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Sport in High School: The Relationship of Athletic Participation, Gender Differences, and Academic Stream to Self-esteem, Academic Achievement, and Educational Aspiration

A Thesis Presented to the School of Kinesiology
Lakehead University

In Partial Fulfillment
of the Requirements for the
Degree of Master of Science
in
Applied Sport Science and Coaching

by
Glenn R. Main

ABSTRACT

The purpose of this study was to examine the interaction effects of athletic participation, gender, and academic stream with self-esteem, academic achievement, and educational aspiration. The sample (n=341) was drawn from potential graduates from three high schools in Thunder Bay, Ontario. Athletic participation was collected from self-reported student data in the areas of varsity (school) and recreational (both within and outside of school) sports. Global self-esteem was measured with the Coopersmith SEI Inventory (1981). Quantitative results were analysed using MANOVA. Results showed that male athletic participants had higher self-esteem scores, whereas females had higher grade point averages ($\alpha = .01$). Self-esteem for general level students was lower than that of advanced level students, particularly in females. Academic achievement as measured by grade point average had no relationship with athletic participation but educational aspirations varied positively with academic stream.

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CHAPTER 1

Introduction

The value of sport programs in the high school is continually being questioned. Fifteen years ago, in a review of research in the area of athletic participation and academic success, Ballantine (1981) observed :

> The present trend in education is to reduce athletic programs. The public schools are feeling the crunch of the 1980's economy thereby causing cutbacks in education. Local school boards have begun to examine reducing or eliminating athletic programs. Do athletic programs have a place in the curriculum? Do athletic programs influence the academic achievement of participants? (p. 2)

Ballantine could very well be describing the present situation with athletic programs in Ontario in 1996. Similar concerns were expressed by Holland and Andre (1987):

> Examination of the effects of extracurricular activities is especially timely and important in an era of limited financial resources for schools. Declining enrollment and inflation have tightened school budgets over the past two decades and have produced a heightened perception of the need for accountability in school programs. The last decade has brought a new emphasis on academic achievement. As a result, educators and the public have looked critically at the activity programs offered in secondary schools. Some programs have been eliminated to provide resources perceived of as better used elsewhere. (p. 437)

In Thunder Bay there is concern regarding educational funding, particularly in the field of athletics. This concern is exemplified by the newspaper headline "Budget cuts put high school sports behind the 8-ball" (Andrews, 1996). The article describes how athletic programs in local schools must be modified or eliminated to reach new budget restraints. The present study investigates sport participation by local high school students to determine if the participation in athletics is a factor in student academic achievement, academic aspiration, or global self-esteem.

Purpose of Study

The purpose of this study was to investigate the possible relationships between sport participation, gender, and academic stream on academic achievement, academic aspiration, and self-esteem. The definition of sport participation was expanded from previous studies to include a broad range of sport activities.

Significance

In many studies, achievement scores for athletes are contrasted with those scores of nonathletes (Byrd & Ross, 1991; Foon, 1989; Hauser & Lueptow, 1978). These studies define the athlete as one who participates in a varsity sport while the nonathlete does not participate in a varsity sport. This definition is a very restrictive definition of an athlete. Very few students in the high school system today would be included as an athlete using this definition. Most students would be considered nonathletes, even though they may participate in sports outside the classification of a high school, varsity sport. Howell and McKenzie (1987) noted this problem and tried to address the issue with three levels of participation; none, some, and a lot. Fortier, Vallerand, Briere, and

Provencher (1995) used competitive and recreational athletes from Junior colleges in the Quebec educational system in their study of sport motivation. Their definition of the recreation athlete as a participant in an intramural program does not allow for outside school athletic participation or other truly recreational activities that can be pursued outside the confines of an organized league. In the present study, a distinction was made between levels of participation to create a greater spectrum of athletic participation which included recreational activities as well as interschool sports.

The participants in this study were categorized for level of participation from self-reported participation data. Three levels of sport participation were considered based on the amount of time spent involved in the activity over the time of one year. The participants for the present study were potential graduates for the end of the year under study. This group was selected because they have had more opportunities compared to other students in high school for involvement both in the high school athletic program and other programs within the community. If the time spent in sport participation can be related to academics and self-esteem, then the increased opportunities for sport involvement provided to students in their graduating year should show the greatest effect.

It should be noted that all of the school based sport activities available to students this year may not be available next year. Provincial education funding reductions will most likely result in a reduction of sport programs. Travel budgets for sport teams have already been reduced this fall. Game times for some varsity sports have been moved to later in the day to shift the responsibility for travel from the school to the parent. On a

larger scale, the entire population of fifth year students in high school will not exist shortly as the Ontario Academic Credit (OAC) program is expected to disappear within the next four years. This policy would directly affect 67% of the students in this investigation (67% advanced level and 33% general level). This change will bring Ontario students into line with students in most other provincial educational systems where students complete high school in four years.

Research involving athletic participation using high school graduates as subjects is not common. The expanded definition of participant to include students playing varsity sports as well as those involved in recreational activities makes this study unique.

Delimitations

1. The subjects for this study were 341 potential high school graduates from 3 Thunder Bay high schools.

2. The subjects recorded only the name of the athletic activity, the level of participation, and the time they spent doing the activity. The quality of the participation or any other factor that may have affected their performance in the activity was not taken into account.

3. Self-esteem was measured by the Coopersmith Self-Esteem Inventory which is a validated and reliable test of self-esteem. For the purposes of this thesis, the self-esteem scores of the subjects relative to each other are more relevant than the individual absolute self-esteem scores.

4. The data on marks and athletic participation were self-reported; while a verification was done for most of the students on the reported marks there was no verification done on the athletic participation data.

Limitations

1. Athletic participation for the students as well as several academic and descriptive variables for each student were self-reported.

2. This research is limited to potential high school graduates in the Ontario education system. These students will have attended high school between four to six years.

3. In the review of literature, several of the articles appear to be dated in their approach to athletic participation dealing with gender equality. The articles are presented in chronological order and may not reflect the present attitudes toward gender issues dealing with sports participation. For example, several of the studies do not include female participants, however, the articles are still relevant for this present research.

Review of Literature

Self-esteem

As reported by Roediger, Capaldi, Paris, and Polivy (1991), "self-esteem represents one's overall value as a person" (p. 631) and "self-concept is how one perceives oneself and how one values the attributes one perceives" (p. 514). Often very little distinction is made between the two terms. Self-esteem is one aspect of self-concept but for participation research, the terms are often used synonymously (Holland & Andre, 1987; Shavelson, Hubner, & Stanton, 1976). Shavelson et al. (1976) proposed an hierarchical self-esteem model with three levels of self-esteem. General or global self-esteem was subdivided into academic and nonacademic self-concept. Academic self-concept was partitioned into individual subject areas while nonacademic self-concept would include physical, emotional, and social self-concept. Byrne and Shavelson (1986) verified both the hierarchical and multifaceted nature of self-esteem (see **Figure 1**). Their study investigated the academic side of the model and found that it could be effectively divided into two separate components of English and mathematics. "The subject-specific facets of English self-concept and mathematics self-concept can be distinguished from (but are correlated with) academic and general self-concept" (p.480). Since the present study includes the nonparticipant in recreational or varsity sports, the global or general self-esteem will be the level of analysis in this investigation. The academic (English and mathematics) and nonacademic (social, emotional, and physical) levels of self-esteem will not be specifically tested in this study. The physical self-concept component for the

nonacademic level is aimed at the athletic participant and would not present a fair measure for all participants in the study.

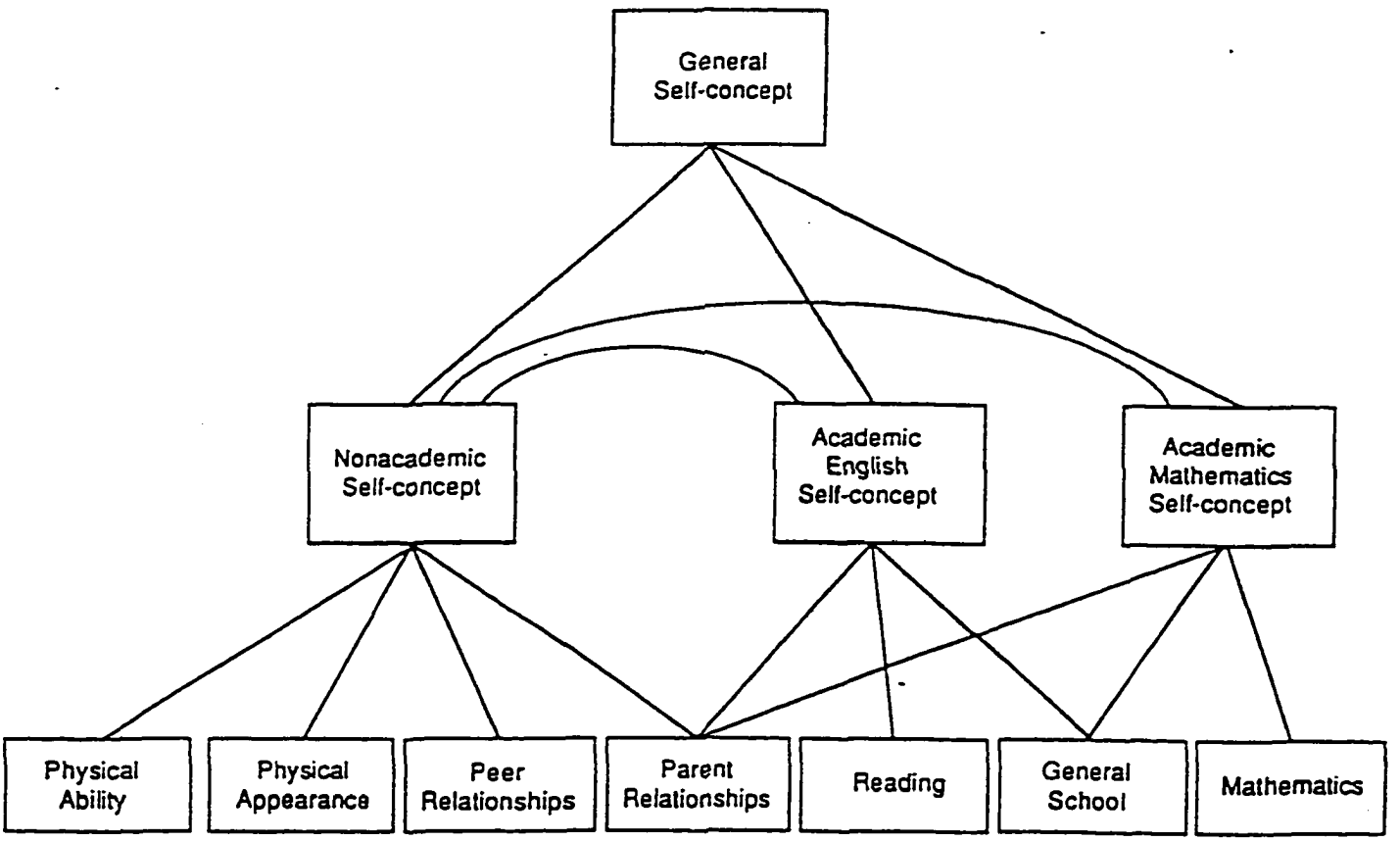

Figure 1. Hierarchical structure of self-esteem. Note. From "Self-Concept: Its Multifaceted, Hierarchical Structure," by H. Marsh and R. Shavelson, 1985, Educational Psychologist, 20, p. 114. Copyright by Lawrence Erlbaum Associates, Inc. Reprinted with permission.

Magill and Ash (1979), in a study of children in grades 1 through 5, compared participants in organized youth sport programs with nonparticipants on several scales of comparison including three aspects of self-concept: personal, social, and intellectual self. The three scores were combined to give a total score for a general measure of self-esteem. The study illustrated that there was no difference between sport participants and nonparticipants for this age group. The authors do express a concern, however, over their measurement of self-concept. The test they used only differentiated between adequate and less than adequate self-concept and both groups scored above the criterion level. The authors suggest a scale within the adequate level would be more appropriate since this scale might have further differentiated between the two groups.

In an Australian study of over 800 grade 10 students, self-esteem was compared for sport participants and nonparticipants (Foon, 1989). Results of the study indicated that for both females and males, participation in after-school sports was associated with higher levels of self-esteem. This study also indicated that the self-esteem levels for males and females were not significantly different. The self-esteem differences were sport participation based, not gender based. Foon used the Piers-Harris Children's Self Concept Scale. This survey is an 80-item test much like the 58-item Coopersmith School Form for children up to 15 years old (Coopersmith, 1981). This investigation presents a good model for the current research since it deals with sport participation, academic achievement, and self-esteem of high school students.

