catching a football, boxing, and Judo use the power of tanden to support movement. For passing, the arms should be in relation with the tanden. It should have a connection between the arms and the tanden. However, the non-linear arms presentation would create a disconnect between arms and tanden.

Moreover, he gave more information related to linear passing which refers to a passer passing the ball between the knees. When a passer connects the ball between the knees, he/she has the most efficient power to support the body while passing the ball. Passing a ball between the knees not only reduces the chance of a bad pass, but it also stabilizes the arms to avoid an arms swinging movement. If a player passes a slow moving ball, he/she could swing the arms to contact the ball outside the central area with some chance of success. However, if a passer receives a very fast ball or tries to dig a difficultly spiked ball with a non-linear arms pass, the player may not pass the ball successfully. There is no room for axis rotation of the arms swing, so keeping the arms tight to the body is the most important technique in ball passing.

In contrast, Saindon (Yoshida & Saindon, 2002) believes that non-linear passing is the most successful technique for passers in a volleyball game. According to scientific, statistical records, the non-linear passing style demonstrates a good technique for passers to successfully pass during volleyball competitions. He believes that the fewer passers the better in the small space of a volleyball court. He said that during a game, there is ongoing movement and there will be miscommunication and hesitation between passers. Fewer passers will reduce misunderstandings between players and increase concentration and responsibility for receiving and passing a ball.

Simply put, the idea of limiting the number of passers will increase the opportunities for more practice. This idea refers to the essence of specialization, which gives players the responsibility to do their best job, such as spikers, setters, or passers. There are more and more servers in both men's and women's volleyball who have

superior serving skills that do not allow passers to receive a ball behind every serve. The passers have to perform the non-linear style to pass different incoming balls into the target (Yoshida & Saindon, 2002).

Research studied by McGown (2002) indicated that the point of arms contact could make a difference. He provided statistical results from Ron Larson, the Men's coach at the University of California San Diego, showing that the midline of arms contact is the best, left-side is all right, and right-side passing is wrong. Larson stated that midline passing produced the best results. However, because the jump serve is becoming a big impact on today's volleyball competition, the middle-line passing is not always possible for passers. To contact a ball in the left-side becomes another good choice. Passers with this in mind need to line up slightly more on the left side of the court so that they can easily pass a ball into the target. It is most important that the passer's arms have a right position. This refers to the passer facing the ball and angling the arms toward the target/setter. Right-side passing is not a good choice because it is not a natural angle to the setter. It is good to avoid the right-side passing whenever possible (McGown, 2002).

Summary

This section of literature discussion of the forearm passing content knowledge related to the third and fourth research questions: what are the different or similar key components taught by teachers? And, what are the different and similar concepts of arms presentation (linear or non-linear contact) among teachers?

Viewing the content knowledge of forearm passing, there are different key components of forearm passing including: ready base (passing posture), mobility

(stepping/ moving to the ball), performance base (locking in/ making a platform), arm presentation (contact: linear or non-linear contact), passing action (keep arms extended), and follow-through (tracking the ball). The most common errors of forearm passing are: ball in hands, contact wrong space on hands, unparallel forearms, swinging arms, ball too close or too far from the body, moving with hands held together, passing with straight legs, jumping at ball and feet even with shoulders.

There is a debate about what is the preferred arms presentation: linear or non-linear style (Yoshida & Saindon, 2002). Yoshida prefers the linear passing. He said, “The player can have their most efficient power when contacting the ball between their knees. ...The passers must stabilize their arms to avoid an arm swinging motion” (p.10).

Saindon, however, prefers the non-linear passing. He pointed out that scientific statistics show the non-linear as being a more successful form of passing than linear. The idea of reducing the number of passers can also produce a better performance and enhance the passers’ responsibility to focus on passing (Yoshida & Saindon, 2002).

McGown (2002) also provided more information related to the arms contact that suggested that the midline of arms contact was the best, left-side was acceptable, and right-side passing was incorrect. If a passer has a left-side passing opportunity, it is most important for the passer’s arms to have a correct position, which means that the passer is facing the ball and angling the arms toward the target/setter. A right-side passing is not a good choice because it is not a natural angle to the setter. Therefore, it should be avoided whenever possible (McGown, 2002).

The next chapter describes the design of this study that researches teachers' forearm passing content knowledge and teaching knowledge (pedagogical content knowledge) in the volleyball lessons at the elementary level. Chapter 3 includes the information about the setting, participants, methods of data collection, procedures, and data analysis.

CHAPTER 3

DESIGN OF THE STUDY

The purpose of this study was to investigate the teaching of forearm passing as a key component of volleyball game performance. Research questions that guided the study were as follows:

1. What is the philosophy of teachers when teaching forearm passing?
2. Based on the teaching actions:
 - A. How do teachers design the lesson plans of forearm passing?
 - B. What is the teaching progression of forearm passing?
 - C. What teaching strategies do teachers use for teaching forearm passing?
 - D. How do teachers communicate with students to facilitate learning of forearm passing?
 - E. How do teachers manage equipment, activities, groups, and students' behaviors to facilitate learning?
3. What are the different or similar key components of forearm passing taught by teachers?
4. What are the different or similar concepts of arm presentation (linear or non-linear) among teachers?

The study utilized participant observation research methods. This chapter describes the rationale for the choice of methods to investigate the topic and discusses the various aspects of the methodology including setting, participants, methods of data collection, and data analysis.

Setting and Participants

This study focused on forearm passing in volleyball lessons. Six elementary schools were involved in the study, and their location was in suburban public schools in northeast Iowa. During the investigation, I observed and videotaped teachers' fifth grade volleyball lessons. Six physical education teachers (five females and one male) at elementary schools volunteered to participate as subjects for this study. All teachers had several years of teaching experience and some had coaching experience as well.

Rationale for Research Method

I utilized participant observation methods in order to record and describe teachers' instructions. In this study I hoped to describe a variety of aspects such as: teachers' teaching philosophy and value orientation, key components of forearm pass teaching, lesson format and design, teaching progression of forearm passing, teaching strategies utilization, management skills, and communication skills. Applying such a methodology allowed me to pay attention to the whole instructional context of the lessons. Wolcott (1988) suggested that researchers should identify "mutually understood sets of expectations and explanations." The implication of Wolcott's quote to my study was for me to describe and compare my interpretations of the lessons with those of my research participants.

Conducting participant observation or ethnographic methods was an essential way to find natural information about educational processes. Through ethnographic methods, a researcher can determine essential attributes of class membership, how teachers and

students define their activities, and how the lessons in one location differ from lessons in another location (Green & Wallat, 1981).

When a researcher studies an educational setting, he/she considers and wants to understand what is occurring in the educational setting, what is the definition of the event that participants hold about the lessons, how participants engage in activities, what are the possible relationships between teachers and students, and what are specific values and beliefs held by the group members. The ethnographic methods provide a way to describe situations of teachers' teaching across classrooms (Green & Wallat, 1981).

Data Collection and Instructions

In this study, several methods were used for gathering different information about forearm passing research. These methods included: systematic observation, videotaping, field notes, and formal and informal interviews.

Systematic Observation

The answer to the question "What is observation?" depends on the individual's purpose for observing. Students, for example, may observe how to play baseball and other games. A teacher may observe students' learning and performance during ongoing lessons in a classroom, while a researcher may observe the interaction between a teacher's teaching and students' learning. The purpose of each person's observations reflects differences in answers to questions such as: What is observed? How it is observed? Who is being observed? And, when does observation take place among others? When individuals consider these different factors, they conduct their observations in specific situations that fit their requirements (Evertson & Green, 1986).

Students, teachers, and researchers in formal situations, such as classroom teaching and learning, utilize systematic observation. For example, in the classroom, students observe the social and academic expectations of who can talk and when, how, or what is the purpose for talking in order to engage in appropriate learning activities. Teachers must observe systematically in order to maintain the pace of a lesson, the conduct of instruction, and the teaching processes. Researchers must consider how to use different methods for organizing a research process, collecting data, as well as analyzing various data (Evertson & Green, 1986). In this study, I used systematic observation to record information about teachers' teaching of the forearm pass. My systematic observation activities included videotaping, writing field notes, research journaling, formal and informal interviews, creating a data catalogue and organizing these activities in phases of data generation.

Videotaping

Evertson and Green (1986) described videotaping as a technological record. My goal was to obtain a record of forearm passing events as taught and demonstrated by teachers. Through videotaping across teachers' teaching, I viewed context specific teaching behaviors occurring within a given time period or a given activity. When I reviewed the videotapes, I decided what to record and determine what was related to the goals of my research and my research questions. Videotaping allowed the researcher to freeze the information in time for analysis at a later point.

In the beginning of fall semester of 2005, participating Physical Education teachers were contacted to arrange the schedules for videotaping their volleyball

teaching. The specific placement of the videotaping was also very important because teachers might want to have the equipment positioned a specific distance from their teaching or some student(s) might not want to participate or to be videotaped. Before I started to record their teaching, I discussed with each teacher the preferred location of the videotaping equipment.

The videotaping records were used in conjunction with all of the other methods including observations, researcher's journal, field notes, and interviews (audiotapes). The videotape records allowed me to make a variety of analyses and identify a broad multitude of complementary units and variables (Evertson & Green, 1986).

Field Notes

The use of field notes to record visual and auditory data was a very important part during the observational process and interviews. I could record important information that related to forearm pass teaching during all volleyball lessons. Therefore, considering how I recorded different resources and information became very important. Spradley (1980) indicated the need to understand how language variations influence what the researcher observes and records. Some language variants used in my study when I wrote my field notes included:

- My native language—Chinese
- Language for research dissertation—English
- Language of volleyball teachers—linear or non-linear contact, bumping, passing, stepping, moving, etc.
- Language used between teacher and students

- Language used by the researchers of volleyball
- Language used by volleyball coaches

Besides accounting for the influence of these language variations, I also needed to consider three principles: identification principle, verbatim principle, and concrete principle when I wrote my field notes (Spradley, 1980).

- i. The identification principle refers to the different languages for each field note entry.
- ii. The verbatim principle refers to recording what teachers say and do, which means I record all information as specifically as possible.
- iii. The concrete principle refers to describing all information such as: teaching spaces, teaching objects, acts, events, activities, time, teachers' talking and behaviors, and goals in as much specific detail as possible.

In addition, I used three different kinds of entries in my field notes, including: the condensed notes, the expanded notes, and researcher journal notes (Spradley, 1980).

The condensed notes: The condensed notes included brief descriptions of things, situations, language varieties, conversations, actions, quotations, and unconnected sentences that occurred during the volleyball lessons. I recorded the condensed notes during every period of fieldwork or immediately afterward.

The expanded notes: The expanded notes helped the researcher to fill in details and recall objects and situations that were not recorded in the condensed notes. After each field session, I needed to connect quotations and other descriptions, making connections between events and teaching approach, details describing conversations between teacher

and students, finishing uncompleted sentences, and recording more detail teacher's actions.

Researcher journals: Since this study was focused on teachers' instruction of the forearm passing skill, I wrote a daily journal to record my reflections and perceptions based upon the condensed and expanded notes. My journal discussed my feelings, ideas and experiences, interpretations of teachers' teaching behaviors, speculations about why teachers used specific activities or resources, my thinking related to the teacher's teaching, and ways that teachers communicated with their students. These details about the teaching process and related information would be recorded in order to enrich my descriptions and lead me toward more specific emphases for future observations.

Formal and Informal Interviews

Formal and informal interviews were used in order to acquire deeper information about teachers' teaching. I wanted to find the rationales of each teacher's forearm passing teaching, in regards to the key components for teaching passing, the reasons for the lesson design, strategies used, how to link content knowledge and pedagogical content knowledge regarding the teaching of passing, consequences the teachers expected from their students' performance, and what was their teaching philosophy. I conducted the formal interview with each teacher during their volleyball teaching, and then had the follow-up informal interview later. The interview took approximately 30-40 minutes for each participant.

Cataloguing Data

Agar's (1986) model of classification was used to conduct how the data were organized and categorized. It included three categories: levels of talk/topics, degree of control, and recording strategy.

Level of talk/topics has three levels:

Level 1: Observation, videotapes, and field notes were conducted to record daily class life, which focused on gathering all information related to the teachers' teaching.

Level 2: Refers to teachers' and my reflection and perceptions of the volleyball lessons. The researcher interviewed teachers about their teaching and class life.

Level 3: Refers to teachers (participants) checking interpretation about data collection. For example, teachers might talk about their interview and discussion which occurred in the level 1 and 2.

Degree of control: This category refers to the participants and I had the choices for the topic of the level's talk. For example, the participant might tell me that his/her emphases in teaching and who decides what aspects to videotape. I might also decide the questions that I used to interview the participants.

Recording strategy: The recording strategy was referred to how I used different technical methods to record the data. For example, some data were collected when I observed and wrote field notes. Some data were collected when I made video and audio tapes during the observations and interviews.

Procedures of Data Collection

Phases of the Research

1. Phase 1: Observation of all teachers' lessons, videotaping of lessons, and writing field notes.
2. Phase 2: formal and informal interviews, writing field notes.
3. Phase 3: interpretation (checking of observation, videotaping, writing field notes, and interviews).

Phase 1: During the first phase, I used observation, videotaping, and field notes to view and record data including: teaching content, types of activities, teaching processes, teaching strategies, concepts of forearm passing, and teachers' representation and teaching behaviors. In this phase, various information was recorded to provide different content knowledge and pedagogical content knowledge.

Phase 2: In the second phase, my research journal, written field notes and interviews were utilized to collect deeper information. These research tools were focused on recording the different reasons of teaching forearm passing. They included: (1) lessons' design and teaching key components; (2) concepts of arm presentation (linear or non-linear contact); (3) strategies used during the lessons; (4) teaching progression; (5) the expectations of students learning forearm passing; (6) what was the goal for teaching forearm passing; and (7) what was the teaching philosophy.

Phase 3: In the phase of interpretation checking, I combined the information from phases 1 and 2 and interpreted the data, and then checked and discussed data with the participants, which might lead to follow-up informal interviews.

Data Analysis

The data about the teachers' forearm passing instruction were generated from sources including: observations, videotapes, field notes, and formal and informal interviews. In this section, I discuss how I analyzed data from these sources.

Field Notes from Observation and Interviews

In order to have a systematic organization and process to analyze all data from field notes, I used domain analysis. In general, domain analysis is a type of analysis for categorizing values, beliefs, and activities (Spradley, 1980). In particular, a domain in this study is a specific set of meanings that are related to volleyball teaching. The four steps used in data analysis were:

Step 1: Select domains for analysis. This step refers to choosing different domains related to the forearm pass teaching. Some of the domains (teacher's domains) would consist of terms or semantic relations used by the teacher on teaching volleyball. Other domains would be suggested by terms or semantic relations suggested by the teacher and by my field notes (mixed domains). Still other domains were decided from my field notes (researcher domains). The domains used are: kinds of teachers, kinds of teaching philosophy and value orientation, kinds of lesson plan, kinds of teaching strategies, kinds of teaching goals, kinds of teaching progression, kinds of key components of forearm passing, kinds of communication skills (learning cues and feedback), kinds of concepts of arms presentation, kinds of management skills, reasons for teaching, and reasons for teaching philosophy and goals.

Step 2: Inventory all information. After selecting domains, I began to list all information included in each domain. For example, if a possible domain was labeled as kinds of teaching strategies, then this domain might include a cooperative learning and peer coaching strategy to help students learn passing or form preferences for arm contact.

Step 3: Inventory all similar or different data from each domain across teachers. After listing data from each domain of each teacher, I started to group the information into similarities or differences across teachers. In addition, I made notes to myself that show information linking one domain with other domains.

Step 4: Construct a completed taxonomy of teachers' teaching. In the final step, the data would be recorded on a taxonomy showing the dimensions of teachers' forearm passing of instruction that I had observed and recorded about. In this study, componential and taxonomic analyses helped me search domains for similarities and contrasts by sorting them, and grouping them to determine the scope of similarities and differences (Spradley, 1980).

Video and Audio Tapes of Lessons and Interviews

To begin the data analysis from video and audio tapes, a process of five stages was followed for viewing the tapes and recording data (Erickson & Shultz, 1981).

Stage 1: In the first stage, each tape was viewed or listened to throughout, stopping the tape only occasionally, and labeling different occasions as the tape was continuously running. The written notes in this stage served as an index of all occasions recorded on the tape. The approximate location of different teaching events, teaching processes, using

terms, and transitions between occasions were recorded in writing. Each tape's number was labeled before moving onto the next stage.

Stage 2: After indexing different occasions in the first stage, a search was conducted for analogous occasions of theoretical emphases. Examples of this might include: all forearm passing lessons, all events, all activities, all key components of passing, all strategies, all communication skills, all management skills, and all practice times. Occasions were reviewed as a whole, from before they began until after they ended, emphasizing what all participants were doing. Moreover, the specific times of the occasions were marked, which helped to locate data regarding the research questions.

Stage 3: This stage refers to locating precisely the connections and transition parts between previous sections of the occasion and identifying specifically the differences in structure across the connections. For example, reviewing occasions when a teacher introduced the key components of forearm passing, key terms, language variety (see varieties previously described for field notes), postural position, key points for representation of passing, voice tone, materials used for describing passing, and other features of speech style were described. The review focused on what happened before, during, and after the connection. The temporal location of all teaching and learning events were noted, and then decided to describe the situation in detail. The time reference code was used to review these important phenomena of teaching.

Stage 4: The primary objective of this stage was to focus on each principle juncture of teaching, and then rewind the tape back to the previous main connection. The structures of teachers' instruction between different connections were also characterized. When

preparing to start activities, for example, descriptions were recorded for the teacher's teaching topics, details about teaching strategies, and details about teaching progressions. This stage was used to record more detailed data related to the research questions.

Stage 5: The final stage builds overall single-case descriptions of each teacher generated by the previous four stages. Main issues about similar and different teaching philosophy and value orientation, teaching progressions, lesson plan design, key components of the forearm passing, key events and activities during the lessons, teaching strategies, management skills, communication skills, and the goals of teaching were searched for and established.

Trustworthiness

In order to examine all information reliably so that readers could make their decisions about applying results from this study to their volleyball teaching, techniques for ensuring trustworthiness became very significant as the data was examined. The techniques included: cross-examination of data from various viewpoints including teachers, students, and my views as a researcher; consistent and systematic observation, and interpretation checking with participants. In addition, Wolcott (1988) indicated that trustworthiness is supported by triangulating data— “obtaining information in many ways rather than relying solely on one” (p. 192). Lincoln and Guba (1985) also mentioned that utilizing multiple techniques to generate data provided a way to ensure trustworthy results. In the current study, using multiple journals, field notes, formal and informal interviews, video and audio tapes, and documents provided various data for credible evidence.

Conclusion

Investigating physical education teachers' teaching and their instructional perceptions about forearm pass teaching was important for three reasons. First, different cultural backgrounds influence teachers and students so they might have different views and perspectives as they teach and learn in schools. I come from Taiwan, in which the educational system has different perspectives from America about curriculum design, the learning environment, and instructional methods. It is important for me to know and understand different curricula and instructions because when I know and understand the teaching methods in America, I can then combine the best practices from two different educational systems. This should enrich my teaching knowledge to teach pre-service physical education teachers in physical activity and sports.

Second, many teachers might present different teaching styles which depend on their content knowledge and pedagogical content knowledge developed in previous instructional experiences. Through investigation of forearm pass teaching as a key component of volleyball instruction, methods of volleyball pedagogy that teachers used to illustrate, explain, and demonstrate to students can be described. In addition, teachers' teaching goals and philosophy also influence their different methods of lesson plans and design that impact their expectation for their students. Researching teachers' teaching might help improve instruction of forearm passing and contribute to our understanding of teachers' perceptions about teaching at the elementary level.

Third, when the results of this study are shared with the participants and teachers, physical educators might feel encouraged to learn about different teaching styles and

teaching methods that strongly improve teachers' knowledge about teaching and students' learning. Gaining a better understanding of the teaching processes and strategies utilized to instruct a sport motor skill could also contribute to pre-service teachers' professional preparation.

CHAPTER 4

RESULTS AND ANALYSIS

This chapter presents results and analysis of the study. The six sections in this chapter address answers to the research questions and provide more information regarding the study.

In order to best understand the background of Physical Education (PE) classes, teaching environments, and the teachers, the first section will give a general description of each. The information about the different teaching environments, the teachers' learning and teaching experiences, as well as the teaching locations will provide some reasons, however indirectly related, as to the teachers' approach to teaching forearm passing.

Second, information triangulated from data is used to answer the first research question, "What is the teachers' philosophy when teaching forearm passing?" This section addresses teachers' beliefs about teaching forearm passing as a part of volleyball, their expectations about students' learning, and the teaching goals.

In the third section, the goal is to answer the question about the teachers' teaching knowledge (pedagogical content knowledge) when they taught the forearm passing skill. The data results and analysis include curriculum design, teaching progression, teaching strategies, communication (introduction and closing, demonstration and explanation, learning cues, and feedback), and management skills (equipment use, activities organization, and students' behaviors).

The fourth section of Chapter 4 answers the third and fourth research questions, “What are the different or similar key components of forearm passing taught by teachers?” and, “What are the different or similar concepts of arms presentation (linear or non-linear) among teachers?” In this section, the researcher discusses the content knowledge of forearm passing which was taught. It is not only to teach the technical skill but also to emphasize how teachers make a distinction between the correct and incorrect skills of forearm passing. Also, the volleyball rules related to playing the game that were taught are addressed here to show the teaching emphasis. In addition, this section addresses teachers’ personal knowledge of teaching the linear or non-linear arms presentation. Whether teachers teach linear or non-linear arms contact or both and what reasons they gave to support their teaching practices are also reported.

