ABSTRACT

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Fifty-four men and women, average age 21.3 years, volunteered to participate in 6 cooperative games during a semester bowling class. Forty-seven Ss of similar age served as control. A t-test for significance on the means of 3 pretest bowling scores indicated no significant difference ($p > .05$). Ss received instruction and practiced the 4-step approach, hook ball delivery, and spot aim bowling techniques. Based on bowling averages Ss were divided into equal teams for a round robin tournament. A one-way ANCOVA of 3 posttest bowling scores showed a significant ($p < .05$) improvement of experimental bowling scores. A one-way MANOVA of the Ss responses to the Group Environment Questionnaire used to measure cohesion between the Ss, indicated no significance ($p > .05$) in the individual attraction to group-social, individual attraction to group-task, group integration-task, and group integration-social subscales. A t-test between experimental males ($n = 38$) and females ($n = 16$) GEQ responses revealed no significance ($p < .05$). It was concluded that cooperative games might effect Ss working together to learn the skills to improve bowling scores, yet, did not effect the amount of cohesion felt among Ss. It was speculated the competitive tournament and possibly some teacher differences might have affected the cohesion felt among Ss.

THE EFFECTS OF COOPERATIVE GAMES

ON CLASSROOM COHESION

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CHAPTER I

INTRODUCTION

Physical education teachers are constantly searching for new and innovative ways to motivate students. Educators are trying to provide each student the possibility of success in all areas of learning movement activities to develop physically, emotionally, and cognitively. In order for a student to learn at the optimal level, the student must be self-motivated. "Intrinsic motivation is likely to be high when students perceive a learning environment to be nonthreatening to the self-esteem and to be physically challenging" (Mitchell, 1996, p. 370).

To achieve a higher level of learning with students, educators must try to create a positive learning environment. Students in school systems are normally in groups or classes. In these groups, students learn at various levels and speeds. Teachers try to provide experiences for each individual student while trying to maintain the overall group goal for the class. In these groups or classes, students develop social support from other individuals in the class. Social support is "the comfort, assistance, and/or information one receives through formal or informal contacts with individuals or groups" (Kerry & McAuley, 1995, p. 326).

There are six social support areas a student may receive from peers as stated by Weiss (1974). These are guidance (advice or information), reliable alliance (material

assistance), reassurance of worth (recognition of competence and value), attachment (emotional closeness), social integration (a sense of belonging to a group that shares similar interests and concerns), and opportunity for nurturance (the sense that others rely upon one for personal well-being).

Could the way the group develops these social support areas improve the learning of the students? Shaw (1981) noted that "throughout history people have joined together in groups to accomplish a wide range of purposes" (p.1). Can the building of the group cohesiveness enhance the learning of each individual? Carron in 1982, described cohesiveness as "a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (p. 124). This ability of the group to "stick together" or cohesiveness is considered by some (Golembrewski, 1962; Lott & Lott 1965), to be the most important small group variable.

Through the incorporating of cooperative games in physical education, teachers are emphasizing the basics of communication, cooperation, and trust in a milieu of fun to develop this cohesiveness. This cohesive effect developed by cooperative games may lead to enhanced learning and skill development by the students (Rohnke & Butler, 1995).

Need for Study

Physical Education teachers are always striving to find new and innovative ways to meet the need of the students. Teachers are always asking "Why can't they get along? Why won't they work together, or communicate?" (Deline, 1991, p. 21). Teachers

sometime assume the teaching of social skills happen as the child grows without having to spend extra class time to teach these prosocial behaviors.

Deline (1991) stated:

> Physical educators maintain that the development of "good sportsmanship" and the teaching of cooperative values are fundamental aspects of the curriculum. However, instruction is seldom provided that specifically allows students to comprehend, utilize, and internalize cooperative values and concepts (p. 21).

There have been multiple studies done in athletics observing how cooperation and cohesion affects individuals and teams. In sports literature, the vast majority of studies on group cohesion have focused on the relationship between cohesion and performance outcome.

Group cohesion was used in studying absenteeism and tardiness (Spink & Carron, 1992) in adherence to exercise and exercise classes. Spink and Carron reported that "adult participants typically prefer group programs to those in which an individual exercises alone" (p. 78).

Yet, there is a lack of literature relating group cohesion to learning in physical education skills. There are multiple books available describing cooperative games, but there is no real concrete evidence supporting the implementation of the games to increase learning by the students.

There is a need to see what effect the incorporating of cooperative games in the physical education setting may have on student learning and skill development. Can educators help the students develop and internalize these cooperative values to increase the groups cohesion so every student may improve physically, socially, and cognitively?

Purpose

The first purpose of the study was to examine the possible effect of cooperative games on group cohesion during a college activity bowling class. The second purpose was to examine the effects of cooperative games on bowling score performance. A secondary purpose was to compare the possible effects of cooperative games on group cohesion on each gender.

Hypotheses

The following null hypotheses were tested in this study:

1) The use of cooperative games, in a physical education setting, will have no effect on the amount of class cohesion felt among students in a college activity class.
2) The use of cooperative games, in a physical education setting, will have no effect on the bowling score performance among students.
3) The use of cooperative games, in a physical education setting, will have no effect on males and females answers to the Group Environment Questionnaire.

Assumptions

The following assumptions were made in the execution of this study:

1. The students had little or no prior knowledge of the other students in the classroom at the college level.
2. Students were enrolled in the class because they were interested in the activity.
3. There was some increase in class cohesion in all the groups due to the length of the classes, and the class format of game activity involved in the class.

4. The students were not together in clubs or activities outside of the class.

Delimitations

The following delimitations were made for this study:

1. The experimental and control groups were the same bowling level activity class.
2. Experimental group was exposed to six treatments of cooperative games.
3. The use of cooperative games in previous lessons of the activity taught by the control group teacher were removed from the lessons of the class.
4. All classes were taught in the same facility, using the same lanes, bowling balls, and other equipment.
5. All classes were taught the same methods of bowling.

Limitations

Limitation of this study were as follows:

1. Students may have had prior contact with other students either positive or negative.
2. The teachers who were teaching the control groups may have used some teaching techniques, which may have increased their class cohesion without the use of cooperative games.
3. Students may have had previous bowling experiences.
4. Students were at different skill levels of basic bowling.
5. There may have been a difference in teaching styles which may have affected some students' bowling performance.

Definition of Terms

Approach - taking steps and swinging the ball during the delivery; area on which a bowler takes steps in delivering the ball (Strickland, 1996).

Cohesion - total field of forces which act on members to remain in the group (Carron, 1982).

Cohesiveness - dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives (Carron, 1982).

Cooperative Games - games implementing the use of communication, problem solving, and teamwork (Rohnke & Butler, 1995).

Group Environment Questionnaire - instrument used to measure cohesiveness (Carron, Widmeyer, & Brawley, 1985)

Group Integration - represents the closeness, similarity, and bonding within the group as a whole (Carron, et al., 1985).

Group Integration-Social - measure of the individual members' feelings about the similarity, closeness, and bonding within the class as a whole around the group as a social unit (Carron, et al., 1985).

Group Integration-Task - measure of the individual class members' feelings about the similarity, closeness, and bonding within the class as a whole around the groups task (Carron, et al., 1985).

Hook Ball - shot that follows a bent path to the pins from the bowlers outside to the inside (Strickland, 1996).

Individual Attraction to Group - represents the interaction of the motives working on the individual to remain in the group (Carron, et al., 1985).

Individual Attraction to Group-Social - a measure of individual class members' feelings about personal involvement, desire to be accepted, and social interaction with the group (Carron, et al., 1985).

Individual Attraction to Group-Task - a composite measure of individuals' feelings about their personal involvement with the group task, productivity, goals and objectives (Carron, et al., 1985).

Intrinsic Motivation - degree to which an individual chooses to participate in an activity for the pleasure derived (Mitchell, 1996).

Prosocial Behaviors - behaviors which are perceived as positive values in society (Grineski, 1989).

Social Support - the comfort, assistance, and/or information one receives through formal or informal contacts with individual or groups (Kerry & McAuley, 1995).

Spot Bowling - use of a point on the lane as a visual target (Strickland, 1996).

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

In reviewing the research and the writings relative to cooperative games and cohesion, emphasis was given to the following areas:

1. An overview on the Cooperative Learning model to (a) briefly discuss the ideas and elements of cooperative learning and (b) the implementation of cooperative learning for teachers.
2. The importance of a positive atmosphere and the effects of cooperation and cohesion.
3. The benefits of implementing social support and prosocial behaviors on student learning.
4. The development of cooperative skills and games.
5. The development of the cohesion definition and the affects of cohesion on (a) teams in the sport field and (b) adherence in the exercise setting,
6. Provide an overview on the development of the Group Environment Questionnaire used to measure group cohesion.
7. The history of bowling and the comparison of bowling and teaching techniques on bowling achievements.

Cooperative Learning Model

The review of the Cooperative Learning Model is relevant to the thesis project, because of the use of cooperative games implemented by the model. The Cooperative Learning Model is a teaching method utilizing some team building, group activities, and cooperative games to enhance communication, cohesion, and improve the learning atmosphere.

In this study, the Cooperative Learning Model was not implemented. Yet, the idea of how cooperation, cohesion, and the use of cooperative games affect the learning and development of students does come from this model.

Cooperative learning is an instructional approach that integrates social skill objectives with academic content objectives in education. This learning model is designed to make the student responsible for their learning through the integration of group projects and discussions. "Cooperative learning is a paradigm based on theory and research that has clear applications to instruction" (Johnson, Johnson, & Smith, 1991, p. 6). Cooperative learning implements the instructional use of small groups so that students work together to maximize their learning and help their fellow classmates.

Cooperative learning is not just putting students into groups and letting them discuss the project. There are five basic elements to a cooperative learning lesson in order to be successful in the educational setting according to Johnson, et al. (1991).

First, the instructor must implement a positive interdependence. Students must believe they are linked with others in a way that one cannot succeed unless the other members of the group succeed.

