KELLER'S PERSONALIZED SYSTEM OF INSTRUCTION
IN A COLLEGE LEVEL VOLLEYBALL COURSE

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(ABSTRACT)

The purpose of this study was to describe the effects and influences of Keller's Personalized System of Instruction (PSI) in the psychomotor domain through a college level volleyball course. PSI was implemented in a beginning volleyball course as part of the Basic Instructional Program at a Southeastern university.

Specific sources of data were used to describe process results and ensure fidelity of the course design to the PSI model. The results of a discipline data analysis indicated that PSI demonstrated Keller's stated characteristics - self-pacing, mastery-based learning, teacher motivation, and emphasis on the written word in the psychomotor domain.

The findings from this investigation support the conclusions that PSI is a viable alternative to conventional styles of instructional design in a college level volleyball program.
Acknowledgements

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Chapter I

Introduction

The United States is witnessing a growth in the demand for physical activity. Higher education matches this growth through the Basic Instructional Program which provides college and university level students with exposure to the physical education curriculum (Trimble & Hensley, 1984, p. 82). Jewett (1985) described the stated performance goals of the physical education Basic Instructional Program as producing students who are (a) committed to lifetime fitness, (b) skilled to participate fully in physical activities, and (c) challenged to seek personal fulfillment through physical activity. If the university Basic Instructional Program intends to meet these goals, physical educators must be willing to evaluate the performance outcomes that might be realized in such a program, and activities which meet these desired outcomes. Often the Basic Instructional Program is the only contribution higher education makes to this interest in physical activity (Trimble & Hensley, 1984). Many universities offer long lists of activity courses which include tennis, golf, archery, soccer, and canoeing. Indoor activities include racquetball, badminton, and volleyball. Volleyball ranks second only to swimming as the activity required most often at the university level (Miller, Dowell, & Pender, 1989).

Volleyball meets Jewett's (1985) three goals for the
basic instructional program. Her first goal of lifetime fitness is demonstrated by the varying levels and difficulty at which volleyball can be played. Difficulty is dictated by those participating. It allows persons of all ages to enjoy the activity at their own level. Volleyball was originally introduced as a less strenuous activity for middle-aged businessmen (Kluka & Dunn, 1989). Recreational volleyball is often played with the spirit of fun rather than an overwhelming regard for winning (Welch, 1969). The second goal, that individuals need to be skilled to participate fully in physical activities, is also met. When describing the training of volleyball participants, Schaafsma and Heck (1971), indicated that strength, speed, flexibility, and endurance are needed for playing volleyball. By practicing such a wide range of skills and fitness requirements, the participant is offered the opportunity to develop some of the basic skills used in other physical activities. Finally, the goal of personal fulfillment is met through the enjoyment of participating in a game situation. Volleyball offers great potential for fun (Schaafsma & Heck, 1971).

The popularity of volleyball in higher education is represented by its vast growth in recent years. According to the United States Volleyball Association (USVBA), 37 million Americans over the age of 18 participated in at least one game of volleyball within the past year. This represents an
increase of 20% over two decades.

Physical educators in higher education have a special set of problems when presenting sport skill activity courses. Miller, Dowell, and Pender (1989) reported that there has been a significant increase in physical education requirements for graduation since 1984; as enrollments increase, the number of professionals teaching physical activity courses has tended to decrease. This increase in student need, combined with fewer ranking professionals who teach physical activity courses, has forced basic instructional programs to enroll more students in each class. As requirements in university curricula become more demanding and more students are enrolled in each activity course, little time is available for individual instruction.

The most common form of instruction in the Basic Instructional Program involves a conventional style of teaching. The conventional style of teaching can be described as the teacher providing the whole class with skill related information and then expecting all students to perform at the same level. Usually there is little variation from this style. Individual instruction must be provided to meet varying student needs so that motor skills for successful and enjoyable experiences in physical education can be developed (Singer & Dick, 1974). If this lack of individual instruction cannot be overcome, traditional methods of teaching must be
reevaluated and alternative instructional approaches must be examined.

The idea of introducing alternative forms of teaching is not new. According to Keller's (1974) discussion of the trend of education in *The Keller Plan Handbook*, "...and we (Azzi, Sherman and himself) were all convinced that traditional teaching methods were sadly out of date" (p. 7). Alternative methods of providing instruction appear to come from the Instructional Systems Development (ISD) model. ISD offers a "process for achieving the goal of more effective and efficient instruction" (McCombs, 1986, p. 67).

Rink, Werner, Hohn, Ward, and Timmermans (1986) conducted a process-product study in volleyball and identified three domains as influencing physical education: psychomotor, cognitive, and affective. Of these, the psychomotor and cognitive domains are most often addressed in instruction. This study will look at instituting an Instructional Systems Development model -- Keller's Personalized System of Instruction (PSI) -- in a basic level volleyball course taught at a large southeastern university. The purpose was to examine the influence of this design upon psychomotor outcomes, cognitive outcomes, and the implementation of the design in a unique setting.

**Purpose Statement**

The purpose of this study was to plan, develop,
implement, and evaluate a Personalized System of Instruction in a college level volleyball course. Furthermore, this study documents several key PSI design features and how they related to the individual instruction in the psychomotor domain. The study combined Dick and Carey's (Singer & Dick, 1980) system approach model with an educational research and development (R & D) model, allowing for adjustments within the course as it proceeded.

**Significance of the Study**

Many studies have been done on how PSI functions in the classroom, however, little research exists on PSI in physical education (Hymel, 1987). This study intends to examine PSI in the psychomotor domain, specifically in a university level basic instructional program volleyball course.

**Student Limitations**

The following limitations were imposed:

1. The study was limited to 21 students enrolled in a single section of volleyball within a college level basic instructional program.

2. The students had varied prior experience in physical education.

3. The students had varied prior volleyball experience.

**Teaching Limitations**

1. Only four courts were available for class use.

2. Only one teacher instructed the class with no proctors
available when the course began.

**Basic Assumptions**

1. This class was typical of others in the Basic Instructional Program at this university and others.
2. Student and teacher behaviors were representative of those behaviors when not being observed.
3. The researcher-as-teacher did not greatly affect the implementation of the PSI course.

**Definitions**

Class Content Information - any occurrence of a verbal comment or set of verbal comments combined into one theme by the teacher directed to the entire class. It concerns the structure or operation of the tasks performed and does not include verbal information provided to an individual (Metzler, 1990).

Content Related Questions - any occurrence of a verbal comment or set of verbal comments combined into one theme by the student and directed toward the teacher, requiring a response. It concerns the structure or operation of the tasks or tasks performed.

Cues - Information given by the teacher to a single student or group of students (less than the entire class) that contains a strategy, prerequisite knowledge, or skill analysis intended to prepare students for an upcoming skill attempt. A cue can impart information on the whole skill, or a partial
feature of the skill (Metzler, 1990).

**Feedback** - Information communicated by the teacher to students on the result or adequacy of a completed task trial or other class activity. This includes verbal and non-verbal feedback (Metzler, 1990).

**Guidance** - Information communicated from the teacher to a single student or group of students (less than the whole class) while the student(s) are actively making a skill trial. The trial can be any portion of the skill attempted at any speed (Metzler, 1990).

**Instructional Design** - a systematic way of teaching which acts as a "blueprint" from which to plan teaching and learning within a unit based on a desired outcome (Metzler, Eddleman, Treanor, & Cregger, 1989).

**Instructional Systems Development Model (ISD)** - a systems approach for the orderly and comprehensive design, development, and management of both instructional materials and instructional systems (McCombs, 1986).

**Lecture / Demonstration** - Content information given by the teacher. This includes skill demonstrations, explanations of rules and strategies, and information concerning tasks structure. This does not include lecture / demonstrations listed as tasks in the learning task sequence, responses to student questions, and any information that is provided to students on a one-to-one basis which is unrelated to skill
attempts (Metzler, 1990). **Management** - Teacher activities not directly related to class instructional goals and/or class content. These include taking roll, setting up equipment, giving directions about class organization, and performing administrative functions. It does not include responses to student questions concerning positioning when performing a task (Metzler, 1990).

**Mastery Based** - Frequent responses by students which produce specified consequences. Repeated testing and errors result in remediation rather than penalties which enable the student to progress toward the specified outcome or goal (Keller, 1974).

**Non-P.E. Comments** - Any occurrence of a verbal comment (or set of verbal comments combine into one theme) by the teacher directed toward the student(s) which is not related to instructional tasks, task performance, motor skills, instructional goals, or class management (Metzler, 1990).

**Research and Development** (R & D) - systematic process for developing and validating an educational product (Ciccaglione, 1986, p.9).

**Personalized System of Instruction** (PSI) - An instructional design in which students determine their own rate and amount of learning by movement through a progression of tasks. PSI includes four characteristics (a) stress on the written word, (b) teacher as motivator, (c) self-pacing, and
(d) mastery-based learning (Keller, 1974).

**Self-Pacing** - Students move at their own rate and ability level through a step-by-step progression without the teacher acting as a guide (Keller, 1974).

**Skill Practice** - Time provided by the teacher in which over half the class is involved in active pursuit of skill acquisition, including and limited to all designated tasks identified on learning task sequence sheets. Time students spend getting ready to make an attempt and watching the results of a trial are considered practice. This includes task lecture / demonstration, working on study guides, and taking written tests that are listed as tasks in the learning task sequence. Time allotted for active participation in scrimmages and games is recorded in this category (Metzler, 1990).

**Systems Approach** - The planning of instruction in a highly systematic manner, with attention to the consistency and compatibility of technical knowledge at each point of the decision (Gagne, Briggs, & Wager, 1988, p. 15).

**Tasks** - Single task trials (or set of trials combined into one attempt) which are described on task sheets in course units. This includes task lecture / demonstrations, working on study guides, and, taking written tests which are listed as tasks in the learning task sequence (Metzler, 1990).

**Task Lecture / Demonstration** - Task related information
given to students, individually or as a whole, by the teacher, or student proctors, which is listed as a specified task on the Learning Task Sequence sheets in each unit. (Over half the class must be engaged in skill practice in order to record time as task lecture / demonstration).

**Research Questions**

1. How can PSI be adapted to psychomotor instruction in a college level volleyball unit?
2. How do the four key characteristics defining PSI manifest themselves in a psychomotor instructional unit?
3. What key teacher-learner processes effect PSI implementation in the psychomotor domain?

**Summary**

In summary, larger enrollments with less individualized instruction has become a trademark of the university Basic Instructional Program (Miller, Dowell, & Pender, 1989). The problem of decreased individualized instruction has become evident in many of the activity courses offered in the basic instructional program. Among these courses is the beginning level volleyball course.

With the ineffectiveness of conventional teaching methods to compensate for this problem, alternative instructional designs need to be examined. One such alternative is Keller's Personalized System of Instruction. Although extensive research has been done on PSI in the cognitive domain in the
classroom, very little research has examined PSI as an instructional design in the psychomotor domain (Hymel, 1987). By examining the implementation of a PSI design in a university level volleyball course three research questions will be answered:

1. How can PSI be adapted to psychomotor instruction in a college level volleyball unit?
2. How do the four key characteristics of PSI present themselves in a psychomotor instructional unit?
3. What key teacher-learner processes effect PSI implementation in the psychomotor domain?
Chapter II

Review of Literature

The purpose of this chapter was to review the literature related to instructional systems design and how Keller's Personalized System of Instruction (PSI) could be applied to the psychomotor domain at the university level. Research was reviewed from four areas: (a) instructional design and its role in education; (b) instructional design in a systems approach model; (c) Keller's Personalized System of Instruction - how it was developed and its characteristics as a design; (d) PSI used in the classroom settings; and (e) PSI designed for physical education. Information will be divided into four major categories:

1) Instructional design
2) Keller's Personalized System of Instruction
3) PSI in education
4) PSI in physical education

Instructional Design

"Instructional design is a prescriptive science because its primary purpose is to prescribe optimal methods of instruction" (Reigeluth, 1983, p. 21). To date, most research and development of such instructional systems has focused on teaching and learning outcomes in the cognitive domain, with little work in the motor domain (Hymel, 1987). Very few design-based instructional systems have been developed for
motor skills commonly used in physical education programs in schools or sports programs (Reigeluth & Curtis, 1987). However, literature on teaching indicates the need for alternative instructional system designs (Keller, 1974). The development of a "linking science" between theory and the actual practice of education should provide a body of knowledge related to learning. This information would serve as a guide to learning if instruction is to be effective. Many students feel that instruction has become boring, and, as a result, form a poor image of their own learning ability from a failure to learn what is being taught (Tyler, 1978). A well designed program is necessary if instruction is to become interesting to the teacher and the learner. In Instructional-Design Theories and Models: An Overview of the Current Status, Reigeluth (1983) referred to instructional design as this "linking science" needed in education.

Instructional systems design begins with many base decisions concerning the learner and how to relay information in the most effective manner. These decisions involve converting the subject matter to related patterns of teaching and learning activities for a specific unit content (Metzler, 1989). Gagne, Briggs, and Wager, co-authors of Principles Of Instructional Design (1988), describe instructional systems as a step-by-step process beginning with a base of information that reflects identified goals (Reigeluth, 1983). Research on
instructional systems show that these goals can be viewed in five major areas. These areas are (a) design, (b) development, (c) implementation, (d) management, and (e) evaluation.

Reigeluth (1983) defines instructional design as a discipline that is concerned with understanding, improving, and applying methods of instruction through the process of deciding what methods are best for promoting desired results in specific student populations. The purpose of any design activity is to devise means of reaching the optimal desired educational outcomes of instruction. Therefore, instructional design's relation to instructional systems is to promote optimal processes of instruction, development, implementation, management, and evaluation (McCombs, 1986).

**Systems Approach Model as an Instructional Design**

As with any instructional system, a model can be categorized into three functions. These are (a) identifying the outcomes of the instruction, (b) developing the instruction, and (c) evaluating the effectiveness of instruction (Gagne, Briggs, & Wager, 1988). The main purpose of instructional design is to act as a "blueprint" to plan teaching and learning within a unit. Various methods of instructional design and teaching strategies involved in such designs produce "blueprints" or knowledge about optimal combinations of methods of instruction, and the various
situations in which each instructional models are most effective (Metzler, 1989). One widely known model which uses a step-by-step approach beginning with identifiable instructional goals is the Systems Approach model (Gagne, Briggs, & Wager, 1988). The systems approach is based upon a progression which is followed from the conception of the terminal objective to a final summative evaluation. The model contains a formative evaluation phase which allows the instructor to adjust the design being used based upon the unit or student's needs in meeting the determined objective (Dick, 1977). The instructional systems approach begins with base decisions concerning the learner and converting the subject matter to related patterns of teaching and learning activities for a specific unit content (Metzler, 1989). After the instructional sequence of the tasks has been determined, the systems approach model dictates that a method of instructional design (strategy), or "blueprint" be determined to present these tasks. The systems approach model lays these tasks out in a systematic and progressive pattern (Gagne, Briggs, & Wager, 1988). This progression runs from the conceptual idea to the intended outcome. By using Dick and Carey's systems approach model, PSI uses the R & D philosophy of development of an educational product through a dynamic systematic process.
Keller's Personalized System of Instruction

Reiser's *Instructional Technology: A History* (1987) presents an overview of many instructional systems now in use for several domains of learning, including psychomotor and cognitive. One of these is Keller's Personalized System of Instruction (PSI), designed in the early 1960s. Following a discussion of B.F. Skinner's principle of Analysis of Behavior (Holland & Skinner, 1961) and an upcoming introductory psychology program at the University of Brazil, Keller and his associates concluded that "traditional teaching methods were sadly out of date" (Keller & Sherman, 1974, p. 7). Keller, a psychology professor at Columbia University, posited that if education was to improve, instructional design systems would need to be developed to improve and update methods of providing instructional information. Before introducing the course at the University of Brazil, Keller searched for a way in which instruction could follow a methodical pattern. The pattern should use previous success to reinforce the student to progress in a systematic manner toward a specified outcome. Keller developed such a system, called Personalized System of Instruction (PSI).

PSI was first used as an instructional system for a college level introductory psychology course. PSI can be described as an interlocking system of instruction, consisting of sequentially, progressive tasks designed as highly
individualized learning activities. In this design students determine their own rate and amount of learning. Their pace is based on progression through a series of instructional tasks. PSI has four defining characteristics. These characteristics are (a) mastery learning, (b) self-pacing, (c) teacher as motivator, and (d) stress on the written word. These characteristics determine decisions which will be made within the design (Keller, 1974).

PSI shares some of the same characteristics common to Bloom's Learning For Mastery (LFM) model (Siedentop, Mand, & Taggart, 1986). Each task must be performed to a criterion established prior to the beginning of the course. Upon completion of each task, students have the option of moving to the next task or staying at that same task. Eventually the student must advance to the next task (Reiser, 1987).

Learning tasks are designed as highly individualized activities within the class. Students work at their own rate, largely independent from the teacher. The teacher usually provides motivation only through the use of cues and feedback on course content as students progress through the unit (Metzler, Eddleman, Treanor, and Cregger, 1989).

One of the strongest advantages of PSI is the freedom it provides for the instructor. The instructor is no longer responsible for many of the day-to-day aspects of providing information and lecture/demonstrations. This enables students
to have more time to practice the skills in the unit. The instructor's main roles in PSI are (a) designing the overall plan for the unit, (b) implementing the design, (c) managing the resources necessary for the class, and (d) conducting systematic analysis of instructional processes and learning outcomes (Metzler, 1989).

Keller first experimented with PSI using three students, two high school seniors and one college freshman. At the completion of the course all three students expressed a desire to be instructed under PSI over traditional designs (Keller & Sherman, 1974). Their only complaint was the lack of opportunity for discussion. PSI was used as a course design for the first time at the University of Brazil in a course entitled, "An Introduction to Reinforcement Theory." At the end of the course, students viewed PSI as a desirable alternative and would take other classes in that manner if given an option (Keller, 1983). Due to a "University crisis" in Brazil, the course was dropped and the professors went different directions. In 1965, adding proctors to aid in class discussions, Sherman and Keller put the program into practice at Arizona State University as an instructional system design.

**PSI in Education**

Research in PSI in the classroom setting has been extensive (Hymel, 1987). Often it has been limited to
comparisons with designs using conventional strategies. It has been demonstrated that PSI and similar mastery-based instruction can be extremely effective in producing gains in student achievement. Therefore, the largest part of the available research centers around PSI as a mastery-based system and its comparisons to other systems which share common characteristics. Due to these limitations, PSI in education will be examined through comparisons with other systems in education and systems with common characteristics which have been employed as cognitive strategies.

Often PSI research focuses on comparisons to Bloom's Learning For Mastery (LFM) (Bloom, 1971). LFM and PSI share a few characteristics (Metzler, Eddleman, Treanor, & Cregger, 1989). Among these characteristics are the use of mastery learning, self-paced learning, increased teacher freedom, and increased student skill practice time. In both systems, each task must be performed to a criterion determined prior to the beginning of the course. Reiser (1987) points to the similarity between LFM and PSI in their method of student progression through the systems. Upon completion of each task, the student is given the choice of advancing or continuing work within that unit. However, whereas PSI allows the student to continue working on the same task until mastery is reached, LFM recommends a "looping-back" to a previous lesson and proceeding forward from that point (Bloom, 1971).
This similarity is extended in PSI's use of offering information to the learner in small chunks, or tasks, with frequent assessment of these smaller learning units (Siedentop, Mand, & Taggart, 1986). These chunks are built on simple tasks, to allow the learner success before advancing to more complex tasks. As in PSI, success is developed through many opportunities for practice trials with the instructor providing cues and feedback on the task being attempted. These cues and feedback are offered in the place of lectures and demonstrations. Though Bloom's LFM approach shares many similarities with Keller's design, PSI actually extends the concept of mastery, to include more attention to the individual student as he/she progresses through the sequence of learning tasks (Reiser, 1987).

Another system used in the educational classroom setting, which bears similarities to PSI, is the Audio-Tutorial approach, developed for teaching Botany (Postlewait & Novack, 1967). As in PSI, Postlewait's Audio-Tutorial approach places emphasis on independent study in which students carry out individual work assignments at their own pace by the extensive use of tapes and films. These materials were developed as motivational tools. Postlewait saw a dramatic increase in high grades and a decrease in the number of failures when using this independent progression (Postlewait & Novack, 1967). In comparing Postlewait's approach to his own PSI,
Keller points to increased interest and greatly improved performance in classrooms where this technique was employed (Keller, 1968).

Comparative studies of instructional designs (or systems) have pointed to the positive effects produced by a personalized system of instruction in the classroom setting. A meta-analysis of instructional systems, at the University of Colorado, compared various instructional systems used in teaching science in grades kindergarten through twelve (Willett, Yamashita, & Anderson, 1983). The study addressed the question, "What are the effects of different instructional systems used in science teaching?" (Willett, Yamashita, & Anderson, 1983, p. 405). In this study instructional systems were defined as "...a general plan for conducting a course over an extended period of time. The plan is general in that it encompasses many aspects of a course (e.g. presentation of content, testing, size of study groups)" (Willett, Yamashita, & Anderson, 1983, p. 406).

In an extensive study of literature related to the study of science in education from 1950 to 1983, twelve systems of instruction were examined. Each system was coded under eleven sections (including some outcome characteristics and effect size calculations). From this study broad conclusions were drawn. PSI and it's characteristic mastery-based learning was identified as appearing to be the most innovative and
successful system for cognitive and overall achievement. Also, PSI's property of self-paced instruction appears to use time more efficiently and effectively (Willett, Yamashita, & Anderson, 1983). In examining these results, the analysis substantiated its claims by pointing to work done by Kulik and Kulik (1979) which identified PSI as being useful at the college level and that the key characteristics of a successful instructional system were frequent testing and immediate feedback. From the research completed on the use of PSI as an instructional system in the cognitive domain, it appears that PSI is a valid alternative to many instructional design systems currently employed in the classroom setting.

**PSI in Physical Education**

Singer and Dick (1974) point to the varying needs of students and that individualized instructional opportunities must be provided in order to meet these needs. Very little research has been completed on the acquisition of motor skills in physical education and related activities using mastery-based learning designs (Hymel, 1987). Metzler (1988), points out that, "Regardless of claims made for or against the effectiveness of Mastery-based learning, the arena for the debate has been almost exclusively based in the cognitive domain..." (p. 3). Furthermore, Reigeluth and Curtis (1987) noted that instructional systems development (ISD) in the motor domain has been centered on skills related to industrial
and military applications, with very few instructional systems being applied to physical education. However, Singer and Dick's idea that individualized instructional opportunities are necessary in education has led to the examination of PSI as a design form which can meet student needs through independent learning progressions.

Students have varying ability and interest in physical education. Tousignant (1983) describes the potential of PSI in physical education to address those differences, by using a "...go-at-your-own-pace system that permits the students to move through a course at a speed commensurate with their own abilities..." (Tousignant, 1983, p. 33). The features of sequenced learning, tasks leading to mastery criteria, increased attention to slower students, individual progression within and through units, and performance as the main focus, would seem to be advantageous for motor skill acquisition in physical education settings (Metzler, 1986). Metzler (1986) examined the effectiveness of PSI by comparing a group of 64 college students enrolled in basic tennis classes. Students were divided into two randomly selected sections, one being taught with PSI, the other group taught with a Demonstration-Group Practice style. The results showed that the amount of student-paced instruction showed no significant difference. PSI students had a higher amount of PE content allocation (96.7%) than the traditional students (90.5%). However, the
nature of content engagement did favor PSI. Due to the individually-paced content practiced in PSI, those students had significantly higher gain scores (51.7% to 41.3%) than the traditional groups. Metzler (1986) concluded that the results indicated the potential of PSI in physical education to "...1) attend to individual student skill progression, 2) foster better use of allocated time, 3) allow students more practice time on motor play skills, and 4) promote greater success when practicing those motor play skills." (p. 7)

To expand the research base on PSI in the motor domain Metzler (1988) continued his research by looking at student process and achievement in a basic college tennis course. Sixteen sections were included (8 "conventional" and 8 PSI) between 1984 to 1987. One group had PSI, consisting of 33 criterion tasks covering forehand, backhand, rules, and some match play. Another group received their instruction under a strategy in which a designated number of meetings (between 2 to 4 per stroke) were allocated for each portion. This group was labeled as "conventional." The results indicated that the PSI students had significantly more student-paced instruction, instructional content, total engagement, motor appropriate trials, and successful motor trials. It was also evident that PSI students received more clearly stated tasks with explicit directions and criteria; whereas the conventional students often practiced on their own. PSI students had a higher motor
trial success rate (86.4% to 65.7%), scored significantly higher in 3 of 4 dependent achievement measures, indicating the effectiveness of PSI in that motor skill setting. Metzler (1988) concluded that PSI resulted in a more efficacious pattern of class time involvement than did the "conventional" strategy.

The few completed physical education studies suggest that PSI allows students to be more motivated and to increase their in-class participation (Tousignant, 1983). PSI appears to increase interest in the content and achieves greater results than other systems in the motor skills domain. However, as stated earlier, the purpose of examining various methods of instructional design is to produce knowledge about optimal "blueprints," about diverse methods of instruction, combinations of methods, and situations in which each of those models are most useful (Metzler, 1989). Tousignant (1983) has pointed out the variation that exists within each physical education class and activity. If PSI is really able to produce better results across many activities and domains, it must be examined in a variety of content and grade levels. Also, the relation of PSI to positive or negative effects and the rate of retention need to be examined. With time in physical education class being so limited, it is necessary to monitor the use of PSI as an instructional strategy in physical education (Metzler, Eddleman, Treanor, & Cregger,
The majority of research in physical education learning has focused on the instructor who implements the design, rather than the instructional design itself. However, research using the characteristics present in the system does exist (Keller & Sherman, 1974). The results of the characteristics of PSI implemented in a physical activity were available and have been examined. These results were separated into two categories—psychomotor and cognitive domains.

**Psychomotor Domain.** Literature comparing PSI to conventional teaching strategies demonstrates a decidedly higher success rate established for PSI students when implemented in the psychomotor domain (Metzler, 1989). Competency-based instruction is an example of instruction which offers similarities to PSI. Studies of competency-based instruction have been used to examine the effectiveness of established criteria and individually paced progression in physical activities in physical education. Viera and Ferguson (1986) demonstrated the use of competency-based instruction in a skills class designed for college physical education majors. PSI and competency-based instruction had many similar design characteristics. These included (a) students are made aware of criteria for passing tasks, (b) pacing was according to ability level and time allowed to reach goals according to
individual abilities, and (c) students begin work at entry level skills and progressed toward the desired level of performance as the course dictates. As with PSI, competency is described as mastery and students work toward a terminal criterion goal by going through a series of progressive tasks. Viera and Ferguson (1983), pointed out advantages of the qualities present in PSI that will influence psychomotor performance outcomes using a competency based model. Among these, students work on their own immediately upon entering the gymnasium, without having to wait for teacher directions. This reduces time spent in management, allowing students to receive a greater amount of practice on the activity tasks needed to achieve mastery. Also, the instructor is free to offer more individualized instruction in the form of increased feedback. This feedback can aid the student to focus on the psychomotor skills and to concentrate on aspects of the activity which will produce success. Finally, Viera and Ferguson (1983) found that when prescribed goals were presented, students worked conscientiously toward these goals and took advantage of all available class time to practice their skills. They also use out-of-class time to perfect these skills to enable criteria to be reached faster.