The final section will discuss the main themes of the analysis. The main themes include the important information and ideas that strongly relate to the four research questions. It includes how teachers’ philosophy and value orientation relate to their designing the teaching lessons, how they connect their teaching knowledge (pedagogical content knowledge) and the content knowledge of forearm passing, and how the past learning and teaching/coaching experiences influence their present teaching and attitudes.

General Information

Teaching Environment

This section describes the different teaching environments in which the teachers work. The teaching environment may influence how teachers design their lessons, how students interact with each other, and the relationship between the teacher and students.

There were six schools in which the researcher went to observe PE teachers. The teaching environments in three schools were large gyms while the other three provided multi-purpose rooms used for PE classes, cafeteria, and as the place where the students would wait for dismissal during the winter season or bad weather.

The large gyms provided two full size volleyball courts so that teachers had enough space for students to learn skills and practice it, conduct and organize different activities if they required a big room, and play volleyball games. However, one teacher did not use the whole gym; instead, she used about 1/3 of the gym for class and different activities. She felt it was easier to control the class and observe students' learning. If she used the whole gym, it was harder to monitor the students throughout the class period.

The other two teachers used the whole gym for teaching. When they used the gym, I saw students use the whole space during the fitness section, because teachers were not only focused on the technical skills of volleyball but also emphasized students' fitness. For effective teaching, if the class is large, a large gym may have advantages. I observed one class of 28 students, and the teacher organized different group activities and conducted practice. Students did not worry about hitting others with the balls. Students had more space to move and catch the ball without interfering with others.

Even though the big gyms had many advantages for teaching and learning, (e.g. more space for skill practice, fitness and general game activities, volleyball game competition), there were also some difficulties for teachers. For example, it is sometimes problematic to focus on students' behavior if they are spread throughout the whole gym. Two teachers needed to use a microphone system when speaking because of the room

size. Without it, sometimes students could not hear the teachers' instructions and might lose their concentration for listening.

Besides the gym-teaching environment, there were three other teaching environments which had different purposes. For instance, the place could be the PE classroom, cafeteria, or the place for students to wait for their school's buses. This kind of teaching area was just 1/3 the size of the gym. Teachers usually needed to modify the different rules or conditions, such as making the serving distance shorter, making the volleyball court area half the size of a normal one, and reduce the number of players. Also, because the activity room was small and there was less space for some equipment, teachers could not plan many fitness activities for students.

However, based on the observation of their teaching, the researcher saw that teachers could control the whole class easily and quickly communicate with students when they noted incorrect skill performance. In addition, teachers did not have a problem being heard. Students could stay in place and hear the teachers' directions and not waste time. Teachers also did not need to raise their voice to get the students' attention. All the situations were convenient for teachers to observe students' learning and behaviors.

Based on observations, regardless of the teaching environment, both the big gym and the smaller all-purpose room environments had their strengths and weaknesses with which teachers had to work to develop and manage PE classes. It was evident that teachers usually planned appropriate lessons for students.

Volleyball Lessons

In order to best understand the teaching of forearm passing, it is necessary to know how teachers developed the whole schedule of volleyball lessons. When teachers taught the volleyball skills, they would not teach a single technical skill of volleyball. Usually, teachers will teach different skills in different lessons. For example, teachers might teach underhand and overhand serve, set, forearm passing, and game rules that are most needed in the volleyball lessons. However, some might skip one or two skills depending on the teachers' curriculum design.

Based on the curriculum of the whole semester, teachers might design different schedules for different sports and activities. Therefore, six teachers had different lessons for volleyball. From the data, it showed three teachers had eight lessons, one teacher had five lessons, one teacher had three lessons, and one teacher had only two lessons. Most teachers had 30 minutes for PE class; one teacher had 45 minutes per lesson. Also, the PE class was two days per week. During the semester, there were some special events, such as homecoming, Halloween, or others. Thus, teachers might reduce the lessons and time. For instance, one teacher cancelled 2 lessons because the school had some special events scheduled; one teacher had to reduce the teaching time because of homecoming and Halloween events to give students some special preparation time for the events. Teaching schedules had to be flexible.

It was mentioned above that teachers might teach underhand and overhand serve, set, forearm passing, and volleyball rules during the lessons. However, as they taught

these skills, they taught one single skill at a time and would practice earlier skills during the class. Therefore, teachers managed to teach the new skill as well as review the skills taught before. In the last few lessons, teachers would design activities which allowed students to put all the skills together for playing.

Teachers' Background

Understanding the teachers' background and their past experiences was also essential in order to gain more information related to their professional knowledge and how they presented the teaching of forearm passing. The background includes each teacher's degree and major, volleyball playing experience, and teaching and coaching experience.

In order to discuss each teacher's background experience, the researcher used designations of Teacher A, B, C, X, Y, and Z instead of their real names. Five teachers (A, C, X, Y, and Z) had a BA degree in Physical Education as their major, while Teacher B possessed a BA degree with a Science major. Teachers B and C also had MA degrees in PE. From this information, these teachers had professional knowledge of physical education as needed in their teaching jobs.

In regards to teaching experience, most of the six teachers had very extensive teaching experience. For instance, two teachers each had 33 years of teaching experience and had taught in both elementary and secondary schools. One teacher had 23 years teaching at different levels (elementary, middle school, and college level). The other three teachers had all their teaching experience in elementary schools, ranging from 14 years, from 7 years, and a low of 5 years. With this varied experience in both years of

teaching and different levels, they might demonstrate different ways to teach forearm passing. This will be addressed with a more specific analysis in the later sections.

Because this study focused on the teaching of forearm passing, it was important to understand the teachers' volleyball playing and coaching experience. Four teachers had different years and levels of playing experience. However, the most important difference was between the competitive volleyball games and recreational leagues. Two teachers had played volleyball from junior high through college level, and one of them had competitive experience. Another two teachers had recreational league experience which was only a free time activity.

Four of six teachers had coaching experience. Teacher A had a wide range of coaching experience that included three or four years at the middle and high school levels and a few years as assistant varsity volleyball coach at the college level. Although Teacher B did not have the competitive experience in volleyball, she did have very strong coaching experience in middle school. She had been a volleyball coach for about 28 years in middle school. Teachers Y and Z also did not have competitive experience in volleyball, but they coached at the middle and high schools for eight years.

In contrast to Teachers A, B, Y, and Z, Teachers C and X did not have volleyball playing experience in the past. They mentioned different reasons. For instance, Teacher X said that when he was a young student, the school did not provide volleyball for boys, so he emphasized other sports instead. Teacher C mentioned that she was interested in other sports, such as swimming, basketball, track and field, and gymnastic and that she spent her time involved in these sports.

Both teachers did not play volleyball, but they did coach a volleyball team or other sports. Teacher C coached both track and field and volleyball in the middle school for about five years. Teacher X had never coached volleyball in his life, however, he coached baseball for 10 years and basketball for 7 years in high school. He said that because volleyball was never offered as a male sport where he went to school, it was natural to focus on other sports instead.

The general information provided an understanding of the teaching environment, volleyball lesson design, and the teachers' background. This provided more information which directly or indirectly related to the research questions of this study. The researcher will discuss other information of teaching forearm passing in the next section that linked to information provided earlier. The next section describes the teachers' philosophy and value orientation. This will focus on teachers' beliefs, expectation about students' learning, and teaching goals. The discussion will address teachers' thoughts and ideas related to their design of lessons and their teaching focus.

Teachers' Teaching Philosophy

This section describes the teachers' philosophy of teaching. By understanding their philosophy, a greater insight may be gained as to how they designed the lessons and why they wanted to emphasize some particular approach to improve students' performance. Therefore, it is very important to understand their beliefs, goals, and expectation. These three aspects will be discussed individually.

Beliefs

Although teachers may teach the same technical skill of forearm passing, they may think differently and therefore design lessons to reflect their own philosophy. Thus, the data analysis will focus on each individual teacher first, and then combine all results to make comparisons of their thinking.

From data analysis, Teacher A believed that teachers need to have good organization and provide a good learning environment for students. They need guidance throughout the whole lesson but really thorough instruction when they introduce a new skill. Teachers have to be very thorough and clear about every aspect of the skill that they need to do. If the students are having difficulty, teachers could improve students' learning. If the students are very good, teachers need to provide challenges throughout the lesson for them. Teacher A believed in teaching very fundamental parts of a skill, and then students could be able to practice each skill a number of times so that they can improve gradually.

Teacher B had a similar thought to that of Teacher A. However, she also provided for more creative thinking. She believed teachers need to provide a positive learning environment and experience so that students could feel successful. During the teaching process, teachers not only emphasized skills and activities, but also focused on social and cognitive learning. Teachers try to get students to think, to problem solve, and to figure out things so that students might keep raising their motivation to be excellent.

Teacher B believed that when students learn a skill, they have to practice it correctly the first time so that a teacher needs to be very fundamental and detail to teach skills. To clarify the point about “teaching right,” there is a strong relationship between knowing it and knowing about it. She believed this had a huge impact on how teachers teach the different activities and skills. For the students, Teacher B believed students should have a health and lifestyle fitness activity to keep them maximally active for the entire period. Therefore, to provide fitness activities was also very important.

Teacher C thought reinforcing students’ social skills throughout the PE class was an important goal. However, she believed that the primary job in PE was skill development. She wanted students to have some competence in the skill because it was a sport and an option at the middle and high school levels. It was also a leisure activity used throughout the lifetime. Besides skills’ learning, fitness activities were also very essential for students. Teachers need to educate students in the psychomotor domain (fitness activity) which focuses on children doing a wide variety of activities. In the elementary school, teachers should keep students interested, involved, and build their athleticism.

To reinforce a positive learning experience, Teacher X believed students must always feel successful in their learning. He said, “I want kids to enjoy what they are doing because when kids enjoy what they are doing they work with each other and learn faster.” Teacher X thought the PE class should be fun, exciting, and with much movement so that there would not be a lot of talking. In addition, he strongly believed

that he needed to teach skills that related to sports because students would play the sport throughout their future.

Teacher Y believed that basic skills, movement, and health were the most important things to be emphasized in PE class. She would not focus on teaching sport skills in a competitive way, because learning sports can become a lifetime activity instead of only for competition. During the learning process, Teacher Y believed that students needed to experience successful learning of whatever was taught. Therefore, in PE class, she wanted students to move and to make their hearts strong. To be a good player would also be wonderful, but that was not her prime goal.

When comparing all information, there were some major points that all teachers had the same viewpoint, but still showed different thinking. For instance, four of the teachers believed that good health and an interest in lifetime activities were the most important ideas for them to teach in PE class. This was especially true if they were teaching in the elementary school. Students needed to participate in a variety of activities which would increase their interest and motivation for different things. However, four teachers also believed that teaching technical skills was essential to students. Particularly, two teachers agreed that teaching must be very thorough in each detail. They wanted to teach the skill details as clearly as possible.

Another teacher believed that teaching skills which relate to the playing sport may enhance students' competence in those skills in the future. Although this teacher thought that teaching sports skills was strongly related to playing sport in the future, the other five teachers felt differently. The teachers felt that they would thoroughly teach each skill of

forearm passing, but that teaching these skills did not necessarily need to include competitive play. Finally, social skills' teaching was also an important emphasis in PE classes for some teachers. The teacher believed that throughout the different PE activities, students could enhance their cooperative learning, understand better the concept of teamwork, and come to realize that through cooperative effort, they will have a greater chance of success.

Goals

Teacher A stated that her teaching goal was more a focus on learning skills than fitness and game activities. For instance, she said, "I want all of the students to learn the proper stance and technique of passing. I want them to make contact with a ball. In order to make contact, they need lots of practice trials. I want to see progress in how often they contacted the ball. I want them to experience some sort of accuracy when they worked in a group of three."

Compared to Teacher A, Teachers B and C had similar but more diverse teaching goals. These included skills development, fitness ability, self-motivation and confidence, and successful playing volleyball with teammates over the net. For instance, to attain the goal of skills development, students would need to acquire a good base knowledge of a specific skill and opportunities to practice the basic skills. For the goal of fitness ability, teachers need to provide enough practice of the game so that students could establish their gross and fine muscles control, balance, endurance, and cardio function. The goal of self-motivation and self-confidence would focus on encouraging students to always try their best to help build self-confidence in their own abilities. After learning forearm

passing, students would pass the ball and play with teammates over the net, which is the goal for successful playing a volleyball game.

In the teaching of volleyball lessons, Teacher X mentioned that the end goal was to play a real game with teammates. He also made the progression to accomplish different levels, for example: bumping by self, to working within a group, to playing a game against a team, to knowing the rules. Although this was only one goal that he emphasized in the volleyball lessons, this goal was clear enough to show students the final goal they needed to accomplish. This was the process the students followed to play the real volleyball game with their teammates. Meanwhile, teacher X mentioned that as the students felt comfortable striking a ball with their hands or doing the skill, they were not afraid of the ball and could be successful to hit the ball.

In the goal of lifelong activity, Teachers Y and Z described that as students know how to hit the ball and pass the ball over the net, they could play volleyball anytime and anywhere with friends. They could also enjoy volleyball socially, such as at a family reunion. This was the final goal of learning volleyball lessons. It was not to make students the greatest volleyball player, but to learn some skills and play the game for fun. In addition, for students to have well being and good health for the rest of their lives, the goal of lifelong activity was especially important for them.

Expectation

This section will describe teachers' expectation about students' learning from the volleyball lessons. Many different data were collected from all teachers. In order to have a clear picture and understanding of the teachers' expectations, the analysis emphasized

several topics: basic understanding, correct skill performance, lifetime sport activity, fitness ability, confidence, and the non-volleyball player.

Two teachers (B and C) expected their students to have the basic understanding of forearm passing skill. The basic understanding included when to use it and how to use it. In addition, students were not only shown how to do it, but provided verbal descriptions of what it should look like. Because the fifth grade students just learned the volleyball skills for the first time, they did not need to perform the skill perfectly. Understanding the basic information and knowledge was the essential step for them now.

However, Teachers A, X, and Y expected their students to perform the forearm passing correctly. Especially, teachers A and Y mentioned that the students needed to show exact technical skills: for example, how to hold their hands and arms, where the ball makes contact, where to position their follow-through, and how to use their legs to lift the body as opposed to swinging the arms. Those details related to learning forearm passing. Teacher X explained that when they learn very thorough and correct skills, the students would connect the skills for the future learning in the sixth, seventh, and eighth grades. Meanwhile, when interested about the volleyball sport team, the coach could teach them the advanced level directly instead of from the beginning level.

Expecting the students to have fun, release stress, and have some activity with parents, the Teachers B and Y viewed the forearm passing as a lifetime sport activity. According to these teachers, when students learned this skill, they could then play volleyball with their parents in the back yard. Or, when they became an adult, they could play it with friends in recreational leagues for fun. They expected students to play

volleyball throughout life, instead of just in the competitive game, which may limit intrinsic motivation.

Besides the basic understanding and correct skill performance, Teachers B and C expected their students to increase their fitness ability in the PE class. Students needed to have an ability to move, control their body, and use their gross and fine muscles to do coordinated movements. In the PE classes, there were many different kinds of sports and activities that required different abilities. Without building the fitness ability first, students may be limited to some particular skills, which may also influence them to establish the advanced skills.

In order to build up students' internal confidence, Teachers B, X, and Y expected and established conditions so their students would have success when they learned a new skill. They encouraged their students to try anything that teachers taught them to do. Students learned the beginning level, and when they have been successful with the basic level, they would try to do the advanced skill. Teachers said building confidence was very important because students then are motivated by their self-confidence to learn more.

None of the teachers expected their students to be volleyball players. These were fifth-grade students who needed to know how to use the basic skill, when to use it, the knowledge about it, and the basic rules to play the game. It was too early to focus on the professional practice and game emphasis. If students have a high interest about being a volleyball player, they could do it at the middle, high school, or college level. They may also participate in some volleyball camps in which they will have more specific learning

and practice with the professional skills and strategies for games. However, it was not necessary for teachers to expect that now.

Teaching Knowledge (Pedagogical Content Knowledge)

Throughout the semesters' observations and interviews, the researcher collected the data of volleyball lessons from beginning to the end of lessons. The resources were based on what teachers' taught during the whole lessons, including: lesson plan, teaching progression, teaching strategies, communication skills, and management skills. This section describes data collected from a variety of sources that address these individual topics based on each teacher's teaching.

Lesson Plan

One of the most obvious teaching factors influencing how teachers taught the volleyball skills was the design of the lesson plan. The design of an appropriate lesson plan influenced the whole class, whether or not the plan was executed well. Teachers might base a plan on their thoughts, ideas, and expectations about students' learning. Therefore, they might emphasize different parts. To design the lesson plan, teachers also considered several factors that may have an affect on it. For example, class length, number of students, teaching environment, and equipment used were all factors that teachers would consider. Several references to the lesson plan designs were recorded in the observations, field notes, and interviews. In the following paragraphs, the researcher shows different forms of teachers' lesson plans and provides more analysis about each one.

Throughout the data analysis, different teachers generally emphasized six components: organization (introduction), general game, fitness activity, lesson focus, calming activity, and closure. However, due to limited time, teachers usually choose three or four parts as the main focus to be taught in their lessons, including: the organization (introduction), fitness activity, lessons focus, and closure. These were the most important portions to be designed by the teachers.

Although these four portions were designed in the lesson, teachers might have them for different amounts of time, which meant that when teachers focused on the fitness activity for 20-25 minutes, they viewed this specific portion as more important than others. For example, teacher B had the total of 45 minutes for her PE class, which was longer than the other five teachers (30 minutes for PE class), so she emphasized different aspects than others. The most different part was fitness activity. In her class, she had 3 minutes for organization with introduction, 25 minutes for fitness activity, and 18-22 minutes for the lesson focus. Generally, the other five teachers would use 3-5 minutes to do fitness activity.

Since teacher B designed 25 minutes for fitness and 18-22 minutes on the lesson focus, the two parts became the major effort in her teaching. She said that she always had a fitness activity. This was a prolonged period of time of 25 minutes of continuous activity. The fitness activity was equally important to the lesson focus (main skill teaching) because teacher B believed that to improve students' fitness could keep them healthy and establish their exercise habit for daily activity. Her fitness activities included 4-minute of running without stopping, a game of catching and chasing, a game of

stepping on the tail, jumping rope, side-slide running, climbing on the floor, and jumping with several obstacles. In the each lesson, teacher B would use two or three different activities depending on time. Students would have maximum activity during fitness time

During the 18-22 minutes of the teaching focus, teacher B maintained focus on the main skill she would to teach. She had a different teaching style than teachers X and Z. From the observations, the researcher saw Teacher B describe each single part of forearm passing in detail. For instance, when she demonstrated the ready position, she explained very thoroughly how to posture the arms, legs, and knees, and where to contact the ball. She would show correct and incorrect use of hands or arms. This demonstration and explanation might take 5-minute to complete the skill, and then she had students to follow her to do the whole skill several times because she wanted to make sure students understood the skill. If students did not understand the teacher, they might perform the skill incorrectly which would then need to be corrected and practiced the right way.

In contrast to Teacher B, Teachers X and Z had different lesson plans as they presented the teaching of forearm passing. The big difference was that these two teachers would devote 25-28 minutes out of 30 for their lesson focus. In Teacher X's class, he usually spent about 2-3 minutes to do some stretching exercise in the beginning; that was his fitness activity for the students. Following the stretching activity, he started the main lesson. He gave a very brief description about how to do the skill and then demonstrated very simple parts, which might be less than three minutes.

The main objective of this class plan was to save time, and give students much more time to do the activities and movement during the lesson. Teacher X gave different

individual and group activities which kept students moving around the whole gym. He said, "I would not stop the students' activity if I could keep students to move. Because I believe when I design these activities and have students to do these activities all the time, it will motivate their interest and they will feel fun in the PE class." Teacher X wanted students to enjoy the activities instead of listening to his talking.

Having a similar teaching emphasis, Teacher Z also had the maximum amount of activity in the lesson focus. In some lessons, she did not introduce, talk, or review the forearm passing skill. As students came to the PE classroom (small area like a cafeteria), they immediately followed the teacher's direction to do some main skill activities. Teacher Z did not spend the time to review the forearm passing before the practice. Instead, she went around to see students' activity and their skill practice. When she saw some students do something well or students performing the wrong skill, she would give the feedback and remind students of the correct information immediately. She seldom called students back into the central area until they finished the whole lesson. Before students went to another classroom, Teacher Z usually had the closure time to review the key points and gave some information about the next lesson which was a brief closure about one minute for the end of class.

Addressing Teachers A, C, and Y, the data analysis showed that they designed their lesson plans more similar to each other, which meant they included the 3-minute general game, 5-minute fitness activity, 15-20 minutes for lesson focus, and 2-3 minutes for the closure in the 30-minute PE class. They emphasized the common portions for their class because they thought students needed the general game and fitness activities a

little while to warm up their body, get the body ready for movement, and learn the main skill. They believed that if teachers gave too much content during the fitness activity, students might lose energy quickly and be tired for main skill learning. Meanwhile, Teachers A, C, and Y wanted to balance their teaching. They would stop the students during the activity to verbally review some parts of the forearm passing or the whole action.

Although teachers had different focuses on their lesson plan, they still mentioned that they have to learn to make lesson plans around all ability levels among students. For example, teachers needed to plan a lot of activities and frequently change some activities if they felt the activity was not fitting students' learning. The change in activity could increase students' interest and motivation during the lesson. Additionally, teachers considered students' differing abilities when designing their curriculum and lessons. Students' development level heavily influenced what teachers' planned.