Second, the lesson must contain face to face promotive interaction among students. This exists when students help, assist, encourage, and support each others' efforts to learn. This is done by oral explanation to each other on how to solve problems, discuss concepts and strategies, teaching their knowledge to others, and connecting present and past learning.

The third element is individual accountability. This exists when the performance of each individual student is assessed and the results are given back to the group and individual. This lets students know who may need more assistance, or who may not be pulling their weight during group projects.

The fourth element is social skills. If students do not have and use the needed leadership, decision-making, trust building, communication, and conflict-management skill effectively, the group cannot function. Johnson, et al. (1991) stated:

> These skills need to be taught just as purposefully and precisely as academic skills. Many students have never worked cooperatively in learning situations and, therefore, lack the needed social skills for doing so (p. 19).

The final element relies on the instructor to ensure the groups processes how they are doing in achieving their goals and maintaining effective working relationships among members. This is achieved by the instructor asking questions to help the group develop their learning and to decide if the group is functioning in a positive manner.

Implications for Teachers

Successful interactions with others are crucial to success in many occupational fields. The classrooms should provide opportunities for frequent collaboration among students. Concept development, cooperation and mutual respect, critical thinking, and problem solving should be essential goals of all teachers (Davidson & Worsham, 1992).

Teachers implementing the Cooperative Learning Model have found that cooperative and collaborative teaching and learning strategies improve student learning and retention (Foyle, 1995). Students who were involved in learning cooperatively, also perceived the instructor as being more supportive and accepting academically and personally by Johnson, et al. (1991).

Through these strategies, knowledge is constructed, discovered, transformed, and extended by students. The teacher creates the conditions in their classroom where students can construct meaning from the material by processing it through current cognitive structures and retaining it in long-term memory (Johnson, et al. 1991).

Second, students actively construct their own knowledge. Learning is conceived as a process the learner does, and not by what is done to the learner by the teacher. Through these strategies, students activate their existing cognitive structures or construct new ones to consume the new input. Students can actively participate in discussions with their classmates to learn new material they wish to receive.

Learning Atmosphere

Educators strive to produce a learning atmosphere where learning can take place. A "positive climate" (Davidson & Worsham, 1992) is where the student feels comfortable and safe. A positive climate is more a matter of attitudes and perceptions on the part of the learner. A students' perception of a positive atmosphere is one where the student has a sense of physical comfort. The student is not to hot, cold, or cramped, and attention is paid to the physical activity of the student. The atmosphere needs positive affective tones, and must have a sense of order through consistent rules and procedures. Finally, it must present a sense of safety and acceptance. This refers to both physical and psychological safety.

According to Davidson and Worsham (1992):

> The students must perceive the classroom as a place where risks can be taken as part of the learning process. Students must believe that their ideas will be honored and valued and their failures will not be met with ridicule (p. 10).

Davidson and Worsham (1992) believed all four categories of attitudes and perceptions constitute a positive classroom. In any classroom where students interact, there will be conflicts among their ideas, conclusions, theories, information, perspectives, opinions, and preferences are inevitable. Yet, if the attitudes and perceptions of a positive atmosphere can be created and maintained in a cooperative manner, these differences actually can improve learning and acceptance.

Teachers who implement interactive strategies are often disappointed when they do not begin their class with activities designed to build group cohesion. These activities

will encourage students to work together cooperatively and share ideas with each other. A cohesive group shares a common mission, and has the necessary skills and motivation to collaborate with other students in the classroom. The appropriate and planned use of group building activities helps to create the cohesive atmosphere that is essential for cooperation, sharing, and collaboration.

To begin building the group cohesiveness, the implementation of group building activities allow students to become acquainted with each other. By knowing the other people, students can start to build a positive sense of classroom community. This sense of community encourages students to interact positively with each other, and can increase student motivation and improve attendance (Foyle, 1995).

To be a productive class, the students have to cohere and have a positive emotional climate. When the relationships between class members become more positive, there is an increase in the students' commitment to learning. Feelings of personal responsibility, willingness to take on difficult tasks, motivation, and persistence in working on learning tasks are developed. Satisfaction and morale, plus willingness to endure pain and frustration to succeed increase. Students develop the willingness to listen and be influenced by peers. Students show a commitment to peers' success and growth, and productivity and achievement (Johnson, et al., 1991).

In order to promote constructive peer influences, therefore, teachers must first ensure that students interact with each other. Second, teachers must ensure that the interaction takes place within a cooperative context (Johnson, et al., 1991).

Social Support

Cooperative learning experiences are a necessity for building positive peer relationships. In comparing competition versus cooperation in regards to desegregation, Johnson, et al., (1991) found cooperation promoted more positive cross-ethic relationships than competition. Johnson, et al. in 1991 compared cooperation to competitive and individual learning:

> Cooperation resulted in greater social support than competitive or individual efforts (effect sizes of 0.62 and 0.72 respectively). Social support tends to be related to achievement, successful problem solving, persistence on challenging tasks under frustrating conditions, lack of cognitive interference during problem solving, high morale, and greater compliance with regimens and behavioral patterns that increase health and productivity (p. 18).

Johnson, et al. (1991) stated there are numerous ways in which peer relationships contribute to social and cognitive development and socialization. Some of the more important consequences correlated with peer relationships are stated as follow:

1. In their interaction with peers, individuals directly learn attitudes, values, skills, and information unobtainable from adults. Students imitate each other's behaviors, and by providing models, reinforcement, and direct learning, peers shape a wide variety of social behaviors, attitudes, and perspectives.
2. Interaction with peers provides support, opportunities, and models for prosocial behaviors. Within these interactions peers help, comfort, share, take care of, assist, and give to others.
3. Students learn to view situations and problems from perspectives other than their own through their interaction with peers. Such perspective taking is one of the most critical competencies for cognitive and social development (p. 21).

It is through prolonged cooperative interaction with other people that healthy social development with the overall balance of trust rather than distrust of other people takes place. The ability to view situations and problems from a variety of perspectives,

allows for a meaningful sense of direction and purpose in life to be achieved. The awareness of mutual interdependence with others and an integrated and coherent sense of personal identity take place.

Foyle (1995) stated:

> There are two skills we will all need to be successful in the workforce 2000- neither of which is taught as the content of a course or from a textbook- are the ability to work together cooperatively and the ability to be a lifelong learner (p. 20).

Prosocial Behavior in Physical Education

In the physical education field, games are used as a way to develop the students in the physical, cognitive, and affective domains. In the affective domain, students are encourage to work with others in a social environment. Educators may try to develop these prosocial behaviors through the use of cooperative games. According to Grineski (1989), these cooperative games are based on four concepts: cooperation (i.e., participants working together); acceptance (i.e., participants belonging to a group); involvement (i.e., participants directly involved); and fun.

The goal structure of cooperative games is designed to promote mutual interdependence between students in order to achieve the desired goal of the group. Grineski (1989) observed cooperative goal structures to see their role in promoting prosocial behavior interactions in young children during game participation. A group of kindergarten aged students played both cooperative and competitive games, and prosocial behaviors were observed and recorded.

Children participating in the games were observed exhibiting 239 prosocial behaviors. Ninety-six percent of the prosocial behaviors (n = 228) were associated with the cooperative goal structured games (Grineski, 1989). The study presented that children are capable of demonstrating prosocial behaviors during game play, yet, cooperative goal structured games significantly increased the amount of prosocial behaviors demonstrated by children during game play.

Physical educators are constantly struggling to develop "good sportsmanship" or social skills. "Why can't they get along? Why won't they help each other?" are constant questions asked by physical educators according to Deline (1991). Deline stated:

> Physical educators maintain that the development of "good sportsmanship" and the teaching of cooperative values are fundamental aspects of the curriculum. However, instruction is seldom provided that specifically allows students to comprehend, utilize, and internalize cooperative values and concepts (p. 21).

Deline (1991) suggested the inclusion of cooperative games and strategies into the current curriculum. Educators should not expect the students to "work it out" or "play fair" if they are not given the opportunities to develop these cooperative values. In Delines' model, cooperative values are addressed and activities utilized to give the students multiple opportunities to practice the specific value. The use of focus words and their definition are placed in clear view of the students. A list of how to perform the value with the activity is presented and practiced.

"The ability to cooperate with others will greatly enhance any physical education program" (Deline, 1991, p. 23), and " the opportunities to teach and reinforce cooperative skills and behaviors already exist within most physical education programs" Deline

(1991, p. 25) suggested. Simple modification of the current lessons will enhance the behavior of your students.

Cooperative Skill Development

"Cooperation by definition is a group activity. It is expressed and judged in the context of affiliation," stated Davidson and Worsham (1992, p. 33). The definition of cooperation, stated by Davidson and Worsham (1992), requires mutual and beneficial behavior that result in mutual action. Therefore, "cooperation is the willful engaging of ones' self with others through mutual action, ideas, and possibilities" (p. 33).

Within cooperative activities individuals seek outcomes that are beneficial to themselves and beneficial to all other group members (Johnson, et al., 1991). Students who worked and studied cooperative groups developed considerably more commitment and caring for each other no matter what their initial impressions of and attitudes toward each other were. It has been reported (Johnson, et al., 1991) that people in educational and work settings show greater achievement in collaborative effort working with peers than working alone.

In cooperative situations, individuals interact, promote others' success, form multidimensional and realistic impressions of each other's competencies, and are able to give accurate feedback. This interaction promotes self-acceptance of oneself as a competent person. Johnson, et al. in 1991 stated "with members of their cooperative group cheering them on, students amaze themselves and their instructors with what they can achieve" (p. 29).

Davidson and Worsham in 1992 implied that students like to cooperate and when they do, they perform better not only cognitively but affectively as well. Students involved in cooperative approaches seem to experience the cognitive and affective in ways more consistent with the fulfillment patterns of real life.