**Cognitive Domain.** Keller (1954) points out the importance of the cognitive domain in physical activities by saying, "...it is not probable that skills involve a form of
purely motor learning" (p. 27). He further suggests that cognitive processing must be involved in order for a physical task to be mastered (Sahakian, 1976). Keller's experimentation at the University of Brazil and Columbia University offered evidence that cognitive outcomes could be developed using PSI as an instructional design. However, little of the research on these cognitive outcomes focus on the use of the cognitive strategies in physical activities (Keller & Sherman, 1974). Too often the cognitive aspects in physical activities have been ignored.

The research that does exist often refers only to rules and scoring, rather than cognitive processes related to movement patterns which need to be developed to successfully achieve skills in the course. Vickers (1990) points out the cognitive aspects of any instructional design should focus on moves during a skill and how to put that skill into an organized form of action. Knowledge structures identify the skills and movement strategies in any activity, including psychomotor activities. Sports science has shown how concepts in the cognitive domain can aid skill performance (Vickers, 1990). In order for PSI to be viable as an instructional design in physical education, the cognitive aspects of the course must be included in the course design.
Summary

In summary, research suggest that Keller's PSI offers an alternative to traditional instructional strategies. Discussion consisted of PSI's use in physical education activity courses, and its use as a method of increasing learning by providing higher amounts of individual instruction. Although much of the literature suggests that PSI may be ideal for efficiency and effectiveness in physical activities in both cognitive and psychomotor domains research is still insufficient to reach more definite conclusions. If PSI has value as an instructional design, its application in a physical education activities course should be examined.
Chapter III

Course Design, Contextual Factors, Data Collection, Sources of Data, and Methods of Data Analysis

This chapter will provide an overview of the PSI unit, data collection, sources of data, and methodology used to identify and analyze the effects and influences of implementing PSI in a college level volleyball course. This chapter will also look at contextual factors which influenced the course. This information will be divided into five sections:

1) Course Design
2) Contextual Factors
3) Data Collection
4) Sources of Data
5) Methods of Data Analysis

Course Design

Keller's PSI is structured around the idea that students need individualized instruction. To provide this individualized instruction Keller devised a system which allowed students to advance at their own pace by following information provided in written materials and freeing the teacher to provide individual skill information. This section describes the PSI unit as it was developed and the methods designed into the course to meet these goals.
Materials

In order to understand the course design it is necessary to examine the materials and their use in implementing the PSI unit. Each of the six types of materials used in the course will be described: (a) policy guides, (b) pre-tests packets, (c) learning task sequence sheets, (d) learning tasks, (e) class attendance/arrival sheets, and (f) class journals. These materials will be examined by describing the information provided in each, its purpose, and implementation in the course.

Course Policy Guides. The first material distributed to students was the policy guide (See Appendix A), used to describe the course and how it would operate. Each policy guide contained information on the course description, the course sequence of units, course goals, performance objectives established, participant responsibilities, grading criteria, and a listing of all material distributed during the course. The policy guides contained information on how each student should proceed through the course and how materials were to be used to aid in their progress. Each policy guide was intended to allow students to move through the course without the teacher providing verbal instructions (i.e. management, skill description, task description and requirements) in order to increase skill practice time. Each student was allowed to keep one copy of the policy guide throughout the course.
On the first day of the class each student received a copy of the policy guide and was given time to read it. At the end of this time, students were shown copies of the materials described in the policy guides and allowed to ask questions concerning any information contained in the policy guides. Once all questions had been answered, each student was told to take his/her guide home and read it again. The first part of the second class was spent answering any further questions. After the second day, any questions during the course were referred to the policy guides.

**Pre-Test Packets.** The second item distributed to the students was a packet containing a description and information needed for the pre-tests. Each student received a pre-test packet labeled with the letter "X" or "Y" at the upper right hand corner on the first page. The packet contained a sheet which described the psychomotor and cognitive sections of the pre-test, information on how to perform each, and the maximum score available for each (See Appendix B). The second two sheets were copies of pre-test scoring sheets (See Appendix C). Each sheet contained a space for the student's name, observer's (scorer) name, student's skill level (beginner, intermediate, or advanced), student's predicted score on each task, student's actual score on each task, total predicted and actual cognitive score, and total predicted and actual psychomotor score.
The pre-tests were designed to provide the instructor with information on each student's entry skill level. Due to the varying participants in a university environment often the skills brought to class are vastly different. Pre-test results also provided a way to make progression comparisons during the course.

At the end of the second day of class the instructor passed out the pre-test packets, and read the general pre-test instructions to the class. These instructions described the packet contents and the observer who filled out the information on each sheet in the packet. After the instructions were read the students were allowed to ask any questions concerning the packet contents and how they were to be used. All questions asked were recorded. Students then filled out their predicted scores on one copy of the scoring sheet. Predicted scores were based only on information provided from the pre-test task descriptions. After filling out all information and returning the copy, with the predicted scores written on it, to the instructor students were divided into two separate groups. Those students whose packets were labeled "X" were asked to move to the center of the floor. Those with packets labeled "Y" were to remain seated. Students in the "X" group were read information about the psychomotor tasks and proceeded to begin work based only on information provided from the task description sheets. The
instructor then moved to the "Y" group. Information was read to the group concerning the cognitive section of the test. Each student was provided a cognitive test (See Appendix D) and began to attempt to answer each question.

The following day each group switched the portion of the test taken. Scores were collected after all tests were completed. The teacher graded the cognitive portion of each test. The predicted scores were compared to the actual scores. Students were ranked according to overall actual score totals and placed on a progression chart. Students who were unable to complete the entire test due to absences were not included in subsequent data recording. For later analysis student's were divided into three groups. The students with the seven highest scores were labeled the high group, and the students with the seven lowest scores were labeled the low group.

Learning task sequences sheets. Each unit (with the exception of the rules and scoring unit) contained a learning task sequence sheet (See Appendix E). Each learning task sequence sheet provided the number of the task in each unit, the task itself, the target for each task, the criterion for passing each task, and space to record the beginning and completion date for each task. Several tasks were marked with an asterisk indicating task mastery must be initialed by the instructor before the student could progress. Otherwise, the
students were to continue practicing the task until the instructor did initial the task. Each student was provided with a sheet during class time and returned each sheet to a filing cabinet kept by the teacher.

Learning task sequence sheets were designed to provide each student with an overview of what tasks were required in each unit. Also, sequence sheets instructed the students on which task they should be working on and provided the teacher and the student with a record of the number of tasks completed, the date each task was completed, and the length of time required to reach mastery criterion in each task.

After completing all pre-tests, the students began to work on the first unit presented in the learning task sequences. Upon arriving to class, each student went to a portable cabinet with a list of files indicated by task number and information available. Each student retrieved the learning task sequence for the first unit from the files. Once the learning task sheets were obtained, each student began to work on the first task described in the sequence. When a task labeled with an asterisk was reached, the student notified the instructor to observe all or part of the tasks to ensure performance was satisfactory. These procedures were followed for each unit within the course.

*Learning task sheets.* Once the learning task sequence sheets were distributed students began working on the first
task in the first unit. Each learning task sheet (See Appendix F) contained five sections of information related to task performance: (a) A diagram of the task; (b) written instructions on how to perform the task, including the mastery criterion; (c) a readiness sheet, indicating successful attempts in each set of ten trials; (d) a diagram of three common errors which might occur when attempting the task; and (e) a list of three common errors, for that task, the possible cause for each error, and how to correct each error. Spaces at the top of each sheet were provided for student information concerning name, gender, and the date of beginning and completing each task.

Task sheets provided several forms of information to the student and the teacher. The task diagrams and written descriptions explained how and where to perform the task and the goals in each task. Readiness sheets provided information to the teacher on the students' success rate and whether the task and/or target were appropriate. The diagram and written information about errors (See Appendix C) provided students with written cues on common errors which would aid in task performance to mastery. The information provided at the top of the sheets provided the teacher with information on student task progression.

Once entering class, students picked up their learning task sequence sheets and began to work on the current task.
At the same time the students picked up their learning task sequence sheets, they retrieved the task sheet which corresponded to the task they were on. After looking at the diagram and reading the task information, students proceeded to the area designated on the sheet and began performing the task described. When a student completed all tasks within a unit, he/she advanced to the following unit in the course sequence.

Class attendance/arrival sheets. The fifth written material used in this course was attendance/arrival sheets (See Appendix G). These sheets were provided each day of the course. Each sheet was dated at the top according to the date of the course and placed in a class roll binder. Each sheet had the student identification numbers on it followed by two blank lines. Headings above these lines asked for each student's name and time arriving to the class. Instructions at the top of each sheet identified the sheets as the official class roll and that failure to sign the sheets would result in the student being recorded as absent.

Student attendance/arrival sheets were used to provide one measure of student engagement, by determining the daily attendance rate and the amount of time spent in class throughout the course. As each student entered class they turned to the day's date in the roll book placed on the instructor's table and signed their name in the line located
to the right of their student identification number.

Using one clock located at the table, each student recorded the time he/she arrived in class. This process was followed every day, with the exception of the final exam.

**Class Journals.** The final material used in the course was used to provide anecdotal information concerning course operations. In order to collect information which would not show on data analyses, class journals were generated. Class journals provided a log to record unusual events, student comments, or any unexpected occurrence which affected the course either positively or negatively. Also, class journals were used to provide reminders to the instructor of events that occurred during planning and served to provide information for future course development.

At the conclusion of each class or developmental meeting any event was recorded which had influenced the course operations (i.e. addition of student proctors, student comments related to course design, methods of determining analyses, etc.).

**Student Proctors**

The second part of the course design focused on freeing the teacher to provide individualized skill instruction. This was provided by the introduction of student proctors into the course design.

Student proctors were introduced the 15th class period.
Keller (1974) suggests that students who are considered "advanced," based on their task completion rate and position in the course sequence, can be used as student proctors. These proctors were used to provide task lecture / demonstrations to other students.

After discussing each task lecture / demonstration with the instructor proctors were to provide the information to students on the five key points which would be used in the proceeding tasks. This freed the instructor to provide more time in skill progression information rather than being limited to giving task lecture /demonstrations. To ensure the effectiveness of the proctors the instructor would occasionally "listen in" to ensure that the appropriate information was being provided.

**Contextual Factors**

The volleyball course was conducted at a large Southeastern university as part of the Basic Instructional Program, comprised of a variety of beginning level physical education activity courses. These courses are designed to contribute to all phases of student development, and are structured around outcomes of (a) knowledge, (b) motor skills, (c) physical fitness, and (d) attitudes (Sebolt, 1989). Students are enrolled for 1 semester hour credit, based on a pass-fail grading system.

The volleyball course was scheduled in one large
gymnasium; with the exception of three days when the gymnasium was used for a social event. The gymnasium had 4 regulation sized (18 meters x 9 meters) volleyball courts available for class use. The course was scheduled for 36 class periods, each lasting 45 minutes. Classes included 2 days used for pre-testing and 1 day for the course introduction. The course lasted for 13 weeks, meeting 3 times each week on Monday, Wednesday, and Friday. The term consisted of a total of 39 classes, including 1 period used for cognitive examinations.

Students were chosen on a randomized self-selected basis, by course section. These selections were made without student prior knowledge of the design being used or the course instructor. The class consisted of 21 undergraduate students ranging from 19 to 23 years of age, with 2 females and 19 males. Student academic level varied with 15 seniors, 4 juniors 1 sophomore, and 1 freshman.

Prior experience in volleyball was determined by a pre-test. Experience ranged from no volleyball experience, other than as a spectator, to those who had participated in varsity high school programs.

Entry ability level was based on a static skills pre-test consisting of a possible 298 points. Scores ranged from a high of 199 points to a low of 86 points, with a mean score of 143 points. Based on pre-test scores students were divided
into three groups: (a) low group (86 - 137); (b) middle group (141 - 160); (c) high group (162 - 199).

Other contextual factors included some special considerations such as varsity athletes enrolled, a high enrollment of seniors, and varying skill levels.

**Data Collection**

The study was designed to describe the implementation of PSI in a college level volleyball course. The purpose of data collection was to document both the instructional and managerial features of PSI as designed for this college level volleyball course.

In order to examine the implementation of the PSI course, it was necessary to collect data related to characteristics of PSI and their influence on course operations. Keller (1974) identified four "defining characteristics": (a) self-pacing, (b) mastery-based learning, (c) teacher acting as a motivator, and (d) emphasis placed on the written word.

Each of these defining characteristics was examined to determine faithful implementation of the described design. With the PSI design as the main focus, data were collected on four components present in the system: (a) PSI design features; (b) design processes; (c) sources of data; and (d) process, document, and evaluation results.

The first component examined the features which identify each of the four PSI defining characteristics in the course.
Data were collected on eleven features inherent in the PSI instructional system.

The second component was design processes, including documents, teaching/learning processes, and evaluation records used in analyzing data. These records provide a description of observable evidence which can demonstrate the presence of PSI and its effects upon the course. Data were collected to analyze and produce process results on each PSI design feature.

The third component was the set of multiple data sources used in the course. Sources of data were instruments used to collect observational records of PSI within the course. These records provided data which were analyzed to produce design process information. Information was collected from 14 data sources.

Finally, process results refer to measures produced from data analysis of design documents, teaching/leaning processes, and evaluation records used to demonstrate the faithful implementation of PSI through designated confirmation criteria during the course.

To describe the effects of PSI on the course, data were collected on each characteristic which defines Keller's PSI. This information was collected and analyzed to produce a description of process results and PSI confirmation results. By following the course from Keller's four defining
characteristics to process results, a description of PSI in the psychomotor domain can be attained.

**Videotapes**

Videotapes were recorded every other day to analyze observed, representative samples of class processes. Each videotape was subsequently coded on a generic categorical, computerized observation recording and analysis system. Information on frequency and/or temporal duration of observed events were recorded by pressing designated keys to code the taped observation. Based on information available from the videotapes which displayed teaching/learning processes identified in the design features ten categories were selected for coding. Categories selected were (a) skill practice, (b) task related lecture / demonstration, (c) lecture / demonstration, (d) management, (e) skill-related cues and guidance, (f) skill-related feedback, (g) content information provided to the class, (h) non-pe information, (i) content-related student questioning, and (j) cues and guidance provided during lecture demonstration.

**Reliability**

Reliability was checked to insure agreement between two observations made of the same students using the same coding system. Due to the lack of availability of persons to act as observers intraobserver reliability was used to identify coding. Reliability was based on the percent of agreement
between two independent observations of videotapes by the same coder.

Sources of Data

Several implementation features were developed under each of the four PSI defining characteristics, identified as PSI design features. Under the self-pacing characteristic PSI features were (a) student independent progression, (b) decreased management time, (c) increased cues and guidances provided by the teacher, and (d) increased task related feedback provided by the teacher. The next characteristic, mastery-based learning, displayed the following design features: (a) Performance of each task to criterion and (b) teacher knowledge of students' progress. The third characteristic, teacher as motivator, identified the PSI feature as high rates of student engagement. Finally, PSI features for emphasis placed on the written word were (a) tasks explained in written form, (b) cognitive material provided in written form, (c) class operating information provided in written form, and (d) reduced lecture/demonstration time.

Fourteen sources of data were used in this study: (a) class attendance/arrival sheets, (b) notes from class journals, (c) information provided from student evaluations, (d) task progression graphs, (e) coding of teaching/learning processes from videotapes, (f) 100% task completion graphs,
(g) learning task sequence completion information, (h) task sheet completion information, (i) cognitive unit materials, 
(j) learning task sequence sheets, (k) individual task sheets, 
(l) task sheet task description, (m) official class material records, and (n) policy guides.

Each source of data will be described as it was used under each of the four PSI characteristics, analyzed to produce design process, document, and evaluation results. This description was determined by the method of analysis used to present PSI process results.

Method of Analysis

This section will discuss the various methods of data analysis employed to describe the implementation of PSI in a college level volleyball course. This analysis will hinge on the four characteristics of PSI, and processes observed within the design features implemented in the course. Several design processes were used under each feature to provide observable information on what was analyzed in order to verify the PSI course design. Sources of data were examined to analyze each process, and to demonstrate that PSI was faithfully instituted. Design confirmation criteria are provided to support a case that the PSI course was implemented as intended. Process results will describe events which occurred in the course as a result of PSI implementation. Data are analyzed to describe observed events in several design
processes mentioned through sources of data. By examining each design feature, and the data provided on each process, a description can be made of PSI implementation.

Keller (1974) recommends the use of proctors to facilitate course information and to free the teacher for individual attention to students. This course did not have trained proctors assigned to it. However, Keller mentions the possibility of using more advanced students as student proctors. After approximately one third of the course student proctors were selected on the rate of their progress and used for the remainder of the term.

Information will be provided on (a) the source of data, (b) the purpose of the data, (c) components used in the collection of data, (d) how these components were used, (e) kind of data provided, (f) how data will be analyzed, and (g) confirmation criteria if available. Design features affected by the use of student proctors will be indicated.

**Self-Pacing**

One of the four defining characteristics of PSI is student self-pacing through the various learning task sequences in a course unit. This characteristic allows: (a) each student to progress at his/her own rate, independent of other students in the same class; (b) decreased amount of management time; (c) increased cues and guidances provided by the teacher; and (d) increased task related feedback provided
by the teacher. Verification of each in this PSI volleyball class was made through several process, document, and evaluation analysis.

**Independent student progression.** Each unit in the course had a corresponding series of written task sheets (See Appendix F). Each item on the task sheets provided students with both instructional and managerial information. The instructional information included a description of the task, pertinent learning cues, and a stated criterion for completion of the task. The managerial information guided the student in setting up the learning station for the task.

Each student recorded the date on which he/she started and completed each task in the sequence, and the information was placed on a task progression graph (See Appendix H) every 10 days. This became the main source of data for analyzing independent student progression. This record allowed the researcher to monitor student independent progress by analyzing the mean percent of tasks completed each day. The PSI design was considered verified if the percent of tasks completed each day was greater than 2.0%.

**Decreased management time.** Student self-pacing under a PSI design should promote decreased amounts of class management time. Well designed PSI task sheets provide individual students with adequate information which negates the need for large class managerial episodes. This study
included four analyses to verify reduced management time throughout the volleyball course.

The first three analyses were conducted by coding the videotapes for the frequency of student questions to the teacher about physical education processes, the amount of class time spent providing students with content-related information, and the amount of class time spent in management time. These analyses resulted in the determination of the mean amount of daily content-related questions from students, the mean daily amount of class time spent providing students with content related information, and the percent of class time spent in management, represented by the designated categories in the observation system. The PSI design was considered verified if (a) the mean amount of daily content-related questions was less than 25, (b) the mean daily amount of class time spent providing content-related information was less than 5%, and (c) the percent of class time spent in management was less than 5%.

The fourth analysis for reduced management time was conducted from student evaluations of course policy guides. The guides were intended to reduce management time by providing students with all necessary information in written form, allowing students to be independent of the teacher's managerial directions. A specific question on the student evaluation (See Appendix I) focused on student perception of
the policy guide explaining the course operations. Based on a 5-point Likert scale (1 = "poor" 5 = "excellent"), a mean rating for students' perception of the guide's usefulness in reducing management time was calculated. The PSI design was considered verified if the mean rating of student perception of policy guides in reducing class management time was greater than or equal to 3.0.

**Increased cues and guidances provided by the teacher.** Student self-pacing under a PSI design should promote increased rate of cues and guidances from the teacher. Each item on the students' task sheets (see Appendix F) provided both instructional and managerial information which freed the teacher to provide skill information to the students. The skill information included cues and guidances and lecture/demonstration cues and guidances without the presence of student proctors, with the presence of student proctors, and the combined total.

These analysis were conducted by coding the videotapes for (a) the frequency of cues and guidances provided by the teacher when student proctors were used, (b) the frequency of cues and guidances prior to the use of student proctors and, (c) the frequency of all cues and guidances provided during the course. The analysis resulted in the determination of the rate-per-minute of cues and guidances provided by the teacher, with student proctors, and the combined total. The PSI design
was considered verified if the rate-per-minute of cues and guidances provided by the teacher was greater than 1 per minute.

**Increased task related feedback.** Student self-pacing under a PSI design should promote increased rates of task related feedback provided by the teacher. Each item on the task sheets (see Appendix F) provided students with both instructional and managerial information which freed the teacher to provide skill information to the students. The skill information included task related feedback without the presence of student proctors, with the presence of student proctors, and the combined total.

Analyses were conducted by coding the videotapes for the frequency of task related feedback provided by the teacher when student proctors were used, prior to the use of student proctors, and the combined total. The analysis determined the rate-per-minute of task related feedback provided by the teacher, with and without student proctors, and the combined total. The PSI design was considered verified if the rate-per-minute of task related feedback was greater than 1 per minute.

**Mastery-Based Learning**

The second of the four defining characteristics of PSI is student mastery-based learning through the various learning task sequences in a course unit. This characteristic
displays: (a) student performance of task, based on a stated criterion; and (b) the teacher's knowledge of student progress. Verification of each in this PSI volleyball unit was made through several process, document, and evaluation analysis.

**Performance of each task to criterion.** Student mastery-based learning under a PSI design should promote performance of tasks to stated criteria. Well designed PSI tasks sheets (See Appendix F) and learning task sequence sheets (See Appendix E) provide individual students with adequate information needed to perform the learning task to criterion. This study included three analyses of performance of tasks to criterion.

The first two analyses for performance of tasks to criterion were conducted from student evaluations (See Appendix I) of PSI effectiveness in increasing skill and knowledge and appropriateness of tasks to stated outcomes. PSI and the tasks sequence within the course were intended to allow students to develop skills defined by task criteria. One question on the evaluation focused on student perceptions of PSI in increasing skill and knowledge from student perceptions of the appropriateness of tasks to stated course outcomes (based on the policy guide). Based on a 5-point Likert scale (1 = "poor" 5 = "excellent"), a mean rating for students' perception of each of the two questions were
calculated. The PSI design was considered verified if the mean rating of each was greater than or equal to 3.

The third analysis for performance of tasks to criterion was conducted from a 100% task completion graph (See Appendix M). The graph indicates the tasks completed to criteria by 100% of the students. The analysis resulted in the determination of the percent of tasks performed to criterion by 100% of the students. The PSI design was considered verified if the amount of tasks performed to criterion by all students was greater than 70%.

Teacher's knowledge of student progress. Student mastery-based learning under a PSI design should also provide for the teacher's knowledge of student progress. Well designed PSI task sheets provide the teacher with adequate information of students' position in the course based on tasks performed to criterion. This study included one analysis of teacher's knowledge of student progress throughout the volleyball course.

Each student recorded the number of tasks to criterion in the sequence. The information was placed on each task sheet as the tasks were completed. This information was recorded and placed on task sheets and learning task sequence sheets. This record provided the teacher with knowledge of students' progress and a way to monitor students' progress throughout the course. This analysis resulted in the determination of
the teacher's knowledge of the amount of tasks performed to criterion. The PSI design was considered verified if the teacher's knowledge of the percent of tasks performed to criterion was equal to 100%.

**Teacher as a Motivator**

The third defining characteristic of PSI is the teacher acting as a motivator to encourage student engagement through the various learning task sequences in the course units. Verification of each were made through several documentation, processes, and evaluation analyses.

**Increased Student engagement.** The teacher, acting as a motivator under a PSI design, should promote a high rate of student engagement. This study included four analyses of student engagement throughout the volleyball course.

The first two analyses were conducted by coding the videotapes for the amount of class time students spent in skill practice and the amount of non-P.E. comments by the teacher. These analyses resulted in the determination of the percent of class time spent engaged in skill practice and the percent of teacher comments which were defined as non-P.E. comments, respectively. The PSI design was considered verified if the percent of skill practice time was greater than 75% and the percent of non-P.E. comments was less than 5%.

The final two analyses for high rates of student
engagement were conducted from class attendance/arrival sheets (See Appendix G). An attendance/arrival sheet was provided each day throughout the course.

Each student signed his/her name and recorded the time he/she arrived to class each day during the course. This record became the data for analyzing student engagement in two ways: first, by analyzing the percent of students actually attending class and second, by analyzing the percent of students attending class who arrived at or prior to class starting time on each day. Both measures were indicators of student engagement. The PSI design was considered verified if the mean percent of students attending class on each day was greater than 70% and the percent of students attending class arrived at or prior to class starting time was greater than 80%.

**Emphasis Placed on the Written Word**

The fourth, and final, defining characteristic of PSI is an emphasis placed on the written word for delivering the various types of information necessary to the course. This characteristic implies that (a) tasks are explained to the students in the written form, (b) cognitive unit materials are provided in the written form, (c) class operating information provided to the students is in the written form, and (d) reduced lecture / demonstration time. Verification of each in this PSI volleyball class was made through several process,
Tasks are explained in the written form. Emphasis placed on the written word under a PSI design should explain tasks in the written form as much as possible. Well designed PSI task sheets and learning sequence sheets provide students with adequate information which negates the need for verbal explanations related to task performance. This study included one analysis to verify the effectiveness of tasks explained in the written form throughout the volleyball course.

An analysis was conducted by observation of the task descriptions provided on the task sheets (See Appendix F) and learning task sequence sheets (See Appendix E) to determine the amount of tasks providing an explanation of the tasks in the written form. This analysis resulted in the determination of the percent of task sheets and learning sequence sheets which provided an explanation of the task in the written form. The PSI design was verified if the percent of task sheets and learning sequence sheets in the written form was equal to 100%.

Cognitive material in the written form. Emphasis placed on the written word under a PSI design should provide cognitive learning material in the written form. Well designed PSI cognitive tasks, study guides, and tasks provided to individual students with adequate information negates the need for verbal explanations related to cognitive unit
performance. This study included one analysis to indicate cognitive material provided in the written form throughout the volleyball course.

An analysis was conducted by observation of the (a) task sheets, (b) learning task sequence sheets, (c) study guide (See Appendix J), and (d) tests (See Appendix K) provided in the cognitive unit to determine the amount of cognitive materials provided in the written form. The PSI design was verified if the percent of all cognitive material in the written form was equal to 100%.

Class operating information in the written form. Emphasis placed on the written word in a PSI design should provide course operations information in the written form. Well-designed PSI policy guides (See Appendix A) provide students with adequate information which negates the need for verbal explanations related to course operations. This study included one analysis to indicate course operating information provided in the written form to all enrolled students throughout the volleyball course.

An analysis was conducted by observation of policy guides and class material record (See Appendix L) to determine the amount provided in the written form and that all students enrolled received one. This analysis resulted in the determination of the percent of policy guides provided in the written form and the percent of students receiving a policy
guide (See Appendix L). The PSI design was verified if the percent of policy guides in the written form was equal to 100% and the students receiving a policy guide was equal to 100%.

Reduced lecture / demonstration time. Emphasis placed on the written word under a PSI design should promote reduced class time spent in lecture / demonstration. Each item on the students' task sheets (see Appendix F) provide both instructional and managerial information which freed the teacher to provide more skill information to the students and reduced class time in lecture / demonstration. Lecture / demonstration time included lecture / demonstration and task lecture / demonstration time without student proctors, with student proctors, and the combined total.

These analyses were conducted by coding the videotapes for (a) the amount of lecture / demonstration time provided by the teacher when student proctors were used, (b) the amount of lecture / demonstrations time provided by the teacher prior to the use of student proctors, and (c) the total amount of class time spent in teacher provided lecture / demonstration, in the described observation system. The analysis resulted in the determination of the percent of class time spent in lecture / demonstration provided by the teacher, with student proctors, without student proctors, and the combined total. The PSI design was considered verified if the percent of class time in lecture / demonstration with proctors was less than 10%.
Summary

In summary, the purpose of this chapter was to introduce methods of analyzing data obtained during this course and describe the sources used when analyzing the data. Contextual factors were introduced to aid in explaining situations specific in a college course. Considerations closed this chapter to relate occurrences which were exclusive to this course. The next chapter will present and describe the results obtained from the various analyses conducted.
Chapter IV

Data Analysis

The purpose of this study was to describe the planning, development, and implementation of a Personalized System of Instruction in a college level volleyball course. The implementation of the PSI design through Dick and Carey's (1980) system approach model allowed the course to follow a systematic pattern based on PSI's four defining characteristics. By analyzing the various sources of data produced from written records, student evaluations, and systematic observation, these four characteristics can be described in this unique application.