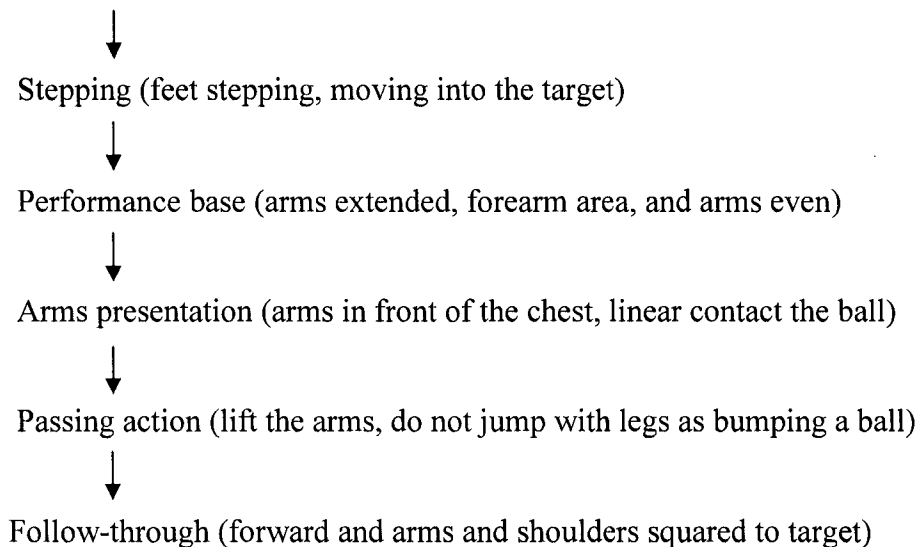
Teaching Progression

Teaching progression emphasized the main teaching focus of forearm passing. In this part, the researcher discusses the progression of the teaching forearm pass and how teachers organize different activities so that students learn the proper sequence of moves. In order to best understand each teacher's teaching progression of forearm passing and the organizational activities, the researcher used the diagram for each individual to show their main focus teaching.

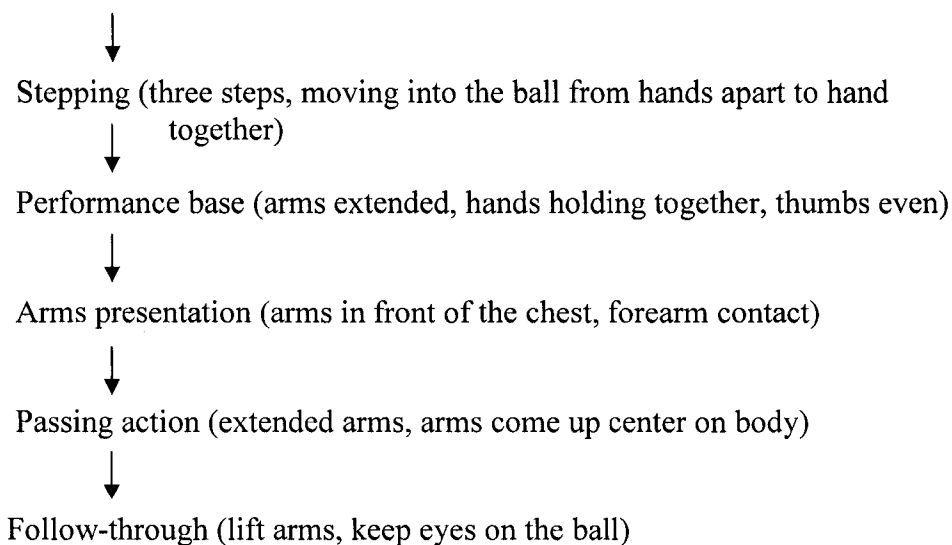
The teaching progression of forearm passing should include six steps from ready position → mobility (stepping) → performance base → arms presentation → passing

action→and follow-through; however it might vary between these teachers. Teachers might have the whole steps or skip some parts, depending on their teaching. Following is the individual diagram of forearm passing

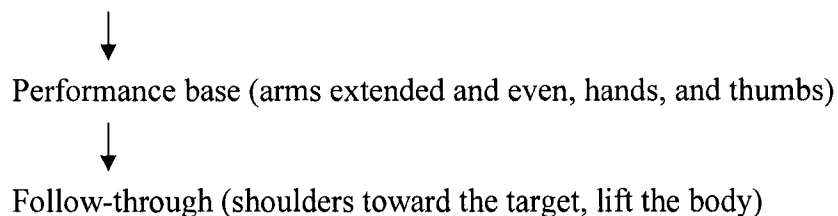
Teacher A: Ready position (the posture of shoulders, arms, hands, knees, and legs)



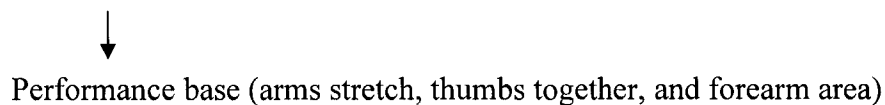
Teacher B: Ready position (the posture of arms, hands, knees, feet, and legs)



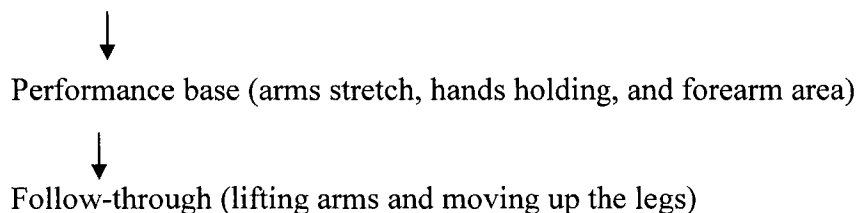
Teacher C: Ready position (the posture of arms, feet, knees, and legs)



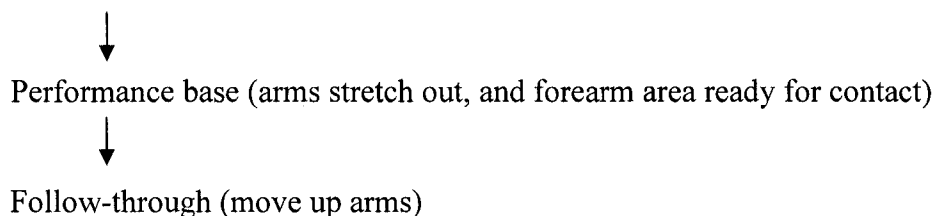
Teacher X: Ready position (the posture of arms)



Teacher Y: Ready position (the posture of legs, and feet)



Teacher Z: Ready position (the posture of knees)



Based on the individual diagrams of skill progression, a clear picture of some similar and also different steps illustrating the different focus and style of these teachers emerged. Teachers A and B, for example, had almost the same content knowledge and teaching progression for forearm passing. They taught six steps in forearm passing. In each step, they taught similar information about forearm passing that mostly emphasized the major points of a single skill. They did not skip any step; additionally, they offered some different suggestions of each step when they spoke to the students. For instance, in

the mobility (stepping) part, Teacher A mentioned that “feet stepping and moving your legs into the target.” Teacher B, however, said that “three steppings and moving into the target from hands apart to hand together.”

Teachers C, Y, and Z had the same teaching progression, but they did not teach all steps. Instead, they skipped the same steps of mobility, arms presentation, and passing action. However, Teacher X taught only the ready position and performance base. From this data analysis, it appeared that these three steps were the most important components these teachers felt were necessary. Ready position, for example, was the basic preparation for forearm passing. Students needed to know first how to stand and where to put their arms. The performance base was very important because students needed to know how to put their arms and hands together, how to posture the legs and knees for the performance base, and where to contact the ball. The last step was follow-through. If students knew how to contact the ball, they also needed to follow through with the correct motion. Even though these teachers did not teach the six steps, they taught the three basic technical steps to their students, which would be enough for them to begin playing.

Generally, as teachers taught the forearm passing, they used the ordinal progression of skills for the students to learn. They did not teach the performance base or arms presentation first, because this might confuse students. Although some teachers did not teach all the steps and skipped different parts, they still taught the most essential steps. Later on, the researcher will discuss in more detail why teachers taught different steps and content and will provide a variety of reasons and information related to their teaching practice.

The progression of forearm passing skills were discussed in this section. Based on the teachers' professional knowledge, they used different special activities to address individual needs. In addition, teachers used some equipment to facilitate students' understanding of the skills. To facilitate the understanding of the progression of activities used for teaching forearm passing, the researcher used a diagram to present the differences.

Generally, there were five to eight different activities that the teachers used throughout the progression of teaching forearm passing. Some of them were similar activities that all teachers used in their classes, for example: the demonstration and explanation, individual practice, partner practice, group practice (2, 3, or 4 people), and actual playing a volleyball game. However, there were still some different ordinal progressions among the teachers.

At the start of the lesson, teachers usually had the demonstration and explanation of the forearm passing. However, some teachers used different activities. Teacher C, for instance, used the game of Deck Tennis before the normal forearm passing instruction. She called Deck Tennis a preliminary tossing-and-catching activity. This activity was a game in which students used equipment shaped like a ring with a soft surface so that students could easily hold, toss and catch the object.

Teacher C used this activity to facilitate learning how to toss and catch the object first. Because the ring was similar to a ball, students needed to learn how high and far they could toss an object to their partners, while their partners needed to learn how to move their legs and body to catch the object. This is a similar skill they would use in