Davidson and Worsham (1992) stressed to educators that they must address the way student develop their cognitive and affective yearnings to be whole, competent, and viable. Through individual and group experiences in school, we can address the real issues and real problems facing our students.

Cohesion

"Structuring learning situations so that students do in fact interact with each other is a prerequisite for creating a cohesive class striving to achieve mutual goals" (Johnson, et al., 1991, p. 4). How students interact with each other as they learn has been relatively ignored, despite its powerful effects. Cooperation among students, examined by Johnson, et al. (1991), produced greater achievement and higher-level reasoning, more positive relationships among students, greater acceptance of differences, higher self-esteem, increased psychological health, and a number of other outcomes.

Festinger, Schenter, and Back (1950) developed the first working definition of "cohesiveness" used in the educational setting. Cohesiveness was described as the "total field of forces which act on members to remain in the group" (p. 164).

Cohesiveness, in the sense of the total field of forces acting on members to remain in the group, can not be directly measured by an instrument. Yet, one of the advantages

of the Festinger, et al. (1950) definition is that many easily measured group characteristics can be taken as indicators of cohesiveness. These characteristics were described as:

> The degree members choose friends from within the group, verbal expressions of satisfaction with the group, participation in group activities, willingness to remain in the group when alternatives exist, and consensus on values relevant to the groups' activities (p.164).

Hagstrom and Selvin (1965) questioned if these characteristics could be scored into one dimension or two. They devised two dimensions were necessary to group these characteristics of cohesion. Social satisfaction was determined to measure the "instrumental attractiveness of the group" (p. 41). Hagstrom and Selvin (1965) found the most important instrumental aspect was the opportunity to meet and make friends. The second dimension, sociometric cohesion, was said to measure the "intrinsic attractiveness, the degree to which members are attracted by values internal to the group" (p. 41).

The study of groups first fell under the realm of group dynamics. A term developed by Kurt Lewin in 1935 to represent two principal aspects within a group. Cohesion was the first term, and was concerned with the development and maintenance of the group. The second, locomotion, was the activity by which the group seeks to achieve its objectives.

Carron (1982) in further development of the cohesion definition suggested cohesiveness is "a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (p.124). Carron,

Widmeyer, and Brawley (1985) saw the need to break down the measurement of cohesion into two important distinctions. Carron et al. (1985) also saw the need to distinguish between the individual versus group, and task versus social concerns. These concerns had a major impact on the development of their Group Environment Questionnaire (GEQ) to measure cohesion.

Carron et al. (1985) divided the two major categories into integration and attraction categories. Group integration is a members' perceptions of the group as a totality. Individual attraction to the group is a member's personal attraction to the group. The four constructs can be identified using Carron et al. (1985) format into group integration-task, group integration-social, individual attractions to group-task, and individuals attraction to group-social.

Carron et al. (1985) developed and explained these individual groups as being:

> The group integration category represents the closeness, similarity, and bonding within the group as a whole. While individual attractions to group represents the interaction of the motives working on the individual to remain in the group. The social aspects can be seen as a general orientation toward developing and maintaining social relationships within the group. The task aspect can be seen as a general orientation toward achieving the groups' goals and objectives (p. 248).

Group Cohesion in Exercise

In 1985, Carron et al. used the GEQ to determine the adherence of members involved in a physical activity class (aerobics). Did the cohesiveness of the group eliminate tardiness or drop out rate of the participants? The results of the GEQ suggested

that emphasizing and developing the group as a cohesive task and social unit could contribute to increased adherence behavior in the fitness class environment.

Carron et al. (1988) decided to use the GEQ to measure individual adherence to physical activity. The purpose was to determine if a "group cohesiveness was related to adherence behavior in organized sport and exercise class settings" (p. 127). It is a major concern of practitioners and sport psychologists to determine why people participate in an activity, and why people stop participating in the activity.

Carron et al. (1988) found there was little attention paid to the social psychological nature of the group in which individual members are involved to their adherence of activity. Human behavior is thought, by psychologists, to be a product of personal factors (i.e., dispositions that originate from within the individual) and situation factors (i.e., characteristics present in the individuals' environment).

Motivation for a person to participate in an activity is suggested by Carron et al. (1988, p. 128) to be the need to be "affiliated or given the opportunity to be with people and belong to some group". The power of being affiliated with a group has an important impact upon the members.

> Cohesion has been linked to a number of factors critical to the development and vitality of the group: increased communication, conformity, productivity, satisfaction, social and task interactions, behavioral change, persistence, and attendance (Carron et al., 1988, p. 128).

From these factors associated with cohesion we can develop a working definition of cohesiveness as " a dynamic process which is reflected in the tendency for a group to

stick together and remain united in the pursuit of its goals and objectives" (Carron et al., 1988, p. 129).

Carron et al. (1988) then distinguished between absenteeism and actual permanent withdrawal from the group. Absenteeism from the group is a negative consequence, yet, not as damaging to the group as an actual person withdrawing from the group entirely. Despite people being absent from the group activity, the group as an entity remains intact. The group is still able to function (albeit with some difficulty) when their is a person absent. Absenteeism is a decision made with more ease than withdrawing from the group. There may be times when members, both satisfied and unsatisfied, with the group may have to miss due to emergency or previous engagements.

During the study, the participants kept track of their absenteeism or tardiness. Carron et al. (1988) used a stepwise discriminate function analysis to compute the two female extremes, and used their scores on the four cohesion scales as independent variables. Carron et al. (1988) discovered participants who perceived there was a lower level of group integration-social (GIS) were people who exhibited higher absenteeism and lateness. People who perceived greater social cohesiveness were not absent or late.

Carron et al. (1988) concluded "individual perceptions of group cohesiveness are strongly related to different forms of individual adherence behavior" (p. 136). From this study one can conclude that cohesive groups have a powerful and positive impact on the member to remain members of the group, and to adhere to the activity.

Cohesion on Sport Teams

Coaches and psychologist are always striving for ways to make their sport team work harder and together. Shaw (1981) noted "throughout history people have joined together in groups to accomplish a wide range of purposes" (p. 1). If people reflect back on the number and various groups they are associated with in their daily lives they may be astounded.

Landers, Wilkinson, Hatfield, and Barber (1982) investigated cohesion and performance in a graduate student basketball league. The relationship between cohesion and performance was high when the team exhibited high levels of friendship between members, how close knit the team was, and the amount of teamwork exhibited. It was concluded that cohesiveness, when measured as friendship, did causally affect performance.

Widmeyer and Martens (1978) found "the greater the cohesion of the group the better the performance" (p. 378) when cohesion was measured with direct measures including the individuals' assessment of the entire groups' cohesiveness. McDonald (1993) looked at anxiety and the team cohesion. McDonald (1993) found individual athletes attracted to the groups' task, and its social aspects perceived the team as a whole as being highly attractive to the task and considered the team to be integrated socially. Yet, athletes who showed high anxious levels perceived low levels of group integration social and task, and were more attracted to the groups' task. McDonald (1993) concluded

that teams with the highest level of cohesion also had the lowest anxiety score and the highest self-confidence score when compared to the teams with lower levels of cohesion.

Matheson (1991) looked at cohesiveness over the length of a season with coactive and interactive teams (swimming, tennis, lacrosse, and basketball). Matheson wondered if cohesion would vary across the season, and after a winning and losing situation. Matheson (1991) administered the Group Environment Questionnaire to four collegiate women teams five times throughout the season, and after the team experienced a win and loss. Tennis and swimming were the coacting teams and lacrosse and basketball were the interacting teams.

Matheson (1991) found that coacting teams display a higher level of cohesion on the Attraction to Group-Task than the interacting team. Yet, the coacting teams also recorded greater changes in cohesion across the season than members of interacting teams. Matheson suggested this may be due to inter-rivalry between players to push each other for the same spot to succeed more on the coacting teams.

Interacting teams showed a more steady improvement over the season and less fluctuation over the season. Interacting teams scored higher in the Attraction to Group-Social scale, yet, the scores lowered after a loss.

Although both groups scored high on the cohesion scale, the differences in the subscales of group-task and group-social are unique. Coacting teams may be able to show cohesion by trying to achieve the task (conference championship, etc), yet there may be some personal conflicts between members to perform which might affect the

groups social scale. The interacting teams having a higher group-social scale could indicate the bonding of the members to the other people on the team. Although the group-social scale dropped after a loss, the fact the interacting group scored higher throughout the season may reflect the ability of the group to remain cohesive through tough times.

Cooperative Games

According to Orlick (1982), "Play is an ideal medium for positive social learning because it is natural, active, and highly motivating for most children" (p. 3). In the physical education classroom, most learning happens through game play. These games can involve people in the process of acting, reacting, feeling, and experiencing. Games can provide occasions for challenge, stimulation, self-validation, success, and sheer fun. The concept behind the use of cooperative games is simple. The concept is for people to play with one another rather than against one another. They work together to overcome challenges, freed to enjoy the play itself. In the process of cooperative game play, "they learn in a fun way how to become more considerate of one another, more aware of how other people are feeling, and more willing to operate in one another's best interests" (Orlick, 1982, p. 4).

The aspect of cooperative activities that separates them from other activities is the structural makeup. In most activities, there is normally one winner and everybody else is the loser. In the cooperative game structure, the object is to have as many people as possible to succeed. This frees the students from feeling pressures to compete, eliminates

the need for destructive behavior, and encourages helpful and fun-filled interaction (Orlick, 1982).

Orlick (1982) stated the use of cooperative games allows for a variety of freedoms for students. It provides freedom from competition, freedom to create, freedom from exclusion, freedom to choose, and freedom from hitting. There are four major components involved with a successful cooperative game. The games must have cooperation, acceptance, involvement, and fun.

Cooperation is related to communication, cohesiveness, trust, and the development of positive social-interaction skills (Orlick, 1978). A feeling of acceptance is directly related to heightened self-esteem and overall happiness. The sense of belonging to a group, a sense of contribution, and satisfaction with the activity comes from the involvement in the activity. During cooperative game play, the element of fun is heightened when children are freed to play without fear of failure or rejection.