Byrne (1990) established that self-concept is very specific and the individual's level of self-concept or self-esteem varies in degree with type. Students may well score

quite different results in different areas such as general self-concept, academic self-concept, or academic achievement. Byrne (1990) investigated self-concept and academic achievement and found that academic self-concept and academic achievement were important in distinguishing between academic tracks; general or global self-concept was not a factor when considering different academic levels of students. It is possible for both high and low academic achievers to have high levels of general self-concept. The academic stream or track places the student in a four year program (general level or track) or five year program (advanced level or OAC track). This result presents a significant reason for using general self-esteem over any of the specific components from the hierarchical structure of self-esteem. The academic steam does affect the level of academic self-concept but is not a factor with general self-concept. This consideration is important for the present investigation which will involve both academic streams of students. By using general self-concept rather than one of the component elements of self-concept, both tracks of students can be tested on an equivalent basis.

Kamal, Blais, Kelly, and Eksrand (1995) using 185 males from Ontario universities tested the effect of athletic participation on components of self-esteem. The athletes in this study were all intercollegiate athletic participants, while the nonathletes were university students who had stopped playing sports before attending high school. The study considered 10 different components of self-esteem. The 10 components were pairs of adjectives: good-bad; optimistic-pessimistic; confident-nonconfident; strong-weak; attractive-unattractive; sociable-unsociable; independent-dependent; aggressive-nonaggressive; successful-failure; and cooperative-uncooperative. This technique is the

self-esteem measurement technique developed by Osgood, Suci, and Tannenbaum (1967). The components were compared on a "good-bad, optimistic-pessimistic,..." (Kamal et al., 1995, p. 190) scale using the 10 pairs of opposite components of self-esteem as a basis for comparison. A total score was determined by summing the 10 test items to produce an accumulative score for self-esteem. There was no difference between the two groups based on cooperativeness, strength, or confidence. The scoring of the test compared actual self to ideal self and generally found this difference to be smaller for athletes than nonathletes. The athletes scored much higher in optimism, attractiveness, sociability, and successfulness. The authors summarize the significance of these results in the following way (Kamal et al., 1995):

> This is especially important, as success here is not explicitly limited to sports performances. This appears to indicate that the evaluation of personal success on the part of the athletes was higher than that of the nonathletes, even though each group may have based their evaluation on very different activities. One key self-attribution that distinguishes the two groups, and which may have accounted for the athletes greater successful judgements was the athletes collectively could be saying to themselves "Yes, I am one of the top performers in my sport at the varsity, provincial, national or international level". Interpretively, it may be this cognitive heuristic (unavailable to the nonathletes), which most distinguishes the two groups. Congruent with such a cognitive schema, this enables the athletes to report more positive feelings being attached to their view of themselves (Good-Bad). This, in turn, may be linked to more positive moods, engendered by

> additional positive cognitions in optimism, attractiveness, sociability, independence, and aggressiveness, culminating in the athletes' greater self-esteem. (p. 193)

Coopersmith (1981) defines self-esteem as "a judgement of worthiness that is expressed by the attitudes he or she holds toward the self. It is a subjective experience conveyed to others by verbal reports and other overt expressive behaviour" (p. 5). The Self-Esteem Inventories (SEI) designed by Coopersmith (1981) will be used as the test of general or global self-esteem in this study. The test is subjective and does not specifically try to focus on any one particular level of the hierarchical structure of self-esteem. These test characteristics are in keeping with the general or global nature of the investigation. The use of the Coopersmith SEI will avoid the problems suggested by Magill and Ash (1979) with a categorical self-esteem scale and those presented by Kamal et al. (1995). The SEI generates a range of self-esteem scores that do not involve a criterion level and the test is not biased towards athletes.

The literature indicates that athletic participation raises a person's level of self-esteem. The present study will attempt to confirm this concept and show that the effect holds for sport participation in general and is not limited to varsity sport participation.

Academic Achievement

Many studies involving academic achievement and athletics have been done over the past 35 years since the first major study involving high school students was conducted by Coleman (1961). Coleman found that participation in athletics was an important motivational tool for attendance at school but had a "deleterious effect on

educational achievement" (cited in Hauser & Lueptow, 1978, p. 304). Hauser and Lueptow (1978) found that nonparticipants in athletics had a greater grade point increase over the time spent in high school than did athletic participants. They also felt that some of the studies indicating an increase in academic results due to athletic participation were due to the fact that in some cases the athletic participants were just better students than the nonparticipants. The studies by both Coleman, and Hauser and Lueptow, involved only high school males and seem to provide contradictory results. These findings indicate the need for further research in this area.

Magill and Ash (1979) studied 321 students from the first through fifth grades and identified them as participants or nonparticipants in school or community sports programs. Their results indicate no relationship between sport program participation and academic achievement for this age group. While the work of Magill and Ash (1979) showed no relationship between sport participation and academic achievement, Hauser and Lueptow's findings do find a grade point average (GPA) effect. This effect may be due to the school grade difference between the participants in the two studies.

In a major study of 3,248 high school seniors, Wells and Picou (1980) investigated five hypotheses dealing with the effects of gender, race, and athletic participation on academic achievement. Their results showed no participation effect except for white male participants who had a higher GPA than the nonparticipants. For blacks of both genders and for white females there was no effect on academic achievement due to sport participation. The racial implication was not significant to the

present study but the gender effect for a greater GPA for males will be important since this theory is not hypothesized for the present study.

Ballantine (1981) in his meta-analysis of over 60 studies in the literature concerning athletic participation and academic achievement, concluded that there appeared to be a positive correlation between participation in sports and academic achievement. The relationship held for students from both lower and higher socio-economic backgrounds as well as for students from high schools at which athletes were held in high esteem. Peer group membership had a significant effect on academic achievement and academic aspirations.

Soltz (1986) in his study of over 6,000 high school students in Colorado involving athletes and nonathletes (1,500 participants, 4,553 nonparticipants) found that "athletes' GPAs are significantly higher than those of nonparticipating students. In addition, significantly fewer athletes receive a failing grade during competition than when they are not actively competing" (p. 23). Studies by Foon (1989) as well as Byrd and Ross (1991) on students from the sixth to the tenth grade emulated no effect of athletic participation on academic achievement. The Foon (1989) study conducted in Australia dealt with over 800 grade 10 students while the work of Byrd and Ross (1991) involved 379 senior elementary male students from rural Tennessee. The fact that these studies did not confirm the earlier findings indicated that further research was needed in the area of athletic participation and academic achievement.

The significance of the time involved as a participant has been neglected by past studies but was considered in this study. At the college level, Maloney and McCormick

(1993) investigated 12,000 undergraduate students at Clemson University including 600 intercollegiate athletic participants at the school. The participants in sports did not do as well as nonparticipants. The lower GPA occurs during the playing season for the athletes and, although there is a slight recovery during the off-season, it is not large enough to balance the GPA deficit created during the playing season. Bergin (1992) redefined the athletic participation variable to include leisure activity participation as well as sports. Leisure activity included such activities as sports, fishing, movie viewing, and computer time. Bergin investigated the effect of leisure activity participation on academic achievement using 159 students from grades 9 through 12 from San Francisco. The leisure activities were divided into three categories: academic (reading, computer activities...), total hours of involvement, and intense activities which included the sport participation. Results of the study showed that leisure activities are a modest predictor of academic achievement as measured by GPA. These students were not chosen on an athletic participation versus nonparticipation basis, so for the most part the athletic participation was on a recreational rather than varsity level. This research was important in helping to define the sport participation variable for the present investigation.

The researchers' findings on the effects of athletic participation on academic achievement are certainly not conclusive. The work of Bergin (1992) leads into the present study by redefining the participation variable as "leisure activities". Leisure activity was measured by the time spent in a number of physical and nonphysical activities. This definition of leisure activity created a variable that modestly predicted academic achievement as measured by GPA. The participation variable was modified to

include only physical activities for the present analysis. Participation will increase the academic achievement of the students and the level of achievement will depend on the level of participation. A comparison can be made between participation-achievement and arousal-performance as described by the inverted U theory (Yerkes & Dodson, 1908). As the level of participation increases, academic achievement increases to a certain optimum value. If the level of participation increases beyond this point then the academic achievement begins to decrease (see **Figure 2**).

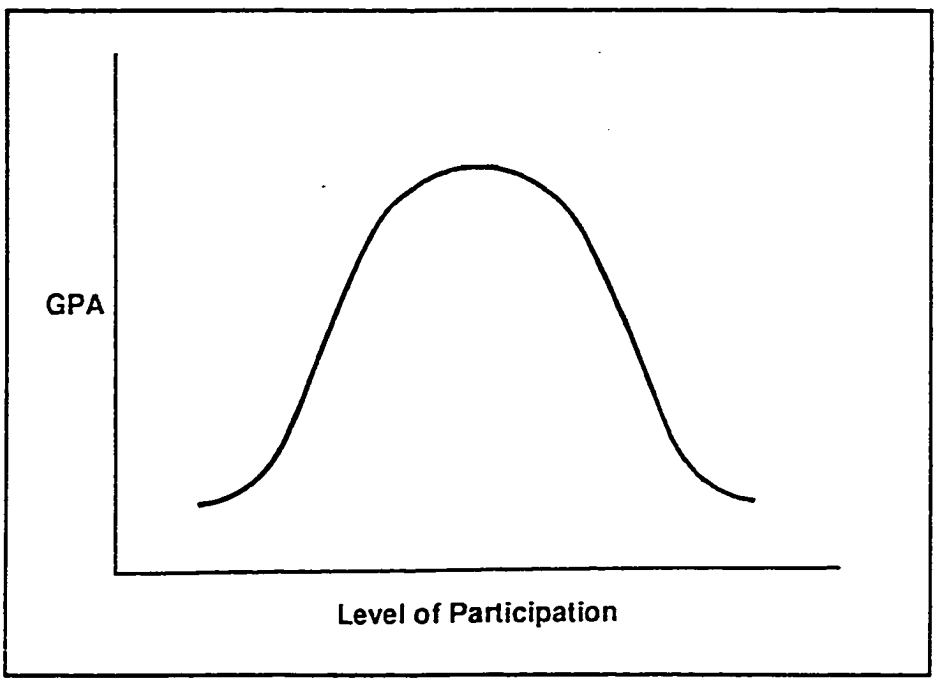

Figure 2. Inverted U Theory for academic achievement and level of participation.

Academic Aspiration

Otto and Alwin (1977) did a follow-up study of 340 males, 15 years after the group had been surveyed as 17 year olds, regarding athletic participation and educational

aspirations. Their findings lead to the following insights concerning athletic participation and educational aspirations and attainments:

> The long term effects of participation in athletics underscores the significance of adolescent performance criteria other than academic performance in the status attainment process. It has been argued elsewhere (e.g., Otto, 1975, 1976; Spady, 1970, 1971) that like an academic curriculum, extracurricular activities provide a forum for developing attitudes and skills from which status goals evolve and upon which future success is grounded. The fact participation in high school athletics has an effect on each form of aspiration and attainment suggests that the dynamics of the status attainment process are more complex than previous studies have indicated. The fact that significant-others assess a young man's athletic participation in establishing appropriate expectations for him suggests that other than narrowly defined academic performance criteria enter into their evaluations and encouragement. (p. 112)

Picou (1978) studied over 1,500 male seniors in 1970 and found modest support for the positive effect of athletic participation on academic aspirations. The study presented the participants with the question, "How much education do you desire and will you actively attempt to achieve?" (p. 433). Possible responses ranged from none to doctoral degree. The same question was used in the present investigation for measuring level of academic aspiration. McElroy (1979) investigated the relationship between athletic participation and educational aspirations on participants from different school environments. Schools were categorized as either academic or sport orientated based on

a survey of the students. Research data were collected from 1,800 male seniors from around the United States. Results revealed that the participation in interscholastic sport had a positive effect on educational aspirations regardless of the school climate. Melnick, Vanfossen, and Sabo (1988) did a longitudinal study using the responses of 5,700 female students from the High School and Beyond Study (1987) conducted across the United States. The participants were surveyed in their second and final year of high school to relate the effects of athletic participation to academic achievement and aspirations. Their results showed a slight positive effect on academic aspiration but no effect on academic achievement. The study also indicated that there appears to be a significant change in the female role from that of the 'leader in social activities' (Coleman, 1961) to that of one who can also excel in athletics.

The literature indicates that athletic participation is positively related to academic aspiration levels and the present research attempts to verify this relationship.