Figure 1: Teacher A

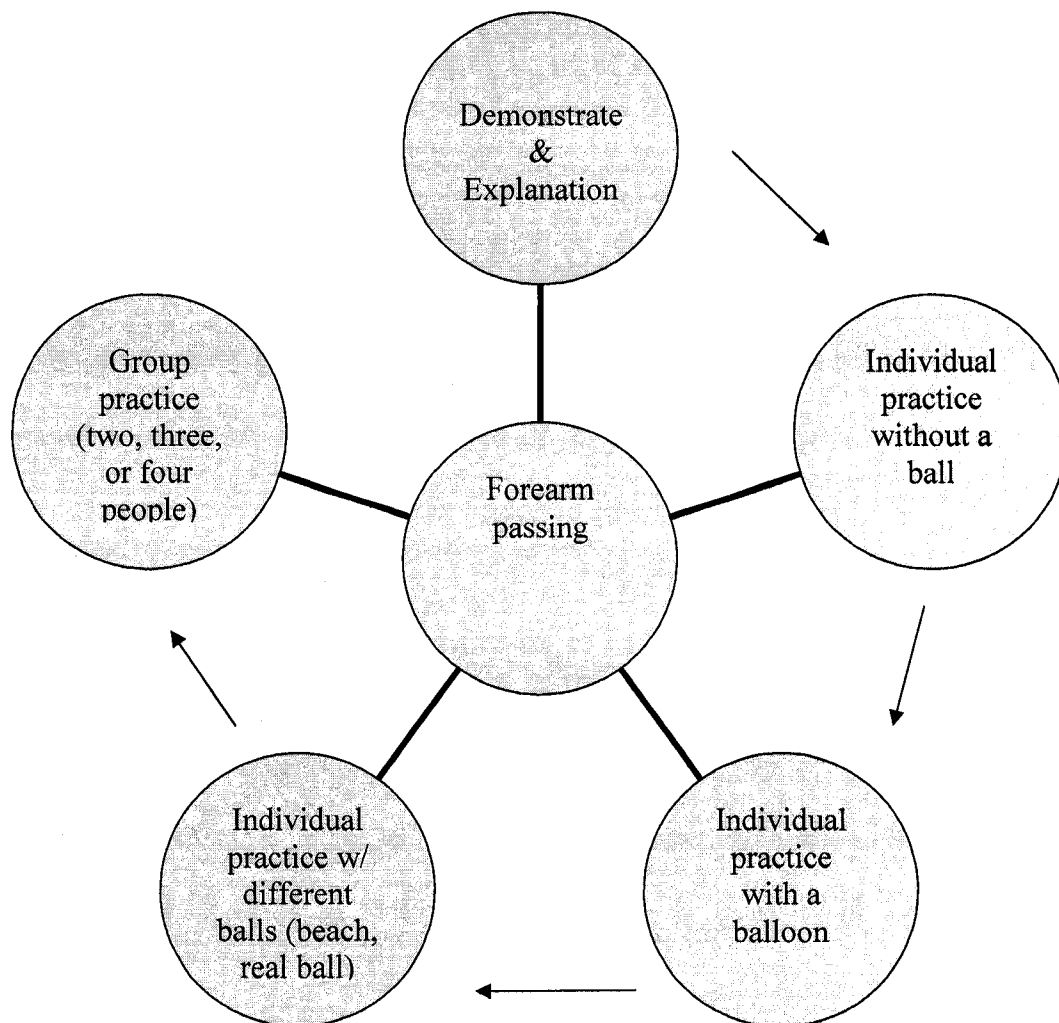


Figure 2: Teacher B

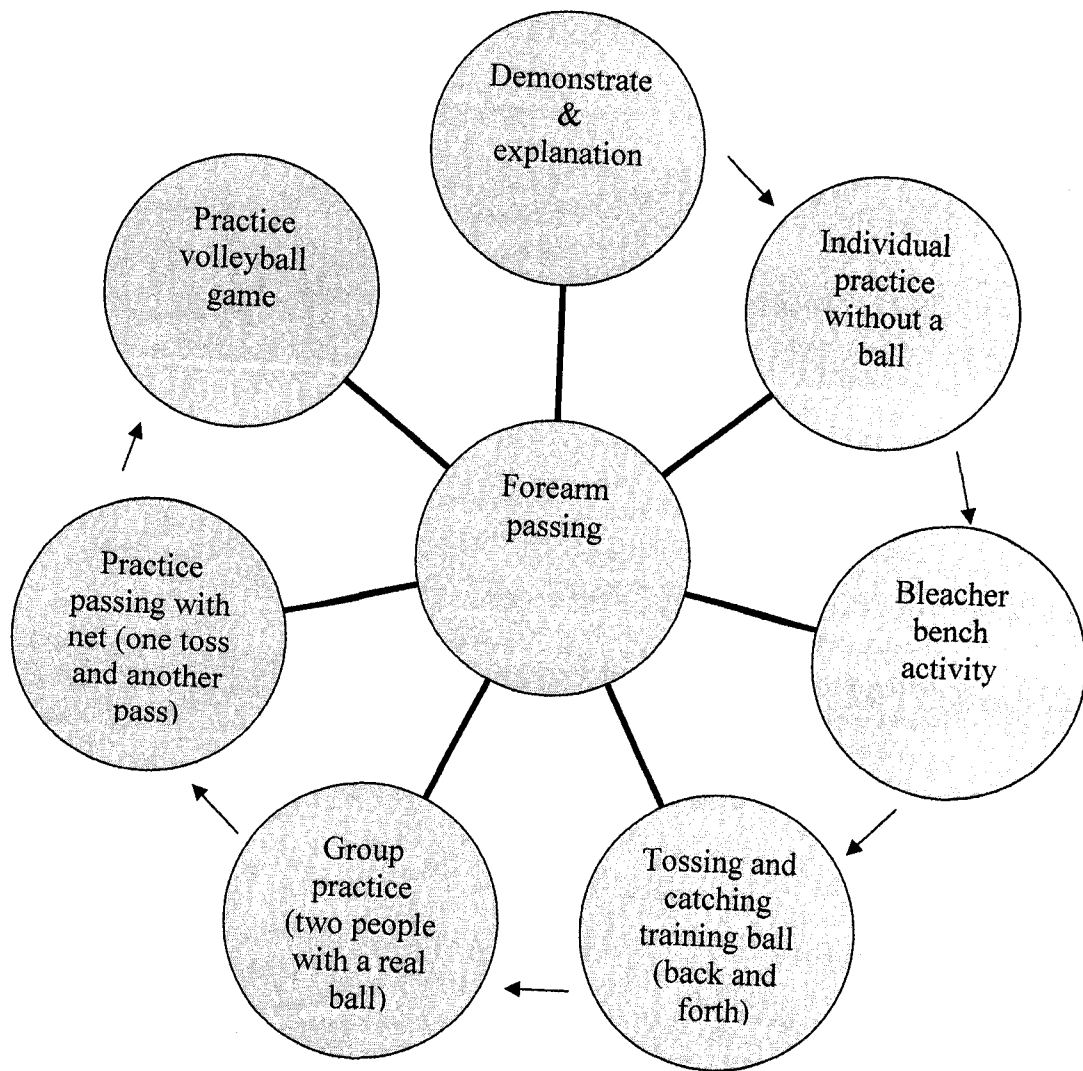


Figure 3: Teacher C

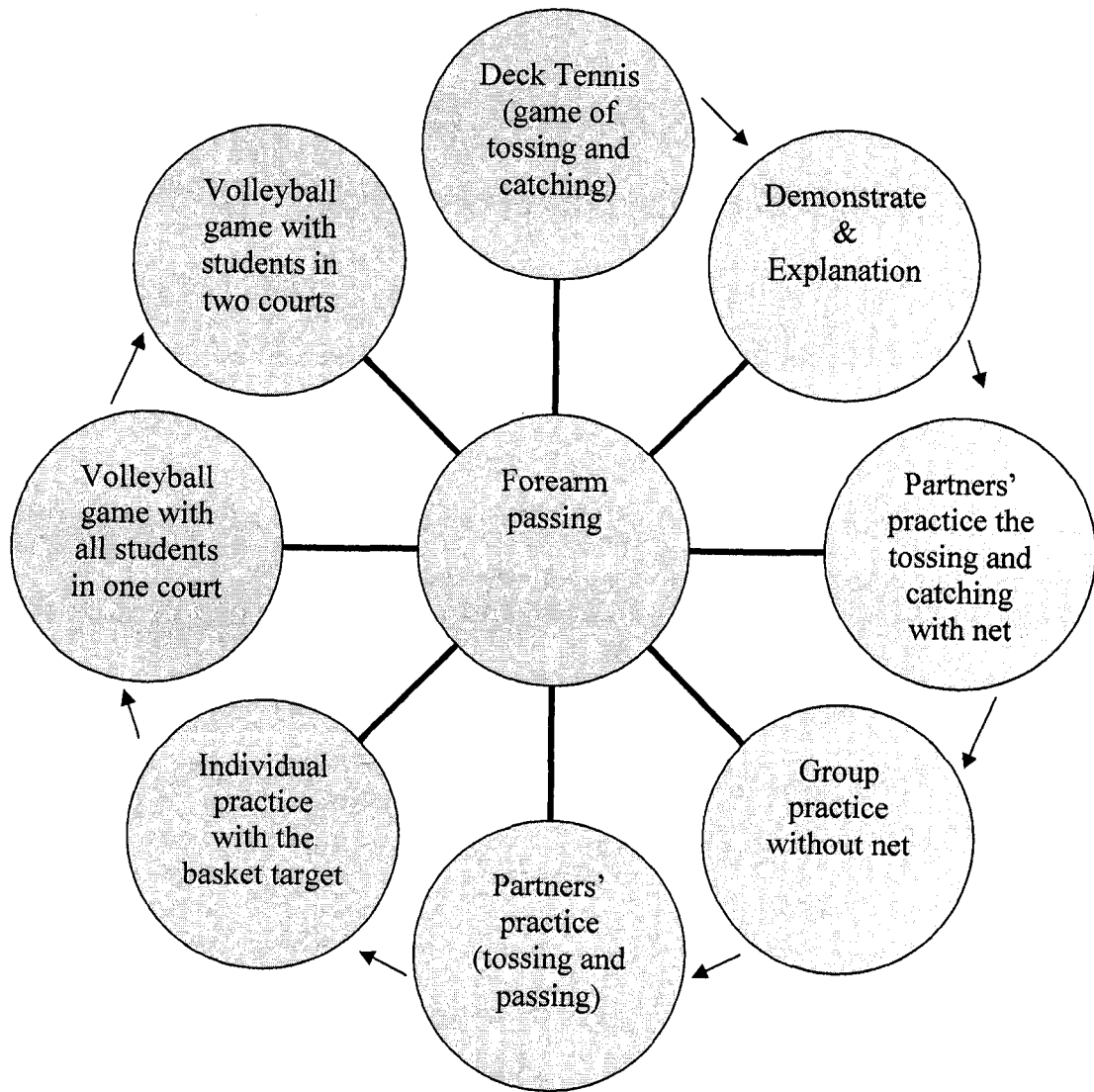


Figure 4: Teacher X

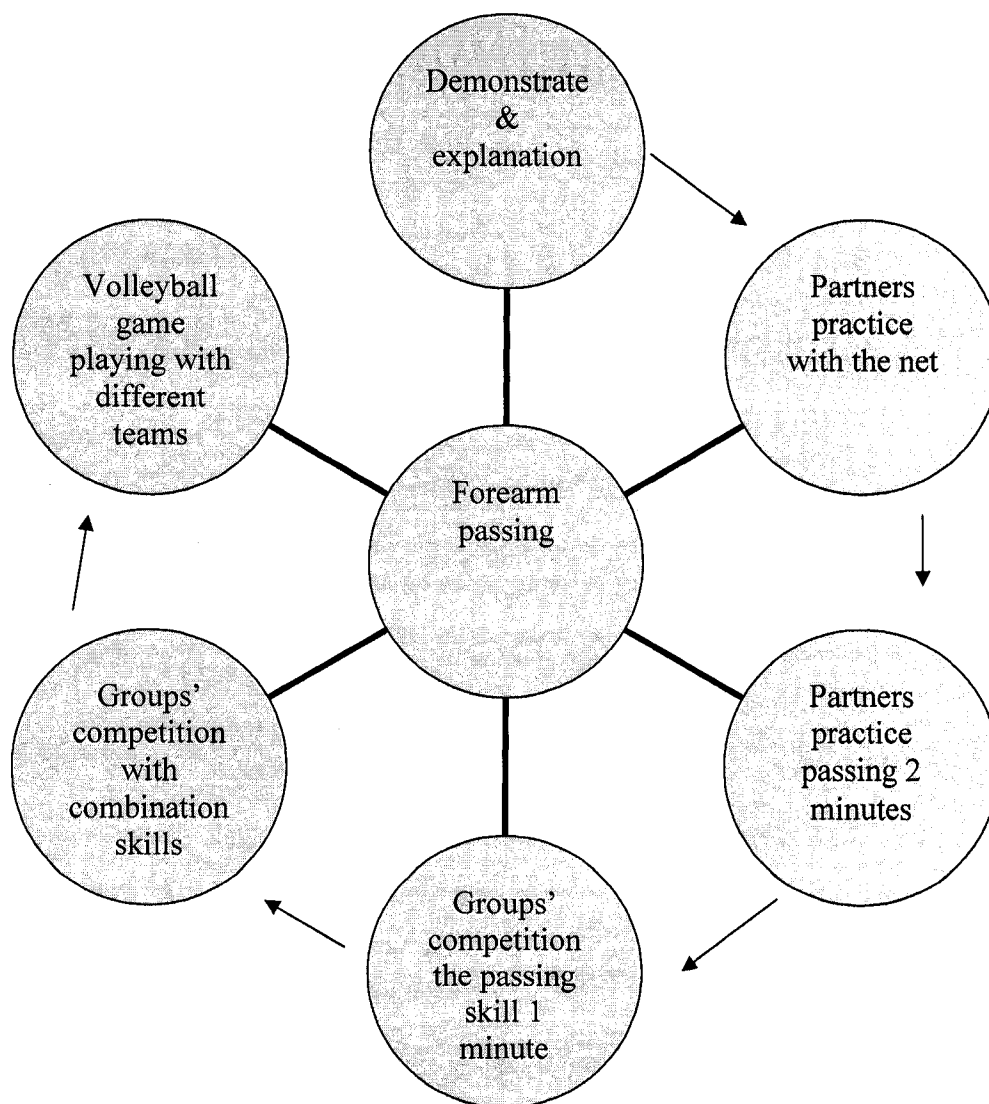


Figure 5: Teacher Y

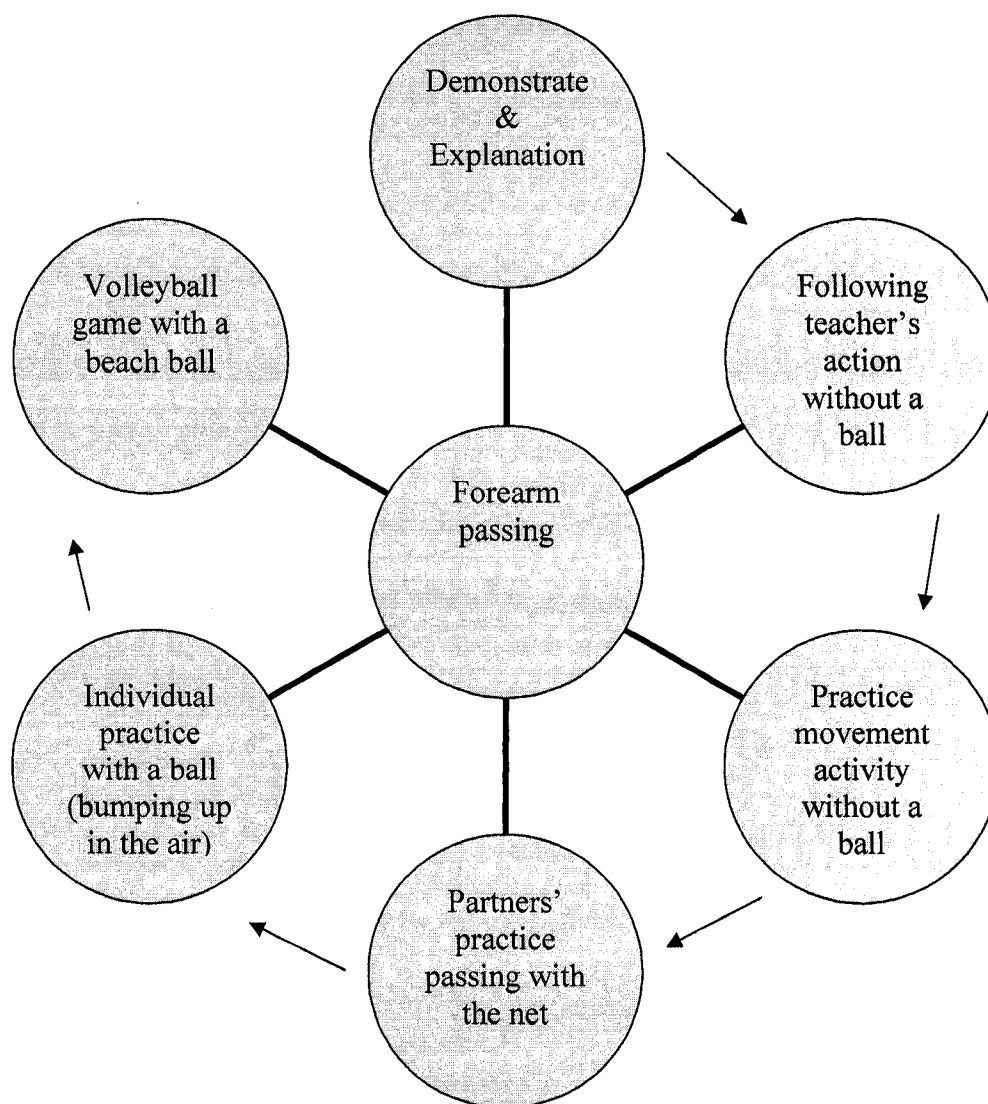
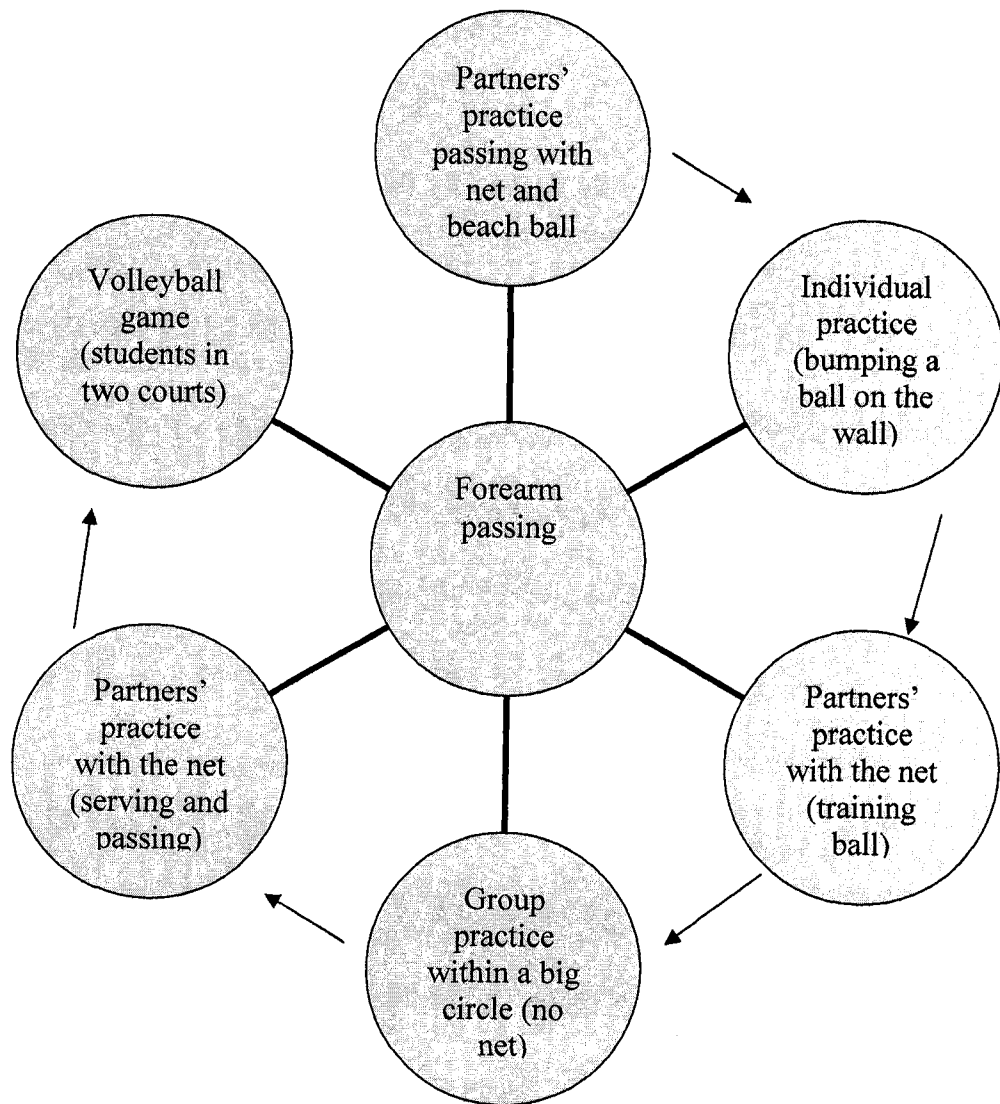


Figure 6: Teacher Z



forearm passing (tossing and passing or passing back and forth). As students learned the tossing and catching activity, they would more easily understand the relationship between their body and the object, the distance to their partner, and movement needed for catching an object before they learned the forearm passing skill.

Another example was Teacher Z, who used a different progression in the beginning as well. In her class, she had students to practice forearm passing, in the beginning, without the demonstration and explanation of the skill. The demonstration and explanation of the skill were not necessary for her. She gave students the basic information while they were doing the passing activity.

One of the special activities designed for teaching forearm passing was shown in Teacher B's class. In her teaching progression, she used the Bleacher Bench activity to facilitate the teaching. The Bleacher Bench activity was the first chance that students had to practice with a ball by themselves. With this activity, students had to bounce a ball by themselves which gave them the way of controlling the ball when passing rather than having a partner bounce a ball to which they had no control.

In addition, as they bounced a ball, they sat on the bench chair which was as high as the ready position of forearm passing (bending knees), so that students understood at what height (no standing stretch) they would pass it. The most important learning from the Bleacher Bench activity was students practiced how to control the ball by themselves, and when the ball came down from the bounce, they knew when and where to contact it to pass the ball into their partner. They learned the relationship between their body and the ball as well.

Individual practice, practice with partners, group practice, and playing volleyball were the activities used in the progression by all teachers. Teachers wanted to use these activities back and forth for students to get a sense about different feelings and relationships. Individual passing taught how to control a ball by one's self. Partner passing taught them to know the relationship of distance with their partners and to control a ball as well; group and game playing taught them the relationships between their teammates and the value of playing as team. These activities were designed, step by step, for students to gain a deeper understanding of forearm passing.

Using different equipment in the activities also showed progression. For example, there was a progression of using different balls in those activities. Teacher A used balloons, beach balls, training balls, and then real volleyballs. However, Teacher B used only the training balls and real volleyballs in most of the activities. From Teacher A's and Z's explanations, it was understood that they would use balloons and beach balls because it would not hurt students' arms and hands, and they could practice for much longer times. If they used the real volleyball first, they thought that the students would not have a good experience and might lose their interest about playing volleyball. Therefore, they would begin the activities with the lightweight balls and then increase the difficulty by using real volleyballs for students to practice the passing skill.

These six teachers taught skills and organized activities differently. Some had very effective activities for practicing forearm passing, while some did not show effectiveness. However, they all had logical thinking about the teaching progression of forearm passing, which was discussed above.

Teaching Strategies

Teaching strategies are the third part of teaching knowledge (pedagogical content knowledge). This data analysis addressed the different teaching methods teachers used for students to learn forearm passing and for all class activities. The teachers used different teaching strategies for different purposes during the entire volleyball lessons, including individual skill enhancement and group learning with the entire class. Many teaching strategies were used differently by six teachers. In order to best understand the variety of teaching strategies for different purposes, the researcher organized the strategies used by all teachers first, and then discussed some specific methods that were applied for particular improvement.

For forearm passing improvement, the teachers used strategies of visual demonstration, verbal reinforcement, counting consecutive passing, setting goals, personal challenge, question and answer (Q & A), and the use of different balls. These strategies were applied at the beginning of teaching passing, during the practice time, and at the end of the lesson. For instance, the strategies of visual demonstration and verbal reinforcement were usually used when teachers taught in the beginning of each lesson. Teachers demonstrated and gave the verbal information, which reinforced students' knowledge and imagination of forearm passing repetition. The choice of different balls also enhanced the students' learning because of different abilities to bump a ball. Teachers used various balls that fit individual's needs.

Setting goals, giving personal challenges, and counting the numbers of consecutive passing were utilized in the practice time. When students started to practice

bumping by themselves or with a partner, teachers set different goals for the students. For example, teachers would say “Could you bump the ball into the air ten times?” or “Could you bump the ball into the wall ten times?” or “Could you pass a ball with your partner back and forth five times?” As students set goals, they would count the number loudly as they were performing the passing skill. If students achieved the goals and had a good performance with a partner, teachers would add more requirements to challenge them. Throughout the different challenges, students enhanced their passing and would improve the skill gradually.

The strategy of Q & A was usually used by teachers at various times. However teachers used it most at the end of each lesson (closure) because they wanted to assess how much information and knowledge students received from different activities and practices. When students responded with the correct answers related to forearm passing, teachers knew their instruction was appropriate. On the other hand, if students had incorrect answers, teachers knew they needed to adjust the lesson for the next time. In addition, the strategy of Q & A provided a good method for students to “think”. The training of thinking enhanced the students’ ability to analyze skill detail not only separately but also in the skill’s entirety.

For the improvement of the group learning, teachers used the strategies of peer coaching, student’s demonstration, and station strategy. For the appropriate use, they also applied them at different times. The peer coaching, for example, was used in the partner practice. Teachers organized different levels of students in a group, and then the student with advanced skill would teach another student. They used their language to teach each

other and communicate information, which was different from the teachers. To encourage students presenting their performance, teachers used the student's demonstration instead of their own demonstration. It was an appropriate way for students to demonstrate the forearm passing because students would learn and imitate the skill from each other. Plus, they had the chance to present their learning and performance that establishes confidence and success.

The station strategy was used for the group with three or four people. It might be used for different game and fitness activities. Throughout the station strategy, students had various roles and learning in the group activity. They learned how to toss a ball appropriately, how to pass the ball into the catcher with the right direction, and how to help each other make a good circle. All things needed to be done in the right order to flow correctly.

In order to improve the whole class learning, teachers used several strategies to enhance not only the technical learning but also group activities. These strategies were: volleyball game emphasis, modified rules, observation, frequent review, motivation, and constant movement. For instance, the volleyball game emphasis and modified rules were used together at the end of the lesson. In the whole lesson, instruction not only focused on learning skills but also the need to improve the knowledge of game playing. Therefore, teachers would instruct game playing so students could apply forearm passing and other skills together, and learn the volleyball rules as well. Teachers believed that students needed to learn the entire concept of volleyball instead of only technical skill. Because these were fifth-grade students playing for the first time in a real volleyball game,

teachers modified rules to fit students' needs, including: lower net, shorter distance of serving line, using beach or training balls instead of a real ball, contacting four times instead of three on one team, and more than six players on a team. The modified rules gave students more opportunities to contact the ball and more confidence to play.

The strategies of observation and frequent review were used during the entire teaching process. By using the process of observation, teachers could assess the students' progress as an individual and also as the entire class. For instance, when the teacher provided activities that were not effective for improvement, they would revise immediately. In addition, as teachers saw students exhibiting a behavior problem, they gave them individual feedback immediately, which would not influence the whole class. Meanwhile, reviewing skills frequently accompanied constant observation. As teachers noted an individual or group incorrect performance, teachers would assist them to review the entire skill or part of forearm passing. Reviewing frequently the skill would remind students of key points and reinforce their memory.

In order to enhance students who had a high interest of learning and performing, teachers used motivation that included music, a special game at the end of the lesson, verbal compliment, and giving the authority to the students. Using music, for example, increased motivation because students had fun as they were doing the activities. In addition, with music, students could train with the tempo that was the same tempo as the bumping. They felt the same movement in the body and in the action. Teachers provided the authority of decision making to the students to motivate their interest. For example, teachers had several choices of what kind of balls and rules to use for playing the game.

Students were able to decide for themselves. This strategy let students not only learn the skill but be involved in the decision.

Besides these teaching strategies generally used by all teachers, there were some specific teaching strategies used by others that provided particular improvement that need to be discussed as well. For example, Teacher B used the Bleacher Bench and Teacher C used the Deck Tennis that was discussed in the teaching progression. There were also excellent teaching strategies for students to learn forearm passing. The strategy of Bleacher Bench used the bench chair to help students to understand how to bend knees and know the appropriate level to contact a ball. The Deck Tennis used the doughnut ring to help students learn tossing and catching which was the same as theoretical learning of forearm passing. These different strategies used different equipment to help students form the skill.

Teachers B and C also used pictures of forearm passing to enhance the students' visual impression. The pictures showed forearm passing by professional volleyball players who had solid and accurate skills. The posting of pictures was very beneficial as they could be viewed long after the teacher had demonstrated the skill. The pictures were put on the bulletin board for the entire series of volleyball lessons. Students could review the pictures any time when they had PE class or passed the teaching area. Therefore, the strategy of posting pictures was an excellent method for students to improve the passing skill.

Besides Teachers B and C, Teacher X had the same strategy to use information at hand. Instead of using pictures, Teacher X provided a variety of information related to

volleyball rules and its knowledge, game emphasis, teaching emphasis, and lesson plans on the bulletin board. When students came to the gym, they could read and review it quickly so they knew what was emphasized and what information was needed for the game. Students knew the information before they started the lesson, which gave them ideas how to prepare for the particular lesson.

In addition, Teacher X used a specific strategy for his lesson, which was one-minute game competition. This one-minute game competition emphasized students to continually bump balls as many as possible into the opposite team in one minute. After one minute, Teacher X asked them how many balls that they bumped to the opposition so that they would compete with each other. During the one-minute, students bumped balls as many as possible without accurate skill. Therefore, for effective learning, this strategy might provide enjoyment for students to compete with each other. However, it might not be appropriate strategy for forearm passing.

Generally, six teachers provided very useful teaching strategies in their volleyball lessons. Many teaching strategies were similar as those applied in the beginning, practice and activities time and at the end of class. However, there were still some excellent strategies used by different teachers, which provided particular improvement for learning forearm passing. Using as many different teaching strategies as possible at the appropriate time provided students the most effective learning. Teachers also need to connect her/his different lesson plan with specific teaching strategies that would increase the effective learning at all times possible.

Communication

Language is the most important tool to communicate between the teacher and students. In the classroom, teachers play the major role to speak with students. However, to understand the students' learning, teachers provide many ways for students to present their learning and performance. Therefore, the two way communication becomes very essential between the teaching and learning process. In order to get more information that shows how the teachers speak to their students, the section of communication in this study was analyzed in different ways that teachers used to communicate with students for learning forearm passing. The various communications included the introduction and closure, demonstration and explanation, feedback, and learning cues. Each part has a specific function to be used for communicating with students, therefore the researcher will address and discuss each one in detail.

First, the part of introduction and closure in the beginning and at the end of class usually was the basic speaking with students for the whole lesson. Six teachers had this in their volleyball lessons each time. Generally, teachers would organize students into the central area, and students might sit or stand there for listening. In the introduction, teachers usually communicated with students the general information about the lesson and main skill for that day. For instance, Teachers A and B mentioned, "We will have the new skill of forearm passing." After mentioning the forearm passing, they asked what is the skill, when to use it, and where to play it. Plus, teachers also mentioned what activities were related to forearm passing. Throughout the questions and information,

students were informed about the main focus and knew what to expect from the lesson provided by the teacher.

Some teachers had a different focus on the introduction. Teacher Z, for example, focused on the information of goals and purposes of learning immediately in the volleyball lessons. She mentioned the goals for individual and group's learning, what was the performance they presented in the game, and what was expected of the students. This was a different way to communicate with students about the introduction. Because of different emphasis, there were many main points to discuss with the students. However, it might be varied depending on the individual teacher.

At the end of a lesson, teachers had closure time to give students information. The information might include comments or compliments for their performance and what they will learn at the next volleyball class. For example, Teachers A and B gave students the comments relating to the correct and incorrect skills performed by most of the students so that if they had the wrong skill they needed to know how to correct the mistake for the next time.

In addition, they also presented information for the next lesson; therefore students could expect different things. Teacher Z complimented the individual student and the entire class. For example, she asked, "How many of you did the serving, volley (set), and bumping?" Students raised their hands to show they all did very well. Also, Teacher Z put her fingers in her back and asks students how many fingers in my back to relate to their performance. This kind of conversation between the teacher and students was

pleasant and satisfactory at the end of class. Thus, they would be expected to attend the PE class again.

In addition to one-way communication between teacher and students, there was also a two way communication with students. Teachers X, Y, and Z usually had students ask questions related to the class, lesson, and main skill's learning in the introduction. For example, in Teacher X's class, when students saw the uneven net in the volleyball court, they asked the teacher why the net was uneven. Also, in Teacher Z's class, students might ask for different rules to play the volleyball game. The communication would not only focus on teachers' teaching, but provided opportunity for students to ask questions relating to the lesson and main skill's learning. Because time was very important for teachers, teachers would not have a long introduction. Therefore, when the communication was important for the students to know the lesson, the most important point was that the students had enough information related to volleyball learning in each lesson.