Group Environment Questionnaire

Carron et al. (1985) utilized the expansion on the definition of cohesion to develop a questionnaire to measure team cohesiveness. The Group Environment Questionnaire (GEQ) is an 18 item questionnaire measuring individual attraction to group task (ATG-T), individual attraction to group social (ATG-S), group integration task (GI-T), and group integration social (GI-S).

There are four questions assigned to measure individual attraction to group-task; five items are assigned to attraction to group-social; five to group integration-task; and

four to group integration-social. To test the internal consistency of the questions Cronbach's alpha was used to measure all four areas. The values of .75, .64, .70, and .76 were found for all four areas respectively.

> Carron et al. (1985) deemed the questionnaire to be:
>
> practical, reflects good internal consistency and is stable across two independent samples, assesses a wide variety of sport groups having heterogeneous characteristics, content-valid, and has preliminary psychometric support for its construct validity (p. 263).

Carron and Spink (1993) used the GEQ to assess cohesiveness in an exercise setting. The protocols used to examine cohesive differences between the experimental and control groups are difficult in field research. Ideally in the scientific world, it would have been necessary to see if the two groups were comparable in cohesiveness, implement the treatment, and retest for cohesion differences. Carron and Spink (1993) stated:

> The testing prior to the initiation of the intervention was not possible; cohesion is a group property, and if the group has never met it does not exist (and cannot be measured). Testing in weeks two to three also was not possible; the intervention had been introduced in week one. Therefore, in weeks two and three, cohesion differences between the groups were inevitable. Thus, the only protocol available was to randomly assign subjects to conditions and test for cohesiveness differences in the session (p. 13).

According to Carron and Spink (1993), the GEQ questionnaire should be used as a posttest questionnaire. Since cohesion is a group property, testing at the beginning before the class has met or given the treatment, will not show cohesiveness difference between the two groups.

Bowling

There have been many studies done in the past on the best techniques and ways to teach bowling to beginners. Summers (1956) completed an in-depth study comparing the delivery of a hook ball versus a straight ball to see if there was a significant difference in bowling scores. Summers (1956) also compared the use of spot bowling versus pin bowling in relation to bowling scores. Summers also compared the use of the hook ball delivery with pin and spot bowling versus the straight ball delivery with pin and spot bowling.

Summers (1956) concluded there was no significant difference between the use of the hook ball delivery and straight ball delivery in bowling scores. Any difference was found to be of chance in the 24 games achievement scores. In the comparing of the different aim bowling techniques, the study showed a real difference between the means of the groups being taught spot and pin bowling. The group taught the spot aiming techniques produced a mean of 49.3, while the group taught pin aim technique produced a mean of 43.5. With a reasonable degree of assurance, it can be said that one type of aim (spot) is superior to the other (pin) in bowling achievement.

The effectiveness of a hook ball or straight ball delivery with the use of the two aiming techniques produced interesting differences in the aiming technique means. A difference of 8.0 in the means was achieved with the use of spot bowling with a hook ball (49.8) and the use of spot bowling with pin bowling (41.8). While using a straight ball

delivery a mean of 45.2 for pin aiming and 48.9 for spot aiming resulted in a 3.7 difference in the mean bowling scores (Summers, 1956).

From this study, Summers (1956) identified the fact that any bowling achievement resulting from the two variations of hook or straight ball delivery will be the same, except for chance, regardless of whether pin or spot aiming is taught. There was a difference on whether students used the spot or pin aiming techniques. It was found beginning bowlers should be taught the spot aim technique regardless of the type of ball delivery utilized by the student to attain superior results.

The main point taken and implemented in this study was the fact that spot aiming will produce better bowling achievement in beginning bowlers regardless if the student chooses to use the straight or the hook ball delivery method. Summers (1956) recommended teaching spot aiming and hook ball delivery to beginning bowlers due to the results of the hook ball being just as good as straight ball delivery. Since the majority of the advanced and pro bowlers at the time favored the hook ball delivery, Summers (1956) suggested teaching the hook ball delivery to beginning bowlers immediately.

Stofko (1969) did a comparison of the hook and straight ball delivery with beginning bowlers. Stofko used two groups each bowling four sets of 11 games over the semester. The experimental group started out using the straight ball and then midway through converted to the hook ball delivery. The control group used the hook ball method the entire semester. The experimental group started and ended at the same level of achievement as the group that utilized the hook ball the entire semester. This ability of

the group to start out with the straight ball and then convert to the hook ball means a teacher could use a progression of teaching the straight ball and then the hook ball without affecting the bowling achievement of the students. Stofko (1969) stated the teaching of a hook ball may be technical at first to students, yet can be effectively taught to beginning bowlers. Again, it was emphasized that the teaching of a hook ball to beginners immediately is desirable.

In 1958, Hall wondered what effect the teaching of bowling as a whole method versus a sequential (parts) method would have on low and high ability students. The whole method included teacher lecture/demo of the entire bowling procedure. The teacher made no reference to details of the analysis of the skill, but gave a general idea of the gross movement pattern. If a student needed correction, the teacher gave a "coaching point" and the student practiced the whole method, but concentrated on the problem part of the skill.

The part method was broken down into sequential lessons. The first was the teaching of the four-step approach by the teacher. The students practiced on the alleys without a ball to become familiar with the steps. The next lesson introduced the arm swing (pendulum swing) by teacher demo, and the students practiced standing next to the foul line practicing the movement. Spot aiming was mentioned at this time to help the students with a reference point during the swing. Students then combined the four-step approach with the arm swing and spot aiming. If a student needed help on a particular area, such as the arm swing or approach, the student practiced only that movement pattern

without the whole movement. The teacher also gave specific feedback and correction to the student concerning the problem.

Hall (1958) used a variety of scoring techniques to verify any difference in the techniques. Hall (1958) compared first ball scores, complete pin scoring, and complete game scores to measure differences. There was a higher relationship between total pin falls and game scores than there was between the sum of the first ball and game scores. Hall (1958) suggested using the game scores provided a more valid criterion to measure success in bowling, because success in bowling is based on the ability of the bowler to increase his game score by the bonuses which come from the making of spares and strikes.

The use of whole method teaching displayed no significant difference on the low or high ability groups. The sequential teaching of bowling also displayed no significant difference on the low or high ability groups. Hall concluded that the ability to learn bowling by either method was not affected by the level of the ability of the person.

These early studies relate the need to teach spot aim bowling and the hook ball delivery to bowlers, regardless of the ability level of the students. It is feasibly to teach students the straight ball first, either by a sequential pattern or by whole method, and then convert to the hook ball delivery.

There have been some studies done experimenting with various teaching styles for bowling. La Plante (1965) used a problem-solving method with a group of college students to see if there was a significant difference in students attitudes and bowling

scores. The experimental group, using the problem-solving method, was presented a skill in a problem form for the students to solve. An example given was students observed the action of the pins when struck by a ball from the teacher. The teacher hit the pins from different contact points and the class then discussed the effects of the pins and the ball. Students then were to find the best point to aim to achieve a strike. They were required to find the most effective and efficient form. Effectiveness was categorized if the action solved the problem, and efficient if the motion did not put unnecessary strain on the body and if balance could be maintained throughout the performance. The motions of the students varied, and the point of contact varied from the one to three or one to two pin pocket regardless of the student being right or left handed.

La Plante (1965) found the problem-solving and control group methods resulted in favorable skill development. She concluded that neither approach seemed to be superior in the skill development of the students. Even though the data showed no significant difference in attitudes at the end of the study, La Plante (1965) did see favorable attitudes toward physical education maintained under the problem-solving method. These positive attitudes were attributed to the effectiveness of the problem-solving method to maintain the students' interest in the material longer than the teacher control method.

Weinberg (1970) used different levels of presenting course objectives to students to see if learning motor skills was associated with cognitive materials. Students were divided into four groups. Group one received a list of specific process and product

objectives at the beginning of the course. The objective specified the learning progression and terminal behaviors the student was to accomplish by the end of the course. The objectives were stated in exact, measurable, and behavioral terms. The second group received product objectives. The product objectives specified the exact, measurable, terminal behaviors the pupil was to have accomplished under certain conditions by the completion of the course. The third group received general objectives stated in nonbehavioral terms. The instructional unit was introduced with the general objectives pertinent to the unit. The fourth group received no objectives, but did receive the same subject matter of instruction as the other three groups.

Weinberg (1970) utilized pre- and posttesting for bowling skills and knowledge testing in the study. The study revealed no significant difference in the presentation of the course objectives on the learning of bowling skills, associated cognitive material, or in the development of movement patterns to perform bowling skills correctly.

Weinberg (1970) stated this finding may be contrary to what people might expect. Weinberg did an opinion survey and the students in all the groups felt that behavioral objectives should be provided in all physical education courses. The students who had received the objectives indicated that they had been beneficial in aiding their learning. Those who did not receive the objectives also indicated they felt the objectives would have been beneficial to their learning.

Summary

The literature discussing the effects that cohesion and cooperation may have on a person or group is going in many directions. Researchers are trying to focus their attention on so many areas that the information is controversial. There is a great deal that has been theorized and more that has been defined concerning cohesion and cooperation on the affects of sport teams. Yet, physical education professionals have just begun to do research on cohesion and cooperative games. The use of cooperative games in the physical education classroom has been around for decades, but professions in the field of education are starting to understand the effects on the students and the classroom atmosphere.

Through research the use of cooperative learning in the classroom shows great achievement. In utilizing cooperative groups, students are able to maximize their learning in all areas. This is possible by the student believing they are linked with the other students by successful situations. The group as a whole passes or fails together. Cooperative learning promotes the students to help, assist, encourage, and support each other to learn.