Gender Differences

Historically, many studies of athletic participation have ignored the female as a participant. Coleman (1961) set the tone for much of this research. His investigation claimed boys use athletics while girls use the social system to increase their social status. For Coleman sports was:

> a democratizing mechanism particularly important for boys, who, to begin with, are less involved in school than girls and get poorer grades. If it were not for interscholastic athletics or something like it, the rebellion against school, the rate

> of dropout, and the delinquency of boys might be far worse than they presently are. (p. 39)

This report stresses the importance of athletic participation for males but not for females. Hauser and Lueptow (1978) put forth a similar argument:

> Perhaps such factors as competitiveness, success striving and the ability to put out maximum efforts might account for success in both athletic and academic areas. In this regard it is interesting to note that Stevenson's (1975) review of studies showed the personality factor consistently found to differentiate athletes from nonathletes was a 'dominance' factor. Considering that aggressiveness and possibly also dominance and competitiveness are personality characteristics most clearly differentiating males and females, these patterns raise interesting questions relative to the contemporary concern about equalizing educational experiences of boys and girls. (p. 308)

By the 1980's, participation studies started to include females as well as male participants. Wells and Picou (1980) found definite gender differences comparing athletes to nonathletes in the areas of educational ambition and academic performance. Males had higher levels of educational ambition and academic achievement compared to females, and for both genders athletic participants scored higher than nonparticipants. The participants in this analysis were high school seniors and the athletes played on an interschool team. The sample consisted of over 3,000 students from a southern state and the data were collected in 1970. Magill and Ash (1979) found no effect of sport participation for children in grades 1 through 5 on perceptual-motor ability, self-concept,

academic achievement, trait anxiety, or physical fitness. The intent of their work was to examine the results on the basis of gender and participation but they found no support for separating the subjects on the basis of gender. This finding could indicate an age effect when dealing with gender differences. In a recent study, Marsh (1993) concludes there is a " lack of sex differences in the positive effects associated with participation in sport... and increased public awareness and the accumulated impact of attempts to break down sexual stereotypes in educational settings apparently were successful" (p. 37).

The hierarchical model for self-concept (Byrne & Shavelson, 1987) presents a gender difference within the academic facets of the model. The authors warn that "the invariance of self-concept for males and females cannot be taken for granted" (p. 382). They found the correlations for mathematics and English in the academic component of self-concept differ for males and females. This gender effect is an important consideration in the choice for the type of self-concept to be measured. The present study will use general self-concept to allow for the use of a single test rather than gender specific tests that would have to be used for other levels of self-concept. Melnick et al., (1988) used the data collected from over 5,000 high school girls to find that athletic participation did not appear to raise self-esteem or academic achievement. Their analysis did demonstrate "that as a direct result of their participation, senior female athletes experienced a modicum of perceived status enhancement, increased extracurricular involvement and, perhaps the most important, at no expense to their intellectual or psychological well-being" (p. 33). Foon (1989) found no gender difference with self-esteem or academic achievement. Both genders showed an increase in self-esteem with

athletic participation and no participation effect on academic achievement. This study was done with grade 10 students (15 years old) but the degree of sport participation is not clear. The participation variable was defined as 'after-school sport'. It is not clear whether this participation had to be a school related activity or not.

Participation

Marsh (1993) defined athletic participation based on the student response to one of three possible categories (participant, nonparticipant or leader/officer). Studies by Feltz and Weiss (1984), Otto and Alwin (1977), and Spady (1970) have shown that participation effects may extend beyond the narrow definition of being either a participant in a varsity activity or being classified as a nonparticipant in athletics. The actual number of activities in which one is involved is positively related to educational aspiration and educational attainment. Holland and Andre (1987) also considered the total number of different activities listed by each student as part of the participation variable.

Purpose of Study

This study looked for the possible relationships between level of sport participation, gender, and academic stream and high school students' level of self-esteem, academic achievement, and educational aspiration.

Hypotheses

As the level of sport participation increases, students will display higher levels of self-esteem (Foon, 1989; Kamal et al., 1995), academic achievement (Bergin, 1992; Soltz, 1986), and educational aspirations (Fejgin, 1994; Melnick et al., 1988). Academic achievement would be greatest for students at the medium level of participation.

Gender is not expected to show a significant difference for academic achievement or educational aspirations (Holland & Andre, 1988; Marsh, 1995).

Academic stream is not expected to influence any of the dependent variables (Byrne, 1990).

CHAPTER 2

Methodology

Participants

The participants for the study were 341 potential graduates from three local high schools. A pilot study was conducted using one class of graduating students (30 students). The Research Procedures (policy 3080) for the Lakehead Board of Education were completed and the code of ethics procedures for the board were followed. The methodology was approved for use and followed the Ethics Procedures and Guidelines for Research on Human Subjects for Lakehead University. Consent forms and Freedom of Information waivers (see Appendix B) were distributed to all potential participants in the study three days before the actual test date. The waiver allowed the researcher to access the school records to verify the marks the students recorded on the questionnaire. Before answering the questionnaire, consent forms with parental consent for those under 18 years of age were returned to the research assistant conducting the test.

Materials: Test Instrument

The test instrument consisted of a five part questionnaire (see Appendix A). The first section dealt with background information about the participant; name, birth date, academic stream, and the number of academic credits. The second section dealt with the students' academic achievement and asked for the student to record the marks from the last five courses taken. These marks were verified from the students' records if they signed the "Freedom of Information" waiver (see Appendix B). Section three asked the students to list all the sports they participated in over the course of the year and to

estimate the number of hours they participated in each sport. Several examples were shown to give the students an idea of how to complete the chart. The teacher administering the questionnaire suggested to the students that they think in terms of a week for hours of participation then multiply that result by four for the monthly total. The fourth section involved the academic aspiration of the student, their best friend, and the parents or guardians level of academic attainment and their educational aspiration. The final section of the questionnaire was a measure of self-esteem, the SEI (Coopersmith, SEI, 1981). This survey was a 25 item test which was hand-graded and provides a score for general or global self-esteem. The SEI has been tested for reliability and validity for adults and students over 15 years old. Bedeian, Geagud, and Zmud's study (as cited in Coopersmith, 1981) found reliability alphas of .80 for males and .82 for females. Validity tests (Coopersmith, 1981) to compare the SEI with the Rosenberg scale found correlations of .59 and .60 for 300 college students. The test shows no significant gender or school effects. The reliabilities for the SEI for students 16 to 19 years is $\alpha = .80$; for females, $\alpha = .83$; for males, $\alpha = .79$ (Coopersmith, 1981). The test has been used recently for testing self-esteem of high school-aged female dancers (Blackman, Hunter, Hilyer, & Harrison, 1988) and also for testing university athletes (Evans, Weinberg, & Jackson, 1992).

Design and Procedure

The students were given the consent/waiver forms on Monday of the test week by their classroom teacher. The cover letter (see Appendix B) explained the purpose of the survey so no further explanation would be required. The administration of the

questionnaire followed three days later on the Thursday. This procedure allowed the classroom teacher three days to collect the consent forms from their class. This method also avoided using Friday as a testing day since decreased attendance on some Fridays would lower participation numbers, especially during period one. Each classroom teacher administered the questionnaire to his or her own class. The questionnaire was discussed with each teacher prior to the actual test date. The researcher started the survey in each class and was available to answer any questions and to emphasize to the students the importance of their input into the survey. The estimated time for completion of the survey was approximately twenty minutes and it was done during the regular class.

The teachers reported the approximate time taken to complete the surveys as well as any unusual things that may have happened while the survey was being completed. The completed consent forms and questionnaires were collected by the researcher at the end of the period. The questionnaires were then matched with consent forms by name to enable the verification of self-reported marks from the Ontario Student Records (OSR's) for those students who signed the Freedom of Information Waiver. The five course marks were verified from the school records to compare the self-reported marks to the actual marks. The questionnaire results were tabulated on a summary data sheet by numerical code only and any reference to names was subsequently removed.

All of the steps in the design were followed for the pilot study. The pilot study was used to test the clarity of the testing instruments, to find an estimate for the time of

completion for the questionnaire and to help determine participation grouping times (see Appendix C).

Data Analysis

The initial data included a subject identification number, birth date, school, OAC and total course credits. Provincial course code, self-reported marks, and actual marks (from OSR) were also included. These five marks were averaged to determine the grade point average (GPA) for each student. Ballantine (1981), Bergin (1992), and Maloney and McCormick (1993) used GPA as the most suitable measure of academic achievement. GPA is used since it means the most to the students and it is used by the educational institutions as a measure of achievement (Byrne, 1990).

The participation information and the hours of participation were used to classify the students into three groups determined by the extent of the participation. Based on the pilot study results, participation groups with equal numbers of students were used. The hours for the groups were; 0-234 hours (low participation), 235-441 hours (medium participation), and 442 and above hours (high participation) (see Appendix C). Levels of academic aspiration (McElroy, 1979; Melnick et al.,1988; Wells & Picou, 1980) for the participant, parents or guardians, and best friend were also recorded. The self-esteem measure was obtained from the SEI score. (Evans et al.,1992; Legros, 1994). A scoring key was provided for this purpose.

The experimental design was a between groups factorial MANOVA. The independent variables for the analysis were; level of participation (low, medium, and high), gender, and academic stream (advanced or general). The dependent variables were; self-esteem, GPA, and educational aspirations. The results were examined for interaction and main effects.

CHAPTER 3

Results

Descriptive Analysis

Frequencies

Demographic variables. All of the subjects in the study (N=341) were potential high school graduates for the current academic year 1995-96; that is, they had a minimum of 30 credits by the end of the term. All graduates receive their Ontario Secondary School Diploma (OSSD). If the student has six Ontario Academic Credits (OACs) as part of the minimum 30 credits (advanced level students), the graduate qualifies to apply to university (77.4% of the sample). There is no special diploma for this achievement, but some schools do present a school document to recognize the OAC graduate. Graduates receiving their OSSD without six OAC credits, (22.6% of the sample) may apply to study at the college level (general level student). Forty-eight percent of the students sampled were female and fifty-two percent were male. The subjects were selected from three local high schools and the number of participants by school were: 44.3%, 34.9%, and 20.8% of the total sample.

Participation in recreational and varsity sports is illustrated by level of study (see **Figure 3** and **Figure 4**): advanced level is with six or more OAC credits (potentially university bound) and general level is without six OAC credits (potentially college bound). Advanced and general level are also referred to as academic stream. In the two figures, the number of participants is shown as a percentage of the total number in the

group. The percentage method, rather than number of participants was used only for the independent variable of academic stream as the ratio of advanced to general level students was approximately four to one in the study sample. This imbalance between the two academic levels makes participation by number of students skewed towards the advanced level and when compared with the general level, does not clearly illustrate degree of participation in each category. The level of participation based on percentage was approximately the same for both academic streams. The number of sports played recreationally varied from none up to a maximum of ten. These sports were primarily outside of the high school. Seventy-two percent of the students were involved in two to five recreational activities (see **Figure 3**).

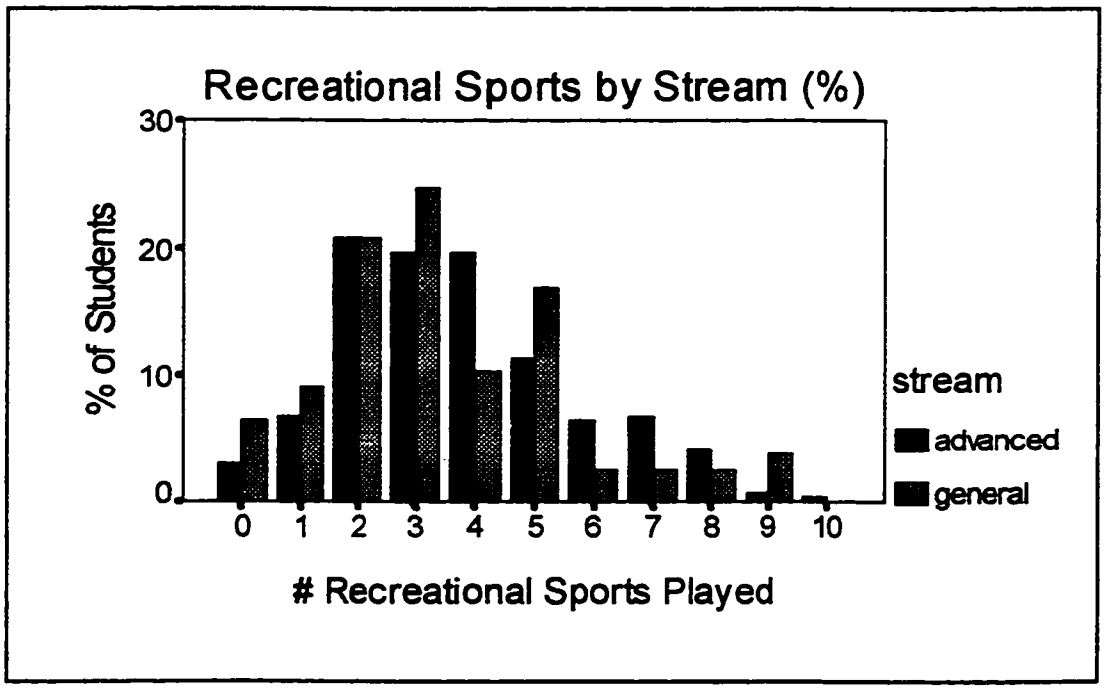

Figure 3. Participation in a number of different recreational sports by academic stream. The number of students is expressed as a % of the total in that stream.