Another way of communicating to students was the demonstration and explanation. Throughout the observation, the researcher saw teachers used different times to give the demonstration and explanation. Some teachers might have 10-15 minutes to teach detailed forearm passing, and some might use three to five minutes to teach it. Even though they spent different times to teach students to learn the forearm passing, the demonstration and explanation was the important key point for students to learn and understand the passing skill. This communication not only focused on verbal description, but also presented each piece of passing action by body demonstration. Students had both

visual and auditory stimulation from the teachers, which was very important to properly understand the skill.

Teachers A, B and C had a very strong demonstration and explanation when they taught the forearm passing the first time. For example, as they taught the ready position, they taught details about the up-body and low-body position. In the up-body, teachers mentioned “You need to put your arms in front of your chest and be relaxed.” In the low-body, teachers said, “Your knees should bend and your legs should be slightly apart and not wider than the shoulders. One foot should be slightly behind the other and make the rear foot-heel a little bit higher so that you move quickly into any direction.” Throughout the verbal description and explanation and body demonstration from teachers, students had the whole picture of the ready position and could understand the accurate skill that they needed to learn. As in the teaching of the ready position, teachers had the same attitude to teach other parts of the whole forearm passing. They understood they needed to teach every detail in each part so students would learn correctly.

Although Teachers X, Y, and Z did not have a very detailed demonstration and explanation for each part, they still demonstrated and explained some simple part of the passing skill. For instance, they taught the forearm area for contacting a ball, arms stretched out, and hands held together for the performance base. During the teaching process, they might not mention specific information to students for advanced knowledge of forearm passing that should be known and used for passing a ball. However, demonstration and explanation definitely were the effective way to communicate with students. The PE class had different learning characteristics from other indoor subjects.

Teachers dealt with the relationship between the body and object more frequently, therefore using demonstrations and explanation together, which became a very essential way to communicate in the teaching process.

The demonstration and explanation were used in the beginning of teaching passing, however during the practices, group activities, and game playing, the feedback and learning cues were the major way used for responding to students' learning and performance. To respond to the students' learning, the six teachers had the following most common feedbacks: verbal feedback, positive feedback, and general and specific feedback. As teachers gave students feedback, they would focus on verbal feedback most often instead of written feedback. Teachers emphasized the skill's learning during practice and activities in which the students' learning was an immediate reflection of the teacher's instruction. For example, if students forgot to bend knees or stretch out arms, teachers gave the feedback to "remember to bend knees, stretch arms out and point thumbs to the ground." Teachers needed to give immediate feedback as they presented their lesson so students would remember what was best for the skill's performance.

Giving positive feedback was very important for all teachers. Students needed to be encouraged with their performance. Teacher B had more specific thoughts about the positive feedback. She said, "Giving feedback that is positive, I recognize good things as well as constructive criticism on what they need to correct." Therefore, as students had good learning Teacher B would give positive feedback immediately. However, Teacher X had another thought on positive feedback. He said, "As feedback is positive reinforcement, I would always use positive feedback. However, I cannot always be

positive because students would not have a goal. And, we want to be striving towards goals.”

Besides positive feedback, teachers gave general and specific feedback all during the volleyball lessons. Teachers had different times and purposes to give general and specific feedback. For instance, the general feedback usually was used for the whole class practice, activities, and game playing. However the specific feedback was used for more individual skill checking.

For example, if teachers saw a student use the wrong skill for follow-through, teachers would say “Straighten your arms, and get them square to the net.” Or, if a student had the wrong skill to hit a ball (like using palm to hit a ball instead of forearm area), teachers said, “You need to hold your hands together with the form of overlap or one hand covering the other fist to make your hands even.” Because there were many students with different understanding and ability for learning, the specific feedback was more objective to each individual. Teachers believe it was a very useful way to communicate with students.

There were different definitions of feedback from Teachers B and C. They mentioned that the feedback not only came from a teacher, but also from students and their performance. For example, if the result or performance was an error in the individual or group practice, students could see it for themselves so the performance was a feedback itself. In addition, Teacher B said, “I try to reinforce that making mistakes is part of students’ learning, but students should also be making progress with repeated trials.” This is a different way to see that making mistakes is a good feedback for

students. As Teachers B and C communicated these kinds of ideas and thoughts to the students, the students would not only receive the information, but also have different views about the feedback made by them. Therefore, this learning would include the physical skill and mental learning as well.

Providing the learning cues was also very common for all teachers. The information of the learning cues was shorter than the feedback. Usually, it was just a few key words for responding to the students' technical skill. Meanwhile, teachers might also use specific examples to refer to whether the skill could be used or not. Providing learning cues related to the teachers' content knowledge. If teachers had very strong content knowledge, they would have different learning cues for the students. In contrast, if teachers did not have enough content knowledge, they might limit the use of learning cues. In this section, the researcher discussed the communicational methods rather than the content knowledge of forearm passing so that the focus was on the general and specific learning cues used by teachers, and content knowledge will be addressed and discussed in later sections.

Generally, teachers who used the learning cues focused on the major emphasis of forearm passing. For example, they said that "do not cross your thumbs," "arms together and straight out," "like setting on a chair (ready position)," "Don't hold hands as stepping," "loose legs for moving quickly," "reach out," "keep low," "legs are spread," "head up," "back straight," "line up the ball," "don't swing," "shrug (bring your shoulders to your ears) or lift," "forearm," "ready position," "lift your arms no higher than shoulders." These were the key words that teachers mentioned most often.

However, some specific examples of learning cues used a different language and were of great interest. Teachers A and B, for example, used the same example: “do not move like an old person.” Both teachers used the old person to refer the ready position. However, the Teacher A’s meaning was that the old man had no energy to prepare for ball contact. Teacher B’s meaning was when you are looking like an old man your back is not too straight. Another example was that Teachers A and X used the same example of “elephant.” Teacher A said “no elephant,” and Teacher X said, “Let’s see your elephant trunk.” When Teacher A mentioned do not be like an elephant, she said, “I don’t want the students running around looking like elephants because it makes you huge and slow.” On the other hand, when Teacher X mentioned the “elephant’s trunk,” he said “if you have two hands separated that is not an elephant trunk and that is not a bump, so you do not have the two hands separated (two trunks). I make them make the trunk and then the elephant nose.” Even though they had the same languages to use the “old man or woman” or “elephant or elephant’s nose” to refer to the ready position or hands together, they gave the explanation to the students during the instruction so that their students would understand the specific meaning.

Besides these instances, Teacher C had a different learning cue that was also beneficial. She used the letter “V” to refer to the arms shape as two hands held together for the performance base. When she used this letter and described the shape of the arms, students understood the information and remembered it quickly. This learning cue was used in a different way that made a reasonable reference. Thinking about how to use an appropriate learning cue, Teacher B had a good example. She mentioned that “if I say

your trajectory would be all wrong, the students might have no idea what I mean by “trajectory.” So, I would use that word and explain to students, “your line of flight to the ball,” that is what trajectory means, and that is what is going to happen if your arms are from the A position to the B position.”

Management

The function of management usually plays a big role during the teaching process. As teachers present their teaching, they focus not only on skill teaching, activities, or curriculum design, but also how to manage and organize the whole class that support the teaching and learning flowing well. The management could include many things that teachers would have in the classroom, for example: organization, equipment, class rules, groups making, or managing students’ learning behaviors and misbehaviors. In order to have a clear understanding of different teachers’ management skills, this part will emphasize several things that address in more detail the teacher’s management in her/his volleyball lessons. This includes organization, class rules and teaching signals, organizing groups, equipment use and design, and students’ learning behaviors and misbehaviors management.

First, the organization of the PE class in the beginning was very important as students came to the gym or the learning area. Usually, there were 20-28 students in one PE class. Without appropriate organization, students might spread out in the whole learning area as they entered. Therefore, to have effective teaching, teachers would organize appropriately with equipment or rules. Generally, when students came to the PE class, teachers organized students in the central area for a brief talk. However, teachers A

and Z had a different organization. Teacher A had students doing some activities, for example talking with each other first when running with music for 2 minutes, and then go to the central area for the main teaching.

Teacher A mentioned that “because students came from the indoor classroom, they needed to talk and relax for a little while before the main teaching; therefore it was a good way to connect to the main focus. Teacher Z would have the activity of skill practice ready as students entered. She organized students with his/her partner quickly and gave them information how to practice with a partner when they ran into the practice area instead of the central area. During the whole process, students did not stop their action while listening. Teacher Z had them to continue to the next activity until the end of class. She would not waste time to come back to the central area for reviewing the skill. She organized the lesson to use the entire class time to achieve her goal for the PE class.

With the functional organization, some teachers used equipment to organize his/her students at the beginning of the class. Teacher B, for instance, used different equipment to help her to organize the students. She had the largest class compared to the others. In the beginning, teacher B had five big colorful cones (red, green, blue, orange, and purple) in the organizational area. Behind each cone were five or six students, and Teacher B would call each one “a squad.” Each squad had a leader to report the attendance of its group so that teacher B knew who was absent and made the report quickly. After that, Teacher B gave the information that would be covered in the PE class so that students were aware of the lesson. Because students already knew the whole process in the beginning of the semester, it did not take much time to organize. Teacher B

said, "I want my class and students to be organized. It makes the class and students orderly and reduces misbehaviors." In addition, I would report their attendance and talk to them quickly to see if they had special information for me. From this data analysis, we could understand that different teachers had their preference of how to organize their class and students, which depended on the learning environment, time, number of students, and other situations.

To organize different groups' activities in the fitness and game playing, Teachers A, B, and C used colorful clothes (e.g. red, blue, orange, or green) to manage different groups. Colorful clothes were very useful to separate groups in the fitness and game activities because when teachers called the color to change the progress of the game, the students of each color quickly understood the change and made the change immediately. Besides using colorful cones and clothes to manage the groups, teachers also used other equipment for different purposes. The most common was using different balls (e.g. balloon, beach ball, training ball, and real volleyball ball). These balls were used in different stages, for example: the balloon was used in the beginning of learning forearm passing. Because teachers wanted students to form the skill, using the balloon would not hurt their arms and hands. Students could easily control their skill and the balloon. The next stage would move to the beach ball which made student feel they were practicing forearm passing, but it was still light and would not hurt. Following the beach ball, teachers would use the training or real volleyball ball for students who had advanced to do the bumping. The training or real ball might not be easy to bump for young students, but it would show what was correct bumping. Teachers use these different balls for

different practice (e.g. individual, partner, groups, or volleyball game). This learning experience encouraged students to get a better sense of passing and distinguish the difference between the balls.

For specific technical learning, Teacher B and C used special equipment to support their teaching. Teacher B, for example, used the Bench-chair and Teacher C used the donut ring for Deck Tennis. Using music was also observed during the lessons. Teachers A and B played music during the fitness and game activities. Teacher A especially used the music in her classes most of the time. When she used the music for some activities, students would be motivated to be more active. When Teacher A turned on the music, students knew they were to start the action. When she turned off the music, the students would stop the action. Thus, the music had another function of start-or-stop.

Different from using the music to stop the activity, Teachers X and Y used the whistle to stop the students' action. Using the whistle was an easy way for students to pay attention, which did not cost much money to prepare the equipment. However, if teachers used the music, they might need to prepare more equipment such as: tapes, CDs, and monitor to control the music on and off. This equipment may cost more money for different activities and lessons.

How to make groups for different types of practice was also one of the management skills for teachers. Six teachers had similar activities during the lessons. These activities included fitness activities, individual, partner, and group practice, and volleyball game. When teachers were grouping students for activities, they presented some common ideas.

For example, they would have students choose their partner for two-people group practice. Teachers described that students usually choose their best friend or someone with similar skill levels. They were good at partnering up with someone close to their own skill level. Teacher C mentioned, “Let them choose partners which motivates them and team up a little better skill wise. Plus, it goes faster.” Teacher A, however, used another way to let students choose or change partners, which she called “switch road.” She described the “switch road” as passing a ball back and forth, and when the ball passing and the music stops, then whoever has the ball has to find a new partner so that the players were changed.

When students were in a large group, teachers presented different methods. Teacher C, for example, divided the students into groups by the use of the capital letter of their name. However, Teacher Z managed groups by multiple ways, which was to play boys against girls, boys against boys and girls against girls, mixing the team, or high-level of skill in one court and low-level skill in another court. Teacher Z would encourage and do something different by rotating groups, and then everyone had a chance to be with and change partners often. Teachers wanted students always to have a high interest to learn the skill and to have social skills with each other; therefore rotating them in different groups was essential in the PE class.

The basic rules and signals of the PE class were the regular information that teachers used to manage students’ behavior. Teachers would give the information as they started the new semester. Some students already knew the information since they had the same PE teacher for many years. The regular information from Teacher A included

positive discipline, respect for each other and for the teacher, be pleasant and friendly with each other, on time to the PE class, and present appropriate behavior. Teacher B provided a discipline program that included the teacher saying “strike one” for a warning and “strike two” to misbehaving students. Similar to Teacher B, Teacher X had the same discipline to manage students’ misbehaviors. He said,

If a student acts up or is not following rules, the first thing I need to find the reason. If I find that there was nothing wrong, then I give the student a warning. If the student does not get back into it, then he/she sits on the stage for one minute and watches. If the situation gets worse, he/she will be eliminated for that class period and goes back to the stage.

However, Teachers A, C, and Y had a different way to stop the students’ inappropriate behavior. For example, Teachers A and C changed the students around by putting them into different groups if they were not cooperative or fought with each other. Teacher Y would softly walk over near them and communicate with them with a friendly tone, and then the students would change the behavior. Each teacher had his/her own method to organize the PE class and groups’ activities and the way to discipline students’ behavior. They showed outstanding management skills that were demonstrated during the volleyball lessons. Throughout their management program, the teacher and his/her students demonstrated the good relationship between each other and the effective ethics that students followed their teacher’s direction and respected the teacher’s teaching in the whole process.

The next section will focus on the teachers’ content knowledge of forearm passing. It will address and discuss each teacher’s knowledge of forearm passing based on the data results and analysis.

Forearm Passing (Content Knowledge)

In order to have the best organization of the result of forearm passing, this section answers the research questions three and four: “What are the different or similar key components of forearm passing taught by teachers?” and, “What are the different or similar concepts of arm presentation (linear or non-linear) among teachers?” Because there was much data analysis of forearm passing, different subtitles are used to distinguish and describe deeper knowledge of passing between teachers. The subtitles include the key components of forearm passing, identifying errors (up-body and low-body), volleyball rules, and the concepts of linear or non-linear arms presentation. The following paragraphs discuss each part by using different ways, for example: the chart of dimensions of contrast among teachers and deeper address of the content knowledge based on the chart.

The Key Components of Forearm Passing

The forearm passing includes the six key components of: ready position, mobility (stepping), performance base, arms presentation, passing action, and follow-through. Teachers might teach these components orderly from the beginning of the ready position to the final step of follow-through. However, some might skip components. In order to understand the similar and different key components of passing skill between the teachers, Table 1 distinguishes teachers’ similarities and differences, and then addresses in more detail each part based on the individual’s data analysis.

Based on the chart of key components, the data shows that teachers had similar and different content knowledge for teaching forearm passing. For example, all teachers

taught the ready position except Teacher X. Even though five teachers taught the ready position; they still gave different content knowledge to their students. For instance, Teachers Y and Z generally introduced the ready position as the bending of the knees, legs wider than shoulders and arms ready. However, Teachers A, B, and C gave very detailed information about it. They mentioned the up-body that students needed to keep

Table 1: Key components of forearm passing

Domain: Key components	Dimensions of contrast					
	Ready position	Mobility (stepping)	Performance base	Arms presentation	Passing action	Follow-through
T. A	Yes	Yes	Yes	Yes	Yes	Yes
T. B	Yes	Yes	Yes	Yes	Yes	Yes
T. C	Yes	No	Yes	No	Yes	Yes
T. X	No	No	Yes	No	No	No
T. Y	Yes	No	Yes	No	Yes	No
T. Z	Yes	No	Yes	No	No	No

T.: Teacher

the shoulders and hands relaxed, arms apart and in front of the chest. In the low-body, students needed to bend knees and stand in a low position, legs wider than shoulders, and one foot slightly ahead of the other (the behind one needs to lift the heel up slightly for quick movement). They also taught students that the ready position was the same position as in basketball, baseball, or softball. Teacher C gave more explanation why the ready position was important. She said, “when we have a good ready position which is our center of gravity and gives the essential fundamental base, then we can get more balance to move in another direction quickly.”

In the step of the mobility (stepping), four teachers skipped this step except Teachers A and B. In fact, this step linked the ready position to the performance base. For example, students needed to have the position from hands/arms apart to the hands/arms together for preparing to contact a ball. Students also needed to know how to move legs and how many steps to move into the coming ball or any direction so that teachers needed to teach this information. However, only teachers A and B taught the mobility to students. They generally mentioned there are three steps from the ready position to the coming ball. When stepping or moving into the coming ball, students needed to have hands apart and keep the body low and have good balance, and then hold hands together ready to contact the ball. Both teachers demonstrated the whole process of stepping for students, and then had the students do stepping by themselves.

The performance base was the step that all teachers taught to students. However, there was still some different content knowledge taught by teachers. For instance, all teachers taught regular knowledge such as: arms stretched and even with each other, and contacting a ball in the forearm area. There was more detail of the performance base taught by other teachers, for example: Teachers A, B, C, and Y taught when you hold your hands, you have two different choices (gripping your hands together like interlocking your fingers or overlap palms held together making the thumbs even). Your thumbs needed to point to the floor to stretch the arms, however do not cross the thumbs to make an uneven surface. The arms needed to be in the right position that meant not too far or near the body, and the arms are like a sharp V.

Generally, teachers did not teach the arms presentation very often. Only Teachers A and B mentioned “the linear contact” to students, but they did not present other information related to the arms presentation. The arms presentation will be discussed in the later part on concepts of arms presentation (linear or non-linear arms contact) for more varied thought.

For the step of passing action, four teachers (A, B, C, and Y) taught it and two did not (Teachers X and Z). Teachers A, B, C and Y had a common knowledge of the passing action that was “lift instead of swing.” They taught students to lift their arms as they pass a ball. Teachers C and Y enhanced the information relating to leg power. For example, they mentioned, “The power comes from legs and the action changes from bending knees to stretching your legs.” However, Teacher B had a different knowledge related to leg power. She said, “When you pass a ball, your legs need to move up from low to high, but do not totally stretch your legs (knees).” In addition, she mentioned more information that focused on the lifting arms’ action. She demonstrated and described the arms’ action “when you pass a ball, you bring your shoulders toward your ears and lift your arms up to near shoulder level”. Even though this was different information about how to use leg and arm power and action, it demonstrated the big difference between the teachers.

In the last step of forearm passing, follow-through, it was easy to forget the step. When some teachers taught the passing action, they forgot about how the ball was going to and the relationship between the action and target. Teachers A, B, and C described the final action of the forearm passing. They taught that when you continued the passing action, your arms squeeze in and tried to get away from the shoulders. Meanwhile,

shoulders and arms should square up toward the target. To finish the follow-through, your eyes follow the ball into the target so that the ball would not go in another direction.

Throughout the data result and analysis, some teachers described and taught very detailed knowledge and information of each key component that students needed to know. They had different concern or emphasis. If teachers did not teach in detail, students might not understand what is the difference between the correct and incorrect action. Therefore, to present the correct skill of forearm passing, teachers taught the content knowledge in detail.

The Identifying Errors of Forearm Passing

Besides teaching the key components, teachers also demonstrated their knowledge of identifying errors of forearm passing during the teaching. Identifying the errors was very important for students to know because they might not understand that little errors can make the big result between the correct and incorrect action. The errors might result in physical pain or injury if the error was not corrected. Therefore, to identify the errors was necessary for teachers to teach as students were learning the passing. In order to make a clear picture of teachers' knowledge of identifying errors, the researcher used the table (Table 2) to show the data analysis.

To discuss how teachers identify the errors, the researcher distinguished the two parts, up-body and low-body. In the up-body, the errors usually happened in the hands including: the thumbs, arms, and elbows. From the data analysis, all teachers identified the errors of up-body except the Teacher Z. In the part of hands and thumbs, for instance, they identified that “do not cross your thumbs or make uneven with each other, do not hit

Table 2: Identifying errors of forearm passing

Domain: Identifying errors	Dimensions of contrast				
	Up-body		Low-body		
	Hands & thumbs	Arms & elbows	Legs	Knees	Feet
T. A	Yes	Yes	Yes	Yes	Yes
T. B	Yes	Yes	Yes	Yes	Yes
T. C	Yes	Yes	Yes	Yes	Yes
T. X	Yes	Yes	No	No	No
T. Y	Yes	Yes	No	No	Yes
T. Z	No	No	No	No	No

the ball on the wrist or thumbs, and do not hold your hands as you move into the coming ball.”

In the arms and elbows, they pointed out: do not swing your arms, do not use too much force, do not bend your elbows, do not have one arm higher than the other one, do not lift your arms over your shoulders, do not move your arms out of your body, and do not put your arms too close or too far away from your body.

Teachers B and Y provided more information regarding to hands held together. Previously it was discussed about how teachers taught two different types of holding the hands, gripping hands together or overlapping hands and then held together with even thumbs. These two types are legal to use as a player passes a ball. However, the gripping hands are usually related to fingers interlocking together. Teachers B and Y mentioned that the most critical point was when students interlocked their fingers together, it took too much time and the fingers might stick together. It was not convenient for students to change position, so these teachers did not recommend the use of this position.

Teachers A, B, and C identified and demonstrated the errors of low body. They pointed out the errors related to the low-body, for example: do not stand with feet together or close to each other, do not have feet even with each other as feet need to be apart, do not stretch your knees, and do not jump as you pass a ball.