The use of cooperative learning can increase the possibility of the learning atmosphere being a positive one. Educators are striving to find the atmosphere where the most learning takes place. The student must perceive the atmosphere to be conducive to his/her learning. The atmosphere must be seen as a physically comfortable place with positive affective tones. There will always be differences in students' ideas, conclusions,

and opinions, but if the student has the skills necessary to work with others in a cooperative way, learning can take place. If the student senses the feeling of being in a community where students are encouraged to interact positively it will increase the student motivation to learn.

The use of cooperation can help in building positive peer relationships and social support. The use of cooperation results in greater social support versus competitive or individual efforts. Through the development of social support, students are able to be persistent on challenging tasks, be successful problem solvers, display high morale, and have a greater compliance with regimens and behavioral patterns which increase productivity.

The positive peer relationships established through cooperation can help students develop healthy social and cognitive skills. In interacting with their peers, students learn attitudes, values, skills, and information unobtainable from adults. Students are able to receive support, opportunities, and chances to model prosocial behaviors. The development of prosocial behaviors allow for peer interactions in helping, comforting, sharing, taking care of, assisting, and giving to others. Students develop the ability to see other peoples' points of view and look at problems through new perspectives. This ability to look at other perspectives is one of the most critical competencies for cognitive and social development.

In the physical education field, teachers hold the ultimate opportunity to develop cooperative learning, a positive learning atmosphere, social support, prosocial behaviors,

cooperation, and cohesion through game play. Physical educators allow for the development of these areas through movement activities incorporating the cooperative idea. In cooperative situations the students are able to interact with others, to form multidimensional and realistic impressions of others. They increase the use of socially accepted behaviors. They develop the ability to work with others in situations of conflict in a constructive manner. Students are able to achieve higher than they or the instructor themselves thought possible.

The learning of bowling skills, a typical physical education game, have been tested in various forms. Studies have shown what bowling techniques seem to work the best to improve bowling scores (i.e., four step approach, spot aiming, and hook ball delivery), yet, there is not one dominant way of teaching the skills.

This study was concerned with the effects of cooperative games for increasing the class cohesion, and the possible effects on the bowling performance of students. Can the use of these cooperative games make the students work together better and develop the skills and behaviors as described above to increase the cohesion of the class? Second, could the increase of the cohesion have any effect on the bowling performance of students?

CHAPTER III

METHODS AND PROCEDURES

Introduction

The purpose of this study was to examine the possible effects of cooperative games on group cohesion during a college bowling activity class. The 101 subjects for this study were students at the University of Wisconsin-La Crosse requesting enrollment in one of the four beginning bowling activity classes. The bowling classes selected were scheduled by the University of Wisconsin-La Crosse into specific times and days the sections were to meet. The class sections were randomly selected into control and experimental groups. The control group (n = 47) and the experimental group (n = 54) were randomly assigned instructors by the University of Wisconsin-La Crosse. The researcher provided the treatment of the cooperative games to the experimental groups.

This chapter includes procedures followed for subject selection and recruitment, the informed consent procedures, the description of the attendance policy followed by the instructors, the administration of the pre-post tests, the description, analysis, and protocol used for the Group Environment Questionnaire, and an overview of the class content for the control and experimental groups.

This study was reviewed and accepted by the University of Wisconsin-La Crosse Institutional Review Board. The study did not contained procedures placing humans at risk, and the Department recommended expedited review.

Subject Selection

Students enrolled in the spring semester of ESS 100 Bowling sections 364, 365, 366, and 367 were chosen for the study. Students in sections 366 and 364 were subjects in the experimental group (n = 54). Students in sections 365 and 367 were subjects in the control (n = 47).

Recruitment

The researcher addressed each section of ESS 100 Bowling concerning the study on the first day of class. Students were asked to participate, and given an explanation of the study. Students were given the option to participate. Students were told they did not have to leave the class if they did not participate in the study. All students agreed to participate in the study.

Consent Form

The researcher reviewed the consent form with the students. Students were ensured of confidentiality. The last four digits of their social security number was used throughout the study to identify students. Students were asked to sign and date the consent form if they wished to participate in the study (see Appendix A).

Attendance

Attendance was stressed to the students by the researcher. Students were told they would be taught the bowling techniques (see Appendix B) in a sequential format, and were required to bowl one complete game each class period. Attendance would be taken by students recording their required one game bowling score on the score sheet at the end

of class. Important announcements were made at the beginning of the class period. This procedure was conducted every class day.

Bowling Scores

Students were informed to use the last four digits of their social security number in the name columns of the scoring sheets to ensure confidentiality. Students were informed the four digits were needed to link their pretest and posttest scores together. Students were required to bowl one complete game each class period. Students were required to record their score next to their four digit social security number located on the score sheet.

Questionnaire

Students completed the GEQ questionnaire on day 24. The researcher administered the questionnaire. Students were asked to put the last four digits of their social security number, gender, age, and class level in the upper left-hand corner.

Overview of Class Content

At the start of the first class of the semester, the experimental and control groups were given the details of the study by the researcher. The researcher reviewed the consent form with the students. Students who wished to participate were asked to sign and date the bottom of the form. Students then were required to bowl three complete games and record their scores using the last four digits of their social security numbers. The pretest bowling involved days one through three.

The groups then used days four through 11 to learn and practice the bowling techniques of the four step approach, spot bowling, and delivery of a hook ball (Strickland, 1996) (see Appendix B). Day 12 to day 23 the students were divided into six teams for a round robin tournament. Day 24 to day 26 students bowled the three complete games for the posttest scoring. Day 24 students filled out the Group Environment Questionnaire. A knowledge test was taken on the last day of bowling for the semester session. Cooperative games and lessons are described in detail in Appendices C and D.

Experimental Group

Students who were in the experimental group received the identical bowling techniques as the control group with the additional six cooperative games. These cooperative games involved acquaintance activities, communication, problem solving, and teamwork. Each cooperative game lasted no more than 10 minutes.

Students were encouraged to participate to the fullest during the game activity. The teacher explained the focus of the game, while emphasizing cooperation and communicating to each other. If a student was absent from the class during a cooperative game activity day, they were given the opportunity to try the game with members of the class on their own time outside of the class. They were required to make up the missed bowling game by bowling two games during the next class session.

After the cooperative game, the students were given the instructional lesson for the day or started bowling. The cooperative game and instructions lasted no more than 15 minutes.

Control Group

Students in the control group received the identical bowling techniques as the experimental group voided of the cooperative games. If a student was absent from class they were required to make up the missed bowling game by bowling two games the next class session.

Techniques

The instructors for the four sections of ESS 100 Bowling taught the students the same fundamental skills. The teachers implemented the four-step approach, delivery of a hook ball, and spot bowling as described in "Steps for Success" (Strickland, 1996) (see Appendix B). This eliminated any discrepancy on variation of bowling instructional styles.

The control and experiment group teachers were instructed on the four-step approach, hook ball delivery, and spot bowling by the researcher. The instructors devised lessons to implement the sequential learning of the bowling techniques. The researcher implemented the cooperative games in the experimental class. Day by day class lessons and cooperative games maybe found in Appendices C and D.

Group Environment Questionnaire

All subjects completed the Group Environment Questionnaire (Carron, et al. 1985) at the end of the semester (see Appendix E). The questionnaire assessed four areas of cohesion; individual attraction to the group-task (ATG-T), individual attraction to

group-social (ATG-S), group integration-task (GI-T), and group integration-social (GI-S).

The Group Environment Questionnaire (GEQ) has good internal consistency. The GEQ established scores of .75, .64, .70, and .76 on the Cronbach's alpha. These scores represent individual attractions to group-task, individual attraction to group-social, group integration-task, and group integration-social respectively. Through a series of studies, the GEQ has shown evidence for the existence of face, construct, predictive, and concurrent validity.

Group Environment Questionnaire Subscales

The GEQ was designed to measure individual group member perceptions of team cohesion. Specifically, four measure of cohesiveness are assessed: individual attractions to group-task; individual attractions to group-social; group integration-task; and integration-social.

The questionnaire was modified to fit into the physical education classroom setting. Questions using the word "team" were changed to "class.

Individual attractions to group-task is a composite measure of individual class members' feelings about their personal involvement with the group task, productivity, goals, and objectives. These variables were assessed by questions asking how the individual felt about practice time, the desire for improvement, and the style of play utilized in the class.

Individual attraction to group-social is a measure of individual class members' feelings about personal involvement, desire to be accepted, and social interaction with the

group. The individual to group scales have the individual assess his/her personal involvement with the groups' task and the groups' social aspects. These variables were assessed by questions asking how the individual felt concerning personal involvement, their desire to be accepted, and the social interaction of the activity.

Group integration-task is a measure of the individual class members' feelings about the similarity, closeness, and bonding within the team as a whole around the groups' task. These variables were assessed by questions asking how the individual perceived the class similarity and closeness, and the bonding between classmates.

Group integration-social is a measure of the individual team members' feelings about the similarity, closeness, and bonding within the class as a whole around the group as a social unit. The group integration scales have the individual assess the group as a whole in terms of its coherence around task and social activities. These variables were assessed by questions asking how the individual perceived the members' closeness, and the ability of the class to bond.

The GEQ is made up of 18 items: four items in individual attractions to group-task; five items in individual attractions to group-social; five items for group integration-task; and four items for group integration-social.

Students were required to respond to the 18 statements about their class on a nine-point scale, which is anchored at the two extremes by "strongly disagree" and "strongly agree". The score on any specific scale is computed by obtaining the mean response for a

subject from the pertinent items. Determining the mean response for all subjects tested from each group derives a representative score for the total group.

Scoring Key

Individual attraction to group-task. Measured by questions two, four, six, and eight. They were scored from strongly disagree = nine to strongly agree = one.

Individual attraction to group-social. Measured by questions one, three, five, seven, and nine. Questions five and nine were scored from strongly disagree = one to strongly agree = nine. Questions one, three, and seven were scored from strongly disagree = nine to strongly agree = one.

Group integration-task. Measured by questions 10, 12, 14, 16, and 18. Questions 10, 12, and 16 were scored from strongly disagree = one to strongly agree = nine. Questions 14 and 18 were scored from strongly disagree = nine to strongly agree = one.