There was much less student participation in varsity sports compared to recreational sports. The majority of students were not involved in any varsity sports: at the general level, the mean equals .47 sports per student and for the advanced level, the mean equals .92 sports per student. For recreational participation (see **Figure 3**) the number of sports the students were involved in was substantially higher than at the varsity level: at the general level, the mean is 3.40 sports per student and at the advanced level, the mean is 3.73 sports per student (see **Figure 4**). There was no restriction on the number of recreational sports in which a student might be involved. There were restrictions on the number of varsity sports in which students might participate. School sports restricted students to participate in only one varsity sport in a season. Varsity sports outside the school such as hockey or downhill skiing may also place restrictions on athletic participation in other sports to reduce the chance of potential injuries to the

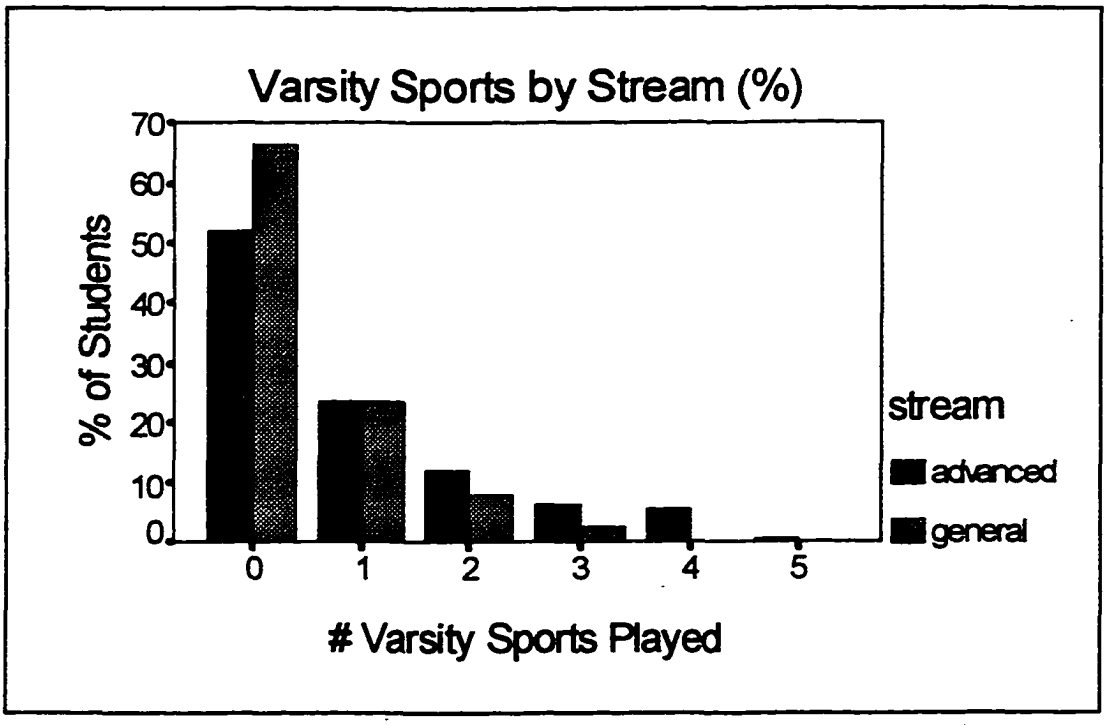

Figure 4. Participation in a number of different varsity sports by academic stream. The number of students is expressed as a % of the total in that stream.

athletes or to reduce athletic participation time for academic reasons.

Participation in recreational and varsity sports by gender is illustrated in **Figure 5** and **Figure 6**. As the sample numbers were of approximately the same size, the participation was measured by number of students rather than percentages in these two figures.

Participation in recreational sports in terms of numbers of participants was the same for both genders. At the varsity level, more females than males did not participate in any varsity sports and males had higher participation levels than females for the remaining categories.

Seventy-two percent of the sample (245 out of 341 students) participated in two to five recreational sports, while 50 % of the sample (188 out of 341 students)

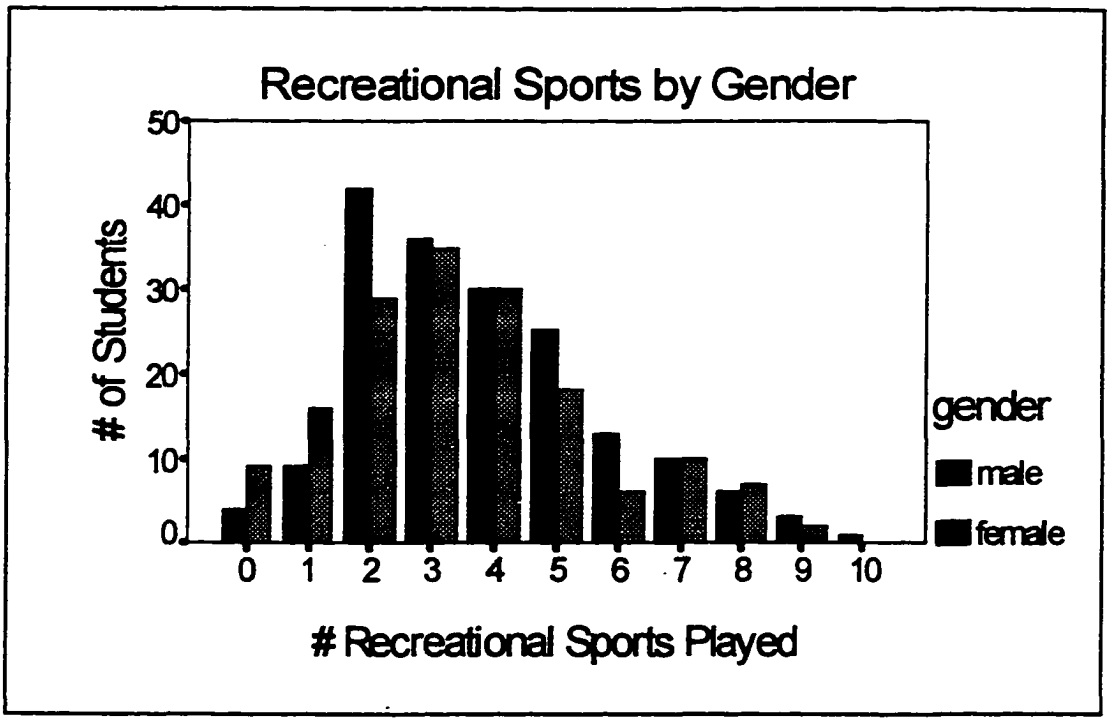

Figure 5. Participation in a number of different recreational sports by gender.

participated in no varsity sports. Eighty percent (268 out of 341 students) participated in one or less varsity sports. There was a large variation in the number of sports in which students were involved at the varsity and recreational levels. For recreational sports, the mean number of sports per student was 3.51 for females and 3.79 for males. For varsity sports, the mean number of sports per student was .67 for females and .94 for males.

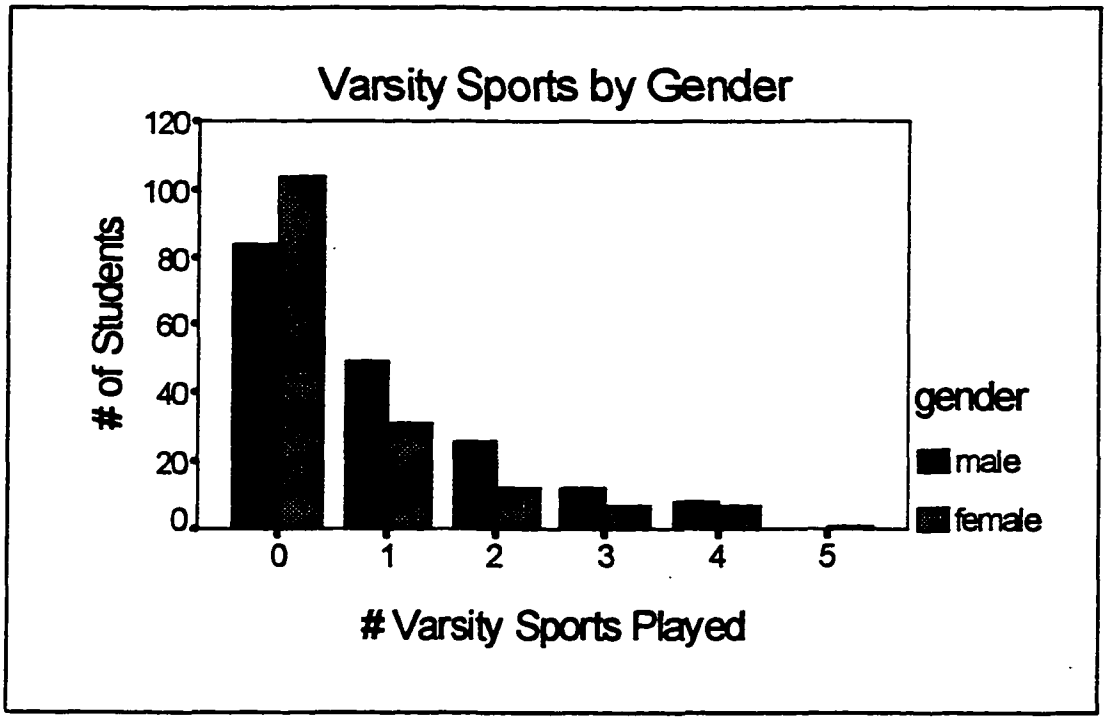

Figure 6. Participation in a number of different varsity sports by gender.

Ranges, Means and Standard Deviations

Demographic variables. Athletic participation was presented in terms of the number of participation hours over the course of the year. The participation included July and August during which times there were very few actual school (varsity or recreational) sports (girls cheerleading would be one of the few school athletic activities in these two months) but there were many opportunities for students to be involved in recreational activities. The differences in the level of participation for students were illustrated by the ranges in participation times. The range for participation per year from a minimum of zero hours for varsity sports was 640 hours or 105 minutes per day for general level students and 820 hours or 135 minutes per day for advanced level students.

For recreational sports, the participation maximum for general level students was much higher at 1850 hours for the year or 304 minutes per day from a minimum of zero hours while the participation for the advanced level students had a range of 1145 hours or 188 minutes per day (see **Table 1**).[1]

Table 1
Participation in sports by academic stream expressed in hours per year.

	General (n=77)	Advanced (n=264)
Sport Participation	Range*	Range*
Varsity Sports	640	820
Recreational	1850	1145

*Minimum participation = 0 hours

Varsity and recreational participation was also examined by gender. Participation times for females in varsity sports had a range of 820 hours per year or 135 minutes per day and for males, 750 hours per year or 123 minutes per day. The range for participation in recreational sports was higher at 1220 hours per year or 201 minutes per day for females and 1850 hours per year or 304 minutes per day for males (see **Table 2**).

[1]The entire sample was used to calculate each sample mean for both recreational and varsity level participation hours, the numbers were not adjusted to reflect the non-participants in each level.

Table 2
Participation in sports by gender expressed in hours per year.

	Female (n=162)	Male (n=179)
Sport Participation	Range*	Range*
Varsity Sports	820	750
Recreational	1220	1850

* Minimum participation = 0 hours

When the sample was examined in terms of academic level, there was a substantial difference in the number of OAC credits between the advanced and general levels. ANOVA analysis (single factor) shows the difference between the means for OACs completed is statistically significant, $F(1, 338) = 158.36$, $p < .01$, as is the difference between the OACs in progress, $F(1,339) = 446.82$, $p < .01$. There was also a significant difference in the total number of credits (completed and in progress), $F(1, 339) = 102.38$, $p < .01$, and for the number of credits completed $F(1,339) = 28.91$, $p < .01$. The mean for the number of credits completed at the general level was almost four credits less than at the advanced level (see **Table 3**).