As teachers pointed the errors to the students, they would explain why not to use the incorrect action. For example, they told students if arms were lifted over the shoulders, the direction of ball would go over the back instead of the front of the target. If arms were too far from the body, it would not be too easy to use power to bump the ball into the target. On the other hand, if arms were too low and close to the body, it would be difficult to bump up the ball because the angle between the arms and body was not correct to pass a ball. Or, if you jump as you pass a ball, it would make an unstable foundation and the ball would lose direction. When teachers pointed out the skill's errors of different students, they always gave more information related to the errors. It was not only focusing on identifying the incorrect skill, but also explaining the reason why they could not do the incorrect action. Therefore, students would get more knowledge and should distinguish the different results whether or not they had a skillful performance.

The Volleyball Rules

During the volleyball lessons, teachers would emphasize the skills' learning, however understanding the volleyball game was another major point of the teaching. The volleyball rules were also the main content knowledge that students needed to learn and understand as they played the volleyball game or watched a professional volleyball game in the gym or on the TV. Teachers introduced the volleyball rules in the beginning or

during game playing. The information was given step by step so that students could learn in an appropriate way. There were different rules taught by teachers. Table 3 shows the teachers' content knowledge of the volleyball rules.

Generally, as teachers taught the volleyball rules, they emphasized the basic information related to game playing. For example, six players of the one team in the half court, three players stand in the front row and three players stand in the back row and understand the relationship with each other and how to receive a ball. Teachers also

Table 3: Volleyball rules

Domain: Volleyball rules (1)	Dimensions of contrast				
	Players	Rotation	Standing position	Serving line and place	Score
T. A	No	No	No	No	No
T. B	Yes	Yes	Yes	Yes	Yes
T. C	Yes	Yes	Yes	Yes	Yes
T. X	Yes	Yes	Yes	Yes	Yes
T. Y	Yes	No	No	Yes	Yes
T. Z	Yes	Yes	Yes	Yes	Yes

Domain: Volleyball rules (2)	Dimensions of contrast			
	Boundary of court	3-meter spiking area	Legal action	Illegal action
T. A	No	No	No	No
T. B	Yes	Yes	Yes	Yes
T. C	Yes	No	Yes	Yes
T. X	Yes	No	Yes	Yes
T. Y	Yes	No	No	Yes
T. Z	Yes	No	Yes	Yes

taught counting of the scores, the clock rotation when the team has the right to serve, the serving line and area for serving, and the boundary of the court.

Some teachers taught legal and illegal actions, but only part of the information. In regards to legal action, for instance, the students were told that each team had three times to hit the ball with different players, the serving ball could touch the net and go into the opposite court, the ball could touch the boundary line, and if the ball is out of bounds, your team lost the score but the opposite team gets the score. The illegal action included: one player cannot hit the ball twice and players cannot touch the net during the game.

Meanwhile, Teacher B provided specific information that the player cannot use the elbows to contact a ball which is illegal called “carrying a ball.” In the 3-meter spiking area, the knowledge of the 3-meter spiking area was important for students because they would understand that only the three front players could hit a ball in this area. If the back row of three players hit a ball in this area, it would be an illegal action except the outside of the 3-meter spiking area. When teachers gave more information relating to the volleyball rules, students would understand and be more knowledgeable about volleyball even though they were not a professional player.

Because these were fifth-grade students and the first time to learn real volleyball skills, teachers taught the volleyball rules that focused on basic information more than professional knowledge. Teachers believed that as long as students understood the rules of volleyball and knew what the basic volleyball rules were, it would increase their interest for the future.

The Concepts of Linear or Non-linear Arms Presentation

To teach the concepts of linear or non-linear arms presentation, all teachers, except Teacher A, focused on the linear arms presentation to the fifth-grade students. The teachers provided their reasons to support their thoughts. For instance, Teacher B said, “For this age group, I basically made it linear, so the ball was going to be at their mid-line. In the early age, I don’t think they are capable or ready for that.” Teachers C and Y said, “Because students have to move their feet more in a linear way. The quickness of feet will help them. I think that would be a natural progression of a skilled player. It is very basic, where we are just trying to keep it inbounds and in control.” Teachers X and Z had the same thoughts as they mentioned, “I want to try to get them balanced all the time. When students are younger, they won’t move their feet. I want them to always try to move their feet, so the ball can be in the middle.”

As teachers taught linear arms presentation, they would focus more on foot movement. They taught the young students to move their feet more and be familiar with the different direction of movement and know how to control their bodies as they moved. If students used the non-linear arms contact, they would easily forget to use their feet and might make forearm passing skill mistakes. To use the non-linear arms contact would include different technical learning of the hands, arms, and body together, and then the students could execute correct non-linear arms contact. However, for the early stage, it is difficult for students to learn different kinds of arms contact. To learn the basic linear arms presentation was sufficient for the first step. To establish fundamentals early would enhance their ability to improve skills in the late six-grade or in the secondary level.

Main Themes

The results of the study can be broken into two main themes that connect all of the four research questions. These themes are:

1. Teachers' philosophy influenced their teaching and designing the volleyball lessons.
2. Teachers' teaching knowledge (pedagogical content knowledge) connected with content knowledge, which impacted students to learn forearm passing. Each of these themes will be discussed below.

The first main theme is how teachers' philosophy influenced the teaching and designing of the lessons. Most teachers addressed similar thoughts and ideas, but still had some differences among themselves. For instance, four of the teachers believed that healthy and lifetime activities were the most important ideas for them to teach in the PE class. Especially, as they were teaching the basic level students (elementary school), students needed to participate in a variety of activities which increased interest and motivation for different activities.

The most effective example was presented in Teacher B's class. The class was designed with an equal portion of fitness activities and main skill focusing. She mentioned the game and fitness activities are equally important to the main skill's learning. It would enhance the students' health and establish their thinking about the important of fitness in their lives. Other teachers thought fitness was very important for students in the PE class. However, they did not design or emphasize many fitness

activities in their lessons. There was a time limitation and other considerations that influenced them having different activities.

Some teachers thought the teaching of technical skills was very essential for young students. Particularly, Teachers A and B thought that teaching needed to be thorough and fundamental in each detail. Therefore, in forearm passing teaching, they taught content knowledge step by step from the ready position to the follow-through. They would not eliminate any information that was important to establish the students' knowledge.

Even though Teachers A and B believed that teaching detailed technical skill was very essential, they did not necessarily strongly relate it to sport competition. This thought was different from Teacher X. He believed teaching skills needed to relate to playing the sport, which enhanced the students' future competence in that skill. Thus, in his volleyball lessons, he would have many activities related to the volleyball game and emphasized the teaching of volleyball rules more than the skill.

Finally, social skills' teaching was also an important emphasis in the PE class for some teachers. Teachers B, C, and X believed that by the different activities and sport learning, students would enhance their cooperative learning with each other, know group/team concepts, and understand how to work together as a group or team to be successful in different situations. Because social skills were very important for the students, these teachers taught and reminded students how to improve the skill by peer coaching, and cooperation with each other to solve problems throughout the group activities and game playing.

Teachers' goals and expectations also influenced their teaching. Different teachers had different ideas of setting goals and expectations for the students. Some would have only one priority, but others might have diverse goals for students to accomplish. Four teachers had only one priority goal for their students, but focused on it differently. For instance, Teacher A stated her teaching goal was more focused on the skill's learning. She said, "I would emphasize that students learn the proper stance and technique of passing. I want them to make contact with a ball. In order to make contact, they need lots of practice trials. I want to see progress in how often they contacted the ball. I want them to experience some sort of accuracy when they worked in a group of three." She strongly made the point of how important students learn forearm passing so she designed activities that provided many practices related to developing the skill.

However, Teacher X mentioned that the primary goal was to play a real game with teammates. He made the progression to accomplish different levels, for example: bumping by self to working with group to playing a game with opposite team to knowing the rules. From this point, it was observed that to play a real volleyball game was very important for Teacher X. Because he strongly focused on the knowledge of knowing game playing, he would design more activities for group competition and game playing, and the teaching of volleyball rules. Although this was only one goal that he emphasized in the volleyball lessons, this goal was very clear to show students the final goal they needed to accomplish. This is the process for students to follow, so they could play the real volleyball game with their teammates.

In the goal of lifetime activity, Teachers Y and Z described that as students know how to hit the ball and pass the ball over the net, they could play it anytime and anywhere with friends and family. Teachers Y and Z did not want to focus on the game competition or accurate skill performance like a professional player. That was not necessary for the early age of students so they encouraged students to have fun and feel successful to bump the ball instead of having a great performance in the forearm passing.

Except for the priority goal, Teachers B and C had diverse teaching goals including skill development, fitness ability, self-motivation and self-confidence, and successful playing volleyball with teammates over the net. As teachers described these different goals, they would emphasize the goals equally with each lesson. For instance, to build the goal of skill development, teachers had to plan different skill's activities and to provide opportunities for practicing the basic skills. For the goal of fitness ability, teachers provided many fitness activities so that students would establish their large and fine muscles, balance, endurance, cardio function, and ability to control their body. To enhance the self-motivation and self-confidence, teachers encouraged students to try their best and gave support to build students' self-confidence during the learning process.

Even though teachers had different philosophies, teaching goals and emphases in their teaching, they did not expect students to be future professional volleyball players. Some mentioned that they wanted students to have a basic skill understanding and accurate skill performance, which was different than to be a professional player. A volleyball player needs to have many technical skills and many practices which repeated the same skill again and again. Long time practice might reduce interest and motivation

about learning volleyball, especially for the early age students. Because teachers did not expect students to be professional players, the teaching method and strategies would be totally different from coaching a volleyball team. This is the most significant difference between teaching and coaching.

This theme is important because it provided insight into the reasons behind particular teaching. Teachers' thoughts and ideas could be the same or different in teaching which showed different results in the teaching of forearm passing. However, that would not indicate whether or not they were an effective teacher to teach a specific activity or sport. What's more important is that the different thoughts and ideas and the way they are presented assisted me and other teachers to understand that there are many teaching emphases which are different but still equally important for students' learning.

The second main theme was teachers' teaching knowledge (pedagogical content knowledge) connected with their content knowledge, which impacted the students' learning the forearm passing. There were five teaching actions: lesson plan design, teaching progression, teaching strategies, communication skills and management skills. The connection between teaching actions and content knowledge of forearm passing to help students learn the specific skill will be discussed.

Organization was one of the most important elements in the teachers' teaching action. The organization included how to organize group activities and equipment use for teaching forearm passing. For instance, there was individual bumping practice, partner's practice in tossing and catching, partner's practice in passing back and forth, partner's practice passing with the net, three or four group practice, and a final game playing.

Teachers needed to know the function of each practice to enhance students' knowledge and mastery of the passing skill.

The use of different balls indicated that teachers understood that forearm passing was emphasized in the arms' contact. If teachers did not know how the different balls might impact the learning, they would not be concerned about the use of balloon, beach balls, or training balls. To use different balls instead of a game ball at an early age increased students' interest about learning the forearm passing. For instance, the lightweight balls reduced injuring the students' arms greatly, and the training balls created a different learning experience for bumping. To know different practices, teachers had to understand forearm passing which was an arms contact skill involving hands, elbows, and thumbs with tiny technical focus. Through the use of different balls and specific practices, teachers gave students elaborate information relating to arm action. Without enriched knowledge of forearm passing, teachers might have a difficult time to point out errors and give correct information.

Applying the teaching progression, teaching strategies, and different communicational skills demonstrated a very significant relationship between teachers' teaching knowledge and content knowledge that impacted students for effective learning. For example, there were the orderly teaching step from the ready position to the follow-through, Teacher B's Bench-chair activity, Teacher C's Deck Tennis, Q & A, detailed visual demonstration and explanation of forearm passing, and verbal reinforcement with learning cues.

In the skill teaching progression, Teachers A and B demonstrated strong content knowledge when they taught progression from the ready position to follow-through. They taught specific information in each step and for individual segments such as arms, hands, thumbs, legs, knees, feet, movement, performance base, correct contact, and the entire passing action. If they did not know precise content knowledge, they would not have had the essential skill for teaching progression to their students.

The teaching strategies of Teacher B's Bleacher Bench and Teacher C's Deck Tennis also showed specific teaching related to content knowledge. The strategy of Bleacher Bench used the bench chair to help students to understand how to bend knees and know the appropriate level to contact a ball. The Deck Tennis used the donut ring to help students learn tossing and catching which was the same as the theoretical learning of forearm passing. These different strategies used different equipment to help students form the skill.

Detailed visual demonstration and explanation and verbal reinforcement with learning cues were used with verbal language to illustrate the main knowledge of forearm passing. During the teaching and learning process, language was very important to communicate between teacher and students. As teachers possessed content knowledge of forearm passing, they needed to use language tools to impact learning for incorrect and correct skill in each segment such as main emphasis for arms, legs, and body, relationship between ball and body, and the relationship between self and target. Without the use of essential communicational skills, teachers might not successfully convey content knowledge to students.

From this main theme, it was very important to understand that many teaching methods were used to teach volleyball lessons. Teachers used these teaching methods not only for the regular activities organization, but also for forearm passing skill learning. Therefore, the connection between teaching knowledge (pedagogical content knowledge) and content knowledge became necessary and important.

Conclusion

In this chapter, the data investigating the following four research questions of the study were discussed:

1. What is the philosophy of teachers when teaching forearm passing?
2. Based on the teaching actions:
 - A. How do teachers design the lesson plans of forearm passing?
 - B. What is the teaching progression of forearm passing?
 - C. What teaching strategies do teachers use for teaching forearm passing?
 - D. How do teachers communicate with students to facilitate learning of forearm passing?
 - E. How do teachers manage equipment, activities, groups, and students' behaviors to facilitate learning?
3. What are the different or similar key components of forearm passing taught by teachers?
4. What are the different or similar concepts of arm presentation (linear or non-linear) among teachers?

Examples, detail explanations, diagrams, sketches, and charts were provided to support the data. Several areas of teachers' teaching philosophy and value orientation were discovered. The teaching philosophy included teachers' belief relating to how teachers emphasize teaching and design lessons, goal setting for students to achieve forearm passing and other major learning, and expectation about learning forearm passing for present and the future.

Teaching knowledge (pedagogical content knowledge) demonstrated how teachers used this knowledge and different methods to help students understand and learn the content knowledge of forearm passing. The teaching knowledge included lesson plan designing, teaching progression, teaching strategies, communication skills, and management skills. Each teaching action provided different ways to establish the teaching such as: the use of different equipment to organize the class from the beginning to the end, logical progression for group practice and activities, orderly teaching progression from the ready position to follow-through, the use of essential equipment to support learning passing, communication throughout the visual demonstration and verbal explanation with learning cues to assist teachers to describe the detailed information and knowledge of forearm passing. In addition, useful management skills enhanced the environment for students' successful behaviors.

The content knowledge of forearm passing included the six key components with detailed information, identifying errors in the up- and low-body, which enabled students to distinguish the difference between correct and incorrect skills, and volleyball rules relating to game playing that gave knowledge about how to play a game, and how to

distinguish between legal and illegal actions. The concepts of linear or non-linear arms presentation were discussed to understand what was the major arms presentation that was taught and the specific reasons to support their point.

Two main themes that connected all of the research questions were:

1. Teachers' philosophy influenced teaching and designing the volleyball lessons.
2. Teachers' teaching knowledge (pedagogical content knowledge) connected with content knowledge that impacted students learning the forearm passing.

These main themes are essential because they provide extensive information about how teachers' philosophy influences teaching and designing volleyball lessons. The link between teaching knowledge and content knowledge of forearm passing facilitate an effective way for students to achieve. Chapter 5 will link this information with the research, combining information from other bodies of knowledge with findings from this study. This chapter will analyze the results of my findings supporting the literature review and the results of my findings extending the review. The main themes will be discussed and implications given that may present effective information for in-service and pre-service PE teachers to improve their teaching in the future.

CHAPTER 5

DISCUSSION AND IMPLICATION

The purpose of this study was to investigate the teaching of forearm passing as a key component of volleyball game performance. Specifically, a broad concern was how elementary PE teachers were able to make an effective connection between teaching knowledge (pedagogical content knowledge) and content knowledge of forearm passing to help students learn forearm passing.

Chapter 5 presents the discussion and implications of the study. Based on the analysis in Chapter 4, findings from this study are compared with the review of literature in Chapter 2 to show the connection between the findings of other researchers and the results of this study. Even though many of the findings support the areas addressed in the literature review (teachers' philosophy and value orientation, various teaching actions, content knowledge of forearm passing, and concepts of linear and non-linear arms presentation), the analysis also extends with different and more complicated information than previously addressed. Implications for further research are discussed. Suggestions for follow-up to this study are given.

Discussion

Based on the four research questions, there are four main areas to discuss: (1) teachers' teaching philosophy; (2) teaching knowledge (lesson plan design, teaching progression, teaching strategies, communication skills, and management skills); (3) content knowledge of forearm passing; and (4) concepts of linear and non-linear arms presentation. The findings from these areas will be compared with the review of literature

in Chapter 2 to show the connections between the information of other researchers and this study.

Teachers' Teaching Philosophy

There are five value orientations provided by Jewett, Bain, and Ennis (1995). The five value orientations are disciplinary mastery (DM), learning process (LP), self-actualization (SA), social responsibility (SR), and ecological integration (EI). Each value orientation has its own characteristic that will be used for a specific design in curriculum.

For instance, Teacher A focused on skill learning more than social learning. She believed that teaching the fundamentals of a skill was most important for teachers. Throughout the detailed teaching, students were able to practice each skill many times so that they could improve the skill. However, other teachers emphasized the different value orientations in the volleyball lessons instead of only one value orientation. For example, Teachers B and C believed that teachers should not only emphasis skills and activities, but also social and cognitive learning. Teachers endeavored to get students to think and problem solve to raise their motivation and excellence. In addition, it was important that students have health and lifestyle fitness activities, and be provided fitness activities that were helpful. During the learning process, Teachers Y and Z thought it most important that students experience successful learning and be at optimum health for each lesson. Therefore, they would design the lessons focusing on a successful learning experience more than mastering the skill.

The findings from this study also supported the research conducted by Chen and Ennis (1996). Teacher X had his own value orientation and beliefs that affected him

when he established his teaching goals. For instance, he mentioned that the end goal of the volleyball lessons was for students to play a real game with teammates. He also made the progression to accommodate different skill levels. For example, one progression consisted of bumping by self, to working with a group, to playing a game against another team, to knowing the rules. He believed that playing the game would enhance the students' competition and knowledge related to volleyball rules and routines that were most important for the volleyball lessons. However, five teachers did not emphasize the game competition. They taught rules of the volleyball game, but did not emphasize game competition.

Comparing the findings from this study and other research, the data showed that there were similar information but also many differences. In the elementary level, teachers had different thoughts and ideas about the most important things that students needed to learn in the Physical Education class. Some teachers focused on the skill related to the sport and game competition, but others believed that fitness, health, movement skill, social skills, or general skill and knowledge were most important. Regardless of the emphasis and decisions, the evidence showed that the teachers' teaching philosophy was the most significant influence to directly affect teaching and curriculum design. Teachers had their preferences regarding what objective they emphasized when teaching their students.

The results of this study also gained extended information showing teachers' expectation for students' future learning. Teachers who thought their teaching would be

an influence to benefit students later in life focused more on excellent performance as a volleyball player.

Generally, six teachers had different expectations for their students as they taught forearm passing in the volleyball lessons. The expectations included basic understanding, correct skill performance, lifetime sport activity, fitness ability, and self-confidence. For instance, Teachers B and C expected their students to have basic understanding of the forearm passing skill and fitness ability. The basic understanding included the knowledge of when and how to use the forearm passing skill. Students were not only shown how to do it, but it was also verbally described as to what it should look like. The fitness ability related to how to control body movements and the use of large and fine muscles. However, Teachers A, X, and Y expected students to perform forearm passing correctly. Teachers A and Y mentioned that the students needed to show exact technical skills such as: how to hold hands and arms, where the ball makes contact, where to position follow-through, and how to use legs to lift the body as opposed to using arm swings. These details related to learning forearm passing.

The most common thought among the six teachers was that none of them expected their students to be professional volleyball players. They explained that fifth-grade students would know how to use the basic skill, when to use it, and the basic rules to play the game. It is too early to focus on the professional practice and game emphasis. If students have a high interest to be a volleyball player, they could pursue it at the middle, high school, and college levels. They may also participate in some volleyball camps in which they will have specific instruction and practice about professional skills

and strategies for games. However, it is not necessary for teachers to expect that level of involvement at the elementary level.

From this point, it could be seen that all teachers focused on the basic skill learning and knowledge more than on learning to be a professional player. Young children need to keep interest and motivation high for many different activities. If the early focus is on professional learning and practice, then frustration and burn out may be produced which influences the student's psychological development related to learning the sport and activities. The physical and psychological development has to compliment each other for young children. If one is emphasized more than the other, physical and psychological development may not be complete nor healthy.

Teaching Knowledge

In regards to teaching actions, information will be discussed pertaining to lesson plan design, teaching progression, teaching strategies, communication skills and management skills. However, because some information is covered in other areas, the researcher decided that it is better to combine all information of teaching action and discuss them together to make the major points for discussion.

Lesson plan design. Throughout the data analysis, there were six different parts used by different teachers for their emphasis. These parts were organization (introduction), general game, fitness activity, lesson focus, calming activity, and closure. However, when time was limited, teachers usually chose three or four parts of the main focus to be taught: organization (introduction), fitness activity, lessons focus, and closure. These were the most important portions designed by the teachers.