This chapter will analyze and describe the types of data produced from several disparate sources. Data analysis will be divided into three categories:

1) Observational Data
2) Process Results
3) Special Considerations

Systematic Observational Data

The following data analyses are intended to address the major research questions developed within the study:

(1) How could PSI be adapted to psychomotor instruction?

(2) How do the four key characteristics of PSI present themselves in a psychomotor instructional unit?

(3) What key teacher-learner processes affect PSI?
implementation in the psychomotor domain?

The following data analyses will furnish these answers in college level volleyball. In any instructional design, resulting data should be produced based on observable processes within the system, providing information about the effectiveness of the system and the products within the system (McCombs, 1986).

Division of Data

Keller describes four defining characteristics of PSI: (a) self-pacing, (b) mastery based learning, (c) teacher as a motivator, and (d) emphasis placed on the written word (Keller, 1974). Each characteristic is exemplified by two to four design features representing occurrences which demonstrated the presence of Keller's PSI characteristics.

Each design feature was verified by observational data identified in the design processes. Design processes, documentation, and evaluations provide data demonstrating PSI's four characteristics and their effects upon the course. These data are provided by three separate groups: (a) students - responsible for information concerning independent progression, performance of tasks to criterion, engagement, and final evaluation; (b) teachers - responsible for information concerning use of class time, skill information provided, and instructional processes; and (c) planners - form of information and materials provided to students.
PSI Verification

There are several ways to determine goals or criteria used in a study. One of these methods is based on previous experience as an instructor in the course (Siedentop, 1983). Criteria for verification of the presence of PSI in each design process was based on realistic information gained from the designer's previous teaching experience.

Having taught college level volleyball in the university setting, the designer determined the presence of PSI based on experience gained from previous class situations. Based on this experience, and information from The Keller Plan Handbook (1974) the designer was able to determine at what level criteria should be established in each design process to indicate the presence of PSI's faithful implementation in the course.

Reliability

Intraobserver reliability was used to ensure agreement between two observations made of the same subjects using the same coding system (Baer, 1977). Due to limitations in the study the instructor acted as the coder.

Videotape Recording. Videotape recording was made every other day to record the processes occurring within the class. Intraobserver reliability was performed to ensure that recorded information of student and teacher behaviors remained consistent through each observation. Two tapes were checked
for reliability.

Tape One (January 24, 1990) was viewed and Tape Two (March 30, 1990) was used to check for reliability. Two tapes were used due to the introduction of proctors following March 7th and due to the students lack of familiarity to the course as their perceptions changed the observer wanted to ensure that coding remained constant.

Each tape contained duration and event recording in ten separate categories: (a) Skill practice, (b) task related lecture / demonstration, (c) lecture demonstration, (d) management, (e) skill related cues and guidances, (f) skill related feedback, (g) content information provided to the class, (h) content related questioning, (i) non-P.E. information, and (j) cues and guidances providing during task lecture demonstration. During a class lesson each category was coded using duration and event recording. Using intraobserver reliability the same class, recorded on videotape was coded a month later. A percentage agreement of at least 70% was established as the acceptable criterion.

There were twenty direct comparisons made on each tape. Table 1 shows each of the ten categories compared in duration and event recording. The observer reached the criterion level of 70% in all categories checked on both tapes.
### Table 1: Intraobserver Reliability for Videotape Recording

#### Frequency

<table>
<thead>
<tr>
<th>Category</th>
<th>Observation No.</th>
<th>%</th>
<th>1</th>
<th>2</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tape 1 (before proctors)</td>
<td></td>
<td>Tape 2 (after proctors)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill Practice</td>
<td>1</td>
<td>1</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>4</td>
<td>4</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture/Demonstration</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>10</td>
<td>10</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cue &amp; Guidance in Task</td>
<td>47</td>
<td>47</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback</td>
<td>60</td>
<td>72</td>
<td>95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Information</td>
<td>5</td>
<td>4</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-P.E. Comments</td>
<td>17</td>
<td>20</td>
<td>118</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Related</td>
<td>26</td>
<td>23</td>
<td>85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course &amp; Guidance in Task</td>
<td>67</td>
<td>70</td>
<td>80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Time in Seconds

<table>
<thead>
<tr>
<th>Category</th>
<th>Observation No.</th>
<th>%</th>
<th>1</th>
<th>2</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tape 1 (before proctors)</td>
<td></td>
<td>Tape 2 (after proctors)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill Practice</td>
<td>205</td>
<td>205</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>67</td>
<td>67</td>
<td>94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture/Demonstration</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>51</td>
<td>40</td>
<td>71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cue &amp; Guidance in Task</td>
<td>76</td>
<td>81</td>
<td>81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback</td>
<td>23</td>
<td>20</td>
<td>87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Information</td>
<td>13</td>
<td>11</td>
<td>85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-P.E. Comments</td>
<td>194</td>
<td>157</td>
<td>81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Related</td>
<td>82</td>
<td>82</td>
<td>77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course &amp; Guidance in Task</td>
<td>205</td>
<td>175</td>
<td>85</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Process Results

Analyses of design features were used to determine how each feature affected course operations. These methods were employed to provide process results on each of the four characteristics within the design.

Information from each category will be described by listing each analysis under each feature and how information is presented in the form of tables provided for each feature. A description of this analyses and ten tables will follow.

Self-Pacing

PSI's first characteristic is self-pacing. Four features are present under self-pacing: (a) Student independent progression, (b) reduced management time, (c) increased cues and guidances provided by the teacher, and (c) increased task related feedback. These analyses are presented in Tables 2 - 5.

Independent student progression. The first design feature in self-pacing was student independent progression, analyzed by determining the mean percent of tasks completed each day in the course. Table 2 presents the data analysis for this feature.

The mean percent of tasks completed per class ranged from a low of 0.8% to a high of 4.7%. Process results indicate that the mean percent of tasks completed each day throughout the course was 2.9%. This feature of PSI was considered
## Self-Pacing

### Table 2: Independent Student Progression

<table>
<thead>
<tr>
<th></th>
<th>Day</th>
<th>Mean Percent</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tasks Completed</td>
<td>1</td>
<td>0.8%</td>
<td>--------</td>
</tr>
<tr>
<td>Tasks Completed</td>
<td>11</td>
<td>2.8%</td>
<td>--------</td>
</tr>
<tr>
<td>Tasks Completed</td>
<td>21</td>
<td>3.3%</td>
<td>--------</td>
</tr>
<tr>
<td>Tasks Completed</td>
<td>31</td>
<td>4.7%</td>
<td>--------</td>
</tr>
<tr>
<td>Overall</td>
<td>---</td>
<td>2.9%</td>
<td>&gt; 2%</td>
</tr>
</tbody>
</table>
verified if the mean percent of at least 2.0% of the total tasks was completed each day. Therefore, the PSI design feature of student independent progression was considered to have been verified through the analysis of tasks completed each day.

**Decreased management time.** The second design feature in self-pacing was reduced management time, analyzed in four ways: (a) The mean frequency of daily content-related questions, (b) the student evaluation of the effectiveness of course policy guides in explaining course operations, (c) the percent of class time spent providing content-related information, and (d) the percent of class time spent in management. Analyses of data to verify decreased management time are presented in Table 3.

The first analysis of management time was the mean frequency of content-related questions asked by students in class on a daily basis. Table 3a presents the data analyses before introducing student proctors, after introducing student proctors, and each day throughout the course.

The mean frequency of questions per class ranged from a low of 29.0 to a high of 38.5. Process results indicate that the mean daily frequency of content-related questions throughout the course was 34.6. Verification of the presence of this PSI feature was a mean frequency of less than 25 per day. The PSI design feature of reduced management time was
**Self-Pacing**

**Table 3: Reduced Management Time**

<table>
<thead>
<tr>
<th></th>
<th>Mean Daily Questions</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No. Days</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>w/ Proctors</td>
<td>14</td>
<td>38.5</td>
</tr>
<tr>
<td>w/o Proctors</td>
<td>20</td>
<td>29.0</td>
</tr>
<tr>
<td>Overall</td>
<td>34</td>
<td>34.6</td>
</tr>
</tbody>
</table>

**Table 3b: Mean Student Ratings of Policy Guides**

<table>
<thead>
<tr>
<th>Student Evaluation</th>
<th>Mean Rating</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.4</td>
<td>&gt; 3.0</td>
</tr>
</tbody>
</table>

**Table 3c: Mean Time Providing Content Information**

<table>
<thead>
<tr>
<th>Content-Related Information</th>
<th>Percent Class Time</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.005%</td>
<td>&lt; 5.0%</td>
</tr>
</tbody>
</table>

**Table 3d: Mean Class Time Spent in Management**

<table>
<thead>
<tr>
<th>Management Time</th>
<th>Percent Class Time</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.06%</td>
<td>&lt; 5.0%</td>
</tr>
</tbody>
</table>
not verified, as the mean frequency of content-related questions exceeded 25 per day.

The second analysis of management time was the mean rating from student evaluation of the effectiveness of course policy guides in explaining course operations. The mean rating was based on a 5-point Likert scale. Table 3b presents the mean rating of student evaluations on the question, "How well do you feel the policy guide explained the workings of the course?".

The evaluation produced a mean rating of 3.4. Process results indicate above average student perceptions of the policy guides in explaining course operations. This feature of PSI was considered verified if the mean rating was greater than 3.0. The PSI design feature of reduced management time was verified by student evaluations of policy guides.

The third analysis of management time was the percent of class time spent by the teacher providing content-related information. The percent was analyzed over the entire course. Table 3c presents the percent of time providing content-related information.

The analysis produced 0.005% class time observed in content-related information. This PSI feature was considered verified if less than 5.0% of class time was spent providing content-related information. The PSI design feature of reduced management time was verified by the observation of
less than 1.0 percent of class time devoted to content-related information.

The last analysis of management time was the mean percent of class time actually spent in management over the entire course. Table 3d presents the percent of time spent in management.

The analysis produced 0.06% management time. This feature of PSI was considered verified if less than 5.0% of class time was spent in management. The PSI design feature of reduced management time was verified by the low amount of class time spent in management.

**Increased cues and guidances provided by the teacher.** The third design feature in self-pacing was increased cues and guidances provided by the teacher, analyzed by the mean rate of cues and guidances provided per minute in the course. Table 4 presents the data analyses before introducing proctors, after introducing proctors, and every day throughout the course.

The mean rate of cues and guidances per minute was 0.72, ranging from a low of 0.42 per minute to a high of 1.01 per minute. This PSI feature was considered verified if the mean rate was greater than 1.0 per minute. Therefore, this PSI design feature of increased cues and guidances provided by the teacher was not verified by the observed rate of 0.72 per minute.
### Self-Pacing

Table 4: Increased Cues and Guidelines

<table>
<thead>
<tr>
<th></th>
<th>No. Days</th>
<th>Mean Rate Per Minute</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>w/ Proctors</td>
<td>14</td>
<td>1.01</td>
<td>--------</td>
</tr>
<tr>
<td>w/o Proctors</td>
<td>20</td>
<td>0.49</td>
<td>--------</td>
</tr>
<tr>
<td>Overall</td>
<td>34</td>
<td>0.72</td>
<td>&gt; 1.0</td>
</tr>
</tbody>
</table>
Increased task related feedback. The last design feature in self-pacing was increased task related feedback, analyzed by the mean rate of task related feedback provided per minute in the course. Table 5 presents the data analyses before introducing proctors, after introducing proctors, and every day throughout the course.

The mean rate of task related feedback ranged from a low of 0.53 per minute to a high of 1.10 per minute. Process results indicated the mean rate of task related feedback provided throughout the course was 0.78 per minute. Verification of the presence of PSI was a mean rate of greater than 1.0 per minute. The PSI design feature of increased task related feedback was not verified by the mean rate of task related feedback.

The design characteristic of self-pacing in PSI had four features examined through seven separate analyses. Process results indicated that of the seven, PSI was verified in four. This majority demonstrated the presence of the PSI design characteristic of self-pacing in the course.

Mastery-Based learning

PSI's second characteristic is mastery-based learning. Two features are present under mastery-based learning: (a) Performance of each task to criterion and (b) teacher's knowledge of student progress. Both of these analyses are presented in Tables 6 and 7.
**Self-Pacing**

Table 5: Increased Task Related Feedback

<table>
<thead>
<tr>
<th></th>
<th>No. Days</th>
<th>Mean Rate Per Minute</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>w/ Proctors</td>
<td>14</td>
<td>1.10</td>
<td>------</td>
</tr>
<tr>
<td>w/o Proctors</td>
<td>20</td>
<td>0.53</td>
<td>------</td>
</tr>
<tr>
<td>Overall</td>
<td>34</td>
<td>0.78</td>
<td>&gt; 1.0</td>
</tr>
</tbody>
</table>
Performance of each task to criterion. The first design feature in mastery-based learning is performance of each task to criterion, analyzed in three ways: (a) The mean rating from student evaluation of PSI in producing increases in skill and knowledge, (b) mean rating of student evaluations of appropriateness of tasks to stated outcomes, and (c) the percent of tasks performed to criterion by 100% of the students in the class. Analyses of data to verify performance of each task to criteria are presented in Table 6.

The first analysis of performance of each task to criterion was the mean rating from student evaluation of PSI in producing increases in skill and knowledge. The mean rating was based on a 5-point Likert scale. Table 6a presents the mean rating of student evaluations on the questions, "How effective was the use of P.S.I. in producing increased skill?" and "How effective was the use of P.S.I. in producing increased knowledge?".

The evaluation produced a mean rating of 3.3. Process results indicate above average student perceptions of PSI in producing increases in skill and knowledge. This feature of PSI was considered verified the mean rating was greater than 3.0. The PSI design feature of performance of each task to criterion was verified by student evaluations of PSI increasing skill and knowledge.

The second analysis of performance of each task to
Mastery-Based Learning

Table 6: Performance of Each Task to Criterion

Table 6a: Mean Student Ratings of PSI Increasing Skill and Knowledge

<table>
<thead>
<tr>
<th>Student Evaluation</th>
<th>Mean Rating</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.3</td>
<td>&gt; 3.0</td>
</tr>
</tbody>
</table>

Table 6b: Mean Student Ratings of Task Appropriateness

<table>
<thead>
<tr>
<th>Student Evaluation</th>
<th>Mean Rating</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.0</td>
<td>&gt; 3.0</td>
</tr>
</tbody>
</table>

Table 6c: Percent of Tasks Performed to Criterion

<table>
<thead>
<tr>
<th>100% of Students</th>
<th>Percent Tasks To Criterion</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% Students in Class</td>
<td>96.9%</td>
<td>&gt; 70%</td>
</tr>
</tbody>
</table>

74
criterion was the mean rating from student evaluation of appropriateness of tasks to stated outcomes. The mean rating was based on a 5-point Likert scale. Table 6b presents the mean rating of student evaluations on the question, "How appropriate were the tasks in reaching the intended outcomes in this course?".

The evaluation produced a mean rating of 3.0. Process results indicate average student evaluations of the appropriateness of tasks to stated outcomes. This feature of PSI was considered verified if the mean rating was greater than 3.0. The PSI design feature of performance of each task to criterion was verified by student evaluations of appropriateness of tasks.

The last analysis of performance of each task to criterion was the mean percent of tasks performed to criterion by 100% of students in class. The percent was analyzed based on 100% completion graph (See Appendix M). Table 6b presents the mean percent of tasks completed by 100% of students in class.

The analysis produced 96.9% task completed. This PSI feature was considered verified if tasks performed to criterion was greater than 70%. The PSI design feature was verified by the observation of greater than 90 percent of tasks performed to criterion by 100% of the students in class.
Teacher's knowledge of student progress. The second design feature in mastery-based learning was teacher's knowledge of student progress, analyzed by determining the percent of task sheets (See Appendix F) and learning task sequence sheets (See Appendix E) which provide the teacher with the knowledge of the number of tasks performed to criterion throughout the course. Table 7 presents the data analysis for this feature.

The analysis produced 100% of task sheets and learning task sequence sheets observed which provided the teacher with the knowledge of the number of tasks performed to criterion. This PSI feature was considered verified if 100% of task sheets and learning task sequence sheets provided the teacher with knowledge of the amount of tasks performed to criterion. The PSI design feature of teacher's knowledge of student progress was verified by the observation of the percent of task sheets and learning task sequence sheets providing the teacher with knowledge of task to criterion.

The design characteristic of mastery-based learning in PSI had two features, examined through four separate analyses. Process results indicated that PSI was verified in all four. These analyses demonstrated the presence of the PSI design characteristic of mastery-based learning in the course.
Mastery-Based Learning

Table 7: Teacher's Knowledge of Student Progress

<table>
<thead>
<tr>
<th>Table 7: Percent of Task Sheets and Learning Task Sequences Providing Information On Task Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Providing PSI Information Verification</td>
</tr>
<tr>
<td>Tasks Sheets</td>
</tr>
<tr>
<td>Learning Task Sequence Sheets</td>
</tr>
</tbody>
</table>
Teacher as a Motivator

PSI's third characteristic is the teacher as a motivator. One feature is present under teacher as a motivator: increased student engagement. The analyses are presented in Table 8.

Increased student engagement. The single design feature in teacher as a motivator was student engagement, analyzed in four ways: (a) The mean percent of class time spent in skill practice, (b) the mean percent of comments which were defined as non-P.E. comments, (c) the percent of students actually attending class, and (d) the percent of students attending class that arrived at or prior to class starting time. Analyses of data to verify increased student engagement are present in Table 8.

The first analysis of increased student engagement was the mean percent of class time actually spent in skill practice over the entire course. Table 8a presents the mean percent of time spent in skill practice.

The analysis produced 81.9% of class time spent in skill practice. This feature of PSI was considered verified if time spent in skill practice was greater than 75.0%. The PSI design feature of increased student engagement was verified by the high percent of class time spent in skill practice.

The second analysis of increased student engagement was the percent of teacher comments which were defined as non-P.E. comments. The percent was analyzed over the entire course.
Teacher as a Motivator

Table 8: Increased Student Engagement

Table 8a: Mean Class Time in Skill Practice

<table>
<thead>
<tr>
<th>Skill Practice Time</th>
<th>Percent</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>81.9%</td>
<td>&gt; 75%</td>
</tr>
</tbody>
</table>

Table 8b: Mean Percent of Non-P.E. Comments

<table>
<thead>
<tr>
<th>Class Comments</th>
<th>Percent</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.18%</td>
<td>&lt; 5%</td>
</tr>
</tbody>
</table>
### Teacher as a Motivator

#### Table 8: Increased Student Engagement (Continued)

#### Table 8c: Percent of Students Actually Attending Class

<table>
<thead>
<tr>
<th></th>
<th>Percent Attending Class</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>83%</td>
<td></td>
</tr>
<tr>
<td>February</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>61%</td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>58%</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>78%</td>
<td>&gt; 70%</td>
</tr>
</tbody>
</table>

#### Table 8d: Percent of Students Attending Class Arriving At or Prior to Class Starting Time

<table>
<thead>
<tr>
<th></th>
<th>Percent Attending At or Prior Class Starting Time</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>99%</td>
<td></td>
</tr>
<tr>
<td>February</td>
<td>99.5%</td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>98.9%</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>99.4%</td>
<td>&gt; 80%</td>
</tr>
</tbody>
</table>
Table 8b presents the percent of comments which were defined as non-P.E..

The analysis produced 0.18% observed non-P.E. comments. This PSI feature was considered verified if less than 5.0% of teacher comments were non-P.E. comments. The PSI design feature of increased student engagement was verified by the observation of less than 1 percent of comments defined as non-P.E..

The third analysis of increased student engagement was the percent of students actually attending class. The percent was analyzed over the entire course. Table 8c presents the data analyses by each month and over the entire course.

The percent of students actually attending class ranged from a low of 61.0% to a high of 83.0%. Process results indicate that the percent of students actually attending class throughout the course was 78.0%. This PSI feature was considered verified if greater than 70.0% of students were attending class daily. The PSI design feature of increased student engagement was verified, as the percent of students attending class daily exceeded 70.0%.

The last analysis of increased student engagement was the percent of students attending class that arrived at or prior to class starting time. The percent was analyzed over the entire course. Table 8d presents the data analyses by each month and over the entire course.
The percent of students attending class that arrived at or prior to class starting time ranged from a low of 98.9% to a high of 100%. Process results indicate that the percent of students attending class that arrived at or prior to class starting time throughout the course was 99.4%. This PSI feature was considered verified if the percent of students attending class arriving at or prior to class was a greater than 80.0%. The PSI design feature of increased student engagement was verified by the high percent of students attending class that arrived at or prior to class starting time.

The design characteristic of the teacher as a motivator in PSI had one feature, examined through four separate analyses. Process results indicated that PSI was verified in all four. The analyses demonstrated the presence of the PSI design characteristic of the teacher as a motivator in the course.

**Emphasis Placed on the Written Word**

The final design characteristic was emphasis placed on the written word. Four features are present under emphasis placed on the written word: (a) Tasks explained in the written word, (b) cognitive material in the written form, (c) class operating information in the written form, and (d) reduced lecture / demonstration time. All four of these analyses are presented in Table 9 - 12.
Tasks explained in the written form. The first design feature in emphasis place on the written word was task explained in the written form, analyzed in two ways: (a) The percent of task sheets with tasks explained in the written form and (b) the percent of learning task sequence sheets with tasks explained in the written form. Analyses of data to verify tasks explained in the written form are presented in Table 9.

The first analysis of tasks explained in the written form was the percent of tasks sheets with tasks explained in the written form based on all tasks sheets. Table 9a presents the percent of task sheets with tasks explained in the written form.

The analysis produced 100% of task sheets with tasks explained in the written form (See Appendix F). This PSI feature was considered verified if 100% of the total task sheets provided task explanations in the written form. Therefore, the PSI design feature of tasks explained in the written form was considered to have been verified by the percent of all task sheets that provide task explanations in the written form.

The second analysis of tasks explained in the written form was the percent of all learning task sequence sheets with tasks explained in the written form based on all learning task sequence sheets. Table 9b presents the percent of task sheets
Emphasis Placed on the Written Word

Table 9: Tasks Explained in the Written Word

<table>
<thead>
<tr>
<th>Tasks Sheets</th>
<th>Percent</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
<td>=100%</td>
</tr>
</tbody>
</table>

Table 9a: Percent of Task Sheets with Tasks Explained in the Written Form

Table 9b: Percent of Learning Task Sequence Sheets with Tasks Explained in the Written Form

<table>
<thead>
<tr>
<th>Learning Tasks Sequence Sheets</th>
<th>Percent</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
<td>=100%</td>
</tr>
</tbody>
</table>
with tasks explained in the written form.

The analysis produced 100% of learning task sequence sheets with tasks explained in the written form (See Appendix E). This PSI design feature was considered verified if 100% of the total learning tasks sequence sheets were provided task explanations in the written form. Therefore, the PSI design feature of tasks explained in the written form was considered to have been verified by the percent of learning task sequence sheets that provide task explanations in the written form.

**Cognitive material in the written form.** The second design feature in emphasis place on the written word was cognitive material in the written form, analyzed in four ways: (a) The percent of cognitive unit task sheets in the written form, (b) the percent of cognitive unit learning task sequence sheets in the written form, (c) the percent of cognitive units study guides in the written form, and (d) the percent of cognitive units tests in the written form. All four of these analyses are presented in Table 10.

The first analysis of cognitive material in the written form was the percent of cognitive unit task sheets in the written form based on all task sheets in the cognitive unit of strategy (See Appendix F). Table 10a presents the percent of task sheets in the written form.

The analysis produced 100% of cognitive unit task sheets in the written from. This PSI design feature was considered
### Emphasis Placed on the Written Word

**Table 10: Cognitive Material in the Written Form**

<table>
<thead>
<tr>
<th>Cognitive Unit Tasks Sheets</th>
<th>Percent in Written Form</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
<td>=100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cognitive Unit Learning Task Sequence Sheets</th>
<th>Percent in Written Form</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
<td>=100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cognitive Units Study Guides</th>
<th>Percent in Written Form</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
<td>=100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cognitive Unit Tests</th>
<th>Percent in Written Form</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
<td>=100%</td>
</tr>
</tbody>
</table>
verified if 100% of the total cognitive unit task sheets were provided in the written form. Therefore, the PSI design feature was considered to have been verified by the percent of all cognitive unit task sheets provided in the written form.

The second analysis of cognitive material in the written form was the percent of cognitive unit learning task sequence sheets in the written form based on all learning task sequence sheets in the cognitive unit of strategy (See Appendix E). Table 10b presents the percent of learning task sequence sheets in the written form.

The analysis produced 100% of a cognitive unit learning task sequence sheets in the written form. This PSI design feature was considered verified if 100% of the total cognitive unit learning task sequence sheets were provided in the written form. Therefore, the PSI design feature of cognitive material in the written form was considered to have been verified by the percent of a cognitive unit learning task sequence sheets in the written form.

The third analysis of cognitive material in the written form was the percent of cognitive units study guides in the written form based on all study guides in the cognitive units of strategy and rules/scoring (See Appendix E and Appendix J). Table 10c presents the percent of study guides in the written form.
The analysis produced 100% of cognitive units study guides in the written form. This PSI feature was considered verified if 100% of the total cognitive units study guides were provided in the written form. Therefore, the PSI design feature of cognitive material in the written form was verified by the percent of cognitive unit study guides in the written form.

The last analysis of cognitive material in the written form was the percent of cognitive units tests in the written form based on all tests in the cognitive units of strategy and rules/scoring (See Appendix E and Appendix K). Table 10d presents the percent of study guides in the written form.

The analysis produced 100% of cognitive units tests in the written form. This PSI feature was considered verified if 100% of the total cognitive units test were provided in the written form. Therefore, the PSI design feature of cognitive material in the written form was verified by the percent of cognitive units tests in the written form.

Class operating information in the written form. The third design feature in emphasis place on the written word was class operating information in the written form, analyzed in two ways: (a) The percent of course policy guides in the written form and (b) the percent of a course policy guides received by the students. Analyses of data to verify class operating information in the written form are presented in
Table 11.

The first analysis of class operating information in the written form was the percent of course policy guides in the written form based on policy guides used in the class (See Appendix A). Table 11a presents the percent of policy guides in the written form.

The analysis produced 100% of course policy guides in the written form. This PSI feature was considered verified if 100% of the total course policy guides were provided in the written form. Therefore, the PSI design feature of class operating information in the written form was verified by the percent of policy guides in the written form.

The second analysis of class operating information in the written form was the percent of students that received a course policy guide. Table 11b presents the percent of student who received a policy guide.

The analysis confirmed that 100% of students received a policy guide. This PSI design feature was considered verified if 100% of student enrolled in the class received a course policy guide. Therefore, the PSI design feature of course operation information in the written form was verified by the percent of students who received a policy guide.