Group integration-social. Measured by questions 11, 13, 15, and 17. Question 15 was scored from strongly disagree = one to strongly agree = nine. Questions 11, 13, and 17 were scored from strongly disagree = nine to strongly agree = one.

CHAPTER IV

RESULTS AND DISCUSSION

Introduction

This chapter presents a description of the subjects, and a analysis of the pre-post bowling score, GEQ questionnaire, and a summary of the analysis. The data obtained from the 101 subjects in this investigation included: (a) pretest bowling scores, (b) posttest bowling scores, and (c) the subjects' responses to the 18 items on the GEQ questionnaire.

Three research hypotheses, based on a review of related literature, were the concern of this investigation. From these the following null hypotheses were developed and tested.

1. The use of cooperative games, in a physical education setting, will have no effect on the amount of class cohesion felt among students in a college activity class.
2. The use of cooperative games, in a physical education setting, will have no effect on the bowling score performance among students.
3. The use of cooperative games, in a physical education setting, will have no effect on males and females answers to the Group Environment Questionnaire.

The investigator chose a .05 level of significance for testing all null hypotheses.

The average age for the control group (n = 47) was 20.4 years and the experimental (n = 54) was 21.3 years. Male students made up 66% of the total number of students with 67 males and 34 females included in the total number. The control group consisted of 13 freshman (6 females, 7 males), 16 sophomores (6 females, 10 males), 10 juniors (4 females, 6 males), and 8 seniors (2 females, 6 males). The experimental group consisted of 5 freshman (3 females, 2 males), 7 sophomores (2 females, 5 males), 17 juniors (2 females, 15 males), and 25 seniors (9 females, 16 males).

Performance Scores

Pre-post Bowling Scores

To test the subjects' improvement in bowling scores over the length of the study, students bowled three complete games without instruction on the first three days of class. At the completion of the experiment students bowled three complete games and recorded their scores.

The group means and standard deviations for pre-post bowling scores are presented in Table 1. The table shows the experimental group started with a lower bowling score mean in the pretest, but yielded a higher bowling score mean in the posttest. A test for initial differences between groups showed there was no significant difference between the control and experimental group ($p > .05$).

Table 1. Pre-Post Bowling Score Means and Standard Deviations

Group	Pretest		Posttest	
	Mean	SD	Mean	SD
Control	118.9	23.7	129.4	18.2
Experimental	117.3	20.7	136.4	22.5

A paired sample t-test was used to assess within group differences from pretesting to posttesting for improvement of bowling scores. The test yielded a significant difference of ($t = -3.73$, $p = .001$) for experimental and ($t = -6.82$, $p = .000$) for the control group

A one way ANCOVA was used to determine between group differences on the posttest bowling scores. The ANCOVA yielded a significant difference of ($p < .05$) in bowling scores. The experimental group was significantly higher in the posttest bowling scores. Table 2 shows the ANCOVA results.

Table 3. Means and Standard Deviations for Control and Experimental on GEQ

Group	ATG-Task mean	SD	ATG-Social mean	SD	GI-Social mean	SD	GI-Task mean	SD
Control	30.2	4.5	27.9	5.8	32.0	14.7	18.3	6.3
Experimental	29.3	6.9	26.3	5.9	29.4	8.0	18.5	6.6

A one way MANOVA was used to compare the groups' responses on the four subscales (ATG-Task, ATG-Social, GI-Task, and GI-Social). The MANOVA revealed no significant difference between the groups ($p > .05$).

A t-test was conducted to compare the males ($n = 38$) and females ($n = 16$) of the experimental group in the four subscale categories. The test showed no significant difference in the four categories between males and females in the experimental group. Table 4 shows that the experimental males and females were close to showing significance in the GI-Social scale.

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Table 4. T-test Between Males and Females in Experimental Group on GEQ

GEQ subscale	T	Two tailed Significance
ATG-Task	1.559	.125
ATG-Social	.814	.419
GI-Task	.809	.422
GI-Social	1.856	.069

Summary

The first hypothesis of this study was the use of cooperative games, in a physical education setting, will have no effect on the amount of class cohesion felt among students in a college activity class. Results of the students' answers to the GEQ questionnaire revealed no significant difference in the amount of cohesion felt among the experimental and control groups. The null hypothesis is supported.

The second hypothesis of this study was the use of cooperative games, in a physical education setting, will have no effects on the bowling score performance among students. The results indicated the experimental group improved significantly more than the control group. Therefore, the null hypothesis is rejected.

The third hypothesis of this study was that the use of cooperative games, in a physical education setting, will have no effect on males and females answers to the GEQ

Questionnaire. Results yielded no significant difference between males and females in the experimental group. Therefore, the null hypothesis is supported.

The cooperative games apparently had a positive effect on the students' bowling score. The cooperative games could have allowed the students to interact and help each other with bowling skills. This may have occurred by communicating ways to correct a problem or in the overall class attitude of helping each other and supporting one another. The students may have been able to work together with problem solving techniques to learn from one another without teacher interference. This may have allowed students to improve skill development without being worried about competition from their peers.

The results of the GEQ found no significant difference between the groups. Therefore, it can be concluded the cooperative games did not increase classroom cohesion as measured in this study. The course content of bowling contained some competition in the form of a tournament towards the end of the study. This competition among the students may have affected the students' answers to the GEQ, since competition is often the opposite of cohesion.

The result of the GEQ questionnaire on males and females of the experimental group indicated no significant difference in the amount of cohesion felt. This null affect may be due to the cooperative games allowing for interaction among the genders, with no importance place on either gender. This is deemed important in an educational setting to allow for each individual to feel as part of the whole.

Conclusion

Statistical analysis revealed the use of cooperative games has no effect on the amount of classroom cohesion felt among the groups. The analysis does indicate the use of cooperative games may have had a significant effect on bowling score performance, yet, is unclear as to how. The impact that cooperative games and cohesion had on the genders in the experimental group revealed no significant difference.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The primary purpose of this study was to determine the effects of cooperative games on classroom cohesion and bowling score performance. The secondary purpose was to determine the effects cooperative games had on gender in relation to answers to the GEQ questionnaire. One hundred and one students at the University of Wisconsin-La Crosse agreed to be subjects in the study. The subjects were divided into two groups: experimental with cooperative games included in the lessons and control with lessons voided of cooperative game. Each group completed a three game bowling score pretest, sequential learning of bowling skills, bowled in a round robin tournament, and completed a three game bowling score posttest. The experimental group utilized six cooperative game lessons designed to build name remembrance, trust, communication, and problem solving skills.

The GEQ questionnaire was used to measure students' attitudes towards group cohesion. The four areas measured were individual attraction to group-task (ATG-Task), individual attraction to group-social (ATG-Social), group integration-task (GI-Task), and group integration-social (GI-Social). The score on any specific scale is computed by obtaining the mean response for a subject from the pertinent items. A representative

score for the total group is then derived by determining the mean response for all subjects tested from the group.

To test the first hypothesis a multivariate t-test (MANOVA) was used to compare the experimental and control group answers on the GEQ questionnaire. The MANOVA revealed there was no significant difference between the groups in the amount of cohesion. Therefore the first null hypothesis was accepted.

The second primary purpose of the study was to determine if cooperative games had a significant affect on bowling score performance. A two-way test of independent samples was used to determine if the groups' pretest scores differed. The results indicated there was no significant difference between groups in the pretest bowling scores ($p > .05$).

A t-test between the pretest and posttest scores of both groups revealed a significant improvement in bowling scores was achieved. An ANCOVA was conducted to determine if there was a significant difference between the experimental and control groups.

The ANCOVA yield that the experimental group improved significantly higher ($p < .05$) in bowling scores. It was determined that both groups improved significantly, yet, the experimental group improved significantly higher than the control group in bowling scores. The hypothesis of cooperative games would have no effect on bowling scores was rejected.

A secondary purpose was to determine if there was a significant difference that cooperative games may have on cohesion felt among males and females. A t-test was

conducted between the males and females in the experimental group. The test revealed no significant difference of cohesion felt among males and females. The null hypothesis was accepted.

Conclusions

The analysis of cohesion felt among the experimental and control groups revealed no significant difference. This shows the cooperative games did not improve or decrease the amount of cohesion in the experimental group. This may be due to the nature of the bowling class. Bowling is seen by most people in society as a leisure activity. Therefore, students may have been more willing to be sociable in both groups and at ease with one another. The class used a round robin tournament towards the end of the study. This competitive tournament may have dissolved any cohesion felt among the students before the tournament. This may account for the lack of difference in the GEQ cohesion scores.

While both groups showed a significant improvement in their bowling scores, the experimental group improved to a higher level. The cooperative games may have allowed for this to happen. In the beginning of the study, three of the six games were used as introduction to the lesson to help students become familiar with and help each other. The games focused on name remembrance, communication, trust, and problem solving. These games may have allowed the students to help each other in developing their skills to a higher level.

Other factors may have affected the bowling scores outcome. It could possible be that students in the control group had an "off" days during the posttesting which could

have lowered their scores enough to affect the overall mean. It may also be that students in the experimental group had "exceptional" days during the posttesting. Although the testing was done over three days this could be a possibility.

A second factor could be the effectiveness of the teachers. Maybe the control teachers teaching style or attitude affected the students in the control group. Even though both groups were taught the same bowling techniques, the teachers may have differed in the amount of feedback given to the students. The amount or kind of feedback given to the students may have affected their desire to improve.

The secondary purpose of the study was determining if cooperative games had an effect on the amount of cohesion felt among males and females. The analysis of data revealed no significant difference. This seems to be a favorable factor in the educational setting. Since the cooperative games did not affect one gender more than the other one can assume the use of cooperative games will not have an adverse effect on anyone. A teacher could assume that the implementation of cooperative games in an educational setting could actually bring the genders closer together through communication and working together to solve problems.