The findings supported Rink's (1998) ideas that teachers focused differently in the goal and objective writing, anticipated progression of task, anticipated time, task communication, and task organization. For example, to manage time, teacher B had 45 minutes total for her PE class, which was longer than the other five teachers (30 minutes for PE class) so she had a different emphasis from the others. Teacher B had 25 minutes for fitness activity. The other five teachers used 3-5 minutes for fitness activity. As teacher B designed the 25-minute fitness activity, she said the fitness activity was equally important to the lesson focus (main skill teaching) because she believed the improvement of students' fitness ability would enable them to keep proper health and establish good exercise habits. The differences in time for PE are important to consider.

In contrast to teacher B, teachers X and Z had different lesson plans to present the teaching of forearm passing. The greatest difference was that these two teachers used 25-28 minutes out of 30 minutes of the class time for their lesson focus (main skill teaching). In the class of Teacher X, he gave a very brief lecture about how to perform the skill and demonstrated very simple parts, which usually took less than 3 minutes. The main point of the class was to maximize the time the students had for activities and movement during the lesson.

Addressing Teachers A, C, and Y, they usually had a three minute general game, five minute fitness activity, 15-20 minutes for lesson focus, and two to three minutes for the closure in the 30-minute PE class. They emphasized the general portions for their class because they thought students needed the general game and fitness activities to warm up and get ready for movement and the main skill's focus. If there was too much

fitness activity, students lost energy quickly and had a difficult time performing the main skill learning. Meanwhile, Teachers A, C, and Y wanted to have balance for their teaching.

The finding of the information of how to manage practice time showed positive and negative support to Behets' (1997) research. He indicated that the most effective teachers had significantly higher scores for active learning time and lower scores for instruction time. His study suggests that providing maximum time for student practice was a very important factor, so that teachers should limit the instructional time. In this study, however, some teachers provided maximal time for practice, but others had an equal portion for different organization with appropriate instruction. Teachers showed it was not appropriate if they spent more of the class either in maximal practice time or instructional time during the teaching. The most important thought was when they taught forearm passing, they needed to describe it in detail with enough practice time for students' learning.

Similar to research of Westerman (1991), the findings of this study showed that even when teachers had a different focus on their lesson plans, they still needed to make lesson plans around all the ability levels of students. Teachers needed to plan many activities and change often if they felt the activity did not fit students' abilities. The change would increase students' interest and motivation during the lesson. In addition, teachers will acknowledge students' different abilities to plan curriculum and lessons. The students' developmental level is a very important factor to consider when finalizing lesson plans.

Teaching progression. Based on the literature review, Rink and her co-researchers (1991) mentioned that students are not ready to learn complex skills in the beginning. Skills should be broken down into simpler components before moving on to more advanced tasks. In the progression of skill's learning, teachers taught different components of forearm passing, but they taught it in an ordinary way from the basic step to the advanced step. According to the individual diagram of skill teaching progression, Teachers A and B had mostly the same content knowledge and teaching progression of forearm passing. They taught six steps of forearm passing and followed the first ready position to the end of the follow-through. In each step, they taught similar information of forearm passing that mostly emphasized the major points of a single skill.

Teachers C, Y, and Z also had the same teaching progression, but did not teach all steps. They skipped the same steps of mobility, arms presentation, and passing action. Teacher X taught only the ready position and performance base. Six teachers had different focus on the skill teaching progression.

To detail discussion, teachers taught three steps: ready position, performance base, and follow-through. Teachers believed that the ready position was the basic preparation of forearm passing. They thought that students needed to know how to stand first, and where to put their arms. The performance base is the form of forearm passing by which students know how to put arms and hands together and where to contact the ball. The last one, follow-through, is the final action of forearm passing. As students know how to contact the ball, they also need to finish it by the correct action so that they continue to complete the whole action. If teachers would teach all steps instead of two or

three steps, students would learn and understand in more detail the skill of forearm passing. However, some teachers believed that it was sufficient for beginning students if they taught only the three basic technical steps. Generally, as teachers taught forearm passing, they had ordinal an progression for students to learn. They did not teach the performance base or arms presentation first, which would confuse students' learning.

Besides the the progression of skill teaching, the progression of organizational activities of forearm passing helped students to approach the learning of the skill. Based on the results of this study, there were five to eight different activities that teachers used for the progression of teaching forearm passing. These activities were: demonstration and explanation, individual practice, partner practice, group practice (2, 3, or 4 people), and volleyball game.

The findings from this study supported Rink's (1998) theoretical idea. There were the individual, partners, groups' practice, and volleyball game progressions used by all teachers. Teachers used different movement tasks and linked each movement task to develop content and motor skill learning (Rink, 1998). They gradually used them from the individual practice to volleyball game playing that increased simple learning to complex learning with partners and teammates (French et al. 1991). Sometimes, teachers used these activities in a different progression back and forth for students to get a sense about different feelings and relationships. For instance, during individual passing, a student had to control a ball by him/herself. In partner passing the students had to know the distance from the partner to control and pass a ball, while in group and game playing, students had to learn the relationship between teammates and cooperation with each

other. These activities were designed step by step for students to have advanced knowledge of forearm passing.

Using different equipment in the activities also showed different progressions. The two major pieces of equipment relating to the teaching of forearm passing were balls and the net. For example, teachers increased practice gradually from the individual practice without a ball to a balloon and eventually to a training ball. In the partner practice, they had practice without the net and progressed to using the net. Gradually using the balloons and beach balls first did not hurt arms and hands, and students would practice the skill often. If the teachers used the real volleyball first, students would not have had a good experience with it and might lose interest about playing volleyball.

When students practiced the passing skill with a net, it was different from when they practiced it without a net. With a net, there was a standard object between the students so they had to learn to pass a ball over it, which meant they had to have an ability to do the passing. To increase students' confidence and build a successful feeling, teachers usually had activity progressions from using no nets to using the net at the end of the lesson.

Two special teaching progressions were shown in Teachers B and C's volleyball lessons. Teacher B had the Bleacher Bench activity and Teacher C had the game of Deck Tennis. Because these two activities were also effective teaching strategies, they will be discussed in the teaching strategies section.

Although there were similar patterns of teaching progression used by all teachers, the teachers still presented their professional knowledge of teaching the forearm

passing progression and the activities organization differently. Some had very strong content knowledge and effective activities for learning forearm passing, and some just showed the regular teaching without special emphasis. This teaching progression strongly related to content knowledge of forearm passing.

For example, Teachers A and B had many years of coaching experience and they also played volleyball at different educational levels. They knew detailed information of each specific skill and designed effective activities for students successfully to learn and understand forearm passing. In contrast Teachers A, B and Teacher X had football and basketball coaching experience, but did not have volleyball coaching nor playing experiences and did not present an outstanding teaching progression and content knowledge of forearm passing. Although some teachers did not present an effective teaching style for their volleyball lessons, they all had logical thinking for teaching forearm passing.

Teaching strategies. There were many teaching strategies used by all, and most of the teachers were successful in using teaching strategies for the teaching of forearm passing. Teachers created and provided their own instructional methods consistent with the needs and characteristics of their students in the volleyball lessons (Sharpe, 1994). There were some common teaching strategies used by all teachers and some special teaching strategies used by individuals as well.

The teachers' use of the teaching strategies reflected the different purposes for specific learning experiences such as individual skill enhancement, group activities, and whole class activities. For improvement of individuals' forearm passing, the teachers

used the strategies of visual demonstration, verbal reinforcement, counting consecutive passing, setting goals, personal challenges, question and answer (Q & A), and the use of different balls. These strategies were applied in the beginning of teaching passing, during the practice time, and at the end of the lesson. For instance, the strategies of visual demonstration and verbal reinforcement were usually used as teachers taught in the beginning of each lesson. Teachers would demonstrate and repeat verbal information, which reinforced students' knowledge and conceptualization of forearm passing.

Setting goals, giving personal challenges, and counting the number of consecutive passing were utilized during the practice time. When combining these teaching strategies, for example, teachers would say "could you bump the ball into the air ten times, could you bump the ball into the wall ten times, or could you pass a ball with your partner back and forth five times?" As students had their goals, they would count the numbers for the passing skill. If students achieved their goals and had a good performance with a partner, teachers would give them more to challenge their learning. When considering several elements such as students' learning ability, the learning background, and age reference, teachers would give students different goals and challenges (Carleton & Henrich, 2000; Sharpe, 1994; Tipps, 1988). The strategy of Q & A was usually used by teachers at a different time, however teachers used it most at the end of the lesson (closure) because teachers wanted to assess the information about the students' learning. In addition, the strategy of Q & A provided a good method for students to "think." The training of the students to think enhanced their ability to analyze detail of the skill, not only in each piece but also in the whole action.

For improvement of the groups' learning, teachers used the strategies of peer coaching, student demonstration, and station work. Peer coaching, for example, was used in the group of partners' practice. Students used their language to teach and communicate information. To encourage students presenting their performance, the strategy of student demonstration was an appropriate way for students to demonstrate forearm passing. To enhance the social learning (Gibbons & Ebbeck, 1997), station work was an important teaching strategy used by teachers. Throughout the station work, students had various roles and learning in the group's activity. They learned how to toss a ball appropriately, how to pass the ball to the catcher with the right direction, and how to help each other make a good circle. All skill components needed to be done in the right manner in order to have a good flowing skill execution. In this learning process, students learned to help each other and had appropriate communication that was very important for team coherence.

In order to improve the whole class learning, there were volleyball game emphasis, modified rules, observation, frequent review, and motivation strategies. For instance, the volleyball game emphasis and modified rules were used together at the end of the lesson. Teachers believed that students needed to learn all phases of volleyball instead of only the technical skill so that the students would understand the emphasis at the end of the lesson. Because these students were in the fifth-grade and it was their first time to play a real volleyball game, teachers modified rules to fit the students' needs. Modifications included: lowering the net, shortening the distance of the serving line, and

using beach or training balls instead of a real ball. The modified rules gave students more opportunities and confidence to play a volleyball game.

The strategies of observation and frequent review were used during the whole teaching process. As teachers observed an individual's or groups' practice that had an incorrect performance, they would help the student(s) to review the skill immediately. If teachers saw some misbehavior during the practice, they would give appropriate feedback as soon as possible. Observation was an essential strategy utilized by the teachers to obtain feedback pertaining to the teaching and learning situation which might lead to immediate changes in the activities.

In some special teaching strategies, Teachers B, C, and X provided their own specific strategies. The selection of specific teaching strategies for their learning objective reflected their perspective on how students learn and was an essential experience for students to achieve (Rink, 1998). For instance, Teacher C had the game of Deck Tennis before the normal forearm passing learning. She called the Deck Tennis the preliminary tossing-and-catching activity. Teacher C used this activity to facilitate students to learn the tossing and catching an object first. Because the ring was similar to a ball, students needed to learn how high and far to toss an object to a partner. The partner also needed to learn how to move legs and body to catch the object, which was the same as to learn the forearm passing (tossing and passing or passing back and forth).

Teacher B's teaching strategy used the Bleacher Bench activity to facilitate passing skill learning. This Bleacher Bench activity was the first activity that students could practice with a ball by themselves. The function of this activity was for students to

bounce a ball by themselves, which gave them control of the ball rather than having a partner bounce a ball to them. In addition, as students bounced a ball, they were sitting on a bench chair that was as high as the ready position of forearm passing (bending knees). This allowed the students to understand what was the proper height (no standing stretch) to wait for the ball and then pass it. The most important learning was how to control the ball first when the ball came down from the air, and to know when and where to contact and pass the ball to a partner.

Teacher X used a specific strategy for his lesson, which was a one-minute game competition. This one-minute game competition emphasized that students continually bumped as many balls as possible to the opposite team in one minute. After one minute, Teacher X asked them how many balls they had bumped to the opposite team so that they would compete with each other. During the minute, students passed as many times as possible without accurate skill. Therefore, this strategy provided fun for students to compete with each other. However, it might not be an appropriate strategy for forearm passing. Because students focused on how many balls they could pass to the opposite court, they might forget to bend their knees and to stretch their arms, or to bump the balls by their fists.

Generally, six teachers provided very useful teaching strategies in the volleyball lessons. They demonstrated very professional teaching knowledge (pedagogical content knowledge) in their teaching strategies and also used specific teaching strategies to enhance the technical skill learning. Many of the teaching strategies utilized by teachers provided particular improvement for learning forearm passing. Teachers showed that they

understood the features of each strategy and appropriately used it with different learning situations, objectives, nature of content, and characteristics of the learners to better facilitate students learning (Dyson, 2001; Rink, 1998). Most importantly the teachers needed to connect specific content knowledge with teaching knowledge (pedagogical content knowledge) that would increase the effectiveness of their teaching and maximize student learning as much as possible.

Communication. In the volleyball lessons, teachers used various communication skills to facilitating student learning. These communication skills included introduction and closure, demonstration and explanation, feedback, and learning cues. Teachers in the current study organized information such as lesson overviews, major points of the lesson, and describing the lesson's activities similar to the subjects in Schempp's (2003) study. For instance, Teachers A and B mentioned, "We will have the new skill of forearm passing and the activities that relate to forearm passing." Teacher Z focused on the information of the goals and purposes of learning in the volleyball lessons. This was different information to communicate with students in the introduction. Because of a different emphasis, there were many main points to talk with students, and students would expect the main skill and different activities in the lessons (Schempp, 2003).

At the end of the lesson, teachers gave students comments or compliments about their learning. For example, Teachers A and B gave comments related to the correct and incorrect skills performed by most of the students so that if they had the wrong skill, they needed to know how to correct the action for the next time. On the other hand, Teacher Z would give students many compliments for individual and group learning. For example,

she asked, “How many of you did the bumping?” The students raised their hands to show they all did very well.

Most of the time, teachers used a two way communication with their students. For example, in Teacher X’s class, his students asked the reason for the uneven net in the volleyball court. Also, in the Teacher Z’s class, students asked to have different rules to play the volleyball game. The communication not only focused on the teachers’ lecture, but provided opportunities for students to ask questions related to the lesson and the main skill’s learning. When there was two-way communication between teachers and students, students were involved in the learning and enjoyed the activities more.

The demonstration and explanation was the most important communication and key point for students to learn and understand passing skill. Sometimes, teachers were unable to describe it effectively so that using demonstration and explanation helped them to be more effective (Rink, 1998). This communication not only focused on verbal description but also presented each piece of the passing skill by body demonstration. For instance, Teachers A, B and C had demonstrations and explanations when they taught forearm passing. They taught the ready position with detail about the up-body and low-body positions. In the up-body, teachers mentioned, “you need to put your arms in front of your chest and be relaxed.” In the low-body, teachers said, “your knees should bend and your legs should be slightly apart and not wider than the shoulders. The feet should be slightly behind each other and the behind foot-heel should be a little bit higher so that you could move quickly in any direction.” Students had both visual and auditory stimulation from teachers, which was very important for the students to understand the

skill. This result supported the research that indicated the expert model performance helped students understand more (Zetou et al., 1999; Zetou et al., 2002).

Teachers X, Y, and Z did not present a very detailed demonstration and explanation of each part. However, they still demonstrated and explained simple parts of the passing skill, such as the arms stretched out, and hands held together for the performance base. During the teaching process, these teachers did not mention specific information of forearm passing that should be known and used for passing a ball. However, the demonstration and explanation definitely was the effective way to communicate with students. Teachers deal with the relationship between the body and the object. Therefore, to use demonstration and explanation together was essential for communication in the teaching process.

The demonstration and explanation usually was used to teach a new skill. However, during practices, group activities, and game playing, feedback and learning cues were the major ways used for responding to students' learning and performance. The feedback and learning cues usually were used together by teachers when they saw students had an incorrect performance. Examples of specific feedback with learning cues utilized by the teachers included: "Do not cross your thumbs; arms together and straight out; like setting on a chair (ready position); do not hold hands as stepping; loose your legs for moving quickly; reach out; keep low; legs spread; head up; back straight; line up the ball; don't swing; shrug (bring your shoulders to your ears) or lift; forearm, ready position; and lift your arms no higher than shoulders." Because there were many students with different backgrounds and abilities, the specific feedback was more objective for

each individual. Teachers believed it was a very useful tool to use to communicate with students. These learning cues were strongly related to the content knowledge of forearm passing that easily caught students' attention on how to improve and perform accurate skill acquisition (Housner & Griffey, 1994). The more specific feedback with learning cues, the more benefit students received during the practice of forearm passing (Rink, 1998; Pellett et al., 1994).

Feedback also included positive feedback. For encouraging students' performance, the positive feedback was very important. However, teachers had different thoughts about using positive feedback. Teacher B, for instance, said, "I recognize good things as well as constructive criticism on what they need to correct." Therefore, as students had a correct performance Teacher B gave positive feedback immediately. However, Teacher X had a different view of positive feedback. He said, "As feedback is a positive reinforcement, I would often use positive feedback. However, I cannot always be positive because students are going to think there is no room for improvement. We want to be striving towards improvement." From Teacher X's reflection, it was important to use positive feedback at the correct time.

Feedback was not only from teachers' feedback, but also from student performance. If the performance showed a mistake from the individual or group practice, students could see it for themselves so that the performance was a feedback itself. Teacher B said,

I try to reinforce that mistakes are a part of students' learning, but students should also be making progress with repeated trials. This is a different way to see that making a mistake was good feedback for students.

Teachers used learning cues that strongly related to language use. For example, Teachers A and X used the same example of “elephant.” Teacher A said, “No elephant,” and Teacher X said, “Let’s see your elephant trunk.” The big difference between Teacher A and X was that Teacher A said, “I don’t want the students running around looking like elephants because it makes you huge and slow.” However, Teacher X’s meaning of the “elephant’s trunk” referred to the performance base (hands together). He said, “If you had two hands separated that was not an elephant trunk and that was not a bump, because you could not have the two hands separated (two trunks).”

Teacher B also provided a good example. She mentioned that “If I say your trajectory would be all wrong, the students might have no idea what I mean by ‘trajectory.’ So, I would use that word and explain it to students, ‘your line of flight to the ball,’ that is what trajectory means, and that is what is going to happen if your arms are from the A position to the B position.” As teachers used either different or similar examples in their teaching, the most essential point was that teachers needed to describe with specific language so that students would understand the exact meaning.

When teachers taught forearm passing or mentioned a major learning situation, they not only possessed the content knowledge but also used appropriate language to communicate with students. Most of the time, teachers demonstrated and explained parts or the whole passing skill with appropriate language that gave a clear picture for students to understand the deeper meaning of each specific skill. However, to be responsible for the lesson, teachers need to consider language, words, and examples used in

demonstration and explanation, feedback, and learning cues in order to facilitate student understanding.

Management. Since teaching is a complicated activity, most of the teachers had their own management skills that supported their teaching flow. The management included many things such as organization, class rules and teaching signals, organizing groups, equipment use and design, and students' behaviors.

The organization of a PE class in the beginning was very important as students came into the gym. Some teachers had the students sit in the central area. However, some had activities immediately. Teacher A, for instance, had students do activities such as talking with each other as running with music for 2 minutes, and then they would go to the central area for the main teaching. She said, "Because students come from the indoor classroom, they needed to talk and relax before the main teaching. It was a good way to connect to the main focus." Teacher Z organized students with his/her partner quickly and gave them the information related to how to do the partner's practice when they came into the PE class. She did not want students to sit in the central area for listening because that seemed to be a waste of time.

Applying equipment to organizing students in the beginning, Teacher B had a good example. She had five large colorful cones (red, green, blue, orange, and purple) in the organizational area. Behind each cone were five or six students, and Teacher B would call each one "a squad." Each squad had a squad leader to report the attendance so that teacher B knew who was absent and made the report quickly. Teacher B said, "I want my class and students to be organized. It makes the class and students orderly and reduces

misbehaviors.” Teachers A, Z, and B had different organizations when students arrived at the gym; however, they did not waste time for description and preparation of the equipment. They made the transition well and students knew the different purposes of each activity or action. The results from this study supported the research conducted by Emmer and Evertson (1981) who indicated that successful classroom management consisted of teacher behaviors that produced high levels of student involvement in activities and minimal student misbehavior during the instruction. Skilled teachers used effective classroom management to create and maintain an appropriate environment in which instruction would occur (Sariscsany & Pettigrew, 1997). However, teachers also had their preferences of how to organize their classes and students. These preferences might be influenced by the learning environment, time, number of students, and other situations.

In group activities, Teachers A, B, and C used colorful clothes (e.g. red, blue, orange, or green) to manage different groups. The colorful clothes were very useful to separate groups because when teachers called the specific color to change the game, students quickly understood the order and continued the activity. Besides using clothes to manage groups, teachers used various balls for different purposes.

For example, balloons were used in the beginning of learning forearm passing. Because teachers wanted students to form the skill, using balloons would not hurt arms and hands. A beach ball made the students feel that they practiced forearm passing, but it was still light and did not injure. The training or real volleyball ball gave an accurate feeling about the bumping. The training or real ball might not be easy for young students

to bump, but it would give an accurate sense of what was real bumping. Teachers understood that each different type of equipment had a specific objective for students to improve the forearm passing skill and facilitate activities. Teachers showed the appropriate connection between the pedagogical skill and the main content learning which was a different result from Reynolds's research (1992). He mentioned some teachers did not plan and use appropriate pedagogical skills to connect and develop the main content in their class.

The basic rules and signals of the PE class were used to manage student behavior. Teachers gave the information as they started the new semester. This result was similar to the research which indicated that most teachers established rules, routines, and expectations early in the school year (Perron & Downey, 1997). The information from Teacher A included a positive discipline: respect for each other and teacher's speaking, be nice and friendly with each other, and present appropriate behaviors. Teacher B provided a discipline program that if students did not follow the teacher, the teacher might say "strike one" for a warning and then "strike two" to be out for a time. However, Teachers C and Y had a different way to stop students' inappropriate behaviors. Teacher C changed students by putting them into different groups. Teacher Y walked close to students and communicated with them with a friendly tone, and then students would change their behavior.