**Reduced lecture / demonstration time.** The last design feature in emphasis placed on the written word was reduced lecture / demonstration time, analyzed by determining the mean
Emphasis Placed on the Written Word

Table 11: Class Operating Information in the Written Form

Table 11a: Percent of Policy Guides in the Written Form

<table>
<thead>
<tr>
<th>Percent in Written Form</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy Guides</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 11b: Percent of Students Receiving Policy Guide

<table>
<thead>
<tr>
<th>Percent Students Receiving Policy Guide</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students Enrolled in Class</td>
<td>100%</td>
</tr>
</tbody>
</table>
percent of class time spent in lecture / demonstration. Table 12 presents the data analysis for this feature.

The one analysis of lecture / demonstration time was the mean percent of class time actually spent in lecture / demonstration over the entire course. Table 12 presents data analyses of reduced lecture / demonstration time before the introduction of student proctors, after the introduction of student proctors, and the combined percent throughout the course.

The mean percent of time actually spent in lecture / demonstration ranged from a low of 1.0% to a high of 2.0%. Process results indicate that the percent of lecture / demonstration time throughout the course was 1.0%. This PSI feature was considered verified if the mean percent of time spent in lecture / demonstration was less than 10%. This verified the PSI design feature of reduced lecture /demonstration time was thus verified by the low amount of class time spent in lecture / demonstration.

The design characteristic of emphasis placed on the written word in PSI had four features, examined through nine separate analyses. Process results indicated that PSI was verified in all nine. These analyses demonstrated the presence of the PSI design characteristic of emphasis placed on the written word in the course.
**Table 12: Reduced Lecture / Demonstration Time**

<table>
<thead>
<tr>
<th></th>
<th>No. Days</th>
<th>Mean Percent Class Time</th>
<th>PSI Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>w/ Proctors</td>
<td>14</td>
<td>1.0%</td>
<td>------</td>
</tr>
<tr>
<td>w/o Proctors</td>
<td>20</td>
<td>2.0%</td>
<td>------</td>
</tr>
<tr>
<td>Overall</td>
<td>34</td>
<td>1.5%</td>
<td>&lt; 10%</td>
</tr>
</tbody>
</table>
Special Considerations

As mentioned in the section of contextual factors, several special considerations must be looked at in order to give a complete description and understanding of the effects and influences in the course. These considerations affected the data and the information in the process results. Information from class journals will be presented as a form of process results. This information will cover class attendance, activity performance, and student motivation. These considerations include: (a) Varsity athletes, (b) high number of seniors enrolled, and (c) various skill levels.

Varsity Athletes

Four varsity baseball players were enrolled in the course. As with most varsity athletes these students were often out due to games and practice times. The course was held during the winter term. However, practice and games began as early as mid-March. Often attendance would be affected by who made the traveling squad and who didn't. More than once ball players came by to inform the instructor that they would not be in class because they needed to practice if they were going to play in the next game. Table 13 demonstrated that the baseball players were attending class 93% of the time.
**Special Considerations**

<table>
<thead>
<tr>
<th></th>
<th>Mean Percent of Days Attended by Special Groups Enrolled in Class</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table 13</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Mean Percent Of Days Attending Class</strong></td>
<td></td>
</tr>
<tr>
<td>Baseball Players</td>
<td>93.0%</td>
</tr>
<tr>
<td>Seniors</td>
<td>82.0%</td>
</tr>
<tr>
<td>Low Pre-Test Group</td>
<td>62.0%</td>
</tr>
<tr>
<td>High Pre-Test Group</td>
<td>58.0%</td>
</tr>
<tr>
<td>Overall</td>
<td>72.0%</td>
</tr>
</tbody>
</table>

94
Although there were negative aspects to these athletes as students, they also displayed positive aspects. As college level athletes they often excelled at the designed tasks and could quickly make up any time missed. As expected, the absences increased as the course extended later into the term. However, they worked extremely hard at the beginning of the course so that they were well ahead of the majority of students. This was exemplified by their selection as proctors.

Not having the availability of graduate students as proctors, Keller suggested using more advanced students to aid in the course as student proctors. To aid in providing class lecture / demonstrations the teacher selected four students as student proctors. They were selected based on their advanced position in the task sequences and the teacher's judgement of ability to handle the extra duties without affecting their progression. Two of the four student proctors selected were baseball players. By selecting two proctors not on the baseball team there were always proctors available to the students. Not only did they complete the course with no apparent problems, but they were competent presenting class lectures.

**High Number of Seniors Enrolled**

Of the 21 students enrolled, 15 were seniors. As seniors, the majority of them were beginning to interview for
jobs and were often absent for interviews and placement appointments. Often there would be periods in which as many as 5 or more students would be gone for employment interviews. However, despite the seniors being the special group with the lowest attendance they still were attending class 82% of the time (See Table 13).

One student who was graduating at the end of the term missed 6 of the first 13 days at the beginning of the year due to job interviews, falling behind other students in completed tasks. However, after completing his interviews he never missed class. Having played volleyball before, he immediately advanced past many other students in the course and became one of the student proctors.

These types of special groups often cause scheduling and other time problems for the instructor and the students in the "conventional" course design. However, the PSI design allowed students to miss and still complete the course work. This is a positive feature of the characteristic of self-pacing and demonstrated by all students completing over 90% of the tasks.

**Various Skill Levels**

Students in college level classes often vary in gender, age, and skill level. The factor that affects a physical education course the most is usually the various skill levels. This course included students who had played volleyball in a varsity high school program, and many others who had only been
involved as a spectator, with little or no concept of the game.

The course journal noted that the less skilled students showed little interest and their absentee rate was often higher at the beginning of the course. Near the end of the course these slower students began showing up every day, presumably to finish the course requirements. They arrived early and stayed late.

The higher skilled students' attendance was different from the less skilled students'. At the beginning of the term they came regularly, as they quickly advanced past many other students and moved through the units with little problem. They later realized that they could miss class without falling behind. Once they realized this the high group often became involved in game play when they felt they were way ahead in tasks completed. Table 13 indicates that there was very little difference between the high group and low group in percentage of class attendance. Both groups actually demonstrated a high rate, 92% and 91%, of attendance. However patterns varied as noted.

**Summary**

In summary, Keller's PSI was faithfully implemented into the course, based on predetermined confirmation criteria. Eleven design features were used to analyze data on the four characteristics of PSI. These features produced 24 analyses
which were examined to verify the faithful implementation of the PSI volleyball unit. Of these, 88% meet the criterion for documenting the four PSI design characteristics. The data indicated that the PSI design meet the intended outcomes of providing students with individualized instruction. The next chapter will look at some conclusions that can be drawn from each of the defining characteristics and how the data supports these conclusions.
Chapter V

Summary and Conclusions

This chapter will present conclusions drawn from the implementation of PSI as a design in the psychomotor domain. PSI contains four design characteristics: (a) Self-pacing, (b) mastery-based learning, (c) teacher as a motivator, and (d) emphasis place on the written word. Each of these characteristics will be examined as to the positive influences each had upon the course and to the areas in need of further development. This chapter will also examine the implementation of PSI as the course design, and suggestions for further research. This information will be divided into four sections:

1) Review of the Study
2) Course Design
3) PSI Characteristics
4) Recommendation for Further Research

Review of the Study

As the United States experiences a growth in the demand for physical activity, higher education meets this growth through the Basic Instructional Program. The Basic Instructional Program provides college and university level students with exposure to the physical education curriculum (Trimble & Hensley, 1984). Basic Instructional Programs often
are composed of beginning level activity courses. One such course is beginning volleyball.

The most common form of instruction in the Basic Instructional Program is a conventional style of teaching. Using this style, the teacher provides skill related information to the entire class, then expecting all students to perform at the same designated level. Individual instruction is very limited and seldom provided.

Since 1984 there has been a significant increase in the amount of physical education requirements necessary for graduation (Miller, Dowell, & Pender, 1989). Additional requirements have resulted in increased enrollment in activity courses. However, research indicates that while enrollment has increased, the number of professionals teaching in the Basic Instructional Program has decreased (Miller, Dowell, & Pender, 1989). As the basic activity courses requirements become more stringent, two situations occur; class enrollment increases, and professional instruction decreases (Miller, Dowell, & Pender, 1989). Individual instruction must be provided to meet the varying needs if the learning of motor skills is to be a successful and enjoyable experience in physical education (Singer & Dick, 1974).

The problem of decreased individualized instruction has become evident in many of the activity courses offered in the
college basic instructional program. With the ineffectiveness of conventional teaching methods to compensate for this problem, alternative instructional designs need to be examined. One such alternative is Keller's Personalized System of Instruction. Although the vast majority of research has dealt with PSI in the cognitive domain, it is believed that PSI may be effective when applied to the psychomotor domain of college level physical education courses.

The purpose of this study was to plan, develop, and implement PSI in a college level volleyball course. Furthermore, this study documents several key design characteristics present in PSI and how they relate to individual instruction in the psychomotor domain. This study combined a systems approach model with an educational R & D model, to allow for adjustments within the course as it proceeded.

**Course Design**

Keller's PSI is based upon individualized instruction. To provided this individualized instruction, PSI allows students to advance by following information provided by materials designed for the course. Singer and Dick (1974), discussing factors effecting education, supported the importance of individualized instruction in order to meet the varying needs of students and the use of PSI as a viable form
of instructional design.

The findings in this study imply that PSI offers several advantages over conventional instruction often employed in college level activity courses. One of the main elements in the course design which promoted individualized instruction was PSI's task sequencing in each unit of the course. Tasks were provided in a progressive, sequential order, with initial tasks designed for the acquisition of basic skills needed for completion of the proceeding task. Each task increased in difficulty by building upon the previous task. This sequenced progression allowed students to achieve success as they moved through the various levels of each unit and to increase skill development throughout the course. This success is indicated by the data on the high percentage of tasks completed by 100% of the students enrolled.

Metzler (1986), conducting research on PSI in a college level beginning tennis course, agreed with the importance of sequenced learning in the PSI design leading to task mastery by all students in the course. Research on beginning tennis produced evidence that sequenced learning which lead to mastery criteria increased attention for all students and performance became the main focus. Metzler (1986) concluded that the feature of sequenced learning would seem to be advantageous for motor skill acquisition in the physical
education setting.

The second conclusion under course design is the ability for each student to increase knowledge and skill, despite the varying entry levels. Tousignant (1983) suggested that PSI applied in physical education allows students to progress through the course at their own level despite the varied skill level college students bring to a course. The course materials provided students within opportunity to use these skills at the appropriate level within each unit.

Mean percent of tasks completed demonstrated that all students were able to progress through the course. The highly skilled students moved quickly through the early tasks while lesser skilled students were able to move through tasks without being pressured to keep up with others. Despite the various levels inherent in any college level activity course, student evaluations indicated that students felt they were able to increase in skill and knowledge by following the PSI design. The design of the units in the course allowed all students to move through the sequence at a rate commensurate with the skills they brought to the course.

While the course design appears to have provided students with the skills needed for the intended outcomes some areas of the design need to be further developed, as allowed in the R & D model of the design. The first area requiring further
development is the number of tasks used in the course design. Tasks were often too detailed, without an appropriate amount of progression from one task to the next. Despite evidence of the advantages of PSI as an instructional design in the psychomotor domain, there are constraints which restrict its use. One of the major constraints is the limited amount of time. Students often required more time than was available for completion of all tasks in each sequence. Class journals revealed that students thought that the tasks were too detailed for a beginning volleyball class and that often one task was simply a continuation of the previous task with very little progression. Also, journals indicated that the lower skilled students felt tasks should have been more fundamental.

By dealing with the more fundamental tasks, students' time could have been better used to develop new skills rather than repeating similar tasks with little difference in the skills being provided. Metzler's (1988) study of PSI in tennis agreed with the advantages of a reduced number of tasks. Providing a total of 33 tasks in tennis (compared to the 85 tasks and a final exam in this unit) resulted in PSI "... 1) foster a better use of allocated time, 2) allow students more practice time, and 3) promote a greater success when practicing these motor play skills" (p. 7).
The second aspect of the course design requiring further development was the determination of how grades were received in the course. By determining grades based on 80% completion of all tasks, rather than 80% in each unit, students were not motivated to complete any tasks after the 80% mark. Once 80% of the tasks were completed, students needed only to score 14% correct on the rules and scoring test in order to pass the course. This was confirmed by the decrease in student attendance during the last month in the course. Once students felt they could reach the 80% criteria designated for passing the course they did not feel it was necessary to complete the remaining tasks in the sequences. Implications from this information indicate that in order for students to attain all intended information grading needs to be more stringent in the area of task completion requirements. The development of more fundamental tasks should reduce the amount of tasks and provide students adequate time necessary to complete 100% of the course tasks.

Based on student evaluations and task completion data, PSI allowed all students to achieve success in the tasks within the course. By following the course design, students were able to complete a high percent of the assigned tasks (See Table 7) within the course.
Willett, Yamashita, and Anderson (1983) agreed with the advantages of PSI as a design. Conducting a meta-analysis comparing PSI and 11 other systems, PSI was identified as the most successful in producing overall achievement. However, the meta-analysis was performed in the cognitive domain rather than the psychomotor.

Class journals indicated areas which needed further development. This development related to student satisfaction in tasks within each unit. Overall, data provided conclusions that PSI produced positive effects and that the PSI design PSI appears to be successful in meeting intended outcomes in the psychomotor domain.

**PSI Characteristics**

Conclusions drawn from each of PSI's four defining characteristics and how they affected the course will be discussed next. The design implemented in the psychomotor instructional unit of volleyball revolved around four characteristics of PSI: (a) Self-pacing, (b) mastery-based learning, (c) teacher as a motivator, and (d) emphasis placed on the written word.

**Self-Pacing**

The first characteristic of PSI is self-pacing. In this psychomotor instructional unit, students of varied skill and experience were brought together. Often students are expected
to perform at a rate commensurate with what the teacher deems acceptable. Self-pacing allowed students to move at their own rate according to the skills they had already acquired, and to fully develop these skills before proceeding to new ones. Tousignant's (1983) examination of PSI in the psychomotor domain agreed, describing the design as a "...go-at-your-own-pace system" (p.33), which leads to mastery criteria in a progressive sequence, advantageous to motor skill acquisition.

Process data indicated that although the students progressed at varied rates, they all demonstrated task progression indicated by task completion rates. The data on tasks to criterion and mean daily tasks completed showed that students were able to continually progress through each unit regardless of entry skill level. Also, all students were able to successfully reach 96% of the course goals established at the beginning of the course.

The second advantage of self-pacing was that it allowed students to progress through a sequence of tasks involving various skills, regardless of the skills the student brought to the course. By allowing individual progression, the teacher-student process information revealed more individualized skill related content, used to aid in student task success. Skill specific information was provided rather than management information.
Metzler (1989), studying PSI in college level tennis, agreed that self-pacing frees the instructor from the day-to-day aspects (i.e. management) and enables students to spend time in skill related activity. Instructors are able to spend less time directing student movement and increased time concentrating on skill performance.

Data indicated a low amount of time spent in management and that a high percent of class time was spent in skill practice. The low rate of management time was confirmed by the student evaluations indicating that policy guides were above average in providing information on course operations.

Although the amount of skill practice time was high, the amount of information in the form of cues, guidances, and feedback did not verify the presence of PSI. PSI design should allow the teacher to provide individual information to each student. Data indicted that introducing student proctors produced an increase in the frequency of cues, guidance, and feedback provided to the student. In order for PSI to increase individualized instruction in the psychomotor domain, proctors seem to be needed throughout the length of the course.

A second aspect related to self-pacing is content-related information provided to the students. Although student evaluation indicated that policy guides sufficiently explained
course operations, there was an extremely high rate of content-related questions asked by students. Perhaps this was caused by the students' lack of familiarity with the course procedures and an inordinate amount of time spent in task related lecture / demonstration by the instructor. Keller and Sherman's (1974) report of the course pilot study and introduction at the University of Brazil demonstrated the lack of opportunity for students to become familiar with the design. In both studies students reported satisfaction with the self-pacing aspect of the course. However, they felt they did not have the opportunity for discussion of course materials.

Whatever the reason, the designer needs to incorporate a way in which students come to a clearer understanding of the information provided. A PSI golf course developed during this study provided lecture / demonstration through the use of videotapes provided to the students. By providing lecture / demonstration in the form of videotaped information, all students receive the same information and the teacher is free to provide individualized skill information rather than general information. By reducing the amount of content-related questions, the instructor is able to concentrate more on individualized skill related information.
PSI's characteristic of self-pacing provided an opportunity for all students to move individually through the course. Students were successful due to the opportunity to progress at their own rate. The rate of progression was verified, despite a lower-than-expected rate of cues, guidances, and feedback. In order for self-pacing to focus on the individual instruction, tasks need to be presented in a clearer manner and forms of providing information need to be examined to free the teacher to interact with students on an individual basis.

**Mastery-based Learning**

The second characteristic of PSI is mastery-based learning. As a part of the Basic Instructional Program the class contained groups of students with varied ability and experience in the activity. The characteristic of mastery-based learning allowed each group to work on the tasks appropriate for their skill level. Each task in the sequence was built on progressively more complex skills. Students needed to master the skills from the previous task before accomplishing the proceeding tasks.

Metzler's (1986) study of a beginning college level tennis course, using a PSI design, agreed with the advantages produced by sequenced learning. Metzler's study indicated that mastery of the simple to the complex tasks provided
progression through the various motor skill units within a physical activity course.

Data indicated that mastering each skill before proceeding allowed all students, without regard to skill level, to develop the skills needed to reach a high rate of tasks to criterion. Process results indicated that all students developed the skills need to accomplish over 95% (See Table 6c) of the tasks within the course. Student evaluations indicated that they perceived themselves to have increased both skill and knowledge under the PSI design.

The second positive aspect of mastery-based learning was student knowledge of target criteria. A target criterion allowed students to know what performance was expected on each task. At the beginning of each unit students were provided with a learning task sequence sheet that identified all the tasks in the sequence. Each task had a performance criterion listed on the sheet. By allowing students the opportunity to know what was expected in order to reach mastery, they were able to focus on the intended outcomes in each unit. Mastery learning allowed the students to focus on course expectations as defined by mastery criteria and aided students to work toward a definite goal in each unit. Data indicated this progression by the high percent of tasks completed to each established criterion. Studies using similar systems have
provided a basis for this conclusion.

One study was a competency-based model in the psychomotor domain (Viera and Ferguson, 1986). This model contained many characteristics similar to the PSI design, including mastery-based instruction. This model was applied to a college level volleyball course. The study indicated that by defining prescribed goals students worked conscientiously toward those goals and used class time more efficiently.

Although students were able to focus on the instructor's expectations in each unit, mastery learning must be further developed to aid students in understanding how task mastery promotes intended outcomes. Process results indicated that students had a high rate of task completion. However, student evaluations showed that perception of tasks related to intended outcomes was only average. Again, this could be related to students' lack of understanding of the course purpose.

Mastery-based learning allowed students to know what was expected and, by using a progression, to attain the skills need in each unit. However, if mastery-based learning is to be extremely effective, performance of tasks to criterion should be clearly related to the course intended outcomes.
Teacher as a Motivator

The third characteristic of the PSI course design is the teacher acting as a motivator. Any instructional design should include a method for motivating students to increase performance. PSI designates the teacher to provide information which will aid in motivating students. Teacher as a motivator was examined under the design feature of student engagement.

Student engagement demonstrates the positive effects of the teacher as a motivator by examining the amount of time students spent engaged in course related activity. Process results demonstrated that a large amount of class time was spent in skill practice and that the percent of non-P.E. related comments was less than 1%. By providing the students with information which aided in task success, students were motivated to increase engagement in skill related activities.

Metzler (1988), comparing "conventional" instructional design to PSI in a college level tennis class, agreed, reported that PSI subjects had significantly more total engagement and motor engagement than students in the "conventional" group. Tousignant (1983) suggests this increased engagement is a component of PSI's characteristic of self-paced instruction. Self-pacing offers the student the opportunity to remain at a task which is appropriate for
their individual skill level until a successful outcome is reached. This success serves to reinforce the student to progressively improve in a systematic manner (Keller & Sherman, 1974).

The second indication of the positive effects of using the teacher as a motivator was the arrival time of students attending class. PSI does not dictate the amount of time students must attend class. Therefore, students could miss class as long as they were able to complete the designated percent of tasks. Students indicated their motivation by actually attending approximately 80% of all scheduled classes. Of those attending, more than 99% arrived at or prior to the class starting time (See Table 8c and 8d). This early arrival time indicated a high rate of student motivation under the PSI design. This could be attributed to the early success rate of tasks by many of the students.

Keller and Sherman (1974) suggested that early tasks should produce high success rates. Early success often contributes to student motivation. Students are willing to come to class if they experience positive results. Postlewait and Novack (1967) support this conclusion, reporting a correlation between high interest rate and student success when implementing the PSI design.
PSI's design characteristic of the teacher acting as a motivator indicated a positive effect of PSI on student engagement. Mean percent of class time spent in skill practice, actual class attendance, and arrival time of students attending class appear to support the positive influences of this PSI design characteristic.

Emphasis Placed on the Written Word

PSI's final design characteristic is an emphasis placed on the written word. As stated earlier, PSI allows students to progress through the course by following information provided by materials designated for each unit within the course. Materials included task sheets, learning task sequences, cognitive unit materials, course policy guides, and evaluation information. The PSI characteristic of emphasis on the written word promotes several positive features. These features include: (a) reduced amount of lecture/demonstration, promoting increased amount of time in skill practice; and (b) increased individualized instruction resulting in more efficient use of allocated class time by the students.

Emphasis on the written word relates to the PSI design's use of written information rather than verbal information. Students are responsible for following instructions provided on tasks sheets, learning task sequences, and policy guides
rather than teacher instructions. The teacher is available to elaborate on the information provided in the written materials, not substitute for it. PSI promotes individualized instruction by allowing students to progress more efficiently through course tasks. Emphasis on the written word reduces the amount of time spent providing lecture / demonstration. Reduced lecture / demonstration allows for increased practice time.

As indicated in the feature of student engagement, students spent a large amount of time engaged in skill practice. Process results indicated that providing policy guides in written form allowed students to spend more time in skill practice and only 1% receiving content-related information and lecture / demonstration. Reducing the amount of non-P.E. related activities allows students to work toward task success within the unit rather than waiting for teacher instructions.

Metzler, Eddleman, Treanor, and Cregger (1989) agree by referring to written material in PSI as the major source of information. This combined with Metzler's (1986, 1988) studies, supports the conclusion that PSI written materials allow for more efficient use of class time and increased student motor engagement.
Despite the apparent values of emphasis on the written word, there was a high number of content-related questions. Emphasis on the written word provides a large amount of material to each student. Class journal notes indicated that students were often overwhelmed by the amount of information and tended to neglect sections within units. Students rarely used the error correction information provided on all task. Student comments indicated that the policy guide was confusing. However, this was contradicted by above average ratings of the policy guide's effectiveness.

In order for PSI to provide individual instruction, material should be provided to students in the written form. This allows individuals to spend increased time in skill activity. However, further development is warranted in the quantity and clarity of the material the students received in the course.

**Recommendations for Further Research**

As stated earlier, much of the research on PSI has been done in the cognitive domain. Evidence from this course suggests that PSI can provide several keys to learning in the psychomotor domain. There are still design features, however, which need further development if PSI is truly to be a viable method of instructional design in the psychomotor domain. These include (a) use in other content areas, (b) use with
other populations, (c) alternative forms of delivery, and (c) relationship of PSI to achievement.

The first area requiring further examination is PSI's implementation in other content areas and within varied populations. For PSI to be considered an effective form of psychomotor instructional design it should be examined when applied to various activity courses at the college level and other educational levels.

The implementation of PSI in the public school system offers several unique challenges for the course designer. Among these challenges is the structure of task information. Tasks will need to be appropriate for the students grade level. The pictured diagrams will need to be made more simplistic and allow the child to determine exactly what they should be doing without extensive reading. Also, the teacher must thoroughly explain how they course works and allow the students to become familiar with the system (i.e. one week ungraded practice session).

For PSI's value in the psychomotor domain to be determined, it is necessary to examine the use of PSI in other physical activity courses at different levels.

The third area requiring further study is that of alternative forms of delivery. Several delivery formats should be examined. One of the most recent advancements in
educational technology is the application of interactive video in instruction (Eddieinan, 1987). PSI should be examined in this format. Research needs to examine the effectiveness of PSI when provided in alternative delivery formats in the psychomotor domain.

The final area suggested for future research in PSI is the relationship of PSI to student achievement. Although this study did not examine student achievement, the amount of task progression suggests that PSI could be a valuable tool in producing student achievement in the psychomotor domain.

In summary, this chapter discussed several of the conclusions reached based on PSI as a design in the psychomotor domain. As an R & D model, this study does not represent the final stage of development. This study was designed to describe PSI in a college level volleyball course. However, several features should be examined to determine PSI's availability as an instructional design in the general psychomotor domain. In order for definitive statements to be made on the effectiveness of PSI further research is needed to determine students' need to become more familiar with its use, and its potential to foster significant increases in achievement.
References


Appendix A: Policy Guides
VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

College of Education

Division of Health, Physical Education, and Recreation

INSTRUCTOR INFORMATION:

Name: Ron Cregger              Office Ph. #: 703-231-4900
Office: 120 WMG                Home Ph. #: 703-389-1327

Office Hours: 2:00p.m. to 3:00p.m. Monday & Wednesday (other times will be available by appointment)


Course Goal: Upon completion of this course, you will be able to perform the fundamental skills necessary to play the game of volleyball.

COURSE POLICY GUIDE

Course Description:

This course is designed to develop skills and strategies required to play volleyball by progressing at your own pace. You will not be held back by other students or forced to go ahead before you are ready. How fast you complete the course is up to you.
Performance Objective:

This course is divided into five (5) units of content: (1) serving, (2) overhead passing, (3) forearm passing, (4) strategy, and (5) rules/scoring. Task are sequenced in a numerical order with serving representing the first unit and rules/scoring being the last. Each unit is divided into a series of criterion tasks designed to develop volleyball skills.

Student Responsibilities:

Your responsibilities will include: (1) attending class every day at the designated time, (2) immediately beginning to work on the current criterion task in the sequence, (3) working on each unit and the task within the units in numerical order, (4) read all handouts presented as study guides.

Learning Task Sequence Sheets: (Gold in Color)

Upon arriving to class you will go to the "INSTRUCTOR TABLE" and retrieve a copy of your Learning Task Sequence sheet from the file. This sheet describes the order the tasks are to be performed. You are to fill out all the information at the top and begin to work toward the criterion of the first task.

Task Sheets: (Pink in Color)

At the same time you pickup the "Learning Task Sequence" sheet you will take out a "Task Sheet" which corresponds to the task you are working on. Fill out the information at the
top on each new task sheet on the first day you begin the task. The sheet will contain written information and a diagram showing how the task is to be performed, written information and a diagram of possible errors and corrections of those errors, and a task "Readiness Card".

**Readiness Card:**

The readiness Card is to be filled out and dated for every ten (10) attempts you perform. For example, if you are successful on five (5) of your first ten (10) attempts you will write a five (5) under the number ten (10) and place the days date in the box in front of the number (10). You will repeat the procedure on your next ten (10) trials and mark the results under the number twenty (20). This will continue until the task criterion has been reached and passed. After meeting the criterion for a given task, continue to the next task sheet from the file. The "card" should act as a guide for when to take the criterion test.

**Task Criterion:**

You are expected to determine when you have reached mastery based on achieving the task criterion. All criterion tasks designated with an asterisk require that the instructor witness and initial the passing of the criterion. Anytime you take a test and fail to make 80% of the criterion needed for the target criterion you will be required to show that you have achieved target criterion on the "Readiness Card" a minimum of twice before being allowed to take the test again.
However, failure to pass a test will not be held against you in the grading.