Table 3
Number of academic credits by academic stream.

	General (n=77)		Advanced (n=264)	
Courses	M	SD	M	SD
OACs (Completed)	.06	.30	2.76	1.87
OACs (In progress)	.03	.16	2.31	.95
Credits (In progress)	3.86	.18	3.24	.78
Credits (Completed)	26.79	1.63	30.51	3.10

Males and females in the sample showed no significant difference at the OAC level for credits in progress or for the total number of credits. For both genders, the credits completed and in progress were very close to the sample means of 29.67 with $F(1, 339) = .56$, $p = .45$ and 3.38, with $F = .25$, $p = .62$ respectively. For OACs completed, the mean equalled 2.15, $F = .08$, $p = .77$ and the mean for OACs in progress equalled 1.80, $F = .70$, $p = .40$ (see **Table 4**).

Table 4
Number of academic credits by gender.

	Female (n=162)		Male (n=179)	
Courses	**M**	**SD**	**M**	**SD**
OACs (Completed)	2.18	1.94	2.12	2.06
OACs (In progress)	1.86	1.25	1.74	1.29
Credits (In progress)	3.35	.87	3.40	.97
Credits (Completed)	29.53	3.14	29.79	3.31

Figure 7 illustrates the frequency distribution for yearly sports participation (hours) and the number of participating students. The mean for participation was 403 hours (SD = 308.67 h) with a range from 0 to 1854 hours. The entire sample was divided into three participation groups with participation as the independent variable. Dividing the sample into three groups based on participation had only been done in one previous study (Manktelow, 1996). Each group had one-third the total sample number in the participation grouping (Keppel, 1991). The method of equal numbers of participants in each group was tried for this sample since there were no previous standards for participation groups. To compare the student participation on the basis of the type of activity in which they were involved, participation was measured by the self-reported participation data for both varsity and recreational sports for the year, measured in hours.

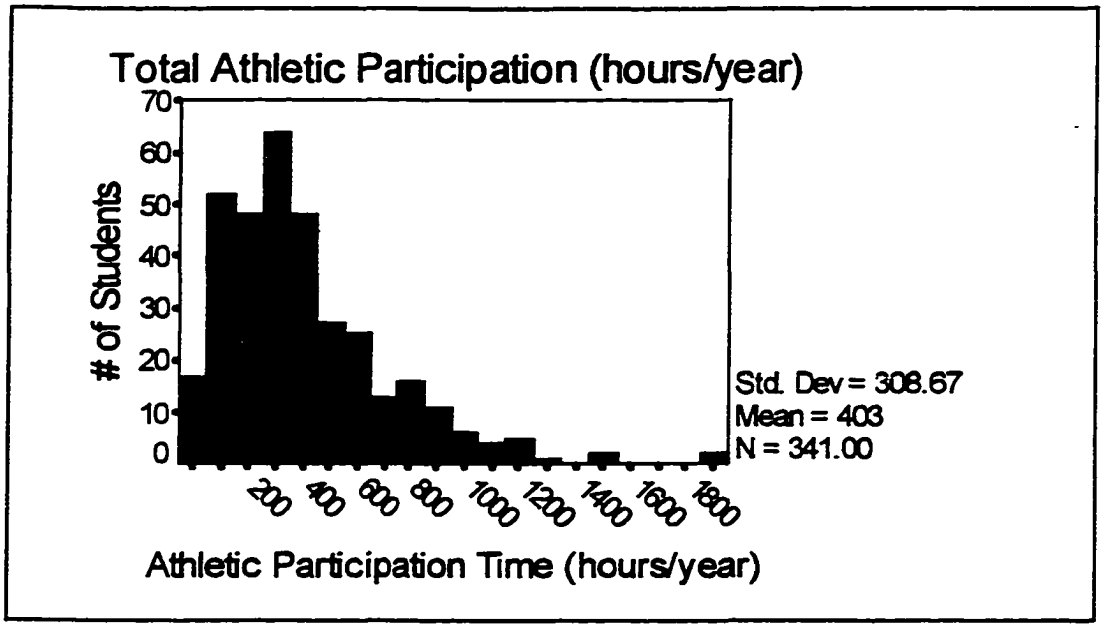

Figure 7. Total athletic participation for the year.

Hours for the first group (114 subjects) ranged from 0 to 234; the second group (114 subjects) ranged from 235 to 441; the third group (113 subjects) ranged from 442 to the maximum of 1854 hours. Three sports participation levels were created using athletic participation grouping as an independent variable with levels of low, medium, and high (see **Table 5**).

Table 5
Participation in sports (hours/year) by athletic participation grouping.

	0 to 234 hours n = 114		235 to 441 hours n = 114		442 to 1854 hours n = 113	
Sport Participation	M	SD	M	SD	M	SD
Varsity Sports	15.69	41.20	85.25	111.63	212.07	225.99
Recreational	107.84	67.76	252.80	109.06	538.75	302.97

The mean number of hours of participation at the varsity level ranged from 2.6 min per day to 35 min per day. Conversely, recreational level participation ranged from 18 min per day to 90 minutes per day. If the actual number of sports were considered, the mean values for varsity sports ranged from .26 sports per year to 1.36 sports per year. At the recreational level, the number of sports per year for the three participation groups ranged from 2.72 sports per year to 4.55 sports per year.

The academic credits selected by the different athletic participation groups indicated there was very little relationship between participation levels and numbers of credits as illustrated in **Table 6**.

Table 6
Academic credits by athletic participation grouping (n = 114 for each group).

	0 to 234 hours		235 to 441 hours		above 442 hours	
Courses	M	SD	M	SD	M	SD
OACs (Completed)	2.25	1.94	1.89	1.89	2.30	2.15
OACs (Taking)	1.76	1.24	1.77	1.29	1.86	1.29
Credits (Taking)	3.28	.90	3.53	.93	3.33	.93
Credits (Completed)	29.73	3.31	29.36	3.06	29.92	3.32

Using gender as a criterion, ANOVA analysis indicated there was no statistically significant difference in the self-esteem scores; for females the mean was 72.62 and for males the mean was 74.50, $F(1, 339) = .89$, $p > .05$. There was a significant difference for SEI with academic level; advanced level students had higher self-esteem than general level students, $F(1, 339) = 15.48$, $p < .01$. Athletic participation groupings also indicated a significant difference in self-esteem scores (Tukey HSD); those who participated most had higher self-esteem than those who participated least, $F(2, 338) = 4.30$, $p < .05$ (see **Table 7**).

Table 7
Self-esteem scores as measured by the Coopersmith SEI test for gender, level, and participation.

Self-Esteem Score	mean	std dev	n	mean	std dev	n	mean	std dev	n
	Female			**Male**					
Gender	72.62	19.92	162	74.50	16.94	179			
	General			**Advanced**					
Academic Level	66.49**	19.99	77	75.68**	17.43	264			
	0 - 234 h			**235 - 441 h**			**442 h - maximum**		
Athletic Participation	70.14*	19.51	114	73.47	18.24	114	77.24*	16.84	113

*$p < .05$ **$p < .01$.

Correlations

Self-reported and OSR verified marks. The correlation between self-reported and verified marks is depicted in **Figure 8**. The mean value for self-reported marks was 74.83% (SD = 8.48%) based on 340 subjects. The mean value for OSR verified marks was 74.60% (SD= 9.09%) based on 300 subjects who signed the information release to have their marks verified. The correlation coefficient for self-reported and verified marks was .92; therefore 85% of the variance between the two marks was explained.

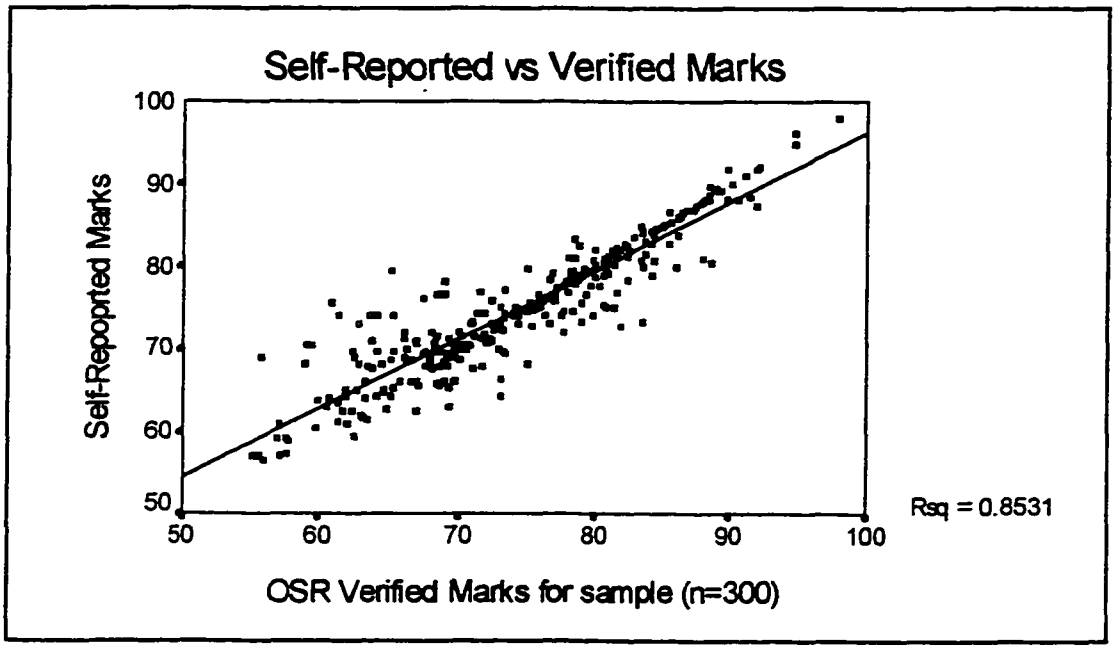

Figure 8. The line of best fit for the correlation of self-reported and verified marks.

The results for educational aspiration presented by gender are depicted in **Figure 9**. University was the goal of 45% of the students with 105 students entering a program leading to a three or four year degree and 49 students entering programs leading to post graduate studies. Twenty-nine percent (100 out of 341) of the students were returning to high school for more credits or upgrading of marks. Fifty-three students had selected college diploma programs (16%). Neither gender nor athletic participation was a factor for students' educational aspirations; academic stream was a significant factor.

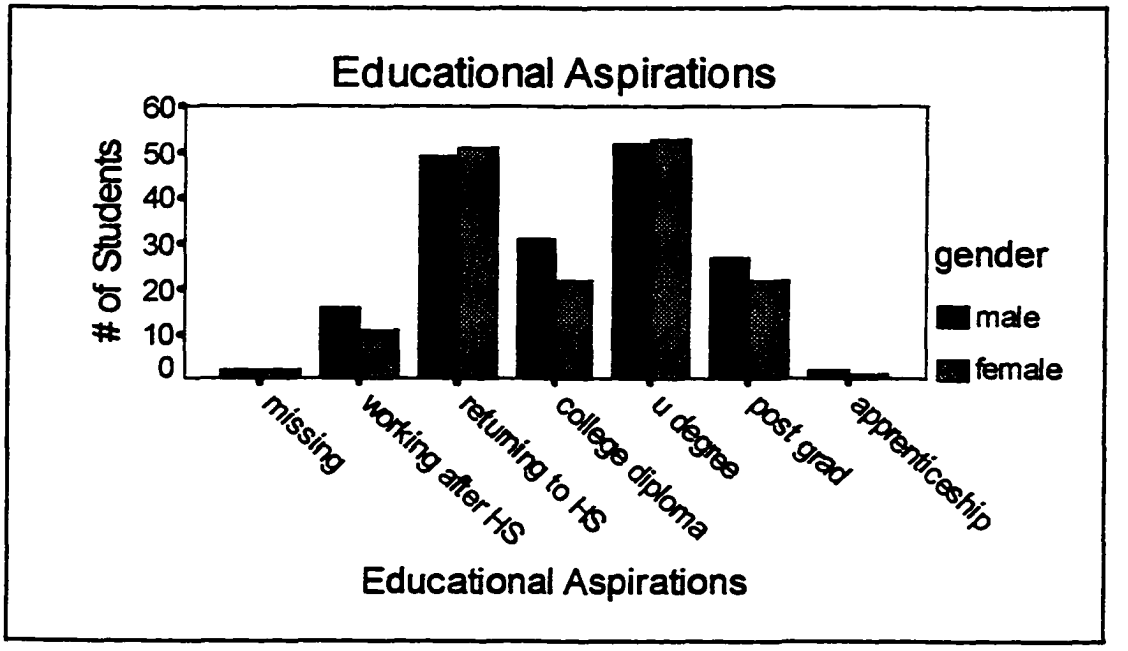

Figure 9. Educational aspirations of the potential graduates.