Each teacher had his/her own method to organize the PE class, group activities and to discipline students' learning behavior or misbehaviors. They showed outstanding management skills that were demonstrated during the volleyball lessons. Throughout the

management program, the teachers and their students demonstrated good relationships and effective ethics.

When teachers taught the forearm passing, they used many teaching methods (pedagogical content knowledge) throughout the teaching progression, teaching strategies, communication skill, and management skills. Some teachers demonstrated essential methods to teach forearm passing step-by-step such as the orderly teaching progression, the strategies of using bench-chair and deck tennis, description of technical skill detail, question and answer, and appropriate organization and management. On the other hand, some teachers had other concerns or emphasis such as: spending more time for activities and fun. These teachers did not focus on skill learning. Teachers had their own way to present their teaching and had a good connection with students.

Forearm Passing (Content Knowledge)

The content knowledge of forearm passing that teachers taught in their volleyball lessons included the key components of forearm passing, identifying errors (up-body and low-body), volleyball rules, and the concepts of linear or non-linear arms presentation.

The Key Components of Forearm Passing. Based on the literature review, different authors emphasized different key components of forearm passing. Schaafsma and Heck (1971) and Viera and Ferguson (1989) mentioned that the forearm passing included three components: ready position (preparation phase), contact (execution phase), and follow-through (follow-through phase). However, Shondell (2002) and Dearing (2003) indicated that forearm passing has more components to be taught such as: ready base (passing posture), mobility (stepping/ moving to the ball), performance base

(locking in/ making a platform), arms presentation (linear or non-linear contact), passing action (arms extended), and follow-through (tracking the ball). If based on the information of literature review, the results of this study showed that Teachers A and B taught all six components and had a very strong content knowledge, Teachers C and Y taught the ready position, performance base, passing action and follow-through. Teacher Z taught the ready position and performance base, while Teacher X only taught the performance base.

There were differences in both teaching key components and in specific knowledge of each component which needed to be taught in detail. For example, five teachers taught the ready position, with the exception being Teacher X. However, the teachers might teach the content knowledge differently. For instance, Teachers Y and Z generally introduced the ready position that is the bending the knees, legs wider than shoulders and arms ready. However, Teachers A, B, and C taught detailed information about it. They taught that in the up-body position students need to keep the shoulders and hands relaxed, arms apart and in front of the chest. In the low-body, students needed to bend knees and stand in a low position, legs wider than shoulders with one foot slightly ahead of the other (the behind one needs to move the heel up slightly for quick movement; Dearing, 2003; Shondell, 2002). Teacher C explained why the ready position was important. She said, “When we have a good ready position which is the center of gravity and gives the essential fundamental base, we have more balance to move in another direction quickly.” This thought was similar to Yoshida’s idea (2002) that the

body of gravity is our fundamental base, which gives us the power to receive receiving a powerfully spiked ball and keeping the body in good balance.

The step of the mobility (stepping) is linked to the ready position and the performance base. However, only Teachers A and B taught mobility to students. They generally taught only three steps from the ready position to the incoming ball. When stepping or moving into the incoming ball, students needed to have hands apart with the body low and good stationary balance, and then holding hands together as ready to contact the ball (Shondell, 2002).

The performance base was the step that all teachers taught. Generally, teachers taught regular knowledge such as: arms stretched and even with each other, and ball contact in the forearm area. However, Teachers A, B, and C taught the detail that students needed to know how to hold hands (two ways: gripping hands together with fingers interlocked and palms overlapped held together making thumbs even). The thumbs needed to point to the floor which stretches the arms, but does not cross thumbs to make an uneven surface. The arms needed to be in the correct position that makes a V shape. All teachers taught the performance base. However, they still had different content which resulted in different student performances.

The follow-through was the final step, but easily forgotten. Teachers A, B, C, and Y had a common knowledge of the follow-through that was “lifting instead of swing.” They taught the students to lift their arms as they passed a ball. Teachers C and Y also enhanced the information related to leg power. They mentioned, “The power comes from legs and the action changes from bending knees to stretch legs.” However, Teacher B’s

instruction differed relating to leg power. She said, “When you pass a ball, your legs need to move up from low to high, but do not totally stretch your legs (knees).” Otherwise Teachers A, B, and C taught students that when you continued the passing action, the arms squeeze in and away from the shoulder. The shoulders and arms need to be square and toward the target. To finish the follow-through, eyes should follow the ball into the target so that the ball would not go in another direction (Viera & Ferguson, 1989).

Compared to the other teachers, Teachers A and B demonstrated strong content knowledge of forearm passing in their volleyball lessons. They not only taught all steps but also taught detailed information of each component. Although Teacher C did not teach all steps, she gave a very detailed description of the steps that were emphasized. Other teachers did not teach the knowledge as detailed as Teachers A, B, and C. They had different concerns or emphasis relating to their philosophy of the PE class (i.e. fun, lifetime activity, and being healthy were more important than skill emphasis)

The Identifying Errors of Forearm Passing. Identifying the errors is also important in teaching forearm passing. As teachers taught forearm passing skill, they identified some major errors. Identifying errors is also related to the teachers’ knowledge of accurate skill. Most teachers identified the up-body (including: arms, hands, elbows, thumbs, and shoulders) errors more than low-body errors, with the exception of Teacher Z. In the part of hands and thumbs, for instance, the teachers specified that “do not cross your thumbs uneven with each other, do not hit the ball on the wrist or thumbs, and do not hold your hands as you move into the coming ball.” With the arms and elbows, they pointed out “do not swing your arms, do not use too much force, do not bend your

elbows, do not have one arm higher than the other, do not lift your arms higher than the shoulder, do not move arms out of your body, and do not put your arms too close or far away from your body.” (Schaafsma & Heck, 1971; Viera & Ferguson, 1989).

Only Teachers A, B, and C demonstrated the errors of the low-body. They pointed out such errors as do not stand with your feet together, do not have your feet even with each other as you prepare to contact a ball, do not stretch your knees, and do not jump as you pass a ball (Schaafsma & Heck, 1971; Viera & Ferguson, 1989). As teachers pointed the errors to the students, they explained about the reasons not to use the incorrect action. For example, they mentioned to students that if they lifted their arms over their shoulders, the direction of the ball would go over the back instead of to the front of the target. They also explained that if the player jumped while passing the ball, it makes an unstable foundation and the ball may go in the wrong direction.

When teachers pointed out errors to different students, they gave more information related to the errors. The teachers did not only focus on identifying an incorrect action, but also gave the reason why the students should not do the incorrect action. Therefore, students could distinguish the different results from a good skill performance.

The Volleyball Rules. Most of the teachers believed that volleyball rules were important knowledge for students to learn and understand so they taught the volleyball rules in the volleyball lessons. There were many different rules taught by the teachers. Some teachers taught only the basic rules, but others taught more advanced information.

As teachers taught volleyball rules, they emphasized such basic information, as six players rotation, standing position, serving line and place, how to count the score, the boundary of the court, legal actions and illegal actions. However, even the basic rules had different content taught from teachers. For instance, in the rule of six players, Teacher C mentioned that three players stand in the front row and three players stand in the back row of the half court. Each player needs to know the relationship with each other and how to receive a ball. In addition, Teacher B mentioned the 3-meter spiking area that was more professional information for students to learn. Students understood that only three front players could hit a ball in this area. If the back row of three players hit a ball in this area, it would be an illegal action.

There was also much different knowledge related to the legal and illegal actions. When explaining legal actions, for instance, teachers mentioned each team had three times to hit the ball with different players; a ball touches the line is in bounds and available, and if the ball is out of bounds, the team does not lose a score but the opposite team gets one score. The illegal actions included that one player cannot hit the ball twice, and players cannot touch the net during the game. Teacher B also provided more specific information about a player contacting a ball by his/her elbows, which was illegal called “carrying a ball.” When teachers taught more knowledge related to the volleyball rules, students would understand the volleyball game more when they play it or watch it.

Because the focus was fifth-grade students in their first time to learn real volleyball skills, teachers would teach volleyball rules focused on basic information more than professional knowledge. Teachers believe as long as students understood how to

play volleyball and knew the volleyball rules in this beginning step, they would increase interest of volleyball for the future.

The concepts of linear or non-linear arms presentation. To teach the concept of linear or non-linear arms presentation, all teachers focused on the linear arms presentation except Teacher A, who taught both concepts. Teacher B said, “For this age group, I basically made it linear, so the ball was going to be at their mid-line. Students have to move over to line up to the ball. I don’t think they are capable or ready for that.” Teachers C and Y said, “Because students have to move the feet more for the linear contact, the quickness of their feet will help them. I think that would be a natural progression of a skilled player. It is very basic, where we are just trying to keep inbounds and in control.” Teachers X and Z had the same thoughts. They mentioned, “I want to try to get them balanced all the time. When students are younger, they will not move their feet. I want them to always try to move their feet, so the ball can be in the middle of the body.” These ideas supported Yoshida’s idea that a player needs to use the linear arms presentation to have a more fundamental base (Yoshida & Saindon, 2002).

Although five teachers had the same idea to Yoshida’s linear arms presentation, they had different reasons to teach it. For example, teachers would focus on foot movement. They believed young students needed to move their feet more and be familiar with the different directions of movement and know how to control the body. However, Yoshida (2002) mentioned the key word: “Tanden” that is the main power of the body. If players used the linear contact, they could remain stable and keep their foundation firm when they contacted a very powerful ball. The reason why the teachers had a different

viewpoint to teach the forearm passing was probably because the teachers were elementary PE teachers, but Yoshida was a professional volleyball coach.

All teachers did not agree on the use of non-linear arms contact, because students would easily forget to use their feet and make forearm passing skill mistakes. In addition, teachers mentioned that to use the non-linear arms contact they would have to teach different technical learning for hands, arms, and body before the students could perform the correct non-linear arms contact. For the early stage, it is difficult for students to learn different kinds of arms contacting. If they could do the basic, linear arms presentation very well in the first step, it would help to enhance their ability in the sixth grade or at the secondary level. Therefore, all teachers mentioned that they would teach non-linear arms presentation in the future.

Implications

The main implications are discussed in this section. Even though some teachers may not have demonstrated very strong content knowledge of forearm passing skill, they still presented their teaching knowledge (pedagogical content knowledge) to fit specific skill learning. There was significant information that could be extended to the future. The implications would give some information for pre-service and in-service physical education teachers as they teach forearm passing to elementary students.

Teachers' teaching philosophy definitely influenced teachers' designing and teaching of the volleyball lessons and forearm passing. For instance, four teachers believed that healthy and lifetime activities were the most important ideas for them to teach in the physical education class. Students needed to participate in a variety of

activities which increased their interest and motivation for different things. Therefore, designing and teaching the fitness and game activities were equally important for skill teaching.

Besides the thoughts of health and lifetime activities, Teachers A and B thought that focusing on skill teaching was very important as well. To become a fundamental teacher, they would teach the skill as detail as possible. Therefore, in forearm passing teaching, they taught content knowledge step by step from the ready position to the follow-through. Teachers A and B believed that teaching technical skill was very essential, but it was not necessarily strongly related to sport competition. In contrast, Teacher X believed teaching skills needed to relate to the sport, which enhanced students' competence of the skill for future use. Thus, his philosophy influenced his teaching related to the volleyball game and emphasized the teaching of volleyball rules more than skill teaching.

The social skills' teaching was also an important emphasis in the physical education class. Throughout the different activities, students could enhance their cooperative learning with each other, know what the group/team concept is, and be successful in different situations as they worked together. Teachers believed social skills were very significant learning for their students. The teachers attempted to improve the students' social skills by peer coaching, group activities and game playing as well.

Even though teachers had different philosophies, they had the same common idea of not expecting the students to be professional volleyball players in the future. They believed that teaching should focus on skill and social learning, fitness activities and

lifetime activities. However it was still different to be a professional player. Because teachers did not expect students to be professional players, the teaching method and approach would be totally different from coaching a volleyball team, which is the most significant difference between teaching and coaching.

Teachers' thoughts and ideas could be the same or different in their teaching, which gave different results for the teaching of forearm passing. However, this would not indicate whether or not they were an effective teacher when teaching activities or sports. The different thoughts and ideas were the most important things of instruction to help pre-service and in-service teachers to understand there were many teaching emphases that could be different but still be equally important for students to learn.

Future studies might concentrate on teachers who coached elementary school age students. Their coaching philosophy and the reasons they coach the young students may differ as they teach. It would also be of interest to explore whether these coaches have the same or different thoughts and ideas of coaching, as compared to secondary school coaches.

Besides the teachers' philosophy, the teachers' teaching action and content knowledge were the major concern of this study. There were lesson plan design, teaching progression, teaching strategies, communication skills and management skills. When teachers made a good connection between teaching knowledge (pedagogical content knowledge) and content knowledge of forearm passing, students experienced successful learning of forearm passing.

Class organization was one of the most important elements in the teachers' teaching action. When teachers organized group activities and equipment, they considered the organization needed to fit a specific learning experience. For instance, from the partner's practice in tossing and catching, students would experience how to toss a ball to a partner and then the partner would know how to move the feet to catch the ball. Teachers had to know the function of each practice activity and how it could enhance the students' learning of the passing skill. In addition, the use of different balls indicated that the teachers understood that different balls could facilitate learning. For instance, the balloon and beach ball increased students' interest about learning the forearm passing and would not hurt their arms. The training and real balls gave a true experience about bumping. To know the different options, teachers had to know forearm passing very well. Through the use of different balls and practices with each specific direction, teachers could teach students elaborate information related to the whole passing action.

Applying the teaching progression in skill teaching and activities organization, some teachers demonstrated the significant teaching progression that made the transition very well. For example, when teaching the ordinary teaching step from the ready position to the follow-through, Teachers A and B made the teaching smooth and organized. They taught specific information in each step and focused on different parts such as arms, hands, thumbs, legs, knees, feet, movement, performance base, how to have a correct contact, and the whole passing action.

In regards to the progression of different activities, teachers usually had demonstration and explanation, individual practice, partner practice, group practice, and a

volleyball game. They organized those activities for different practice purposes and transitioned activities in the right sequence. However, different ordinal progressions were presented by different teachers. Teacher C, for instance, used the game of Deck Tennis before the forearm passing instruction. She used this activity to facilitate how to toss and catch the object first. This was a similar skill that they would use in forearm passing (tossing and catching back and forth). Teacher Z also used a different progression in the beginning as well. She had students practice forearm passing immediately without demonstration and explanation of the skill. This kind of progression saved much time, and students could have more time to practice the skill and be active.

Teacher B's Bleacher Bench and Teacher C's Deck Tennis were the specific teaching strategies related to teachers' content knowledge. The strategy of Bleacher Bench used the bench chair to help students understand how to bend the knees and to know the appropriate level at which to contact the ball. This strategy was a good method for students to control a ball rather than having a partner controlling the ball in the initial stages. It was also an appropriate activity to transition from the individual learning without a ball to controlling a ball by him/herself. The Deck Tennis activity used the ring to help students learn tossing and catching, which was the same as the theoretical learning of forearm passing.

In addition to the Question and Answer, the detailed visual demonstration and verbal reinforcement were useful to illustrate the main knowledge of forearm passing. When teachers possessed the content knowledge of forearm passing, they needed to know how to use language to impact learning. Without the use of essential communicational

skills, teachers might not successfully convey content knowledge to students. Therefore, the connection between teaching knowledge (pedagogical content knowledge) and content knowledge became necessary and important for the teaching.

All teachers agreed that there was an important relationship between the content knowledge and the teaching knowledge (pedagogical content knowledge). Teacher B said,

There are huge relationships between content knowledge and pedagogical content knowledge. I think when I have much content knowledge background that helps me to better break it down (sequential steps) for the students to learn easier and with more success. Students can be capable of understanding and remembering how many bits of information, pieces of information they can take in at once. I never coached softball, but I have taught it. I don't know near as much about softball as I do about volleyball. I can tell a big difference in how I teach the skills of volleyball. Verses the skill of softball, I know the basics of softball, but not all the little intricacies, all the detail things that can help the students have success and better understanding.

Teacher C also mentioned that she was not a volleyball coach or player, but had many years of working with children and watching students respond to different situations. She said, "My knowledge of forearm passing certainly helped me to set it up in pedagogical content knowledge. I think teachers need to have teaching knowledge of how to present material to students, which is probably most important. But it does not hurt to have a strong content knowledge of the skill you are teaching. I mean teachers need both." However, Teacher C also provided additional ideas about the teaching knowledge being more important than content knowledge. She said, "I think if you have great teaching skills, you can teach anything. You can select the right activities and give students feedback. So, I think the teaching knowledge (pedagogical content knowledge)

is probably even more important because I have seen athletes that are very skilled, but they can't teach the skill.”

Both teachers explained how important it was for teachers to possess both teaching knowledge and content knowledge. They felt that if teachers had a very strong content knowledge in some specific sport or activity, they could teach them easily and give detailed information and knowledge by the use of effective teaching methods. However, the teaching knowledge is even more essential than content knowledge. This pointed out that teachers are not always experts at everything. They may have a strong background in some activities and sports, but may be weak in another areas. If teachers keep learning and improving their teaching knowledge, they still can present their teaching successfully and use helpful teaching methods for students to learn specific skills, whether or not they have strengths or weaknesses in various sports and activities.

Conclusion

The study showed that six teachers had their teaching philosophy with a different emphasis as they designed the volleyball lessons. They had different thoughts and ideas about the most important things. Some teachers focused on the skill related to the sport and game competition, but others emphasized fitness, health, movement skill, and social skills. Teachers' emphasis and decisions showed that their teaching philosophy was the most significant influence to directly affect teaching and curriculum design.

Each teacher had his/her own method to organize the PE class, group activities and to discipline students' learning behavior or misbehaviors. When teachers taught the forearm passing, they used many teaching methods (pedagogical content knowledge)

throughout the teaching progression, teaching strategies, communication skill, and management skills. Some teachers demonstrated essential methods to teach forearm passing step-by-step such as: the orderly teaching progression, the strategies of using bench-chair and deck tennis, question and answer, and appropriate organization and management. On the other hand, some teachers had other concerns or emphasis such as: spending more time for activities and fun.

These were major aspects of content knowledge of forearm passing taught by teachers, which included the key components of forearm passing, identifying errors (up-body and low-body), and volleyball rules. Generally, teachers taught the most basic content knowledge of forearm passing. Regarding to the concepts of linear or non-linear arms presentation, all teachers did not agree on the use of non-linear arms contact, because it is difficult for students to learn different kinds of arms contacting. If they could do the basic, linear arms presentation very well in the first step, it would help to enhance their ability in the sixth grade or at the secondary level.

All teachers agreed that there was an important relationship between the content knowledge and the teaching knowledge (pedagogical content knowledge). Teachers need to have teaching knowledge to impart the subject mater effectively to all learners. However it does not hurt to have a strong content knowledge of the skill. Teachers need both to present their teaching. However, if teachers lacked strong content knowledge in some specific sports or activities, they could keep learning and improving their teaching knowledge by attending professional training. Teachers will find that successful and

effective teaching methods for students to learn specific skills require teaching knowledge more than content knowledge in various sports and activities.

Future studies might concentrate on teachers who coach elementary school age students. Their coaching philosophy and the reasons for coaching the young students may be different as they teach. It would also be of interest to explore whether these coaches have the same or different thoughts and ideas of coaching when compared to secondary school coaches.

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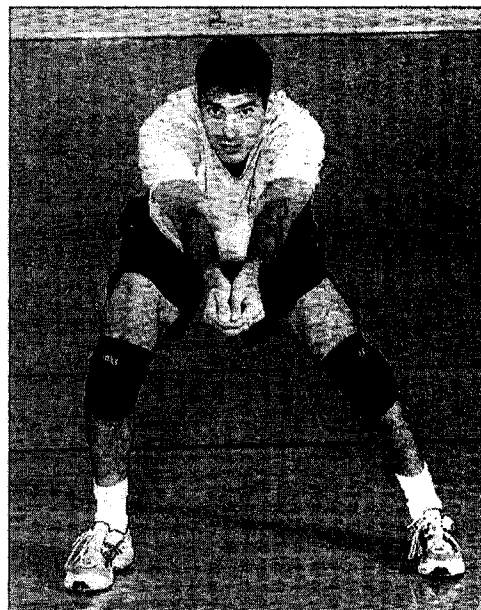
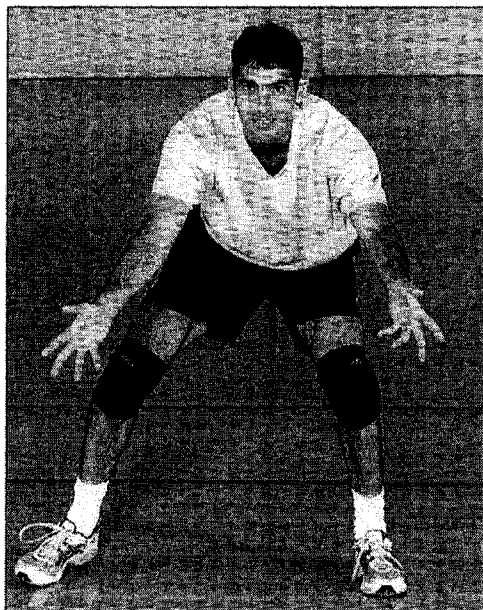
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APPENDIX

THE PICTURES OF FOREARM PASSING



(Dearing, 2003)