**Teacher Responsibility:**

The instructor will be available to provide cues, feedback, and motivation. However, the students should be able to move independently through the course by the information provided on the sheets. The instructor will be responsible for all lectures and demonstrations given in the course, supervising the course, and your final evaluation.

**Grading Criteria:**

A total of 70 points must be scored in order to pass the course. Grading in this course will be based on the percentage of tasks completed to criterion and a final examination. A break down of point scores are as follows:

- 80% or more of task completed.............65 points
- 75% - 79% of tasks completed.............55 points
- 70% - 74% of tasks completed .............45 points
- 65% - 69% of tasks completed.............35 points
- less than 65% of tasks completed........ 0 points
- Final Exam..................................35 points

Also, you must score 125 points out of a possible 160 points on a skills test given at the completion of the course in order to pass this course.
Appendix B: Pre-test Task Descriptions
STRATEGY TEST (Total of 42 points)

1. On a diagram (shown above) two (2) different service reception patterns will be diagramed and each position will be labelled.
2. On a diagram (shown above) two (2) different offensive systems will be diagramed and each position will be labelled.
3. On a diagram (shown above) two (2) different defensive systems will be diagramed and each position will be labelled.
4. One (1) diagram (shown above) will be provided for each problem.
5. Each section of diagram drawn will be worth a total of seven (7) points.
6. One (1) point will be earned for each correct diagram of the system asked for and one (1) point will be earned for each player correctly labelled.
7. There will be a total of six (6) problems.

RULES/SCORING TEST (Total of 8 points)

1. A situation which may actually occur during a volleyball game will be described.
2. In each situation a foul will occur affecting the score.
3. Each situation will ask for the score to be declared.
4. Each situation will ask to name the foul that has occurred which affected the score.
5. Each part of the situation (the score & the name of the foul) will be worth two (2) points each.
6. There will be a total of four (4) situations described.
SERVING TEST (Total of 80 points)

1. The server (S) stands inside the service area ( ) and serves ten (10)
   overhand serves.
2. A score is recorded for each of the ten (10) services according to the area
   where the ball contacts the court.
3. Each of the serves point totals are recorded & totaled to form the final
   score.
4. Any ball which does not cross the net or lands out-of-bounds is recorded as
   zero points (0, 0, or 0 points are possible for each serve).

OVERHAND PASS TEST (Total of 80 points)

1. A thrower (T) tosses a high pass ( ) to the passer (P) in an arc which
   must be above eight (8) feet high at its highest point.
2. The passer (P) attempts to execute an overhead pass ( ) into the marked
   area near the net on the right & then repeats the pass to
   the marked ( ) area to the left.
3. Ten (10) passes are attempted, alternating form the right area to the left,
   recording the score according to where the ball contacts the court.
4. Each of the ten (10) passes point totals are recorded & totaled to form
   the final score.
5. Any overhead pass which does not cross the net or lands outside the 3m
   ( ) area is recorded as zero points (0, 0, or 0 points are possible
   for each pass).

FOREARM PASS (Total of 80 points)

1. A thrower (T) tosses a high pass ( ) to the passer (P) in an arc which
   must be above eight (8) feet high at its highest point.
2. The passer (P) attempts to execute a forearm pass ( ) into the marked
   area near the net on the right & then repeats the pass to
   the marked ( ) area to the left.
3. Ten (10) passes are attempted, alternating form the right area to the left,
   recording the score according to where the ball contacts the court.
4. Each of the ten (10) passes point totals are recorded & totaled to form
   the final score.
5. Any forearm pass which does not cross the net or lands outside the 3m
   ( ) area is recorded as zero points (0, 0, or 0 points are possible
   for each pass).
Appendix C: Pre-test Scoring Sheets
<table>
<thead>
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<th>PRE-TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Age</td>
</tr>
<tr>
<td>Yrs Played Volleyball</td>
<td>yrs. What Level?</td>
</tr>
<tr>
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<th>ACTUAL SUCCESS</th>
</tr>
</thead>
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<td>Individual Test Score</td>
<td>Individual Test Score</td>
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<tr>
<td>Overhead Pass Test</td>
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<td>Forearm Pass Test</td>
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<td>Individual Test Score</td>
</tr>
<tr>
<td>Strategy Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rules/Scoring Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender ____________________________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name _____________________________</td>
<td>Age ______</td>
<td>SSN ________</td>
</tr>
<tr>
<td>Yrs Played Volleyball ______ yrs. What Level? ____________________________</td>
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<td></td>
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<th>ACTUAL SUCCESS</th>
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<td>Individual Test Score</td>
</tr>
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<td>Serving Test</td>
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<td>Do Not Fill In This Space</td>
</tr>
<tr>
<td>Overhead Pass Test</td>
<td>Do Not Fill In This Space</td>
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<td>Do Not Fill In This Space</td>
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<tbody>
<tr>
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<td>Individual Test Score</td>
<td>Individual Test Score</td>
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<td>Do Not Fill In This Space</td>
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</tr>
<tr>
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<td>Do Not Fill In This Space</td>
</tr>
</tbody>
</table>
Appendix D: Pre-test Cognitive Test
PART I. Diagram & Label

On each of the courts below diagram the correct position of each player according to the pattern or system requested in each question. Identify each player by placing a number (1, 2, 3, 4, 5, & 6) in the court diagram and labelling each number in the space provided to the right of each court.

1. Diagram & label the "W" service reception pattern.

2. Diagram & label the "U" reception pattern.

3. Diagram & label the second rotation of the 6-2 offensive system with a 4-player service reception pattern.
VOLLEYBALL PRETEST - COGNITIVE

PART I.  Diagram & Label  (con't.)

On each of the courts below diagram the correct position of each player according to the pattern or system requested in each question. Identify each player by placing a number (1, 2, 3, 4, 5, & 6) in the court diagram and labelling each number in the space provided to the right of each court.

4. Diagram & label the second rotation of the 6-2 offensive system with a 5-player service reception pattern.

5. Diagram & label the player back defensive pattern when being attacked from the middle.
VOLLEYBALL PRETEST - COGNITIVE

Part II. Situations

Below are a list of situations which may occur during a volleyball match. Each question asks you to determine the score and any ruling (fault) that may have occurred. (If no fault has occurred write "NONE" in the space marked "Ruling"). Place the answer in the space provided at the bottom of each question. Correct terminology must be used to receive credit. Credit will be given for partially correct answers. (Each part of the problem will be worth 2 points)

1. Team "A" is playing team "B". It is the first game of the match. The score is: Team "A"-4; Team "B"-7. Team "B" is serving. The server prepares to serve the ball. As the ball is in the air two players from Team "B" stand in an erect position at the net in line with the server. The server makes a poor toss and allows the ball to contact the floor.

SCORE:    (A) -        (B) -        

RULING:    ______________________
Part II. Situations (con't.)

Below are a list of situations which may occur during a volleyball match. Each question asks you to determine the score and any ruling (fault) that may have occurred. (If no fault has occurred write "NONE" in the space marked "Ruling"). Place the answer in the space provide at the bottom of each question. Correct terminology must be used to receive credit. Credit will be given for partially correct answers. (Each part of the problem will be worth 2 points)

2. Team "A" is playing Team "B". It is the second game of a best of three match. Team "A" is leading 12 to Team "B"'s 10. Team "A" is receiving. As the served ball travels over the net a player in the front line attacks the ball. Contact is made with the ball landing on Team "B"'s on the floor on Team "B"'s side of the court.

SCORE: (A) - (B) -

RULING: 

3. Team "A" is playing Team "B". It is the first point of the first game of the match. Team "B" serves to Team "A". The receiver allows the ball to rebound off his chest and into the air so that it is contacted three more times by players from Team "A". The final contact is a spike that results in the ball contacting the floor on Team "B"'s side of the court.

SCORE: (A) - (B) -

RULING: 

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Part II. Situations (con't.)

Below are a list of situations which may occur during a volleyball match. Each question asks you to determine the score and any ruling (fault) that may have occurred. (If no fault has occurred write "NONE" in the space marked "Ruling".) Place the answer in the space provide at the bottom of each question. Correct terminology must be used to receive credit. Credit will be given for partially correct answers. (Each part of the problem will be worth 2 points)

4. Team "A" is playing Team "B". The score is one game each and tree to two in Team "A"'s favor. Team "B" serves the ball. The serve travels in a high, soft trajectory. The first contact in receiving the serve is an overhand pass from a player on Team "A". The ball travels across the net so that a player from Team "B" uses a forearm pass to attempt the return, however, the ball travels straight up instead of forward. To advance the ball the same player from Team "B" makes the second contact using a forearm pass. The ball clears the net and lands untouched on Team "A"'s side of the court.

SCORE: (A) - (B) -

RULING: ______________________________

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Appendix E: Learning Task Sequence Sheets
<table>
<thead>
<tr>
<th>TASK #</th>
<th>TASK</th>
<th>TARGET</th>
<th>CRITERION</th>
<th>DATE</th>
</tr>
</thead>
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<tr>
<td>1</td>
<td>Lect./Demo. from Instructor</td>
<td>Overhand Serve</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Written Quiz</td>
<td>Key Points from Lect./Demo.</td>
<td>7 of 10 (1 Time)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Service Toss w/ Platform</td>
<td>On Instructor's Call</td>
<td>CORRECT</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Stand At Green Line (marked w/ cones)</td>
<td>Into Yellow Rectangle (on the wall)</td>
<td>6 of 10 (2 Times in Row)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Stand At Yellow Line (marked w/ cones)</td>
<td>Into Yellow Rectangle (on the wall)</td>
<td>7 of 10 (2 Times in Row)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Service Area</td>
<td>Past 3M Line</td>
<td>7 of 10 (2 Times in Row)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Lect./Demo. from Instructor</td>
<td>Serving Deep</td>
<td>NONE</td>
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<td>9</td>
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<td>10</td>
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<td>11</td>
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<td>Serving Crosscourt &amp; Down-The-Line</td>
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* Indicates Instructor must witness criterion before progressing.

PAGE 1 (cont'd on back)
## MASTERY SEQUENCE FOR SERVING (S)

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<td>Into Target Two (2)</td>
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<td>Into Target One (1)</td>
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<td>Target Two (2)</td>
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* Indicates instructor must witness criterion before progressing
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<td>7</td>
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<td>Into Green Rectangle (on the wall)</td>
<td>7 of 10 (2 Times in Row)</td>
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<td>Stand Behind Orange Line (marked w/ cones)</td>
<td>Into Orange Rectangle (on the wall)</td>
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<td>9</td>
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<td>Into Red Rectangle On The Floor (over the net)</td>
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<td>Into Blue Rectangle On The Floor (over the net)</td>
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<td>Stand Behind Yellow Line (marked w/ cones)</td>
<td>Return Overhand Pass To Partner Standing Behind the Green Line</td>
<td>6 of 10 (2 Times in Row)</td>
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* Indicates instructor must witness criterion before progressing

PAGE 1 (cont' on back)
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**MASTERY SEQUENCE FOR OVERHEAD PASS (OP)**

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<tr>
<td>*13</td>
<td>Divide Into Equal Teams</td>
<td>Using Skills Learned Of Volleyball</td>
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<td>*14</td>
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<td>Into Orange Rectangle (on the wall)</td>
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<td>(2 Times in Row)</td>
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<td>18</td>
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<td>Into Red Rectangle On The Floor (over the net)</td>
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<td>(2 Times in Row)</td>
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<tr>
<td>19</td>
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<td>Into Blue Rectangle On The Floor (over the net)</td>
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<td>(2 Times in Row)</td>
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<tr>
<td>20</td>
<td>Behind the Yellow Line (marked w/ cone)</td>
<td>Return Overhand Pass To Partner Standing Behind the Green Line</td>
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<td>(2 Times in Row)</td>
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<td>*21</td>
<td>Behind the Yellow Line (marked w/ cone)</td>
<td>Return Overhand Pass To Partner Standing Behind The Far Green Line</td>
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<td>(2 Times in Row)</td>
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* Indicates instructor must witness criterion before progressing

PAGE 2
### Learning Task Sequence for Forearm Pass (FP)

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<th>TARGET</th>
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<td>*3</td>
<td>Ready Position For the Forearm Pass</td>
<td>Movement</td>
<td>Correct</td>
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<tr>
<td>4</td>
<td>Standing in Self-Space</td>
<td>Perform Forearm Pass (no target)</td>
<td>8 of 10 (2 Times In Row)</td>
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</tr>
<tr>
<td>*5</td>
<td>Standing in Self-Space</td>
<td>Perform Forearm Pass That Can Be Caught Without Leaving Self-Space</td>
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<td>Standing in Self-Space (Consecutively Without Leaving Self-Space)</td>
<td>Perform Forearm Pass</td>
<td>8 Times In a Row (without touching floor)</td>
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<tr>
<td>*7</td>
<td>Stand Behind Green Line (nearest well)</td>
<td>Return Lob From Partner Standing Behind Yellow Line Using Forearm Pass</td>
<td>7 of 10 (2 Times In Row)</td>
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<td>Movement</td>
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<td>9</td>
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<td>Key Points from Lect./Demo.</td>
<td>4 of 5 (1 Time)</td>
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<tr>
<td>10</td>
<td>Form A Triangle With Three (3) Partners</td>
<td>Player Three(3) Alternates Forearm Pass From Partner One (1) &amp; Partner Two (2)</td>
<td>7 Times In A Row (without touching floor)</td>
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<tr>
<td>*11</td>
<td>Stand Behind Yellow Line (where intersects w/ Blue Tape)</td>
<td>Receive High Lob From Partner To Alternating Sides So That Partner Moves &amp; Returns Using a Forearm Pass</td>
<td>7 of 10 (2 Times In Row)</td>
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*Indicated instructor must issue criteria before progressing*
### LEARNING TASK SEQUENCE FOR FOREARM PASS (FP)

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<td>Stand Behind Yellow Line</td>
<td>Receive High Lob From Partner To Alternating Sides So That Partner Reaches &amp; Returns Using a Forearm Pass</td>
<td>7 of 10</td>
<td>(2 \text{ Times in Row})</td>
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</tbody>
</table>
| 13     | Stand Behind Back Court Line | Return Overhand Pass From Partner Standing In Front of 3M Line Without Touching the Roof Using A Forearm Pass | 7 Times In A Row | \(2 \text{ Times in Row}\) | \n| 14     | Divide Into Equal Teams | Using Skills Learned | \n| 15     | Lect./Demo. From Instructor | Dig & Serve Reception | NONE | \n| 16     | Written Quiz | Key Points From Lect./Demo. | 4 of 5 | \n| 17     | Stand In Backcourt Area | Return Serve From Partner One (1) at Baseline So That Receiver Hits a Forearm Pass Into Blue Rectangle | 7 of 10 | \(2 \text{ Times in Row}\) | \n| 18     | Stand In Backcourt Area | Return Serve From Partner One (1) at Baseline So That Receiver Hits a Forearm Pass Into Red Rectangle | 6 of 10 | \(2 \text{ Times in Row}\) | \n| 19     | Stand In Backcourt Area | Return Serve From Partner One (1) at Baseline By Hitting F.P. To Partner Two (2) Standing At 3M Line With Partner Two (2) Hitting an Overhand Pass Into Yellow Rectangle | 6 of 10 | \(2 \text{ Times in Row}\) | \n| 20     | Stand Behind Red Line | Return Basketball Chest Pass From Partner To Passe's F. Left So That Passer Must Contact By Reaching With One (1) Hand | 6 of 10 | \(2 \text{ Times in Row}\) | \n| 21     | Stand Behind Red Line | Return Basketball Chest Pass From Partner To Passe's S. Alternating Sides So That Passer Must Contact By Using A Dig | 6 of 10 | \(2 \text{ Times in Row}\) | \n| 22     | Divide Into Equal Teams | Using Skills Learned | NONE | \n
* Indicates instructor must witness criterion before progressing.
<table>
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<th>TASK #</th>
<th>TASK</th>
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<th>CRITERION</th>
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<td>4</td>
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* Indicates instructor must witness criterion before progressing

PAGE 1 (con't on back)
(con't. from PAGE 1)

**MASTERY SEQUENCE FOR STRATEGY (ST)**

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<td>Demonstrate Movement For</td>
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<td>For Left, Middle, &amp; Right Attack</td>
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<td>Player-Back Defense</td>
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<td>For Left, Middle, &amp; Right Attack</td>
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</table>

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PAGE 2
Appendix F: Learning Task Sheets
TASK #1

LECT./DEMO.
OVERHAND SERVE

1. SEE THE INSTRUCTOR FOR THE LECTURE & DEMONSTRATION PROVIDED ON THE OVERHAND SERVE.
2. FIVE (5) KEY POINTS ON THE PERFORMANCE OF THE OVERHAND SERVE WILL BE PRESENTED.
3. THERE IS NO CRITERION FOR THIS TASK.
List the 5 key points in performing the overhand serve.

1. - BODY SQUARE TO NET

2. - FORM PEDESTAL

3. - ELBOW COCKED & HIGH

4. - TRANSFER WEIGHT TO FRONT

5. - CONTACT WITH "PUNCH"
TASK #3

The Proper Ready Position for the Overhand Serve
- feet in staggered position w/ body square to net
- foot opposite hitting hand slightly forward
- ball rests on pedestal in tossing hand positioned slightly
- in front of striking side shoulder
- body weight placed on back foot

1. STAND IN YOUR OWN SELF-SPACE IN THE GYM.
2. ON THE INSTRUCTOR'S CALL FOLLOW THE STEPS ABOVE
   AND TAKE THE CORRECT READY POSITION FOR THE OVERHAND
   SERVE.
3. CRITERION HAS BEEN REACHED WHEN THE INSTRUCTOR
   HAS SEEN YOUR POSITION AND INITIALED YOUR LEARNING TASK
   SEQUENCE SHEET.
**TASK #4**

1. **STAND BEHIND THE GREEN LINE ( ) & BETWEEN THE TWO 50 CONES ON THE FLOOR FACING THE YELLOW RECTANGLE ( ) ON THE WALL.**
2. **FACING THE YELLOW RECTANGLE ( ), EXECUTE AN OVERHAND SERVE SO THAT IT LANDS INSIDE THE YELLOW RECTANGLE ( ).**
3. **USING AN OVERHAND SERVE, SERVE NINE (9) MORE BALLS SO THAT EACH BALL LANDS INSIDE THE YELLOW RECTANGLE ( ) ON THE WALL.**
4. **CRITERION HAS BEEN REACHED WHEN SIX (6) OUT OF TEN (10) SERVES ATTEMPTED HAVE LANDED INSIDE THE YELLOW RECTANGLE ( ), TWO (2) TIMES IN A ROW.**

**READINESS TEST**

- 10 20 30 40 50 60 70 80 90 100
- 10 20 30 40 50 60 70 80 90 100
- 10 20 30 40 50 60 70 80 90 100
- 10 20 30 40 50 60 70 80 90 100
- 10 20 30 40 50 60 70 80 90 100
- 10 20 30 40 50 60 70 80 90 100
- 10 20 30 40 50 60 70 80 90 100
- 10 20 30 40 50 60 70 80 90 100
1. Stand behind the yellow line ( ) & between the two (2) cones on the
floor facing the yellow rectangle ( ) on the wall.
2. Facing the yellow rectangle ( ), execute an overhand serve so that it
lands inside the yellow rectangle ( ).
3. Using an overhand serve, serve nine (9) more balls so that each ball lands
inside the yellow rectangle ( ) on the wall.
4. Criterion has been reached when seven (7) out of ten (10) serves attempted
have landed inside the yellow rectangle ( ), two (2) times in a row.

### READINESS TEST

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10 20 30 40 50 60 70 80 90 100
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10 20 30 40 50 60 70 80 90 100
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10 20 30 40 50 60 70 80 90 100
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10 20 30 40 50 60 70 80 90 100
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10 20 30 40 50 60 70 80 90 100
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10 20 30 40 50 60 70 80 90 100
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10 20 30 40 50 60 70 80 90 100
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TASK #6

1. STAND IN SERVICE AREA (S).
2. EXECUTE AN OVERHAND SERVE SO THAT IT LANDS IN THE AREA PAST THE 3M LINE ( ).
3. SERVE NINE (9) MORE BALLS (10 TOTAL), SO THAT THEY LAND IN THE AREA PAST THE 3M LINE ( )
4. CRITERION HAS BEEN REACHED WHEN THE INSTRUCTOR HAS VIEWED SEVEN (7) OUT OF TEN (10) SERVES LANDING IN THE AREA PAST THE 3M LINE ( ), TWO (2) TIMES IN A ROW.

READINESS TEST

☐ 10 ☐ 20 ☐ 30 ☐ 40 ☐ 50 ☐ 60 ☐ 70 ☐ 80 ☐ 90 ☐ 100
☐ 10 ☐ 20 ☐ 30 ☐ 40 ☐ 50 ☐ 60 ☐ 70 ☐ 80 ☐ 90 ☐ 100
☐ 10 ☐ 20 ☐ 30 ☐ 40 ☐ 50 ☐ 60 ☐ 70 ☐ 80 ☐ 90 ☐ 100
☐ 10 ☐ 20 ☐ 30 ☐ 40 ☐ 50 ☐ 60 ☐ 70 ☐ 80 ☐ 90 ☐ 100
☐ 10 ☐ 20 ☐ 30 ☐ 40 ☐ 50 ☐ 60 ☐ 70 ☐ 80 ☐ 90 ☐ 100
☐ 10 ☐ 20 ☐ 30 ☐ 40 ☐ 50 ☐ 60 ☐ 70 ☐ 80 ☐ 90 ☐ 100
☐ 10 ☐ 20 ☐ 30 ☐ 40 ☐ 50 ☐ 60 ☐ 70 ☐ 80 ☐ 90 ☐ 100
LECT./DEMO.
SERVING DEEP

1. SEE THE INSTRUCTOR FOR THE LECTURE & DEMONSTRATION ON SERVING DEEP.
2. FIVE (5) KEY POINTS ON THE PERFORMANCE OF SERVING DEEP WILL BE PRESENTED.
3. THERE IS NO CRITERION FOR THIS TASK.
List the 5 Key Points in performing a deep overhand serve.

(each is worth two (2) points, seven (7) out of ten (10) must be posed to to reach criterion)

1. - TRANSFER WEIGHT AT CONTACT

2. - TOSS BALL HIGH & STRAIGHT

3. - WRIST FIRM AT CONTACT

4. - CONTACT BALL AT MIDLINE

5. - USE ARM AS COCKING MECHANISM
1. STAND BEHIND 3M LINE ( ).
2. EXECUTE AN OVERHAND SERVE SO THAT IT LANDS IN THE DEEP AREA ( ).
3. SERVE NINE (9) MORE BALLS (10 TOTAL), SO THAT THEY LAND IN THE DEEP AREA ( ).
4. CRITERION HAS BEEN REACHED WHEN EIGHT (8) OUT OF TEN (10) SERVES ATTEMPTED LAND IN THE DEEP AREA ( ). TWO (2) TIMES IN A ROW.

**READINESS TEST**

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TASK #10

1. Stand in service area (R).
2. Execute an overhand serve so that the ball lands in the deep area ( ).
3. Serve nine (9) more balls (10 total), so that they land in the deep area ( ).
4. Criterion has been reached when the instructor has viewed eight (8) out of ten (10) serves land in the deep area ( ), two (2) times in a row.

READINESS TEST

10 20 30 40 50 60 70 80 90 100

10 20 30 40 50 60 70 80 90 100

10 20 30 40 50 60 70 80 90 100

10 20 30 40 50 60 70 80 90 100

10 20 30 40 50 60 70 80 90 100

10 20 30 40 50 60 70 80 90 100

10 20 30 40 50 60 70 80 90 100

10 20 30 40 50 60 70 80 90 100

10 20 30 40 50 60 70 80 90 100

10 20 30 40 50 60 70 80 90 100
LECT./DEMO.
SERVING CROSSCOURT &
DOWN-THE-LINE

1. SEE THE INSTRUCTOR FOR THE LECTURE & DEMONSTRATION ON SERVING CROSSCOURT &
DOWN-THE-LINE
2. FIVE (5) KEY POINTS ON SERVING CROSSCOURT & DOWN-THE-LINE WILL BE PRESENTED.
3. THERE IS NO CRITERION FOR THIS TASK.
**TASK #12**

List the 5 Key Points in performing a crosscourt & down-the-line overhand serve.

*Each is worth two (2) points, seven (7) out of ten (10) must be posed to reach criterion.*

1. **KEEP BODY FACING NET**

2. **ROTATE WRIST DIRECTION OF SERVE**

3. **RETRACT SHOULDER**

4. **SLIGHT FOLLOW THROUGH**

5. **ADJUST TOSS**

---

Name

Gender

Date Beginning: __-__-1990

Date Reach Criterion: __-__-1990

---

165
Name__________________________  Date Beginning______-1990
Gender_________________________  Date Reach Criterion______-1990

**TASK #13**

1. Stand in the green square ( ). Surround by four (4) cones.
2. Facing the green square ( ) on the wall execute an overhand serve so that it lands inside the green square ( ).
3. Using an overhand serve, serve nine (9) more balls so that each ball served lands inside the green square ( ) on the wall.
4. Criterion has been reached when seven (7) out of ten (10) serves attempted have landed inside the green square ( ), two (2) times in a row.

**READINESS TEST**

- 10  20  30  40  50  60  70  80  90  100
- 10  20  30  40  50  60  70  80  90  100
- 10  20  30  40  50  60  70  80  90  100
- 10  20  30  40  50  60  70  80  90  100
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- 10  20  30  40  50  60  70  80  90  100
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- 10  20  30  40  50  60  70  80  90  100

166
1. Stand in the orange square ( ) surrounded by four (4) cones.
2. Facing the orange square ( ) on the wall, execute an overhand serve so that it lands in the orange square ( ).
3. Using an overhand serve, serve nine (9) more balls so that each serve attempted lands inside the orange square ( ) on the wall.
4. Criterion has been reached when seven (7) out of ten (10) serves attempted have landed inside the orange square ( ), two (2) times in a row.

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167
1. Stand in service area.
2. Execute an overhand serve so that it lands in the crosscourt deep area.
3. Serve nine (9) more balls (10 total) attempting to place each in the crosscourt deep area.
4. Criterion has been reached when eight (8) out of ten (10) serves attempted have landed in the crosscourt deep area.

**Readiness Test**

- 10 20 30 40 50 60 70 80 90 100
- 10 20 30 40 50 60 70 80 90 100
- 10 20 30 40 50 60 70 80 90 100
- 10 20 30 40 50 60 70 80 90 100
- 10 20 30 40 50 60 70 80 90 100
- 10 20 30 40 50 60 70 80 90 100
- 10 20 30 40 50 60 70 80 90 100
1. STAND IN SERVICE AREA (S).
2. EXECUTE AN OVERHAND SERVE SO THAT IT LANDS IN THE DOWN-THE-LINE DEEP AREA ( )
3. SERVE NINE (9) MORE BALLS (10 TOTAL), ATTEMPTING TO PLACE EACH IN THE DOWN-
THE-LINE DEEP AREA ( ).
4. CRITERION HAS BEEN REACHED WHEN EIGHT (8) OUT OF TEN (10) SERVES ATTEMPTED
HAVE BEEN VIEWED BY THE INSTRUCTOR AS HAVING LANDED IN THE DOWN-THE-LINE DEEP
AREA ( ), TWO (2) TIMES IN A ROW.