SEI, GPA, and Educational Aspirations Relationships

Multiple analysis of variance on GPA and SEI

The dependent variables of grade point average and self-esteem score were examined with the independent variables of gender, academic level, and athletic participation grouping. MANOVA results are shown in **Table 8**.

Table 8
MANOVA results for SEI and GPA with participation, gender, and level.

		F	
Source	df	SEI	GPA
Athletic Participation (A)	2	.81	2.57
Gender (B)	1	3.08	7.16**
Academic Level (C)	1	20.43**	12.63**
A X B	2	5.89**	2.48
A X C	2	.41	2.10
B X C	1	5.42*	.013
A X B X C	2	1.18	2.92

*$p < .05$. **$p < .01$.

There were no significant interaction effects with the independent variables for GPA. There were main effects for GPA with gender and academic level. Females' GPAs were significantly higher than males, $F(1, 328) = 7.16$, $p < .01$ and advanced level

students' GPAs were significantly higher than general level students, $F(1, 338) = 12.63$, $p < .01$. The main effects of both gender and academic level with GPA are illustrated in **Figure 10**.

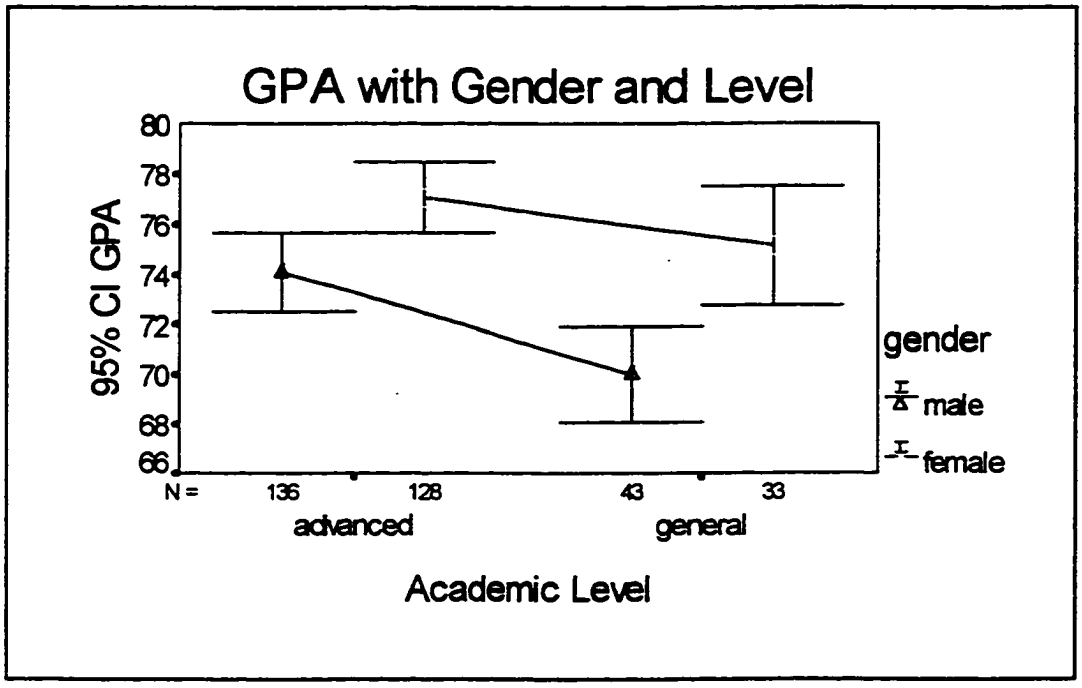

Figure 10. The relationship of academic level with gender on GPA.

The interaction of gender with academic level, $F(1, 328) = p < .01$ was statistically significant. SEI score was the same for both genders at the advanced level but not for students at the general level. General level females have much lower SEI scores than general level males. The interaction of gender and athletic participation for SEI was also statistically significant, $F(2, 328) = 5.89$, $p < .01$. For males, SEI score was greater with increased participation. The SEI score did not change with different levels

of participation for females. The interactions of participation, gender, and academic level with SEI scores are illustrated in **Figure 11** and in **Figure 12**.

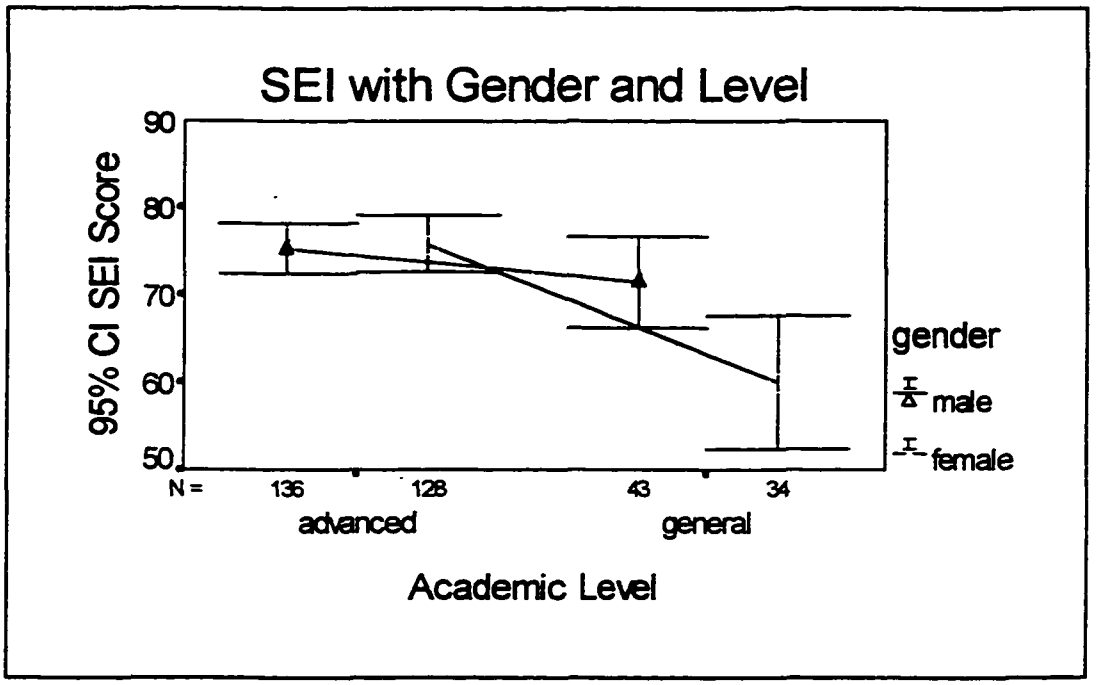

Figure 11. The relationship of academic level with gender on SEI score.

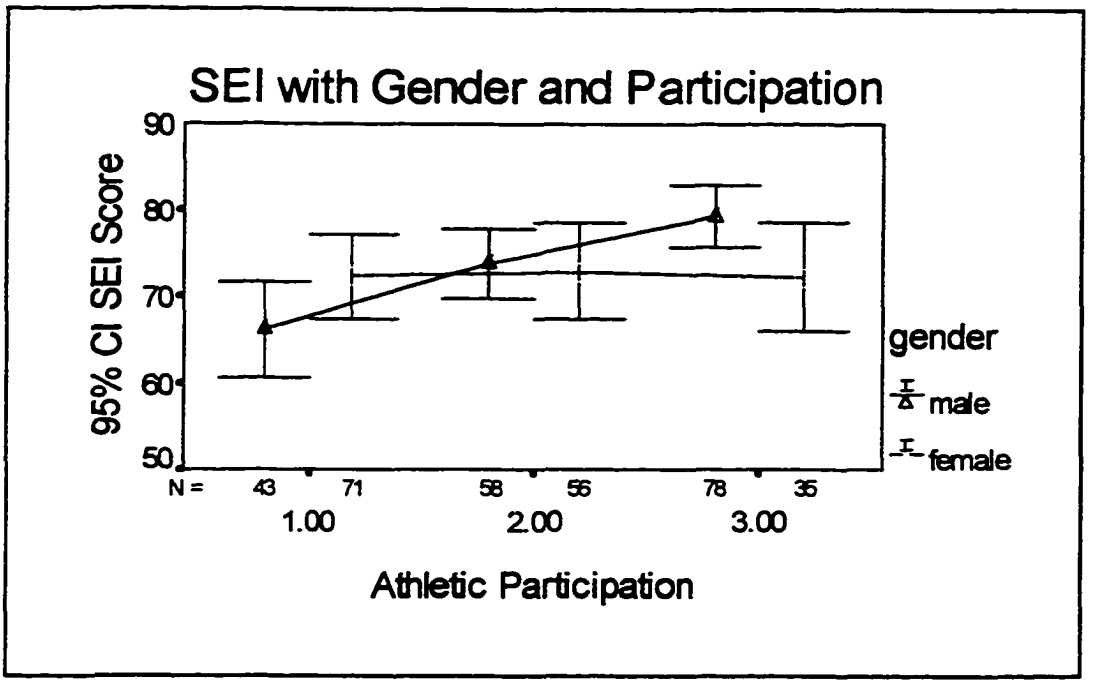

Figure 12. The relationship of athletic participation with gender on SEI score.

Chi-squared Test.

The relationship of the educational aspirations of students to athletic participation, gender, and academic level were examined with the Pearson chi-square for nominal data using Phi and Cramer's V. The relationship between academic level and educational aspiration was statistically significant, χ^2 (1, n=341) = 102.5, $p < .01$. There was a difference in the choices that students made for their educational plans for next year based on their present academic level. Advanced level students were more likely to indicate a desire to obtain further education than students in the general level.

Participation as a Continuous Variable.

Since athletic participation was recorded by each student in terms of the number of hours they spent in each sport, participation was also examined as a continuous

(dependent) variable. For males (n = 179), the athletic participation had a mean of 470.33 hours (SD = 312.20 hours) and for females (n = 162), the mean was 328.89 hours (SD = 287.87 hours). MANOVA results (see **Table 9**) for the relationship between gender and academic level for SEI, GPA, and athletic participation indicated interaction effects, for athletic participation $F(1, 336) = 5.08$, $p < .05$ and for SEI score, $F(1, 336) = 5.17$, $p < .05$.

Table 9
MANOVA results for SEI, GPA, and PARTICIPATION with gender and level.

		F		
Source	df	SEI	GPA	Participation
Gender (A)	3	4.25*	14.23***	23.00***
Academic Level (B)	3	15.64***	7.81**	.22
A X B	3	5.17*	.98	5.08*

*p < .05. **p < .01. ***p < .001.

A main effect with level was shown for SEI and GPA. A main effect for gender was also shown for SEI, GPA, and participation. Gender was the only variable to show a main effect for participation. The interaction effect of gender and level with athletic participation is illustrated in **Figure 13**. General level males participated more than advanced level males (advanced level, M = 444.61 hours, general level, M = 551.67 hours). The level of athletic activity for general level females was lower than the activity level for advanced level females (advanced level, M = 344.83 hours, general level, M =

268.74 hours). This figure depicts a disordinal interaction between academic level and gender.