This study showed that cooperative games may improve a groups ability to learn a skill by allowing the group to work together in games that focus on name remembrance, trust, communication, and problem solving. Through the GEQ questionnaire, there was shown to be no significant difference in cohesion felt among groups and genders from the

use of cooperative games. Yet, the nature of the class may have affected the outcome of the questionnaire and the amount of cohesion felt between the class and genders.

Recommendations for Future Study

Based upon the results and conclusions, the following recommendations for future investigations are suggested.

1. To determine if cooperative games have an effect on cohesion in a physical education classroom, try to utilize an activity that is void of any tournament or competition.
2. To determine if cooperative games have an affect on cohesion in a physical education classroom, implement the GEQ before the competitive tournament or game.
3. Investigate differences due to age by comparing college, high school, middle school, and elementary levels.
4. Investigate other physical education activities, such as adventure activities or rope courses, to use cooperative games.

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APPENDIX A

CONSENT FORM

INFORMED CONSENT FOR COOPERATIVE GAMES

I give my informed consent to participate in this study on the use of cooperative games. I consent to presentation and publication or other dissemination of study results so long as the information is anonymous and disguised so that no identification can be made. I further understand that although a record will be kept of my having participated in the experiment, all experimental data collected from my participation will be identified by number only. I understand there is a control group and experiment group, and that I will be assigned to one of the groups.

I have been informed that my participation in this study may involve my working with cooperative games with other students in my class. These games will involve movement, decision making, and communication with my classmates.

I understand these activities may involve conflict in the decision making by the group. There should be no known physical stress due to normal precaution made in regular physical education type classes.

I understand I will need to take a pre-post test during the class time. The tests will be done anonymously where the only identification made is by the class assigned section number given by the university. I understand that the investigator will answer questions regarding the procedures of this study when the experimental session is completed.

I have been informed that I am free to withdraw from the experiment at any time without penalty.

Concerns about any aspects of this study or project may be referred to the principal researcher Scott Ringgenberg at 782-3111 and thesis advisor Jeff Steffen at 785-6535.

_____

Investigator or Researcher Date

_____

Participant Date

_____

Participant Parent or Guardian Date

APPENDIX B

BOWLING TECHNIQUES

ESS 100 Bowling Technique Outline

Four Step Approach

The four-step delivery consists of:

1. Coordinating the push away of the ball with the first step.
2. It has a free-pendulum swing.
3. The takeaway is coordinated with the down swing of the pendulum swing.
4. The heel to toe steps are timed to fit the pendulum swing.
5. Finish with a high leverage "power push".

Spot Aim Bowling

Strike targeting follows a systematic series of actions, which are taught in a progression format as follows:

1. The use of lane targets, which are markers, placed on the lane surface.
2. Placement distance in number of boards between your sliding foot and the point of contact of your ball.
3. Choosing a target point.
4. Choosing the touchdown point of the ball.
5. Projecting an imaginary extension of your target line back to the area of the approach.
6. Proper setup with respect to your target line.
7. Keeping eyes fixed on your visual target.
8. Executing your shot properly.
9. Analyzing your shot.

Hook Ball Delivery

To execute a hook-ball delivery swing:

1. Roll the ball with the palm and gripping fingers pointed about 45 degrees to the inside of the swing plane.
2. This will give the fingers a clock face position of 10 o'clock (for a right-handed bowler).
3. Hold hand firmly in position during swing.
4. Curl fingers as the ball is lifted out onto the lane.

Straight ball delivery

1. Straight and smooth pendulum swing.
2. Keep wrist and fingers firm.
3. Keep fingers and hand at the "hand shake" position. Thumb at 12 o'clock and fingers at 6 o'clock.

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APPENDIX C

COOPERATIVE GAME RULES

ICE BREAKER

*FIND SOMEBODY WHO:*_____

Name **item**
(Find as many different names as possible)

_____ WAS BORN IN THE SAME STATE AS YOU
_____ IS THE SAME AGE AS YOU
_____ HAS THE SAME ZODIAC SIGN AS YOU
_____ HAS HELD A SNAKE
_____ WEARS THE SAME SIZE SHOES AS YOU
_____ HAS BUNGEE-CORD JUMPED
_____ HAS COACHED A YOUTH SPORT TEAM
_____ IS GOING SOUTH FOR SPRING BREAK
_____ WHO HAS PLAYED HOCKEY
_____ HAS BEEN TO A PACKER GAME IN THE FROZEN TUNDRA
_____ RAN A MARATHON OR A HALF MARATHON
_____ FISHED OR BOATED THE MISSISSIPPI
_____ HAS THE SAME NUMBER OF BROTHERS AND SISTERS
_____ IS INTO MOUNTAIN BIKING/TOURING
_____ HAS VISITED ANOTHER COUNTRY
_____ HAS CRASHED IN-LINE SKATING
_____ HAS THE SAME COLOR EYS AS YOU
_____ WORKED AT A HEALTH CLUB
_____ LIVES IN A SMALL APARTMENT
_____ HAS THE SAME KIND OF CAR AS YOU
_____ WHO HAS A TERRIBLE ROOMATE
_____ WHO OWNS A TYE-DYE T-SHIRT
_____ SOMEONE WHO HAS BOWLED A 200 GAME

Flip the Bird

Purpose: This game is to help the students learn the names of the other students by saying peoples names to toss the bird to them and by saying "thank you" and the name of the person who threw to them.

1. Stand in a circle close enough to touch the person next to you.
2. To throw a ball, the thrower first must say a person name and make eye contact.
3. If you don't know the persons' name, point to them and ask them their name.
4. Upon receiving a ball, the receiver must say "Thank you," and the name of the person who just threw you the ball.
5. Instructor keeps adding a ball until all five are in use.
6. Make sure everybody catches and throws at least one ball.

Car Driver

Purpose: Is to gain confidence in their partner by allowing themselves to be lead around while keeping their eyes closed.

1. The "car" must keep their eyes close and their bumpers (arms bent and palms facing forward) up to protect themselves.
2. The "driver" was to direct the car around the area by tapping the right shoulder to turn right, tap the left shoulder to turn left, grab both shoulder to stop, pull the right ear to turn on the wipers (arms and hands go back and forth), and to pull on the left ear to turn the radio on (car must sing).
3. "Drivers" were told not to run the "car" into anybody or anything, because it would ruin the trust between the car and driver.

4. Each person gets a turn to be the "driver" and "car" for three minutes.

Infinite Circle

Purpose: Is to work and develop comfortable communication with their partner in order to solve the problem. The objective is to become separated without taking the string off the wrist.

1. One partner puts the string loops around their wrists.
2. The second partner puts one loop around their wrist then slide one end of the string between the first partners' chest and the string. Then slide the loop over the other wrist.
3. Object of the game is to move the body or string around to get the two people separated without taking the string off either person wrist.

Magic Carpet ride

Purpose: Is to have the team communicate and work together to solve the problem. The objective is to turn the carpet over without any member falling off the carpet.

1. All members of the team stand on a four feet by six feet piece of carpet or clothe material.
2. The team must try to turn the carpet over without any member touching the floor.
3. If a member touches the floor the game is over, or you may allow for another chance.
4. The people may use any body part to turn the carpet over, and can balance themselves anyway they want as long as it is safe.

Blind/Mute Line-up

Purpose: To develop communication and to develop the class teamwork. Objective is to get all class members lined up in birthday order by month and day without talking.

1. All class members hold onto rope with one hand.
2. Students try to arrange themselves in order without letting go of the rope.
3. Students may not talk to each other. Must use some other form of communication.
4. Allow two tries to achieve correct position.

APPENDIX D

LESSON PLANS

Lesson Plans

Day One

The instructors introduced themselves and took attendance. The class syllabus was distributed and discussed. The instructors introduced the researcher. The researcher discussed the experiment. Stating the use of different teaching techniques would be used in the experimental group. The consent form was distributed and explained. Students were asked if they had any questions concerning the experiment or the consent form. Students were asked to sign and date the bottom of the consent form. The consent forms were collected by the researcher. Students were instructed in the proper technique of choosing a bowling ball from the racks by the class instructor. This instruction was done to prevent any injuries due to use of improper ball. Students were allowed to choose a lane, with no more than five to a lane. Students were asked to put down their last four digits of their social security number instead of a name. The students were told the last four digits were going to be the only way the researcher would recognize the pre-test and post-test numbers. Students were required to bowl one game before they were allowed to leave.

Day Two

At the beginning of class, attendance was taken and students who added the course were informed of the experiment and given the consent form. The students who added the course were instructed on the proper choosing of a bowling ball, and added to the list of participants. The students continued with the pretest bowling. Students were required to bowl one game. Students needed to record their score next to their four digit number on a score sheet before being allowed to leave the class.

Day Three

Students were required to finish the third game of the pretest bowling. All scores were recorded on the score sheet by the students last four digits of their social security number.

Day Four

Control group. The instructor reminded the students the importance of recording their score on the score sheet for attendance. The students were given a hand out and instructed on proper bowling etiquette (see Appendix F). The instructor started students with the proper delivery of a straight ball (see Appendix B). Students practiced for five minutes. Students then bowled one complete game and recorded their score on score sheet.

Experimental group. The instructor reminded the students the importance of recording their score on the score sheet for attendance. The students were given a hand out with the name finding game called "Find someone who" (see Appendix C). Students were asked to find as many different people who had accomplish one of the questions on the sheet in three minutes. The instructor emphasized the game was not a competition, but a way to meet people in the class, and maybe share some information about themselves that normally may not happen in a bowling class.

After three minutes students were asked how many different individuals they met in a short amount of time. Students were asked if anyone found something about someone in class they didn't know. Did they found someone who was really interested in the same activities as they were.

Students then form a big circle standing close enough to each other to be able to touch the person next to them easily. The instructor had five tennis balls, and gave the instructions for the name remembering game called "Flip the Bird" (see Appendix C). The instructor emphasized the importance of knowing peoples' name in the class in order to give feedback to the individual about their bowling performance. The game was played for five minutes.