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LECT./DEMO.
SERVING FOR ACCURACY

1. SEE THE INSTRUCTOR FOR THE LECTURE & DEMONSTRATION ON SERVING FOR ACCURACY.
2. FIVE (5) KEY POINTS ON SERVING FOR ACCURACY WILL BE PRESENTED.
3. THERE IS NO CRITERION FOR THIS TASK.
SERVE

TASK #18

List the 5 Key Points when performing an overhand serve for accuracy.

(each is worth two (2) points, seven (7) out of ten (10) must be performed to reach criterion)

1. - CONTACT W/ ARM DIRECTLY OVER HEAD

2. - REMAIN SQUARE TO NET THROUGHOUT

3. - VISUALIZE TARGET PRIOR TO CONTACT

4. - ADJUST BALL RELEASE

5. - MOMENTUM TOWARD TARGET
TASK #19

1. STAND IN SERVICE AREA (S).
2. EXECUTE AN OVERHAND SERVE SO THAT IT LANDS IN TARGET TWO (2).
3. SERVE NINE (9) MORE BALLS (10 TOTAL) ATTEMPTING TO PLACE EACH IN TARGET TWO (2).
4. CRITERION HAS BEEN REACHED WHEN SIX (6) OUT OF TEN (10) SERVES HAVE LANDED IN TARGET TWO (2), TWO (2) TIMES IN A ROW.

READINESS TEST

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☐ 10  20  30  40  50  60  70  80  90  100

☐ 10  20  30  40  50  60  70  80  90  100
**TASK #20**

1. STAND IN SERVICE AREA (R).
2. EXECUTE AN OVERHAND SERVE SO THAT IT LANDS IN TARGET ONE (T).
3. SERVE NINE (9) MORE BALLS ATTEMPTING TO PLACE EACH IN TARGET ONE (T).
4. CRITERION HAS BEEN REACHED WHEN SIX (6) OUT OF TEN (10) SERVES HAVE LANDED IN TARGET ONE (T), TWO (2) TIMES IN A ROW.

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**READINESS TEST**
1. Stand in service area (5).
2. Execute an overhand serve so that it lands in target one (1).
3. Execute an overhand serve so that it lands in target two (2).
4. Serve eight (8) more balls (10 total), alternating so that odd numbered serves land in target one (1) and even numbered serves land in target two (2).

A criterion has been reached when five (5) out of ten (10) serves, viewed by the instructor, have been attempted and in the correct target, two (2) times in a row.

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TASK #1

LECT./DEMO. OVERHAND PASS

1. SEE THE INSTRUCTOR FOR THE LECTURE & DEMONSTRATION PROVIDED ON THE OVERHAND PASS.
2. FIVE (5) KEY POINTS ON THE PERFORMANCE OF THE OVERHAND PASS WILL BE PRESENTED.
3. THERE IS NO CRITERION FOR THIS TASK.
OVERHAND PASS
TASK #2

LIST THE FIVE (5) KEY POINTS IN PERFORMING THE OVERHAND PASS

1. USE TO CONTROL BALL DIRECTION

2. MUST BE ACCURATE

3. USED BY SETTER (in most cases, but, not always)

4. USUALLY SECOND CONTACT

5. MOVE TO POSITION QUICK

NUMBER CORRECT: _______
**TASK #3**

**The Proper Ready Position for the Overhand Pass:**
- balanced position w/ feet staggered shoulder width apart
- right foot ahead of the left w/ hips open toward approaching pass
- knees slightly flexed and upper body upright
- triceps parallel to floor and hands shaped to conform to ball's surface
- forearms pointing upward w/ thumbs in line about six (6) inches from the pupils of the eyes and fingers relaxed and open

1. **STAND IN YOUR OWN SELF-SPACE IN THE GYM.**
2. **ON THE INSTRUCTOR’S CALL FOLLOW THE STEPS ABOVE** AND TAKE THE CORRECT READY POSITION FOR THE OVERHAND PASS.
3. **CRITERION HAS BEEN REACHED WHEN THE INSTRUCTOR HAS SEEN YOUR POSITION AND INITIALED YOUR MASTERY SEQUENCE SHEET.**
TASK #4

1. STAND IN YOUR ON SELF-SPACE ANYWHERE IN THE GYM.
2. TOSS A VOLLEYBALL IN THE AIR AND AS IT DESCENDS
   ATTEMPT TO HIT AN OVERHAND PASS.
3. TOSS NINE (9) MORE BALLS IN THE AIR AN ATTEMPT TO
   HIT AN OVERHAND PASS WITH EACH.
4. CRITERION HAS BEEN REACHED WHEN YOU HAVE HIT SIX (6)
   OF TEN (10) ATTEMPTED PASSES TWO (2) TIMES IN A ROW.

READINESS TEST

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☐ 10 ☐ 20 ☐ 30 ☐ 40 ☐ 50 ☐ 60 ☐ 70 ☐ 80 ☐ 90 ☐ 100

☐ 10 ☐ 20 ☐ 30 ☐ 40 ☐ 50 ☐ 60 ☐ 70 ☐ 80 ☐ 90 ☐ 100

☐ 10 ☐ 20 ☐ 30 ☐ 40 ☐ 50 ☐ 60 ☐ 70 ☐ 80 ☐ 90 ☐ 100
1. SEE THE INSTRUCTOR FOR THE LECTURE & DEMONSTRATION PROVIDED ON THE OVERHAND PASS TO THE FRONT.

2. FIVE (5) KEY POINTS ON THE PERFORMANCE OF THE OVERHAND PASS TO THE FRONT WILL BE PRESENTED.

3. THERE IS NO CRITERION FOR THIS TASK.
LIST THE FIVE (5) KEY POINTS IN HITTING AN OVERHAND PASS TO THE FRONT.

1. FRAME WITH THUMB & INDEX FINGER ABOVE HEAD

2. LAST SECOND THRUST HIPS BACK

3. INCREASE TRAJECTORY WITH SPEED OF HIP THRUST

4. PREPARATION BY BACKWARD ARCH OF NECK & BACK

5. FOLLOW THROUGH SHIFTING FORWARD

NUMBER CORRECT:_________
OVERHAND PASS

TASK #7

1. STAND BEHIND THE GREEN LINE (— ) INDICATED BY TWO (2) CONES PLACED AT EACH END.
2. FACING THE GREEN RECTANGLE (■) ON THE WALL TOSS THE BALL UP AND ATTEMPT AN OVERHAND FORWARD PASS SO THAT IT LANDS INSIDE THE GREEN RECTANGLE (■).
3. USING AN OVERHAND PASS TO THE FRONT, PASS NINE (9) MORE BALLS SO THAT EACH BALL LANDS INSIDE THE GREEN RECTANGLE (■) ON THE WALL.
4. CRITERION HAS BEEN REACHED WHEN SEVEN (7) OUT OF TEN (10) PASSES ATTEMPTED HAVE LANDED INSIDE THE GREEN RECTANGLE (■), TWO (2) TIMES IN A ROW.

READINESS TEST

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1. Stand behind the orange line (__) indicated by two (2) cones placed at each end.
2. Facing the orange rectangle (____) on the wall, toss the ball up and attempt an overhand forward pass so that it lands inside the orange rectangle (__).
3. Using an overhand pass to the front, pass nine (9) more balls so that each ball lands inside the orange rectangle (____) on the wall.
4. Criterion has been reached when seven (7) out of ten (10) passes attempted have landed inside the orange rectangle (____), two (2) times in a row.

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OVERHAND PASS

TASK #9

OVERHAND PASS

1. Stand behind the red line (---) indicated by two (2) cones placed at each end.
2. Facing the net toss the ball up and attempt an overhand forward pass so that it crosses over the net and lands inside the red rectangle (●●), on the floor, on the opposite side of the net.
3. Using an overhand pass to the front, pass nine (9) more balls so that each ball crosses over the net and lands inside the red rectangle (●●) on the floor.
4. Criterion has been reached when six (6) out of ten (10) passes attempted have crossed over the net and landed inside the red rectangle (●●), two (2) times in a row.

READINESS TEST

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☐ 10 ☐ 20 ☐ 30 ☐ 40 ☐ 50 ☐ 60 ☐ 70 ☐ 80 ☐ 90 ☐ 100
Task #10

1. STAND BEHIND THE BLUE LINE (—) INDICATED BY TWO (2) CONES PLACED AT EACH END.
2. FACING THE NET TOSS THE BALL UP AND ATTEMPT AN OVERHAND FORWARD PASS SO THAT IT CROSSOVER THE NET AND LANDS INSIDE THE BLUE RECTANGLE (X) ON THE FLOOR, ON THE OPPOSITE SIDE OF THE NET.
3. USING AN OVERHAND PASS TO THE FRONT, PASS NINE (9) MORE BALLS SO THAT EACH BALL CROSSOVER THE NET AND LANDS INSIDE THE BLUE RECTANGLE (X) ON THE FLOOR.
4. CRITERION HAS BEEN REACHED WHEN SIX (6) OUT OF TEN (10) PASSES ATTEMPTED HAVE CROSSOVER THE NET AND LANDED INSIDE THE BLUE RECTANGLE (X) TWO (2) TIMES IN A ROW.

Readiness Test

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Name ___________________________ Date Beginning ______-____-1990
Gender ______________________ Date Reach Criterion ______-____-1990

OVERHAND PASS

TASK #11

OVERHAND PASS

1. Select one (1) partner to work with when performing tasks #11 and #12.
2. Stand behind the yellow line (---) indicated by two (2) cones placed at the end of the line.
3. Have your partner stand behind the green line (-----) indicated by two (2) cones placed at each end of the green line (-----).
4. Have your partner throw you a volleyball with a high arc so that you and adult stand behind the ball without crossing the yellow line (---) a new pass you verbally declare a bad pass technique will not count as an attempt.
5. When the ball has reached you attempt to hit an overhead forearm pass so that your partner is able to return the ball without changing the green line (-----) and without stepping outside the area indicated by the cones.
6. Repeat the procedure described in step number five (5) once (1) more time.
7. Oczywiście has been repeated twice (2) out of ten (10) attempts you are disqualified (as determined by the instructor) of your partner within the designated boundaries, two (2) times is a no.

READINESS TEST

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OVERHAND PASS

TASK #12

1. SELECT ONE (1) PARTNER TO WORK WITH WHEN PERFORMING TASKS #11 AND #12.
2. STAND BEHIND THE YELLOW LINE (___). BEHIND THIS LINE IS WHERE YOU WILL PLAY YOUR SIDE OF THE BALL.
3. HAVE YOUR PARTNER STAND BEHIND THE CHAIN LINE (____). BEHIND THIS LINE IS WHERE YOUR PARTNER WILL PLAY THEIR SIDE OF THE BALL.
4. HAVE YOUR PARTNER PASS YOU A VOLLEY BALL, AND YOU WILL SHOVE THE BALL BENEATH THE YELLOW LINE (___).
5. WHEN THE BALL HAS REACHED YOU, YOU WILL HIT THE OVERHAND PASS. YOUR PARTNER IS TO CAPTURE THE BALL WITH THE CHAIN LINE (____) AND WITHOUT STOPPING OUTSIDE THE AREA YOU ARE IN.
6. REPEAT THIS PROCEDURE FIVE TIMES. PERIODICALLY REVIEW THE ERRORS MADE AND TRY TO IMPROVE YOUR PERFORMANCE.
7. CRITERION HAS BEEN REACHED WHEN 8 OUT OF 10 ATTEMPTS ARE MADE. (AS DETERMINED BY THE INSTRUCTOR) BY YOUR PARTNER WITHIN THE DESIGNATED BOXED AREA, TWO (2) TIMES IS A MISS.

READINESS TEST

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TASK #13

OVERHAND PASS

U.S.V.B.A.

OVERHAND PASS

1. Bring all completed task sheets within the unit to the instructor.
2. Once the instructor has initialed the mastery sequence sheet move to court #.
3. Divide into two (2) equal teams and play a regulation volleyball match using the skills you have learned.
4. Once the match has been completed return to the next task in the unit.
5. There is no criterion for this task.
**TASK #14**

**OVERHAND PASS**

**LECT./DEMO.**

**OVERHAND BACK PASS**

1. SEE THE INSTRUCTOR FOR THE LECTURE & DEMONSTRATION PROVIDED ON THE OVERHAND BACK PASS.

2. MOVE TO THE CENTER OF THE GYM TO RECEIVE THE LECTURE/Demonstration.

3. FIVE (5) KEY POINTS ON THE PERFORMANCE OF THE OVERHAND BACK PASS WILL BE PRESENTED.

4. THERE IS NO CRITERION FOR THIS TASK.
LIST THE FIVE (5) KEY POINTS IN PERFORMING THE OVERHAND BACK PASS.

1. IDENTICAL FORM FOR EACH, FRONT & BACK PASS

2. AT LAST SECOND OF CONTACT SHIFT HIPS FORWARD

3. INCREASED TRAJECTORY WITH QUICK HIP SHIFT

4. INCREASED NECK & BACK ARCH (AS COMPARED TO FRONT PASS)

5. FOLLOW THROUGH UP & BACK

NUMBER CORRECT:______
1. Select one (1) partner to work with.
2. Along with your partner stand behind the green line (----) indicated by two (2) cones placed at each end of the line.
3. Facing the green rectangle (----) on the wall, toss the ball up and attempt an overhand back pass so that your partner verifies that it lands inside the green rectangle (----) on the wall.
4. Using an overhand back pass, pass nine (9) more balls so that your partner verifies that each has landed inside the green rectangle (----) on the wall.
5. Criterion has been reached when your partner identifies seven (7) out of ten (10) passes attempted having landed inside the green rectangle (----), two (2) times in a row.

Name_____________________________ Date Beginning_________________—1990
Gender_____________________________ Date Reach Criterion_________________—1990

OVERHAND PASS

TASK #16

OVERHAND PASS

COURT #THREE

GREEN RECTANGLE

GREEN LINE

READINESS TEST

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TASK #17

1. Select one (1) partner to work with.
2. Along with your partner stand behind the green line (---) located on opposite sides of the court.
3. Facing the green rectangle (□□□) on the wall, toss the ball up and attempt an overhand pass over the green rectangle (□□□) on the wall.
4. Using an overhand pass, pass nine (9) more balls so that your partner verified that each has landed inside the green rectangle (□□□) on the wall.
5. Criterion has been reached when your partner identifies seven (7) out of ten (10) passes attempted having landed inside the green rectangle (□□□) two (2) times in a row.

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1. Select one (1) partner to work with.
2. Along with your partner stand behind the red line (— —) indicated by two (2) cones placed at each end of the line.
3. Facing the net toss the ball up and attempt an overhand back pass so that your partner verifies that the ball has crossed over the net and landed inside the red rectangle (□□) on the floor on the opposite side of the net.
4. Using an overhand back pass, pass nine (9) more balls so that your partner verifies that each has crossed over the net and landed inside the red rectangle (□□) on the opposite side of the net.
5. Toss four (4) more balls and attempt to keep two (2) in a row.

**Readiness Test**

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192
OVERHAND PASS

TASK #19

1. SELECT ONE (1) PARTNER TO WORK WITH.
2. ALONG WITH YOUR PARTNER STAND BEHIND THE BLUE LINE (——) INDICATED BY
   NUMBERS PLACED AT EACH END OF THE LINE.
3. FACING THE NET TORD THE BALL UP AND ATTEMPT AN OVERHAND BACK PASS
   SO THAT YOUR PARTNER VERIFIES THAT THE BALL HAS CROSSED OVER THE NET AND LANDED
   INSIDE THE BLUE RECTANGLE (□□□) ON THE FLOOR, ON THE OPPOSITE SIDE OF NET.
4. USING AN OVERHAND BACK PASS, PASS NINE (9) MORE BALLS SO THAT YOUR PARTNER
   VERIFIES THAT EACH HAS CROSSED OVER THE NET AND LANDED INSIDE THE BLUE
   RECTANGLE (□□□) ON THE OPPOSITE SIDE OF THE NET.
5. CRITERION HAS BEEN REACHED WHEN YOUR PARTNER IDENTIFIES SIX (6) OUT OF TEN
   (10) PASSES ATTEMPTED HAVING CROSSED OVER THE NET AND LANDED INSIDE THE BLUE
   RECTANGLE (□□□), TWO (2) TIMES IN A ROW.

READINESS TEST

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193
1. SELECT ONE (1) PARTNER TO WORK WITH.
2. STAND BEHIND THE YELLOW LINE (• • •) DESIGNATED BY TWO (2) SOFTS PLACED AT THE END OF THE LINE.
3. HAVE YOUR PARTNER STAND BEHIND THE GREEN LINE (• • •) DESIGNATED BY TWO (2) SOFTS PLACED AT EACH END OF THE GREEN LINE.
4. HAVE YOUR PARTNER THROW A SOFTBALL WITH A YOYO, SO THAT YOU ARE ABLE TO GRAB AND STOP IT BEHIND THE BALL WITHOUT CHANGING THE YELLOW LINE (• • •) "SAY PASS IF YOU DECLINE THE BALL" PROPER TACTIC WILL NOT COUNT AS AN ATTEMPT.
5. WHEN THE BALL IS THROWN, YOU ATTEMPT TO HIT AN OVERHAND PASS SO THAT YOUR PARTNER IS ABLE TO CATCH THE BALL WITHOUT CHANGING THE GREEN LINE (• • •) AND WITHOUT STOPPING OUTSIDE THE DESIGNATED AREA.
6. REPEAT THE PROCEDURE DESCRIBED IN STEP NUMBER FIVE (5) TIMES OR UNTIL SUCCESS.
7. CUMMULATION HAS BEEN MARKED WHEN 90% OR STAY OUT OF THE (10) ATTEMPTS HAVE BEEN GAINED. CUMMULATION IS DETERMINED BY THE INSTRUCTION OF YOUR PARTNER WITH THE DESIGNATED GUIDELINES. TWO (2) TRIES AS A TEST.
1. STAND ONE FOOT BEHIND THE COURT LINE.
2. STAND ONE FOOT BEHIND THE BALL LINE.
3. STAND ONE FOOT BEHIND THE BALL LINE.
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READINESS TEST

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1. Bring all completed task sheets within the unit to the instructor.
2. Once the instructor has initialed the Mastery Sequence Sheet move to court #8.
3. Divide into two (2) equal teams and play a regulation volleyball match using the skills you have learned.
4. Once the match has been completed return to the next task in the unit.
5. There is no criterion for this task.
1. See the instructor for the lecture/demonstration on the forearm pass.
2. A proctor will provide the five (5) key points on the performance of the forearm pass.
3. There is no criterion for this task.
TASK #2

LIST THE FIVE (5) KEY POINTS IN PERFORMING THE FOREARM PASS.

1. MOVE QUICKLY TO BALL

2. SHOULDERS SHRUG FORWARD

3. PALMS TOGETHER PRIOR TO CONTACT

4. BALL IN-LINE WITH BODY MIDLINE

5. ALLOW BALL TO REBOUND, RATHER THAN LIFTED

NUMBER CORRECT: ______
TASK #3

The Proper Ready Position for the Forearm Pass:
- position so that midline of body in line with approaching ball
- place one foot slightly ahead of the other
- flex knees and ankles and lower buttocks toward floor
- arms away from body with 45 degree angle to floor
- elbows held straight and hands clasped together

1. STAND IN YOUR OWN SELF-SPACE IN THE GYM.
2. FOLLOWING THE STEPS ABOVE TAKE THE CORRECT READY POSITION FOR THE FOREARM PASS.
3. CRITERION HAS BEEN REACHED WHEN THE INSTRUCTOR HAS SEEN YOUR POSITION AND INITIALED THE LEARNING TASK SEQUENCE SHEET.
Name ____________________ Date Beginning ___________ 1990
Gender ____________________ Date Reach Criterion ___________ 1990

FOREARM PASS

TASK #4

FOREARM PASS

1. STAND IN YOUR OWN SELF-SPACE ANYWHERE IN THE GYM.

2. Toss a volleyball in the air and as it descends attempt to hit a forearm pass.

3. Toss nine (9) more balls in the air and attempt to hit a forearm pass with each ball.

4. Criterion has been reached when you have hit six (6) of ten (10) attempted passes, two (2) times in a row.

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200
Name __________________________
Date Beginning _____________-1990
Gender ________________________
Date Reach Criterion ______________-1990

FOREARM PASS

TASK #5

FOREARM PASS

1. STAND IN YOUR OWN SELF-SPACE ANYWHERE IN THE GYM.

2. BEGIN BY TOSSING A VOLLEYBALL INTO THE AIR AND AS IT DESCENDS HIT THE BALL BACK INTO THE AIR USING A FOREARM PASS.

3. CONTINUE HITTING THE BALL INTO THE AIR USING A FOREARM PASS SO THAT IT DOES NOT COME TO REST UNTIL YOU HAVE HIT TEN (10) CONSECUTIVE FOREARM PASSES WITHOUT CATCHING THE BALL AND STARTING OVER.

4. CRITERION HAS BEEN REACHED WHEN YOU ARE ABLE TO KEEP THE BALL IN THE AIR USING EIGHT (8) CONSECUTIVE FOREARM PASSES WITHOUT LETTING THE BALL TOUCH THE FLOOR TWO (2) TIMES IN A ROW.

READINESS TEST

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201
### Task #6

**FOREARM PASS**

1. **Select one (1) Partner to work with when performing the task.**
2. **Stand behind the green line ( ) nearest the wall.**
3. **Have your partner stand behind the yellow line ( ) facing you.**
4. **Have your partner lob the ball to you so that without crossing the green line ( ) you are able to hit a forearm pass so that your partner can catch the ball without crossing the yellow line ( ).**
5. **Return a lob pass from your partner using a forearm pass nine (9) more times so that ten (10) forearm passes have been hit to your partner.**
6. **Criterion has been reached when seven (7) of ten (10) passes have been made without crossing the green line ( ) so that your partner is able to catch the ball without crossing the yellow line ( ), two (2) times in a row.**

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202
FOREARM PASS

TASK #7

1. SELECT ONE (1) PARTNER TO WORK WITH WHEN PERFORMING THE TASK.
2. STAND BEHIND THE GREEN LINE ( ) NEAREST THE WALL.
3. HAVE YOUR PARTNER STAND BEHIND THE YELLOW LINE ( ) FACING YOU.
4. HAVE YOUR PARTNER LOB THE BALL TO YOU SO THAT WITHOUT CROSSING THE GREEN LINE ( ) YOU ARE ABLE TO HIT A FOREARM PASS SO THAT YOUR PARTNER CAN CATCH THE BALL WITHOUT CROSSING THE YELLOW LINE ( ).
5. RETURN A LOB PASS FROM YOUR PARTNER USING A FOREARM PASS NINE (9) MORE TIMES SO THAT TEN (10) FOREARM PASSES HAVE BEEN HIT TO YOUR PARTNER.
6. CRITERION HAS BEEN REACHED WHEN SEVEN (7) OF TEN (10) PASSES HAVE BEEN MADE WITHOUT CROSSING THE GREEN LINE ( ) SO THAT YOUR PARTNER IS ABLE TO CATCH THE BALL WITHOUT CROSSING THE YELLOW LINE ( ), TWO (2) TIMES IN A ROW.

REACHABILITY TEST

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LECT./DEMO.
MOVEMENT IN THE
FOREARM PASS

1. SEE THE INSTRUCTOR FOR THE LECTURE/Demonstration ON MOVEMENT USING THE FOREARM PASS.
2. A PROCTOR WILL PROVIDE THE FIVE (5) KEY POINTS ON MOVEMENT WHEN USING THE FOREARM PASS.
3. THERE IS NO CRITERION FOR THIS TASK.
Task #9

List the five (5) key points in movement in performing the forearm pass.

1. - Balanced stance

2. - Move using slide step

3. - Turn & run if wide to side

4. - Transfer weight using legs

5. - Move with arms out & forward

Number correct:_________
1. SELECT TWO (2) OTHER PARTNERS TO AID IN PERFORMING THIS TASK.
2. HAVE PARTNER ONE (1) STAND ALONG THE RED LINE ( ).
3. HAVE PARTNERS TWO (2) AND THREE (3) STAND ALONG THE BLUE LINE ( ) FACING PARTNER ONE (1).
4. PARTNER ONE (1) WILL TOSST THE BALL IN THE AIR AND WHEN IT DESCENDS HIT A FOREARM PASS TO PARTNER TWO (2).
5. PARTNER TWO (2) WILL RETURN PARTNER ONE (1)'S (1) PASS TO PARTNER ONE (1) WITHOUT TAKING MORE THAN ONE (1) STEP IN ANY DIRECTION, WITHOUT CROSSING THE BLUE LINE ( ), AND USING A FOREARM PASS.
6. PARTNER ONE (1) WILL RECEIVE THE PASS FROM PARTNER TWO (2) WITHOUT TAKING MORE THAN ONE (1) STEP IN ANY DIRECTION AND HIT A FOREARM PASS TO PARTNER THREE (3) STANDING BEHIND PARTNER TWO (2) ALONG THE BLUE LINE ( ).
7. USING FOREARM PASSES THE BALL WILL BE PASSED FROM PARTNER ONE (1) TO PARTNER TWO (2), BACK TO PARTNER ONE (1) TO PARTNER THREE (3) AND BACK TO PARTNER ONE (1) WITHOUT ALLOWING ANYONE TO MOVE MORE THAN ONE (1) STEP IN ANY DIRECTION TO RECEIVE THE BALL AND WITHOUT THE BALL CONTACTING THE FLOOR.
8. CRITERION HAS BEEN REACHED WHEN THE BALL HAS REACHED EVERYONE IN THE GROUP, BY FOREARM PASSES, SEVEN (7) TIMES IN A ROW WITHOUT TOUCHING THE FLOOR.

**READINESS TEST**

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1. SELECT ONE (1) PARTNER TO AID IN PERFORMING THIS TASK.
2. HAVE YOUR PARTNER STAND BEHIND THE GREEN LINE ( ) FARTHEST FROM THE WALL ON COURT NUMBER THREE (3).
3. YOU WILL STAND BEHIND THE YELLOW LINE ( ) FACING YOUR PARTNER IN THE FOREARM PASS READY POSITION.
4. YOUR PARTNER WILL TOSS A BALL HIGH INTO THE AIR TO THE RIGHT OF YOUR POSITION SO THAT YOU WILL HAVE TO TAKE AT LEAST TWO (2) STEPS TO YOUR RIGHT TO MEET THE BALL'S DESCENT.
5. YOU WILL SLIDE TO YOUR RIGHT SO THAT YOU ARE ABLE TO EXECUTE A FOREARM PASS TO YOUR PARTNER.
6. ONCE IN POSITION YOU WILL HIT A FOREARM PASS BACK TO YOUR PARTNER SO THAT THEY DO NOT HAVE TO MOVE MORE THAN ONE (1) STEP IN ANY DIRECTION TO CATCH THE BALL.
7. STEPS FOUR (4), FIVE (5), AND SIX (6) WILL BE REPEATED WITH THE BALL GOING TO YOUR LEFT.
8. YOU WILL CONTINUE HITTING PASSES BACK TO YOUR PARTNER ATTEMPTING FIVE (5) PASSES ON EACH SIDE UNTIL TEN (10) TOTAL PASSES HAVE BEEN CAUGHT BY YOUR PARTNER WITHOUT MOVING MORE THAN ONE (1) STEP.
9. CRITERION HAS BEEN REACHED WHEN SEVEN (7) OF TEN (10) PASSES HAVE BEEN EXECUTED TWO (2) TIMES IN A ROW.