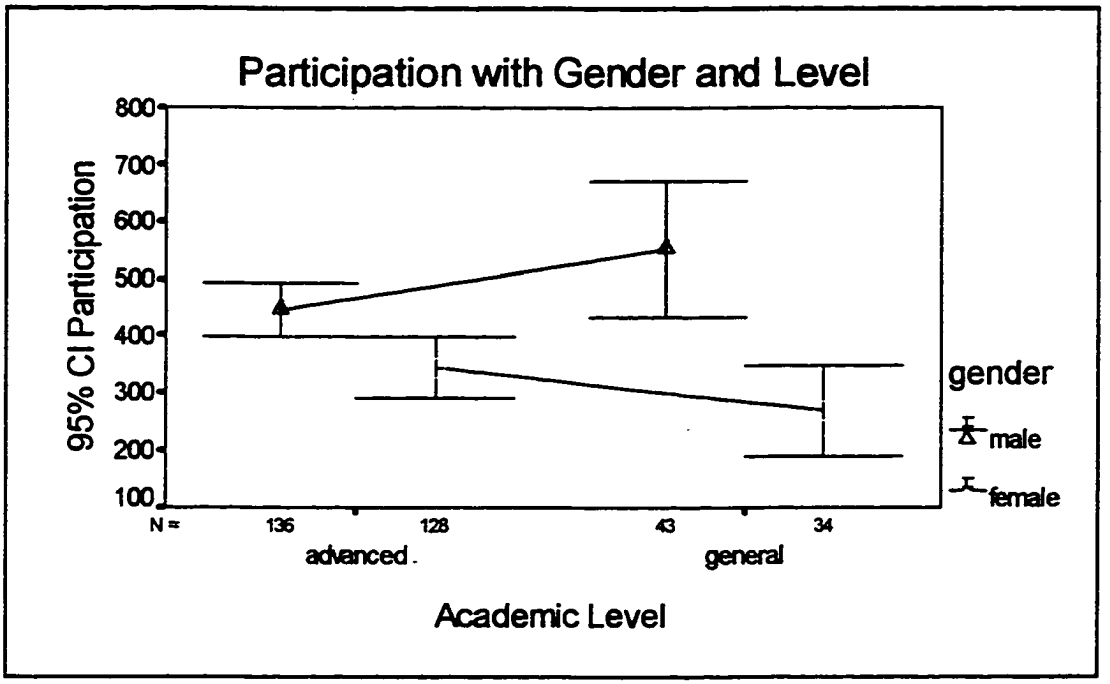

Figure 13. The relationship of academic level and gender with athletic participation.

Academic level had no significant relationship with athletic participation (see **Table 9**). Graphs were plotted to compare academic level with recreational, varsity, and total athletic participation. (see Appendix E, **Figure 20**, **Figure 21**, and **Figure 22**). Since varsity and recreational participation illustrated opposite effects on participation, ANOVA analysis was used to determine the component variable effects (see **Table 10**). While academic level had no relationship with the total participation variable, there were statistically significant relationships with both varsity and recreational participation.

Table 10
ANOVA results for Participation, Recreational, and Varsity with academic level.

		F		
Source	df	Participation	Recreational	Varsity
Academic Level	1	.58	5.80*	5.40*

*$p < .05$.

General level students had higher participation in recreational sports, while advanced level students participated more at the varsity level. The mean (hours/year) for participation of the general level student in recreational sports was greater than the participation mean for the advanced level student in varsity sports.

CHAPTER 4

Discussion

Population Demographics

All of the subjects who participated in this research were potential graduates in the 1996 academic year. The three schools used in this study were part of the public school system. The choice of schools was made to try and reflect the varied ethnic and social demographics of the city. The schools represented all areas of the city and all three have full intercollegiate athletic programs and offer a wide variety of athletic opportunities for student participation. The schools all had a rural as well as an urban student population and offered a complete program for both general and advanced level students. The gender equality in the sample (47.5% female, 52.5%, male) closely reflected the overall gender make up of the three schools (50.6% female, 49.4% male). The academic level split (77.4%, advanced level 22.6%, general level) did not accurately reflect the overall student population within the schools (64.1% advanced, 35.9% general)[2]. This difference may be explained by the fact that 70% of the surveys which were not used (82 surveys) for reasons of completeness, were from general level students. The large sample size of 341 students did however suggest that the sample had a normal distribution for all of the dependent variables and there were at least 15 cases per group. To illustrate their distributions compared to the normal distribution, the graphs of the means for GPA, SEI, academic aspirations, and athletic participation are

[2] From the principal's report to the Board of Education, September 30, 1995.

illustrated in Appendix D. Only the group that was split by gender, by level, and by athletic participation created groups of less than the 15 subjects needed for statistical testing.

Mark Correlation.

The correlation coefficient of self-reported and OSR verified marks was unexpectedly high. The correlation was .92, indicating that 85% of the variation between self-reported and OSR verified marks was explained. Wells and Picou (1980) in an earlier study which involved self-reported marks, found a correlation of .79 (coefficient of determination of 62%). In that study, only the final average GPA was recorded as one average mark for each student (N = 3248) while each student had five marks recorded in this study. Another difference between the studies was the fact that in the study by Wells and Picou (1980), only 50% of the marks were verified while 88% (300 out of 340 students) of the students, or approximately 1500 marks were verified in this research. Part of this very high correlation may be due to the timing of the survey in conjunction with the school year. For all three schools in the study, the survey was administered within three weeks after report cards were handed out. For most students, the report card supplied them with most of the five marks that were required for the data collection. Other factors which may have influenced the students in their self-reporting of marks were the fact that a mark verification was being done on the marks of some students and the researcher was also a teacher in the school system. The correlation between self-reported and verified marks was examined for the effects of level, gender, athletic participation group, and class standing (grade). Grade grouping was defined into two

categories of either equal to or below the class mean mark ($\underline{M}$ = 74.83%) or above the class mean mark. The correlation coefficients range from a high of .95 for advanced level students to a low of .78 for general level students. All the remaining groups have correlation coefficients of .90 and above ($\underline{p} < .01$ for all groups). These values show there is an overall internal consistency with the correlation of self-reported to OSR verified marks. The measurement of GPA used for analysis in this report is meaningful. Students appear to be realistic in reporting marks, at least when the students know the marks will be verified.

Athletic Participation: Self-reported Activity.

Sport activity in this research was used as an independent variable divided into three activity levels based on the self-reported yearly participation hours. The entire sample was divided into three equal groups producing levels of low participation (0 to 234 hours), medium participation (235 to 441 hours), and high participation (442 to 1850 hours). Participation was then used to investigate participation effects on self-esteem, academic achievement, and academic aspiration. The quantitative approach of self-reported athletic participation provides a precisely defined measure of athletic activity. Previous studies (Byrd & Ross, 1991 and Maloney & McCormick, 1993) measured athletic activity based on participation on a varsity team determined from yearbook studies or participation in "an activity that was pursued 10 or more hours per week" (Bergin, 1992, p.557). These studies did not obtain athletic participation data from the students themselves. This method did not allow students to in put athletic participation that was not covered by the school yearbook. Individual athletic

participation could not be examined using this method and perhaps explains why previous studies used very restrictive definitions for athletic participation. The input received from the students for the present research would seem to be a superior method of obtaining meaningful input for a wider range of participation.

Athletic participation, gender, and academic level:

There was a significant interaction of athletic participation with gender on level of self-esteem (see **Figure 12**). The hypothesis that greater participation related to higher self-esteem scores was supported for males but not for females.

Increased athletic participation may not be the solution to raising self-esteem scores for female students. Although there was a gender difference in this area, it was not in the direction predicted. Increased athletic participation was related to higher SEI scores for males but not for females. The gender difference for the relationship of athletic participation to SEI scores is difficult to explain. Further studies in this area are needed to determine the cause of the gender difference and also the interaction with academic level. The gender effect for participation has been observed in other studies. Marsh (1995) and Melnick et al. (1988) both noted no effect of athletic participation on SEI for female students. Both these studies used national data sets from high schools in the United States, collected in the mid-1980s. A possible explanation for the gender effect may be the difference in value that females and males place on sport participation. Males playing sports enhance their masculinity and perhaps this same masculinization is applied to female participants. This masculinization makes females far more hesitant about varsity or recreational athletic participation compared to males. The negative image

makes it very difficult for females to feel good about themselves based on their participation.

Part of the negative image for females in sport can be traced back to the turn of the century and the rejuvenation of the Olympics. Baron de Coubertin was opposed to female participation in sports describing their participation as "indecency, ugliness and impropriety ... women engaging in strenuous activities were destroying their feminine charm and leading to the downfall and degradation of ...sport" (Journal of Sport History 4 as cited in Eitzen & Sage, 1993, p. 355). In the 70 years since the Baron made this statement, a vast improvement in the image of women in sports has taken place but the situation is not perfect. A major role of educators involved in sports must be to promote a positive image for female participation in sports. Enhancing the female image should help athletic participation become a more positive influence on self-esteem for females. This enhancement is most important for females in the general level. Hopefully the greater gender equality of recent Olympics media coverage will help promote a positive image for female participation at all levels.

Another possible source for the lack of athletic participation relating to self-esteem for females is the low varsity level sport participation by females. Participation by gender is almost equal at the recreational level (see **Figure 5**), while at the varsity level, more females play no varsity sports compared to males and fewer females play multiple varsity sports compared to males (see **Figure 6**). Within the schools the opportunities for participation in varsity sports may vary slightly from one school to another but the number of sports offered for each gender is approximately the same. The only

specifically male sport offered is football; for females, cheer leading is the only gender specific participation opportunity. The varsity sports are associated with the school to a much greater extent than are the recreational sports. This varsity association might help to explain why females do not feel the same image enhancement for their sport participation at the recreational level as they might with greater varsity participation.

While the predicted positive interaction with participation and academic level for self-esteem was not significant, it is important to observe that there was no negative relationship between the variables. Participation in athletics did not lower SEI scores for the students and they still enjoyed the health benefits of physical activity. The low self-esteem scores for general level females should be a concern for educators. Before a participation solution to increase self-esteem is initiated, gender differences for participation and SEI scores must be examined. Why were there higher SEI scores for males but not for females? Longitudinal studies controlling for self-esteem level with and without participation must be investigated to see if there is a causal relationship between the two variables.

Gender and academic stream had a significant interaction for self-esteem scores (see **Figure 11**). Males scored higher at the advanced level compared to the general level. This difference in scores was even larger for females at the advanced level compared to the general level. The academic level difference for SEI scores is greater for females than for males.

Since this research was quasi-experimental, it is not possible to assume a cause and effect relationship between athletic participation and self-esteem. Fejgin (1994) in

her longitudinal examination of students (grades 8 and 10) was able to control for student behaviours prior to sports participation and she found "a cautious causal interpretation of the relationship between the intervening [athletic participation] and the dependent variables [self-esteem, GPA, locus of control, and academic aspirations]" (p.218). The Fejgin (1994) analysis may also provide some support for a tenuous causal relationship between athletic participation and the higher self-esteem in males illustrated in the present study.

The prediction for a significant interaction effect for GPA with participation, gender, and academic level was not supported. While the effects of athletic participation with gender and level on academic achievement are not statistically significant, the results do indicate that students at the medium level of activity for both general level and male participants do have higher GPA scores compared to the other levels. The results illustrate the 'inverted-U' effect for participation and GPA for males and general level students that was predicted. This result needs further study to test if a moderate amount of athletic participation will produce significant GPA increases for certain groups from the sample.

Gender and academic level also demonstrated significant independent relationships with GPA. The mean self-reported mark average for females ($\underline{M}$ = 77.9%) was significantly higher than the average mark for males ($\underline{M}$ = 74.4%), $\underline{F}(1,338) = 7.16$, $\underline{p} < .01$. Female students have a higher GPA compared to males; the hypothesis proposing no gender difference for GPA was unsubstantiated. One of the possible causes for the gender difference in GPA results might be the time spent in sports. The mean

participation for males was 470 hours per year compared to 329 hours per year for females. The participation difference effect was not supported by the analysis. There was no significant interaction effect of athletic participation with gender on GPA. Other possible reasons for the GPA gender difference might include: the subjects studied, study habits, and the influence of significant others. The research in this area by other investigators involved only team sports. This research does not allow for direct comparison with the present study since this study also includes recreational activities which primarily involved participation on an individual basis..

The hypothesis that academic level had no effect on achievement was not supported. The mean mark for the students at the advanced level was greater than the general level students' mean mark. The lower marks for the general level students may partially be due to the lower expectations of the students themselves and significant others compared to advanced level students

There was no statistical interaction effect for academic aspirations. The only main effect having significance on aspirations was academic level ($p < .01$). The hypothesis suggesting no level effect was not supported. The lower self-esteem and GPA results of general level students may both influence the relationship between level and academic aspirations. The fact that gender did not have a significant main effect on SEI and academic aspirations is consistent with the findings of Marsh (1993) in his study of over 4000 senior high school students. Marsh stated that perhaps this lack of a gender difference is due to "increased public awareness and the accumulated impact of attempts to break down sexual stereotypes in educational settings" (p.37). **Figure 9** illustrates the

lack of significant gender differences in the area of educational aspirations. The lack of gender difference may also be due to the increased gender equality predicted by Snider and Spreitzer's study (as cited in Marsh, 1993); "presumably, with broadening sex roles and expanded opportunities for female athletes, any stigma associated with sport will diminish" (p.37).