The students received the hand out and instruction on bowling etiquette and delivery of a straight ball in the same manner as the control group. Students were required to bowl one complete game and record their score on score sheet.

Day Five

Control group. Students were instructed to bowl on the same alley from the previous lesson. Students were reminded of the previous lesson, and the key points were emphasized. Students were required to bowl one complete game and record their score on the score sheet.

Experimental group. Attendance was taken and students were instructed to bowl on the same alley from the previous lesson. Students were reminded of the previous lesson, and the key points were emphasized. Students were required to bowl one complete game and record their score on the score sheet.

Day Six

Control group. Students were given instruction on the four-step approach (see Appendix A). Students were allowed five minutes to practice. Students were required to bowl one complete game and record their score on the score sheet.

Experimental group. As students entered the bowling alley, they were required to choose a piece of paper with a number one through six written on the front of the paper out of a hat. The instructor told the students the number represented the lane they were to bowl on for the next two class periods. Students were allowed to move to their new lane. They were then told to choose a partner from this lane. The instructor told them they were going to work in partners, and their partner was going to give feedback concerning the bowlers performance. The instructor related how trust was important to a partner, in order for the person to take the feedback seriously. In order to gain this trust, the instructor gave the instruction for the trust building game called "Car driver" (see Appendix C).

At the end of the game, students were asked how the experience affected them. How hard or easy it was to trust their "driver"? The instructor related how this trust needs to be prevalent during the giving of feedback. This will allow the bowler to try and improve their bowling performance based on the feedback.

The instructor then introduced the four-step approach. Students were allowed five minutes to practice. Students were required to bowl one complete game and record their score on the score sheet. Partners were encouraged to provide feedback concerning the four-step approach and the pendulum swing during practice and game play.

Day Seven

Control group. The instructor reviewed the previous lesson of four step approach bowling technique. The instructor introduce "spot bowling" (see Appendix A). Students

practiced five minutes. Students were required to bowl one complete game and record their score on the score sheet.

Experimental group. Students were told to bowl on the same alley with the same partner from the previous lesson. The instructor introduce "spot bowling". Students practiced five minutes. Students were required to bowl one complete game and record their score on the score sheet.

Day Eight

Control group. The instructor introduced the proper mechanics for delivery of a hook ball (see Appendix B). Students practiced five minutes. Students bowled one complete game and recorded their score on the score sheet.

Experimental group. Students were handed a sheet of paper as they walked into class. They were instructed to find an alley they have not previously bowled upon. They were ask to write down two goals. The first goal related to something they wished to achieve by the end of the semester of bowling class. The second related to a goal they wish to achieve in life. Students were to find a partner who they did not know at all, or new very little about the person. They were to discuss their two goals to the partner, and elaborate on the goal and possible ways to achieve these goals for three minutes.

While the students discussed their goals, they were handed a piece of string with one loop on each end. The instructor gave direction for the problem solving game called the "infinite circle" (see Appendix C). Students were encouraged to communicate and work together to solve the problem.

After three minutes of trying to solve the problem, the instructor brought the group together. The instructor then told how the string represents the goals they had set before. How at first the problem seems impossible to solve. Yet, if the person stays persistent and works with others around them, the solution is really quite simply and the goal is attainable. The instructor then showed the simple solution to the problem.

The instructor reviewed the previous lesson on four step approach bowling. The instructor introduced delivery of a hook ball to the students. Students practice for five minutes. Students then bowled one complete game and record their score on the score sheet.

Day Nine through Eleven

The control and experimental groups practiced the four step approach and delivery of a hook ball for five minutes. Students were required to bowl one complete game and record their score on the score sheet.

Day Twelve to Twenty Three

Students were divided into six teams and played a round robin tournament. The students were placed on teams based on their overall average from the previous eleven days of bowling scores. Teams averages were compared to insure even teams as much as possible. Team averages were within one to three points.

Day Twenty Four and Twenty Five

Students were given the posttest GEQ questionnaire and teacher evaluation on the day twenty four. Students were required to bowl one complete post test game each day. Students were allowed to choose the lane they wanted to do their posttest bowling on.

Students were not required to bowl on the same lanes as their teammates. Students were required to record their score on the score sheet.

Day Twenty Six

Students were given a written knowledge test. The test were graded by fellow students with the answers provided by the teacher. Students were required to bowl their last posttest bowling score and record on the bowling score sheet. Students were considered finished with the course after recording their score and having confirmed they had meet all the requirements for the study.

APPENDIX E

GROUP ENVIRONMENT QUESTIONNAIRE

GROUP ENVIRONMENT QUESTIONNAIRE*

The following questions are designed to assess **your feelings** about **YOUR PERSONAL INVOLVEMENT** with this class. Please CIRCLE a number from 1 to 9 to indicate your level of agreement with each of the statements.

1) I do not enjoy being a part of the social activities of this class.

1 2 3 4 5 6 7 8 9
strongly disagree — strongly agree

2) I'm not happy with the amount of practice time I get.

1 2 3 4 5 6 7 8 9
strongly disagree — strongly agree

3) I am not going to miss the members of this class when the session ends.

1 2 3 4 5 6 7 8 9
strongly disagree — strongly agree

4) I'm unhappy with my class's level of desire to improve.

1 2 3 4 5 6 7 8 9
strongly disagree — strongly agree

5) Some of my best friends are in this class.

1 2 3 4 5 6 7 8 9
strongly disagree — strongly agree

6) This class does not give me enough opportunities to improve my personal performance.

1 2 3 4 5 6 7 8 9
strongly disagree — strongly agree

7) I enjoy other activities more than class activities.

1 2 3 4 5 6 7 8 9
strongly disagree — strongly agree

8) I do not like the style of play in this class.

1 2 3 4 5 6 7 8 9
strongly disagree — strongly agree

9) For me this class is one of the most important social groups to which I belong.

1 2 3 4 5 6 7 8 9
strongly disagree — strongly agree

* Modified from Carron, A. V., Widmeyer, W. N., & Brawley, L. R. (1985). The development of an instrument to assess cohesion in sport teams: The group environment questionnaire. Journal of Sport Psychology, 7, 244-266.

The following questions are designed to assess **your perceptions** of **YOUR CLASS AS A WHOLE.** Please CIRCLE a number 1 to 9 to indicate your level of agreement with each of the statements.

10) Our class is united in trying to reach its goals for performance.

1 strongly disagree 2 3 4 5 6 7 8 9 strongly agree

11) Members of our class would rather go out on their own than get together as a class.

1 strongly disagree 2 3 4 5 6 7 8 9 strongly agree

12) We all take responsibility for any loss or poor performance by our class.

1 strongly disagree 2 3 4 5 6 7 8 9 strongly agree

13) Our class members rarely get together.

1 strongly disagree 2 3 4 5 6 7 8 9 strongly agree

14) Our class members have conflicting aspirations for the class's performance.

1 strongly disagree 2 3 4 5 6 7 8 9 strongly agree

15) Our class would like to spend time together after the session.

1 strongly disagree 2 3 4 5 6 7 8 9 strongly agree

16) If members of our class have problems in class, everyone wants to help them so we can get back together again.

1 strongly disagree 2 3 4 5 6 7 8 9 strongly agree

17) Members of our class do not stick together outside of class.

1 strongly disagree 2 3 4 5 6 7 8 9 strongly agree

18) Our class members do not communicate freely about each person's responsibilities during competition or practice.

1 strongly disagree 2 3 4 5 6 7 8 9 strongly agree

APPENDIX F

COURSE SYLLABUS AND ETIQUETTE

Course Syllabus and Etiquette

ESS 100 BOWLING
Section 364, 365, 366, 367

Scott Ringgenberg
Room 21, Mitchell Hall
785-8154 (office), 782-3111 (home)
Office hours can be arranged with teacher

Course Description:
The main objective of this activity class is to enhance one's knowledge and skills to participate and enjoy the sport outside the class time.

The class will involve some instructional teaching, class discussion, skill practice, scoring, individual and team games.

Course Objectives:

1. To provide opportunities to learn, improve, and perfect basic bowling fundamentals.
2. To have an understanding of the terms, rules, scoring, and proper etiquette in bowling.
3. To gain a basic knowledge of equipment, facilities and supplies necessary and available for bowling.
4. To interact and organize with others in the sport in the future.

Outline

1. Proper bowling mechanics
2. Scoring
3. Etiquette
4. Strategies
5. Equipment and facilities
6. Stretching and strength building
7. History

Course Evaluation:

Attendance/participation	60%*
Tests	20%
Skills	20%

*1) After 2 unexcused absences you will lose 20% for each additional absence.

*2) Excused absences may be made by prior notification to the teacher.
*3) Excused absences may be made up by outside work arranged through the teacher.

A passing grade will be given if a student achieves 60% or above by any combination of above course evaluation percentages.

Textbook:
The book to be used as a reference for bowling is Bowling: Steps for Success by Robert Strechland. It is located in the Textbook Library.

ESS 100 Bowling Etiquette

1. Wear only regulation bowling shoes while bowling.

2. If you are using an alley ball, be sure of the number and make certain you use the same number on all throws.

3. Do not ask to borrow a bowler's own ball.

4. Do not bring food or drink into the scoring area or onto the approach.

5. When you are awaiting your turn, refrain from talking to the bowler on the approach. Load noises disturb the bowlers several lanes away.

6. Take turns keeping score.

7. Be certain if you are keeping score that you know what has happened to the bowler on his turn.

8. Watch the bowlers on your team roll; compliment them on a job well done and give them encouragement.

9. Right-of-way:
   a. Two bowlers approach at the same time: the player on the right goes first when they have the same set-up.
   b. The bowler with the spare goes first when the other is on a strike throw.
   c. The split goes first in any case.
   d. Do not step onto the approach until the right-of-way is determined.

10. When you have finished throwing the ball, back off the alley.