READINESS TEST

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Task #12

1. Select one (1) partner to aid in performing this task.
2. Have your partner stand behind the green line ( ) farthest from the wall on court number three (3).
3. You will stand behind the yellow line ( ) facing your partner in the forearm pass ready position.
4. Your partner will toss a ball high into the air to the right of your position so that you can reach out to your right and return the ball using a forearm pass.
5. Your partner will toss a ball high into the air to the left of your position so that you can reach out to the left and return the ball using a forearm pass.
6. You will continue hitting passes back to your partner attempting five (5) passes on each side until ten (10) total passes have been caught by your partner without moving more than one (1) step.
7. Criterion has been reached when seven (7) out of ten (10) passes have been executed two (2) times in a row.

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**Task #13: Forearm Pass**

1. Select one (1) partner to aid in performance of this task.
2. Have your partner stand behind the 3M line ( ) while you are standing behind the backcourt line ( ). On court number three (3).
3. With your partner facing you, have him/her toss the ball in the air and hit an overhand pass to you.
4. Once your partner’s pass reaches you, return a forearm pass so that your partner can return the ball to you using an overhand pass without having to move to get the ball.
5. This should continue until ten (10) forearm passes have been executed.
6. This will continue until ten (10) passes have been attempted without the ball coming to rest with either partner or contacting the floor.
7. Criterion has been reached when seven (7) consecutive forearm passes have been made so that the overhand passer does not have to move to return the pass and the ball has not contacted the floor two (2) times in a row.

**Readiness Test**

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TASK #14

1. Bring all completed task sheets within the unit to the instructor.
2. Once the instructor has initialed your learning task sequence sheet move to Court #4.
3. Divide into two (2), equal teams and play a regulation volleyball match using the skills you have learned.
4. Once the match has been completed return to the next task in the unit.
5. There is no criterion for this task.
TASK #15

LECT./DEMO.

SERVICE RECEPTION

&

THE DIG

- Usually use when receiving serve
- Reduce spin & force of ball
- Owe with ball’s impact
- Flex lower body to absorb force
- Backcourt player have first priority

1. See the instructor for the lecture/demonstration on service reception & using emergency techniques ("the dig").

2. A proctor will provide the five (5) key points on receiving the serve & using emergency techniques ("the dig").

3. There is no criterion for this task.
LECT./DEMO.
SERVICE RECEPTION & THE DIG

1. SEE THE INSTRUCTOR FOR THE LECTURE/Demonstration ON SERVICE RECEPTION & USING EMERGENCY TECHNIQUES (THE DIG).


3. THERE IS NO CRITERION FOR THIS TASK.
LIST THE FIVE (5) KEY POINTS IN RECEIVING THE SERVE.

1. - USUALLY USE WHEN RECEIVING SERVE

2. - REDUCE SPIN & FORCE OF BALL

3. - GIVE WITH BALL'S IMPACT

4. - FLEX LOWER BODY TO ABSORB FORCE

5. - BACKCOURT PLAYER HAVE FIRST PRIORITY

NUMBER CORRECT: ________
FOREARM PASS

**TASK #16 (PART II)**

LIST THE FIVE (5) KEY POINTS IN PERFORMING THE DIG.

1. **DIG-FOREARM PASS TO RECOVER HARD OR SHORT SHOT**

2. **DIVE & SLIDE-LOW ZONE MOVEMENT W/ STEP TO BALL**

3. **FALL TO FLOOR W/ PALM DOWN & FOREARM FORWARD**

4. **VARIATION OF JAPANESE ROLL-LOW ZINE W/ REAR LEG FLEXED**

   FRONT LEG EXTENDED TOWARD BALL: ARMS EXTENDED

   AT CONTACT DROP TO BUTTOCKS

5. **NUMBER CORRECT:**_______
**Name_________________________**  
**Date Beginning__________-1990**  
**Gender_________________________**  
**Date Reach Criterion__________-1990**  

**FOREARM PASS**  
**TASK #17**  
**FOREARM PASS**

1. SELECT ONE (1) PARTNER (__) TO AID IN PERFORMING THIS TASK.
2. STAND IN THE BACKCOURT AREA (X). 
3. HAVE YOUR PARTNER (__) STAND ALONG THE BASELINE ON THE OPPOSITE SIDE OF THE COURT.
4. HAVE YOUR PARTNER (__) SERVE A DEEP SERVE TO YOU.
5. RETURN THE SERVE, USING A FOREARM PASS SO THAT THE BALL LANDS INSIDE THE BLUE RECTANGLE (____) NEAR THE 3M LINE.
6. RETURN NINE (9) MORE BALLS SERVED BY YOUR PARTNER (____) ATTEMPTING TO PLACE EACH FOREARM PASS INSIDE THE BLUE RECTANGLE (____).
7. CRITERION HAS BEEN REACHED WHEN SEVEN (7) OUT OF TEN (10) PASSES ATTEMPTED HAVE LANDED INSIDE THE BLUE RECTANGLE (____), TWO (2) TIMES IN A ROW.

**READINESS TEST**

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215
1. Select one (1) partner (●) to aid in performing this task.
2. Stand in the backcourt area (●●●●).
3. Have your partner (●) stand along the baseline on the opposite side of the court.
4. Have your partner (●) serve a deep serve to you.
5. Return the serve, using a forearm pass so that the ball lands inside the red rectangle (●●). In front of the 3m line.
6. Return nine (9) more balls served by your partner (●●) attempting to place each forearm pass inside the red rectangle (●●).
7. Criterion has been reached when six (6) out of ten (10) passes attempted have landed inside the red rectangle (●●), two (2) times in a row.

READINESS TEST

- 10  20  30  40  50  60  70  80  90  100
- 10  20  30  40  50  60  70  80  90  100
- 10  20  30  40  50  60  70  80  90  100
- 10  20  30  40  50  60  70  80  90  100
- 10  20  30  40  50  60  70  80  90  100

216
1. SELECT TWO (2) PARTNERS (① & ②) TO AID IN PERFORMING THIS TASK.
2. STAND IN THE BACKCOURT AREA (□□).
3. HAVE PARTNER ONE (①) STAND ALONG THE BASELINE ON THE OPPOSITE SIDE
4. HAVE PARTNER TWO (②) STAND SLIGHTLY IN FRONT OF 3M LINE.
5. HAVE PARTNER ONE (①) SERVE A DEEP SERVE TO YOU.
6. RETURN THE SERVE USING A FOREARM PASS SO THAT PARTNER TWO (②) IS
   ABLE TO HIT AN OVERHAND PASS, WITHOUT MOVING, INTO THE YELLOW RECTANGLE
   (□□).
7. HAVE PARTNER ONE (①) SERVE NINE (9) MORE BALLS AND ATTEMPT TO PASS
   EACH SO THAT PARTNER TWO (②) CAN, WITHOUT MOVING HIT AN OVERHAND
   PASS INTO THE YELLOW RECTANGLE (□□).
8. CRITERION HAS BEEN REACHED WHEN SIX (6) OUT OF TEN (10) BALLS HAVE BEEN
   PASSED TO PARTNER TWO (②) AND HAVE LANDED INSIDE THE YELLOW
   RECTANGLE (□□), TWO (2) TIMES IN A ROW.

READINESS TEST

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1. SELECT ONE (1) PARTNER TO AID IN PERFORMING THIS TASK.
2. STAND BEHIND THE RED LINE ( )
3. HAVE YOUR PARTNER STAND BEHIND THE BLUE LINE ( ) FACING YOU.
4. YOUR PARTNER, USING A BASKETBALL CHEST PASS, WILL PASS THE BALL TO YOUR FAR LEFT.
5. USING A DIG YOU WILL CONTACT THE BALL WITH ONLY ONE (1) HAND RETURNING THE BALL TO YOUR PARTNER SO THAT THEY DO NOT HAVE TO MOVE MORE THAN ONE (1) STEP IN ANY DIRECTION TO RECEIVE THE BALL.
6. YOU PARTNER WILL PASS NINE (9) MORE BALLS TO YOUR FAR LEFT AND YOU WILL ATTEMPT TO EXECUTE A ONE-ARM DIG WITH EACH PASS.
7. CRITERION HAS BEEN REACHED WHEN USING A ONE-ARM DIG, THE BALL HAS BEEN RETURNED WITHIN ONE (1) STEP OF YOUR PARTNER SIX (6) OUT OF TEN (10) TIMES, TWO (2) TIMES IN A ROW.

READINESS TEST

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☐ 10  ☐ 20  ☐ 30  ☐ 40  ☐ 50  ☐ 60  ☐ 70  ☐ 80  ☐ 90  ☐ 100

☐ 10  ☐ 20  ☐ 30  ☐ 40  ☐ 50  ☐ 60  ☐ 70  ☐ 80  ☐ 90  ☐ 100
1. Select one (1) partner to aid in performing this task.
2. Stand behind the red line (———).
3. Have your partner stand behind the blue line (— — —) facing you.
4. Your partner, using a basketball chest pass, will pass the ball to your far left.
5. Using a dig you will contact the ball with only one (1) hand returning the ball to your partner so that they do not have to move more than one (1) step in any direction to receive the ball.
6. Steps four (4) and five (5) will be repeated with the ball being passed to the far right.
7. Your partner will pass eight (8) more balls, alternating sides so that you attempt to execute a one-arm dig with each pass.
8. Criterion has been reached when, using a one-arm dig, the ball has been returned within one (1) step of your partner six (6) out of ten (10) times, two (2) times in a row.

**READINESS TEST**

- 10  -  20  -  30  -  40  -  50  -  60  -  70  -  80  -  90  -  100
1. Bring all completed task sheets within the unit to the instructor.

2. Once the instructor has initialed your learning task sequence sheet, move to Court #4.

3. Divide into two (2) equal teams and play a regulation volleyball match using the skills you have learned.

4. Once the match has been completed, return to the next task in the unit.

5. There is no criterion for this task.
**TASK #1**

**LECT./DEMO.**

**RECEPTION PATTERNS**

1. SEE THE INSTRUCTOR FOR THE LECTURE & DEMONSTRATION PROVIDED ON RECEPTION PATTERNS.

2. FIVE (5) KEY POINTS ON THE USE OF RECEPTION PATTERNS WILL BE PRESENTED.

3. THERE IS NO CRITERION FOR THIS TASK.
LIST THE FIVE (5) KEY POINTS WHEN USING RECEPTION PATTERNS.
(EACH IS WORTH 2 POINTS)

1. EFFECTIVE COMMUNICATION

2. STRONG MOVE TOWARD BALL

3. PRIORITY GIVEN TO BACKCOURT

4. PRIMARY "W" OR "U" RECEPTION PATTERNS

5. "U" -- 4-PLAYER RECEPTION PATTERN
   "W" -- 5-PLAYER RECEPTION PATTERN
STUDY GUIDE FOR RECEPTION PATTERNS

Below are a list of study questions which will aid in your understanding of reception patterns in the game of volleyball. Using the terms or phrases found at the end of the study guide fill in each statement with the correct term according to the class text. Criterion has been reached when 80% of your answers are correct.

1. A reception pattern is the initial phase of establishing an offensive system. **PASSING ACCURACY** is vital to offensive success.

2. Because of the types of serves used in today's game as well as rule interpretations a **FOREARM PASS** should be used to play the ball during serve reception.

3. In order to sustain **EFFECTIVE COMMUNICATION** during serve reception, assertive movement toward an approaching ball is vital.

4. **BACKCOURT** players always have priority in initial contact during serve reception.

5. During service reception opening the **PASSING LANES** is critical for the success of the first pass.

6. When all players not directly involved with the pass pivot and open toward the passer this is referred to as **SUPPORTIVE MOVEMENT**.
Below are a list of study questions which will aid in your understanding of reception patterns in the game of volleyball. Using the terms or phrases found at the end of the study guide, fill in each statement with the correct term according to the class text. Criterion has been reached when 80% of your answers are correct.

7. The text refers to two types of service reception patterns which are generally used. They are the "W" and the "U" service reception pattern.

8. The "U" service reception pattern involves only four players.

9. The "W" service reception pattern involves 5 players.

10. The "W" service reception pattern allows more time for the middle attacker to establish position for the quicker set.

11. The "W" service reception pattern is the better of the two service reception patterns in the class text if the receiving team does not pass well.
STUDY GUIDE FOR RECEPTION PATTERNS

**TERMS & PHRASES:**
- passing accuracy
- "X" effective communication
- "W"
- "V"
- overhead pass
- forearm pass
- attackers
- backcourt play
- front court players
- J M line
- spiking lanes
- attacking movement
- supportive movement
- assertive movement
- passing lanes
- rotation system
- 3-player pattern
- multiple pattern

On the two diagrams of 1/2 of a volleyball court diagram the "W" and the "V" service reception patterns. Indicate the players involved in the reception patterns with an X and the players not involved in the service pattern with an O. Be sure to indicate the type of pattern beside each court. (each diagram has seven possible points)

**"W" Service Reception Pattern**

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   0   1   2
   3   4   5
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225
On the two diagrams of 1/2 of a volleyball court diagram the "W" and the "U" service reception patterns. Indicate the players involved in the reception patterns with an X and the players not involved in the service pattern with an O. Be sure to indicate the type of pattern beside each court. (Each diagram has seven possible points)

"U" Service Reception Pattern

```
   O O
  X
 X
 X
```
1. STAND IN THE SQUARE ADJACENT TO THE VOLLEYBALL COURT (□).

2. PLACE SIX (6) CONES ON THE COURT TO REPRESENT THE CORRECT POSITION PLAYERS SHOULD BE IN THE "W" SERVICE RECEPTION PATTERN.

3. CRITERION HAS BEEN REACHED WHEN THE INSTRUCTOR SIGNS YOUR MASTERY SEQUENCE SHEET INDICATING THE CONES ARE IN THE CORRECT POSITION.
1. STAND IN THE SQUARE ADJACENT TO THE VOLLEYBALL COURT ( ).
2. PLACE SIX (6) CONES ON THE COURT TO REPRESENT THE CORRECT POSITION PLAYERS SHOULD BE IN THE "U" SERVICE RECEPTION PATTERN.
3. CRITERION HAS BEEN REACHED WHEN THE INSTRUCTOR SIGNS YOUR MASTERY SEQUENCE SHEET INDICATING THE CONES ARE IN THE CORRECT POSITION.
STRATEGY

TASK #6

WRITTEN TEST ON RECEPTION PATTERNS

Below are a list of questions which will test your understanding of reception patterns in the game of volleyball. Using the terms or phrases found at the end of Section I. to fill in each statement with the correct term according to the class text. Criterion has been reached when 80% of your answers are correct.

Section I. Fill-In-The-Blank:

1. A reception pattern is the initial phase of establishing an offensive system. **Passing Accuracy** is vital to offensive success.

2. Because of the types of serves used in today's game as well as rule interpretations a **Forearm Pass** should be used to play the ball during serve reception.

3. In order to sustain **Effective Communication** during serve reception, assertive movement toward an approaching ball is vital.

4. **Backcourt** players always have priority in initial contact during serve reception.

5. During service reception opening the **Passing Lanes** is critical for the success of the first pass.

6. When all players not directly involved with the pass pivot and open toward the passer this is referred to as **Supportive Movement**.
Section I. (con't.):

Below are a list of questions which will test your understanding of reception patterns in the game of volleyball. Using the terms or phrases found at the end of Section I. to fill in each statement with the correct term according to the class text. Criterion has been reached when 80% of your answers are correct.

7. The text refers to two types of service reception patterns which are generally used. They are the "W" and the "U" service reception pattern.

8. The "U" service reception pattern involves only four players.

9. The "W" service reception pattern involves 5 players.

10. The "U" service reception pattern allows more time for the middle attacker to establish position for the quicker set.

11. The "W" service reception pattern is the better of the two service reception patterns in the class text if the receiving team does not pass well.

**TERMS & PHRASES:**

- passing accuracy
- effective communication
- passing lanes
- attacking movement
- supportive movement
- 3M-Line
- assertive movement
- 3-player pattern
- forearm pass
- rotation system
- multiple pattern
- overhead pass
- "X"
- "Y"
- front court
- "W"
- "U"
- backcourt play
On the two diagrams of 1/2 of a volleyball court diagram the "W" and the "U" service reception patterns. Indicate the players involved in the reception patterns with an X and the players not involved in the service pattern with an O. Be sure to indicate the type of pattern beside each court. (Each diagram has seven possible points)

"W" Service Reception Pattern

```
O X X
X X
```

"U" Service Reception Pattern

```
O O X X
X X
```
1. See the instructor for the lecture & demonstration provided on offensive systems.

2. Five (5) key points on the use of offensive systems will be presented.

3. There is no criterion for this task.
TASK #8

List the five (5) key points when using an offensive system.
(each is worth 2 points)

1. CAPITALIZE ON INDIVIDUAL ABILITIES

2. PASS-SET-SPIKE PLAY

3. BECOME ROUTINE OR "AUTOMATIC"

4. PLAY WITHIN ABILITY LEVEL (BE REALIST)

5. ALLOW FOR MULTIPLE ATTACK EACH PATTERN
Using class lecture/demonstration key points and information from the class text fill-in the blanks in the statements found below. Limit your answers to the list of terms and phrases found at the end of this study guide. Be sure to use each answer only once. Criterion has been reached when 80% of your answers are correct.

1. The primary purpose in using an offensive system in volleyball is to capitalise on the **INDIVIDUAL CAPABILITIES** of the various members of the team.

2. An offensive system should allow your team to increase the probability that the **PASS, SET, ATTACK** pattern of play, the basic attack, will occur as frequently as possible.

3. Your use of the offensive systems should be developed until they become **AUTOMATIC** in game situations.

4. The 6-2 offense allows for a **MULTIPLE ATTACK** on every play by bringing in a setter from the backcourt.

5. In the 6-offensive system all are able to attack but there must be **TWO** good setters.

6. The main objective of each rotation in any offensive system is to gain a **STRATEGIC ADVANTAGE**.

7. The advantage gained from getting the setter to the appropriate area of the court quickly in order to execute the **ATTACK**.
8. **Six** players are available to spike the ball in the 6-2 offensive system.

9. Two players can not only play a spiking role they can also function as *setters*.

10. The "W" and "U" serve reception patterns indicate the basic positions for players using the 6-2 offensive system.

11. By utilizing the primary setter from the backcourt greater *variation* in attack options are available.

12. In the 6-2 offensive system the *pass* must be the first priority of the team.

**TERM & PHRASES:**
- individual capabilities
- stable
- attackers
- setters
- six (2)
- pass-set-spike
- "W"
- "U"
- set
- multiple attack
- strategic advantage
- automatic
- utilize
- spikers
- five
- two (2)
- set-spike
- "Y"
- variations
- pass
- multiple control
- dual attack
Diagram the BEGINNING POSITION, FIRST ROTATION, and the SECOND ROTATION of the 6-2 offensive system using a 5-player service reception pattern on the diagram below. Be sure to label each player to indicate which position they are playing in each position and/or rotation. (If abbreviations are used indicate what each stand for beside the diagrams).

BEGINNING POSITION:

FIRST ROTATION:

SECOND ROTATION:
Diagram the BEGINNING POSITION, FIRST ROTATION, and the SECOND ROTATION of the 6-2 offensive system using a 4-player service reception pattern on the diagram below. Be sure to label each player to indicate which position they are playing in each position and/or rotation. (If abbreviations are used indicate what each stand for beside the diagrams).

BEGINNING POSITION:

FIRST ROTATION:

SECOND ROTATION:
1. Pair with five (5) other students so that groups of six (6) are formed.

2. Each group will stand in the squares ( ) adjacent to each volleyball court.

3. The players in each group will be asked to take the place on the court of different players in the 5-2 offensive system with a 5-player reception pattern.

4. Criterion has been reached when the correct position is taken and viewed by the instructor.
1. Students will be standing on each court in the beginning rotation of the 8-2 offensive system with a 5-player reception pattern.

2. At the instructor's command the students will move into the first rotation of the offensive system.

3. The instructor will view each student's position on the court and ask the student to name the position.

4. The student will then move into the second rotation of the offensive system on the instructor's next command.

5. The instructor will view each student's position on the court and ask the student to name the position.

6. Criterion has been reached when the student is able to move to the correct position viewed by the instructor and the correct position is heard by the instructor.
1. Pair with five (5) other students so that groups of six (6) are formed.

2. Each group will stand in the squares ( ) adjacent to each volleyball court.

3. The players in each group will be asked to take the place on the court of players in the 5-2 offensive system with a 4-player reception pattern.

4. Criterion has been reached when the correct position is taken and viewed by the instructor.
1. STUDENTS WILL BE STANDING ON EACH COURT IN THE BEGINNING ROTATION OF THE 9-2 OFFENSIVE SYSTEM WITH A 4-PLAYER RECEPTION PATTERN.

2. AT THE INSTRUCTOR'S COMMAND THE STUDENTS WILL MOVE INTO THE FIRST ROTATION OF THE OFFENSIVE SYSTEM.

3. THE INSTRUCTOR WILL VIEW EACH STUDENT'S POSITION ON THE COURT AND ASK THE STUDENT TO NAME THE POSITION.

4. THE STUDENT WILL THEN MOVE INTO THE SECOND ROTATION OF THE OFFENSIVE SYSTEM ON THE INSTRUCTOR'S NEXT COMMAND.

5. THE INSTRUCTOR WILL VIEW EACH STUDENT'S POSITION ON THE COURT AND ASK THE STUDENT TO NAME THE POSITION.

6. CRITERION HAS BEEN REACHED WHEN THE STUDENT IS ABLE TO MOVE TO THE CORRECT POSITION VIEWED BY THE INSTRUCTOR AND THE CORRECT POSITION IS HEARD BY THE INSTRUCTOR.
Task #14

Written Test on Offensive Systems

Using class lecture/demonstration key points and information from the class text fill-in the blanks in the statements found below. Limit your answers to the list of terms and phrases found at the end of Section I. Be sure to use each answer only once. Criterion has been reached when 80% of your answers are correct.

Section I. Fill-In-The-Blank:
1. The primary purpose in using an offensive system in volleyball is to capitalise on the INDIVIDUAL CAPABILITIES of the various members of the team.

2. An offensive system should allow your team to increase the probability that the PASS, SET ATTACK pattern of play, the basic attack, will occur as frequently as possible.

3. Your use of the offensive systems should be developed until they become AUTOMATIC in game situations.

4. The 6-2 offense allows for a MULTIPLE ATTACK on every play by bringing in a setter from the backcourt.

5. In the 6- offense systems all are able to attack but there must be TWO good setters.

6. The main objective of each rotation in any offensive system is to gain a STRATEGIC ADVANTAGE.

7. The advantage gained from getting the setter to the appropriate area of the court quickly in order to execute the ATTACK.
SECTION I. (con't.):

Using class lecture/demonstration key points and information from the class text fill-in the blanks in the statements found below. Limit your answers to the list of terms and phrases found at the end of Section I. Be sure to use each answer only once. Criterion has been reached when 80% of your answers are correct.

8. SIX players are available to spike the ball in the 6-2 offensive system.

9. Two players can not only play a spiking role they can also function as SETTERS.

10. The "W" and "N" serve reception patterns indicate the basic positions for players using the 6-2 offensive system.

11. By utilizing the primary setter from the backcourt greater VARIATION in attack options are available.

12. In the 6-2 offensive system the PASS must be the first priority of the team.

TERM & PHRASES:
individual capabilities automatic
stable utilize
attackers spikers
setters five
six(2) two (2)
pass-set-spike set-spike
"W"
"U"
set
multiple attack
strategic advantage

variations
pass
multiple control
dual attack
Diagram the BEGINNING POSITION, FIRST ROTATION, and the SECOND ROTATION of the 6-2 offensive system using a 5-player service reception pattern on the diagram below. Be sure to label each player to indicate which position they are playing in each position and/or rotation. (If abbreviations are used indicate what each stand for beside the diagrams).

BEGINNING POSITION:

FIRST ROTATION:

SECOND ROTATION:
Diagram the BEGINNING POSITION, FIRST ROTATION, and the SECOND ROTATION of the 6-2 offensive system using a 4-player service reception pattern on the diagram below. Be sure to label each player to indicate which position they are playing in each position and/or rotation. (If abbreviations are used indicate what each stand for beside the diagrams).

BEGINNING POSITION:

FIRST ROTATION:

SECOND ROTATION:
LECT./DEMO.
DEFENSIVE SYSTEMS
(PLAYER-BACK DEFENSE)

1. SEE THE INSTRUCTOR FOR THE LECTURE/DEMONSTRATION IN DEFENSIVE SYSTEMS - THE PLAYER-BACK DEFENSE.
2. A PROCTOR WILL PROVIDE THE FIVE (5) KEY POINTS ON DEFENSIVE SYSTEMS & THE PLAYER-BACK DEFENSE.
3. THERE IS NO CRITERION FOR THIS TASK.
TASK #16

LIST THE FIVE (5) KEY POINTS IN THE PLAYER-BACK DEFENSIVE SYSTEM.

1. -DIVIDE COURTS INTO SPECIALIZED ZONES

2. -GOOD COMMUNICATION

3. -BE AWARE OF OFFENSIVE MOVEMENT

4. -DEVELOP BASIC DEFENSIVE READY POSITION

5. -PROTECT BACKCOURT

NUMBER CORRECT:_______
TASK #17

STUDY GUIDE FOR DEFENSIVE SYSTEMS

Below are a list of questions and statements which will aid in your understanding of defensive systems (focusing on the player-back defensive system) used in the game of volleyball. Using the terms and phrases found at the end of this study guide fill in each incomplete statement with information supplied in the class text and/or lectures. Criterion has been reached when 80% of your answers are correct.

1. The MAJOR OBJECTIVE of attack coverage is to keep the ball in play if the block beats the attack.

2. In defensive systems, each player's responsibility is to beat the hitter to the FOOT PLANT.

3. It is essential that all player's on the defense predetermine who is responsible for the DINK.

4. In all patterns, offense and defense, specialization is beneficial to assist in determining zones. The quickest defensive player should usually be MIDDLE BACK.

5. All defensive systems are designed to develop an effective block, MAXIMUM COURT COVERAGE, and ATTACK COVERAGE.

6. If the flight of the ball has a high trajectory a FREEBALL defense should be easily implemented.

7. The player-back defense is most effective when the speed of the ball is RAPID, but the ball has been lifted over the block or BETWEEN THE BLOCK.
Below are a list of questions and statements which will aid in your understanding of defensive systems (focussing on the player-back defensive system) used in the game of volleyball. Using the terms and phrases found at the end of this study guide fill in each incomplete statement with information supplied in the class text and/or lectures. Criterion has been reached when 80% of your answers are correct.

8. The player-back appears to leave the MIDDLE area of the court open. It is used to protect the BACKCOURT.

9. Assuming the spiker is in good alignment with the ball and has no block to contend, however, the net away from the net the defense players should be situated FARTHER AWAY in relation ship to the net.

10. If an on-hand spiker comes in with their shoulders and hips perpendicular to the net the defensive players should be positioned for a CROSSCOURT spike.

11. If the spiker is late getting to the ball the defensive alignment should indicate preparation for a DINK.

12. The spiker's ARMSWING often indicates the direction of the ball.
STUDY GUIDE FOR DEFENSIVE SYSTEMS

KEY TERM & PHRASES: (may be used more than once)
secondary objective
foot plant
left block
setter
near by
forecourt
dink
armswing
attack positions
rapid
front
middle
attack coverage
minimize attack positions
middle back
farther away
down-the-line
crosscourt
lofting
major objective
free ball
between the block
maximize court coverage
backcourt
On the three (3) diagrams of the volleyball court diagram and label the type of player-back defensive system used by naming the type of attack and the name of each position. The players should be labeled numbers 1 through 6 and the blanks beside the diagrams should be used to name each player's correct position. Be sure to notice the position of the ball on the offensive side of the court to aid in determining the appropriate attack.

**LEFT SIDE Attack**
1. LEFT FRONT
2. MIDDLE FRONT
3. RIGHT FRONT
4. LEFT BACK
5. MIDDLE BACK
6. RIGHT BACK

**MIDDLE Attack**
1. LEFT FRONT
2. MIDDLE FRONT
3. RIGHT FRONT
STUDY GUIDE FOR DEFENSIVE SYSTEMS

4 LEFT BACK
5 MIDDLE BACK
6 RIGHT BACK

On the three (3) diagrams of the volleyball court diagram and label the type of player-back defensive system used by naming the type of attack and the name of each position. The players should be labeled numbers 1 through 6 and the blanks beside the diagrams should be used to name each player's correct position. Be sure to notice the position of the ball on the offensive side of the court to aid in determining the appropriate attack.

RIGHT SIDE Attack
1 MIDDLE FRONT
2 RIGHT FRONT
3 LEFT FRONT
4 LEFT BACK
5 MIDDLE BACK
6 RIGHT BACK
 TASK #18

1. STAND IN THE SQUARE ADJACENT TO THE VOLLEYBALL COURT ( ).

2. PLACE SIX (6) CONES ON THE COURT TO REPRESENT THE CORRECT POSITION PLAYER SHOULD BE IN WHEN USING THE PLAYER-BACK DEFENSE WITH A MIDDLE ATTACK.

3. CRITERION HAS BEEN REACHED WHEN THE INSTRUCTOR SIGNS YOUR MASTERY SEQUENCE SHEET INDICATING THE CONES ARE IN THE CORRECT POSITION.
1. Pair with five (5) other students so that groups of six (6) are formed.

2. Each group will stand in the squares ( ) adjacent to each volleyball court.

3. Each person in the square will be assigned a different position in the player-back defense.

4. At the instructor's command the players will take the court in the middle attack player-back defense according to their assigned positions.

5. At the instructor's command students will move into the correct defensive pattern (player-back with left or right attack).

6. Criterion has been reached when the student is able to assume their correct assigned position in each defense the instructor calls.
Below are a list of questions and statements which will test your understanding of defensive systems (focusing on the player-back defensive system) used in the game of volleyball. Using the terms and phrases found at the end of Section I. fill in each incomplete statement with information supplied in the class text and/or lectures. Criterion has been reached when 80% of your answers are correct.

Section I. Fill-In-The-Blank:

1. The **Major Objective** of attack coverage is to keep the ball in play if the block beats the attack.

2. In defensive systems, each player's responsibility is to beat the hitter to the **foot plant**.

3. It is essential that all players on the defense predetermine who is responsible for the **dink**.

4. In all patterns, offense and defense, specialization is beneficial to assist in determining zones. The quickest defensive player should usually be **middle back**.

5. All defensive systems are designed to develop an effective block, **Maximum Court Coverage**, and **Attack Coverage**.

6. If the flight of the ball has a high trajectory a **freeball** defense should be easily implemented.

7. The player-back defense is most effective when the speed of the ball is **rapid**, but the ball has been lifted over the block or **between the block**.
Section I. (cont.):
Below are a list of questions and statements which will test your understanding of defensive systems (focusing on the player-back defensive system) used in the game of volleyball. Using the terms and phrases found at the end of Section I, fill in each incomplete statement with information supplied in the class text and/or lectures. Criterion has been reached when 80% of your answers are correct.

9. The player-back appears to leave the middle area of the court open. It is used to protect the backcourt.

9. Assuming the spiker is in good alignment with the ball and has no block to contend, however, the set away from the net the defense players should be situated farther away in relation ship to the net.

10. If an on-hand spiker comes in with their shoulders and hips perpendicular to the net the defensive players should be positioned for a crosscourt spike.

11. If the spiker is late getting to the ball the defensive alignment should indicate preparation for a dink.

12. The spiker's armswing often indicates the direction of the ball.

Key terms & phrases: (may be used more than once)
- Secondary objective
- Foot plant
- Middle
- Setter
- Backcourt
- Attack coverage
- Minimize attack positions
- Middle back
- Farther away
- Down-the-line
Name ________________________________

STRATEGY

TASK #20

WRITTEN TEST ON DEFENSIVE SYSTEMS

forecourt  crosscourt
  dink    lofting
  armswing  major objective
  attack positions  free ball
  rapid    between the block
  front    maximize court coverage

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On the three (3) diagrams of the volleyball court diagram and label the type of player-back defensive system used by naming the type of attack and the name of each position. The players should be labeled numbers 1 through 6 and the blanks beside the diagrams should be used to name each players correct position. Be sure to notice the position of the ball on the offensive side of the court to aid in determining the appropriate attack.

**LEFT SIDE Attack**

1. LEFT FRONT
2. MIDDLE FRONT
3. RIGHT FRONT
4. LEFT BACK
5. MIDDLE BACK
6. RIGHT BACK

**MIDDLE Attack**

1. LEFT FRONT
2. MIDDLE FRONT
3. RIGHT FRONT
WITTEN TEST ON DEFENSIVE SYSTEMS

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<tr>
<td>6</td>
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</tr>
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</table>

On the three (3) diagrams of the volleyball court diagram and label the type of player-back defensive system used by naming the type of attack and the name of each position. The players should be labeled numbers 1 through 6 and the blanks beside the diagrams should be used to name each player's correct position. Be sure to notice the position of the ball on the offensive side of the court to aid in determining the appropriate attack.

**RIGHT SIDE Attack**

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<td>5</td>
<td>MIDDLE BACK</td>
</tr>
<tr>
<td>6</td>
<td>RIGHT BACK</td>
</tr>
</tbody>
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Appendix G: Class Attendance / Arrival Sheets
This will be the official class roll. It is your responsibility to sign in each day in the appropriate space provided and to indicate the time you arrived in class. If you fail to sign in you will be counted as absent for class during this time period.

<table>
<thead>
<tr>
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Appendix H: Task Progression Graphs
STUDENT TASK PROGRESSION — — February 12, 1990

High Third

<table>
<thead>
<tr>
<th>Task #</th>
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Students in Class

High: Brine, S., Williams, M., Yarrington, P., McDevitt, P., Lunt, M., Creed, C., Hawkins, R.

Low: Students in Class

Low Third

<table>
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<th>Strategy</th>
<th>Forearm Pass</th>
<th>Overhand Pass</th>
<th>Serving</th>
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Students in Class

High: Godet, M., Shiflett, G., McGrath, J., Hazlegrave, G., Benjamin, S., Heas, R., Eber, L.

Low: Students in Class

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STUDENT TASK PROGRESSION — March 07, 1990

High Third

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Braine, B. McDavitt, P. Yarrington, P. Williams, M. Hawkins, R. Creed, C. Lunt, M.

High Students in Class

Low Students in Class

Low Third

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<th>Forearm Pass</th>
<th>Overhand Pass</th>
<th>Serving</th>
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Gosset, M. Haas, R. Shahan, G. McGrath, J. Berman, J. Hazlegrave, G. Ebert, L.

High Students in Class

Low Students in Class
Appendix I: Student Evaluations
VOLLEYBALL (P.S.I.) EVALUATIONS

For each question circle the number that you believe best describes your evaluation of each question. Below your rating indicate why your gave this rating. Be as specific as possible. These evaluations will in no way effect your standing (grade) in this course.

<table>
<thead>
<tr>
<th>Poor</th>
<th>Average</th>
<th>Average</th>
<th>Average</th>
<th>Excellent</th>
</tr>
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<tbody>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
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</table>

1. How effective was the use of P.S.I. in producing increased skill?

| 1    | 2       | 3       | 4       | 5         |

2. How effective was the use of P.S.I. in producing increased knowledge?

| 1    | 2       | 3       | 4       | 5         |

3. How appropriate were the tasks in reaching the intended outcomes in this course?

| 1    | 2       | 3       | 4       | 5         |
4. How do you feel the tasks will aid in your ability to actually play volleyball?
   1  2  3  4  5

5. How would you rate enjoyment of this course when compared to other activity courses taken (college level only)?
   1  2  3  4  5

6. How helpful was the idea of self-pacing in this course?
   1  2  3  4  5

7. How well did you feel the policy guide explained the workings of this course?
   1  2  3  4  5

8. How helpful was the error correction information on the back of each task sheets?
   1  2  3  4  5
9. How would you rate the amount of time spent actually playing?
   1  2  3  4  5

10. What is your overall rating of this course?
    1  2  3  4  5

11. What is your overall rating of P.S.I. as a course design used in teaching volleyball at the college level?
    1  2  3  4  5

12. How would you rate the instructor in this course?
    1  2  3  4  5

Please answer each question below. For each answer provide your reasoning for the answer you give.

13. If you were to take this course again and were given your choice would you take P.S.I. volleyball or conventional (the way activity courses usually taught) volleyball?
14. What do you feel were the major strong points of this course?

15. What do you feel were the major weaknesses of this course?

16. What would you change the next time this course was taught? (Assuming the course must be taught as P.S.I.)

17. How ell do you think your grade will reflect your learning in this course?

18. If this was an A through F course based on tasks completed, with an A=100 - 90%, B=89-80%, C=79-70%, D=69-60%, and F=59% and below, what do you feel you would receive?

19. Make any constructive comments you think would aid in the next time this course is taught?
Appendix J: Rules & Scoring Study Guide
I. COGNITIVE:

A. Definitions:

1. **Double hit** — any time any player other than a player acting in the act of blocking who contacts the ball more than once, with whatever part of the body that constitutes a legal hit (above the waist), without any other player having touched it between contacts.

2. **Blocking** — the action close to the net which intercepts the ball coming from the opponent's side by making contact with the ball before it has crossed the net, as it crosses the net, or immediately after it has crossed the net.

3. **Double fault** — any time players of opposing teams simultaneously commit a fault. A play-over is directed.

4. **Screening** — any time players of the serving team prevent the receiving team from watching the server or the trajectory of the ball. Screening is ruled as a fault.

5. **Group Screen** — when the server is hidden behind a group of two or more teammates and the ball is served over a member(s) of the group. This is ruled as a fault.

6. **Fault** — any violation of the rules which results in a point or a side-out.
7. **Re-serve** - when the server releases the ball and allows it to fall to the floor without coming into contact with any other part of the body (including the uniform of any participant).

8. **Four-hits** - any time the ball is contacted four times, successively, by one team before crossing into the opposing team's area. This results in a fault.

9. **Illegal hit** - when the ball visibly comes to rest momentarily in the hands or arms of a player, so that it is considered as having been held.

10. **Serve** - contact with the ball to initiate play

11. **Ace** - a serve which results directly in a point: lands in the opponent's court untouched, receiver is called for ball handling violation or receiver passes the ball out of play.

12. **Point** - awarded when the receiving team violates a rule during play. Only the serving team is allowed to be awarded a point.

13. **Side-out** - when the serving team violates a rule during play resulting in the opposing team gaining position of the ball and becoming the serving team.

B. Know pages 10 - 15 in class text.

C. Be able to apply rules and terms listed above to written situations which could occur during a volleyball match.
D. Be able to diagram and answer questions about reception patterns, the beginning position and the first & second rotations in the 5-2 offensive system (both the 4-player and 5-player reception patterns), and the player back defense. (pages 54 - 66 in class text).

E. Be able to label the positions in each offensive and defensive system listed in part "D".

F. Understand scoring well enough so that if a situation is described you will be able to fill in a scoring sheet.

II. PSYCHOMOTOR:

A. Key Points to be aware of:

1. **Overhand Serve** - (1) body square to the net
   
   (2.) form a pedestal with the non-striking hand
   
   (3.) elbow of striking hand begins high
   
   (4.) transfer weight from rear to front
   
   (5.) contact ball at midline by using a punch (there should be no follow through)

2. **Overhand Serve (deep)** - (1) weight transfer to gain momentum when contacting the ball

   (2.) the toss should be high to allow the body to produce greater power

   (3.) contact the ball at the midline

   (4.) use an arm cock produced by shoulder retraction so as to act as a spring mechanism
(5.) when contacting the ball keep the wrist firm to produce a punching action when making contact

3. Overhand Serve (crosscourt & down-the-line) - (1) rotate the wrist inward for crosscourt and outward for down-the-line
(2.) rotate at the hips when striking the ball
(3.) should allow for a slight follow-through to aid in directing the flight path of the ball
(4.) adjust the position of the ball to ensure solid contact

4. Overhand Serve (accuracy) - (1) high toss in order to hit downward on the ball
(2) raise up on your toes to meet ball at height of toss

5. Overhand Pass - (1) balanced ready position
(2) body should be opened toward the pass
(3) use fingertips & hands to absorb the shock
(4) hands should give when contacting the ball (hips should be thrust to the rear for a pass to the front and thrust forward for a pass to the rear)
(5) in a rear overhand pass the body should be centered directly under the ball

6. Forearm Pass - (1) move to meet the ball
(2) shoulders should be shrugged forward
(3) play the ball in line with the body
(4) allow the ball to rebound off the forearms
(5) palms should be brought together to form a platform
Appendix K: Final Exam
Part I. Multiple Choice: Select the best answer for each statement, according to information provided in class, and place the corresponding letter in the space provided. (1 point each)

1. When hitting an overhand serve the body should be:
   A. at a 45 degree angle to the net
   B. square to the net
   C. perpendicular to the net
   D. at a 75 degree angle to the net

2. When preparing to make contact with the ball, using a forearm pass the player should:
   A. move to meet the ball
   B. allow the ball to come to them
   C. get into a low zone of movement
   D. get into a high zone of movement

3. When hitting an overhand serve deep momentum should be gained through:
   A. hip rotation
   B. balanced ready position
   C. weight transfer
   D. complete follow-through
4. When hitting an overhand pass to the rear the hips should be thrust:
   A. to the right side
   B. to the left side
   C. to the front
   D. to the rear

5. When serving a ball down-the-line the wrist should rotate:
   A. to the outside
   B. to the inside
   C. upward
   D. downward

6. In a rear overhand pass as the ball descends the body should be placed:
   A. directly under the ball
   B. in front of the ball
   C. behind the ball
   D. to the side of the ball

7. During service reception priority should always be given to the:
   A. frontcourt players
   B. backcourt players
   C. attackers
   D. setters
8. By using the 6-2 offensive system the setter is brought in from the backcourt allowing for a(n):
   A. multiple attack
   B. controlled attack
   C. complex attack
   D. individual attack

9. When deciding how to play the offensive attacker the defense must pay close attention to the attacker's body position, timing, and:
   A. approach
   B. zone of movement
   C. armswing
   D. speed

10. If an on-hand spiker comes in with their shoulders and hips perpendicular to the net the defensive players should anticipate a(n):
    A. dink
    B. down-the-line spike
    C. crosscourt spike
    D. a deep spike
Part II. Situations: Below are a list of situations which may occur during a volleyball match. Each question asks you to determine the score and any ruling (fault) that may have occurred. (If no fault has occurred write "NONE" in the space marked "Ruling".) Place the answer in the space provide at the bottom of each question. Correct terminology must be used to receive credit. Credit will be given for partially correct answers. (1 point each.)

1. Team "A" is playing team "B". It is the first game of the match. The score is: Team "A"-4; Team "B"-7. Team "B" is serving. The server prepares to serve the ball. As the ball is in the air two players from Team "B" stand in an erect position at the net in line with the server. The server makes a poor toss and allows the ball to contact the floor.

**SCORE:** (A) _______ (B) _______

**RULING:** ________________________

2. Team "A" is playing Team "B". It is the second game of a best of three match. Team "A" is leading 12 to Team "B"'s 10. Team "A" is receiving. As the served ball travels over the net a player in the front line attacks the ball. Contact is made with the ball landing on Team "B"'s on the floor on Team "B"'s side of the court.

**SCORE:** (A) _______ (B) _______

**RULING:** ________________________
3. Team "A" is playing Team "B". It is the first point of the first game of the match. Team "B" serves to Team "A". The receiver allows the ball to rebound off his chest and into the air so that it is contacted three more times by players from Team "A". The final contact is a spike that results in the ball contacting the floor on Team "B"'s side of the court.

SCORE: \( (A) - \_\_\_\_\_\_ (B) - \_\_\_\_\_ \)

RULING: 

4. Team "A" is playing Team "B". The score is one game each and tree to two in Team "A"'s favor. Team "B" serves the ball. The serve travels in a high, soft trajectory. The first contact in receiving the serve is an overhand pass from a player on Team "A". The ball travels across the net so that a player from Team "B" uses a forearm pass to attempt the return, however, the ball travels straight up instead of forward. To advance the ball the same player from Team "B" makes the second contact using a forearm pass. The ball clears the net and lands untouched on Team "A"'s side of the court.

SCORE: \( (A) - \_\_\_\_\_\_ (B) - \_\_\_\_\_ \)

RULING: 

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5. Team "A" is playing Team "B". It is the first point of the first game of the match. Team "B" serves to Team "A". Team "A" initiates a "pass-set-spike" pattern and the spike lands, untouched, in Team "B"'s playing area. However, on the spike the player from Team "A" breaks the plane, without touching the net, extending above the net on his follow through.

SCORE:   (A) - _____   (B) - _____

RULING:   _______________________

Part III. Crossword Puzzle: The answers to the puzzle are all terms and/or phrases used in volleyball. Complete the puzzle by using the information provided below it. (Hint: Any time more than one word is in the answer the words will be written in the puzzle without a space between words: i.e. if the answer is follow through it would be described as having two words and would be written as follow through in the puzzle.) (1 point each)
ACROSS:

1. (one word) - a serve which results directly in a point: lands in the opponents court untouched, receiver is called for ball handling violation, or receiver passes the ball out of play.
2. (two words) - any time the ball is contacted four times, consecutively, by one team before crossing into the opposing team's area. This results in a fault.
3. (one word) - a forearm pass used to retrieve a hard spike or a short dink.
4. (one word) - the number of setters in a 6 - 2 offensive system.
5. (one word) - when the serving team violates a rule during play resulting in the opposing team gaining position of the ball an becoming the serving team.
6. (one word) - contact with the ball to initiate play.
7. (two words) - when the server is hidden behind a group of two or more teammates and the ball is served over a member(s) of the group. Is ruled as a fault.
8. (one word) - any violation of the rules which results in a point or a side-out.
9. (two words) - any time players of opposing teams simultaneously commit a fault. A play-over is directed.
10. (one word) - any time players of the serving team prevent the receiving team from watching the server or the trajectory of the ball. Is ruled as a fault.

11. (one word) - a short, soft shot which is dropped over the net or lobed over the opposing team's frontcourt players.

DOWN:

1. (one word) - When using an offensive system the advantage gained from getting the setter to the appropriate area of the court quickly is in order to execute the ____________.

2. (one word) - the action close to the net which intercepts the ball coming from the opponent's side by making contact with the ball before it crosses the net, as it crosses the net, or immediately after it has crossed the net.

3. (one word) - In defensive systems, each player's responsibility is to beat the hitter to the _______ plant.

4. (one word) - awarded when the receiving team violates a rule during play.

5. (one word) - when the server releases the ball and allows it to fall to the floor without coming into contact with any other part of the body (including the uniform of any participant).

6. (one word) - the act of placing a ball, which is above waist level, so that an attacker can effectively spike the ball into an opponent's court. (An overhand pass is usually used.)
7. (one word) - the number of players available for the attack in the 6 -2 offensive system.

8. (two words) - when the ball visibly comes to rest momentarily in the hands or arms of a player, so that it is considered as having been held.

9. (two words) - any time any player other than a player in the act of blocking who contacts the ball more than once, with whatever part of the body that constitutes a legal hit (waist or above), without any other player having touched the ball between contacts.
Appendix L: Class Material Record
<table>
<thead>
<tr>
<th>Tasks &amp; Sequences</th>
<th>Rules/Scoring</th>
<th>Study Guide</th>
<th>Final Exam</th>
<th>Pre-Test</th>
<th>Policy Guide</th>
<th>Class Evaluation</th>
<th>Task Description</th>
<th>Scoring Sheet</th>
<th>Cognitive Pre-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serving</td>
<td></td>
<td></td>
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<tr>
<td>Strategy</td>
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</table>

Class Materials Record

Student: [Table rows for each student]
Appendix M: 100% Completion Graph
Student Progressions Through All Units
(indicated by 100% completion)

Percent of Tasks

Days


96.9%
Appendix N: Example Of Class Journals
<table>
<thead>
<tr>
<th>COURSE PROCESSES</th>
<th>Observations</th>
<th>Actions</th>
<th>Other</th>
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<tbody>
<tr>
<td>WITTEN MATERIAL</td>
<td></td>
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</tr>
<tr>
<td>LECTURE/Demo</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Other</td>
<td></td>
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</tr>
<tr>
<td>Other</td>
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<td>Actions</td>
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<tr>
<td>Other</td>
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</tbody>
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Date: ____-____-90
Appendix O: Tasks Error Correction Sheets
### ERROR CORRECTION

For serving tasks sheets 3 - 6

<table>
<thead>
<tr>
<th>THE ERROR</th>
<th>WHAT CAUSES THE ERROR</th>
<th>CORRECTION OF THE ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>BALL LANDS IN THE NET</td>
<td>RELEASE BALL TO SOON</td>
<td>HOLD BALL TO TOP OF ARM EXTENSION</td>
</tr>
<tr>
<td>BALL LANDS OUT-OF-BOUNDS</td>
<td>POOR BODY ALIGNMENT</td>
<td>KEEP BODY SQUARE WITH NET</td>
</tr>
<tr>
<td>BALL INTO THE NET</td>
<td>FAILURE TO FREEZE AT CONTACT</td>
<td>CONCENTRATE ON PUNCHING BALL AT CONTACT</td>
</tr>
</tbody>
</table>
# ERROR CORRECTION

For serving task sheets 9 & 10

<table>
<thead>
<tr>
<th>The Error</th>
<th>What Causes The Error</th>
<th>Correction of The Error</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong>  Inadequate Momentum to</td>
<td>Failure to step into serve</td>
<td>Concentrate on forward-back stride</td>
</tr>
<tr>
<td>Send Ball Over Net</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B</strong>  Extremely Weak Serve w/</td>
<td>Toss too far back</td>
<td>Toss ball in front of hitting shoulder</td>
</tr>
<tr>
<td>High Arc</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C</strong>  Loss of Power When</td>
<td>Stepping into serve too early</td>
<td>Step forward w/ arm swing</td>
</tr>
<tr>
<td>Serving</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Error Correction

For serving task sheets 13 - 16

<table>
<thead>
<tr>
<th>The Error</th>
<th>What Causes the Error</th>
<th>Correction of the Error</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong> Ball hit into net</td>
<td>Ball toss too low</td>
<td>Practice tossing ball higher than full reach</td>
</tr>
<tr>
<td><strong>B</strong> Ball hit off-center to right out-of-bounds</td>
<td>Toss too far right</td>
<td>Toss ball in front of hitting arm after weight shift</td>
</tr>
<tr>
<td><strong>C</strong> Ball hit off-center to left out-of-bounds</td>
<td>Toss too far left</td>
<td>Toss ball in front of hitting arm after weight shift</td>
</tr>
</tbody>
</table>
## Error Correction

**Diagram for Serving Task Sheets 19 - 21**

<table>
<thead>
<tr>
<th>The Error</th>
<th>What Causes the Error</th>
<th>Correction of the Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erratic Flight of Ball</td>
<td>Failure to Extend Arm Fully</td>
<td>Concentrate on a Higher Toss</td>
</tr>
<tr>
<td>Ball Travels in Right to Left Path</td>
<td>Sidearm Contact Pattern</td>
<td>Strike Downward on Ball</td>
</tr>
<tr>
<td>Ball Travels in Left to Right Path</td>
<td>Side Turned to the Net</td>
<td>Face Net Using Forward-Back Stride Stance</td>
</tr>
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</table>
## ERROR CORRECTION

FOR OVERHAND PASSING TASK 4

<table>
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<tr>
<th>THE ERROR</th>
<th>WHAT CAUSES THE ERROR</th>
<th>CORRECTION OF THE ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUSHING OR OVERPASSING THE BALL</td>
<td>PASSING ON THE RUN</td>
<td>MOVE TO THE BALL SOONER</td>
</tr>
<tr>
<td>LOW TRAJECTORY ON PASS</td>
<td>JUMPING AT THE BALL</td>
<td>DEEPER KNEE BEND AND CONCENTRATE ON PUSHING SMOOTHLY</td>
</tr>
<tr>
<td>OFF-TARGET PASS</td>
<td>ONE HAND LEADING</td>
<td>LEAD WITH FOOT OPPOSITE DOMINANT HAND</td>
</tr>
</tbody>
</table>
## ERROR CORRECTION

**FOR OVERHAND PASSING TASKS 7 - 12**

<table>
<thead>
<tr>
<th>THE ERROR</th>
<th>WHAT CAUSES THE ERROR</th>
<th>CORRECTION OF THE ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAT OR ILLEGAL PASS</td>
<td>BALL CONTACT TOO LOW</td>
<td>GET TO BALL SOONER &amp; FLEX KNEES</td>
</tr>
<tr>
<td>MISPASSED OR MISDIRECTED PASS</td>
<td>TAKING BALL TO ONE SIDE OF BODY MIDLINE</td>
<td>PRACTICE LATERAL RUNNING &amp; TURNING SOONER</td>
</tr>
<tr>
<td>WEAK PASS</td>
<td>ELBOWS EXTENDED AS BALL CONTACTED</td>
<td>WAIT FOR BALL TO DROP</td>
</tr>
</tbody>
</table>
**OVERHAND PASS**

**ERROR CORRECTION**

---

FOR OVERHAND PASSING TASKS 16 - 21

<table>
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<tr>
<th>THE ERROR</th>
<th>WHAT CAUSES THE ERROR</th>
<th>CORRECTION OF THE ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>WEAK AND MISDIRECTED PASS</td>
<td>PASS ON INSIDE SURFACES OF LAST TWO (2) JOINTS OF FINGERS</td>
</tr>
<tr>
<td></td>
<td>JABBING AT BALL WITH FINGERS</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>LOW TRAJECTORY ON PASS</td>
<td>DEEPER KNEE BEND AND CONCENTRATE ON PUSHING SMOOTHLY</td>
</tr>
<tr>
<td></td>
<td>JUMPING AT THE BALL</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>OFF-TARGET PASS</td>
<td>LEAD WITH FOOT OPPOSITE DOMINANT HAND</td>
</tr>
<tr>
<td></td>
<td>ONE HAND LEADING</td>
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</table>
## Error Correction

### All Forearm Passing Tasks

<table>
<thead>
<tr>
<th>Error</th>
<th>Causes of Error</th>
<th>Correction of Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball travels in unpredictable directions</td>
<td>Ball contacted on hands</td>
<td>Hyperextend wrists</td>
</tr>
<tr>
<td>Path of ball off target to left</td>
<td>Uneven forearms</td>
<td>Clasp hands together with one hand diagonally across other</td>
</tr>
<tr>
<td>Ball travelling too far</td>
<td>Swinging arms through pass</td>
<td>Provide force through legs</td>
</tr>
</tbody>
</table>
Vita

Ronald N. Cregger was born on August 7, 1959 in Bristol, Tennessee. He attended public school in Salem, Virginia where he graduated from Andrew Lewis High School in 1977. He attended Ferrum College and received an A.A. in Political Science in 1979. He attended the University of Tennessee at Knoxville and received a B.S. in Education in 1983. He attended Virginia Polytechnic Institute and State University and received his state teaching certificate in 1989. He is currently a graduate teaching assistant at Virginia Polytechnic Institute and State University.

Ronald N. Cregger