Athletic Participation: Description:

Athletic participation is a self-reported variable made up of a combination of varsity and recreational sport participation. For the most part, varsity sports are within the school and are team orientated. Recreational sports are both within and outside of school and tend to be more individual in nature, although team sports are still involved. The participation variable is primarily composed of the recreational participation. The mean for participation is four hundred and three hours per year (66 minutes/day); for recreational sports the mean is two hundred and ninety-nine hours (49 minutes/day) and for varsity sports the mean is only one hundred and four hours (17 minutes/day). One hundred and eighty-eight students (55%) participated in no varsity sports and only 35 students (10%) participated in more than two varsity sports. For recreational sports, 160 students (48.2%) participated in four or more sports.

If these results are compared to national findings, the closest data are from the 1990 Health of Canada's Youth Survey (King & Coles, 1992) in which the oldest age group included is 15 years old. The survey shows declining athletic participation for children in the three participation categories of 11, 13, and 15 years old. Twenty-one percent of females and 36% of males participate in physical activity outside of school at

least four hours per week (208 hours/year). The data for the local high schools suggest that 44.4% of the females would participate in sports outside of school 39 minutes/day (at least four hours per week) and 62.6% males are involved in at least four hours per week outside of school. This participation is almost double the national participation although the comparison is with local grade 12 students (18 years old) with students who are only 15 years old.

Factors Affecting Athletic Participation:

Academic level appears not to be a large factor in the number of hours involved in athletic participation (see **Figure 20**). **Table 9** illustrates the interaction of participation with academic level and gender illustrated in **Figure 13**. This information is useful when examined with the SEI results (see **Figure 11**) for gender and academic level. Females at the general level have the lowest athletic participation and lowest SEI scores. The association can not be stated as a causal relationship from the present study, however if the relationship is considered in light of the study by Fejgin (1994), then the chance of an improvement in SEI with increased athletic participation, at least with general level females, seems plausible.

Gender had a significant main effect with participation. There was not much difference between males (114 hours) and females (93 hours) in terms of varsity sports participation however, there were large differences in yearly participation hours at the recreational level. Males (356 hours) are involved in three times the number of hours of recreational sports compared to varsity sports while female participation (236 hours) is two and a half times greater.

The higher levels of recreational participation also produce the increase in the total participation variable. If participation is examined in terms of the component variables of recreational and varsity sports, the participation results with level are significant. For varsity sports, the advanced level students have nearly double the participation time compared to the general level student (115 compared to 65 hours). On the recreational level however, general level students are much more involved than advanced level students (362 compared to 281 hours). Both levels of students are much more involved in sports on a recreational level than on a varsity level. For general level students, the participation is over five times greater in recreational sports than in varsity sports. For the advanced level students, the participation in recreational sports is almost double the varsity participation. The nature of these relationships is shown in **Figure 21** and **Figure 22**. It is the nature of the participation that may be the key to raising SEI with athletic participation. Either more general level female students should be involved in school varsity level sports or recreational participation should be recognized more by the school as a contributing factor to self-esteem. Varsity participation for large numbers of students is not realistic in the present system. Greater emphasis on recreational participation both within the school system and outside the school must be encouraged.

Results for recreational and varsity sports indicated significance (see **Table 10**) for both participation components with level. While academic level had no significant effect on participation, defined as the sum of recreational and varsity sports, there were statistically significant effects with each of the component variables. Since the effects

were in the opposite direction for recreational and varsity participation, they were hidden in the sum of the two variables.

CHAPTER 5

Summary of Important Findings

Sport Participation

There was much less student participation in varsity level sports than in recreational sports. At the general level, the students participated in seven times more recreational level sports per student than varsity level sports. For the advanced level students, the ratio was four times more recreational sports than varsity sports per student. On the basis of gender, females participated in five times more recreational sports per student than varsity sports while males participated in four times more recreational than varsity level sports. Over 70% of the students participated in two to five recreational sports while over 50% of students played no varsity sports at all. Not only was there a difference in the number of sports in which the students participated at each level but also the time spent by the students in the two levels of sports was also substantially different. The mean time spent by each student per day was 49 minutes at the recreational level but only 17 minutes per day at the varsity level. Participation level changes were associated with changes in self-esteem scores; low participation, SEI was 70.1, medium participation, SEI was 73.5, and for high participation, SEI was 77.2. The difference was statistically significant between the low and high participation groups. In view of the dramatic difference in recreational sports participation compared to varsity level sports participation, the financial support given to each level should be examined. Both within the school and within municipal sport budgets, a study is required to see if

the best use is presently being made for these funds based on the actual participation and desired outcomes for each program.

The reasons recreational sports have greater participation than varsity sports should be examined to determine a participation model that would be more attractive to more students. Eitzen and Sage (1993) feel that the authoritarian coach might be part of the reason that varsity participation has decreased.

> They [the coaches] analyse and structure team positions for precise specialization, and they endeavour to control player behaviour not only in practices and contests but around the clock, with rules for grooming, training, dating behaviour, and so forth. Under this form of management, the athletes are the instruments of organizational goals (p. 111).

The authoritarian coach may be one of the reasons that some students, particularly general level females with low self-esteem, prefer the freedom of a self-directed recreational sport. Student jobs are another possible reason that students can not commit to the structured practice and league schedule required for varsity participation.

Academic Level

General level students indicated lower self-esteem scores (66.5 compared to 75.7) as well as a lower GPA compared to advanced level students. If greater athletic participation and higher SEI are related, then programs that encourage an increased participation for general level students would be valuable. Although the causal influence of sport participation on GPA or SEI was not established by this present research, recent

work using longitudinal studies (Marsh, 1993) does provide the needed impetus for this verification.

Gender

Females had a significantly higher GPA than males. There was also a significant interaction effect with gender and athletic participation on self-esteem. SEI scores for males were higher than the scores for females. The athletic participation levels for males were also significantly larger than the female participation levels. Female participation in sports should be encouraged. One of the methods of encouraging a greater involvement by females in sports is through the media. The coverage given females in sport must be equal to the coverage given male participants. The coverage should include all sports not only those considered "sex-appropriate sports (tennis, golf, figure skating)" (p. 133, Eitzen & Sage, 1993). Caution must be taken in this regard not to compare the performances of females to those of males; the media exposure is intended to be a positive influence on female participation not to promote gender competition.

Recommendations

1. It is important to determine if there is a 'cause and effect' relationship between athletic participation and SEI, GPA, and academic aspirations. As noted by Holland and Andre (1987), and Otto (1982), (cited in Marsh, 1993, p 29), it is not possible to establish a causal relationship between participation and possible outcomes until longitudinal studies are carried out. Longitudinal studies might be done over grades 8 to 12 with data collection at the end of grade 8, grade 10, and again at the end of grade 12. In this way a

cause and effect relationship could be established. Fejgin (1994) did her longitudinal study with students in grade 8 then repeated the survey when the students were in grade 10. From this research, she felt justified in reporting a cautious causal relationship between athletic participation and SEI, GPA, and academic aspirations. More studies of this nature are required.

2. It is apparent from this study, that students spend only a small percentage of their athletic participation time involved at the varsity level. The amount of time spent by students in varsity sports is small compared to the time spent in recreational sports. This time difference might lead to future studies on best utilization of resources (physical and financial) to achieve the optimum benefit for the most students. Perhaps varsity funding could be used more effectively for more students by encouraging a greater level of participation in school recreational sports designed to foster participation rather than a varsity system designed to promote regional and provincial competition.

3. If participation is a positive influence on self-esteem and academic achievement, then programs should be in place to target general level and female students. The school day might be redesigned to include athletic participation in the form of an elective class designed to stimulate physical activity. Eitzen and Sage (1993) propose:

> A truly caring society takes seriously the health of its citizens because it knows good health to be the most precious human resource. Because sport and physical recreation nurture health, a public commitment will exist to provide all citizens the wherewithal to stay healthy through sport and to enjoy the deep satisfactions of physical efforts.

Maximizing participation will be a major goal for sport. Although gifted athletes will be provided reasonable resources to allow them to test their skills against other top athletes, resource allocation will be emphasized to cultivate widespread sport experiences.

In a society committed to egalitarianism, in which active participation is encouraged and adequate resources are universally available, the vicarious stimulation provided by commodified sport will lose much of its appeal. Sport will be linked to a larger effort to make performers out of spectators. Meeting social needs, rather than maximizing private profits, will be the overarching societal theme (p. 216).

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APPENDICES

Appendix A
(Research Questionnaire)

Research Questionnaire

Before starting the survey, please make sure you have completed and signed the consent and waiver forms handed out earlier this week. All information is strictly confidential. No individuals will be identified in this survey. It is necessary to put your name on this form to verify your marks.
Your name will be deleted once this has been done for the remainder of the survey and analysis purposes. **PLEASE PRINT.**

Part A: (Did you sign the consent waiver to access your marks, Yes or No? Circle one.)
1. Name:_____ 2. Student Id #_____
(Last name) (First name)

3. Birth date:____(day)____(month)____(year) 4. Gender:_____

5. School:_____

6. Number of:
a) OAC credits completed_____ b) OAC credits presently taking_____
7.Total number of:
a) credits completed_____ b) credits presently taking_____

Part B:
List the name and course code for your last five courses. The order does not matter. If you can not remember an exact mark, record a letter grade, these might not be OAC courses;

A 80-100
B 70-79
C 60-69
D 50-59
F <50

Your teacher has a copy of the school course codes if you have any questions concerning course codes.

	Subject: ie OAC Physics or grade 12 math	Code: SPHOAC, MTT4G1	Mark
1.			
2.			
3.			
4.			
5.			

Part C:

Write in the name of the *sport* or *physical recreational activity* in which you participated. Indicated the approximate month you were involved in the activity and how much time you spent that month participating including practise and playing time for some activities or total work out time for other activities. Fill in the estimated number of hours of actual time for that month. Some examples are illustrated in the sample chart. Indicate the level of the activity if possible (varsity, recreational, provincial level etc.) Include all sports or recreational activities that you are involved in. Biking, swimming, skiing, aerobics, etc. **Total your participation hours at the bottom of the page.**

Varsity would be a high school inter-collegiate team **or** any other team outside of the school that plays in a competitive league with coaches, referees and a schedule. **Recreational** activities are physical activities that you participate in on a "fun first" basis. Some examples might be golf, aerobics, football, beach volleyball etc
Total hours: Varsity participation = _____;Recreational participation = _____

The table has been entered as **Table 11** for display purposes and has been edited from the original used in the actual survey.

Table 11.
Example of the subject athletic participation entry table.

Dec																
Nv																
Oct																
Spt																
Aug																
Jly																
Jun																
My																
Avr																
Mar																
Feb																
Jan																
Lvl																
Sprt																

Part D:
What are you planning on doing in the fall of this year (September 1996)? Answer the following question with regard to your academic aspiration;

"How much education do you desire and will actively attempt to achieve?"

Responses: Answer parts A, B, and C which follow, using the seven possible responses listed below. Place the number corresponding to the best choice in the space at the end of each of the three sections.

1. high school not completed

2. completing high school then working

3. returning to high school to upgrade or get more credits

4. going to a college diploma program

5. entering a university program

6. university working towards a post graduate degree (masters degree, doctorate...)

7. apprenticeship

8. other

(explain)_____

A. **My** academic aspiration is number_____(1 to 8 from the list above)

B. **My parents/guardians**: level of academic achievement (1 to 8 from the list above)

a) Mother_____ b) Father_____

C. **My best friend's** aspiration level is number_____(1 to 8 from the list above)

Part E:

Directions

On the sheet that follows, there is a list of statements about feelings. If a statement describes how you usually feel, put an X in the column "Like Me". If a statement does not describe how you usually feel, put an X in the column "Unlike Me". There are no right or wrong answers. Begin at the top of the page and mark all 25 statements; answer either "like me" or "unlike me".

#	Place an X in the box selecting one of the two responses, "like me" or "unlike me". Answer all 25 statements.	Like Me	Unlike Me
1	Things usually don't bother me.		
2	I find it very hard to talk in front of a group.		
3	There are lots of things about myself I'd change if I could.		
4	I can make up my mind without too much trouble.		
5	I'm a lot of fun to be with.		
6	I get upset easily at home.		
7	It takes me a long time to get used to anything new.		
8	I'm popular with persons my own age.		
9	My family usually considers my feelings.		
10	I give in very easily.		
11	My family expects too much of me.		
12	It's pretty tough to be me.		
13	Things are all mixed up in my life.		
14	People usually follow my ideas.		
15	I have a low opinion of myself.		
16	There are many times when I would like to leave home.		
17	I often feel upset with my work.		
18	I'm not as nice looking as most people.		
19	If I have something to say, I usually say it.		
20	My family understands me.		
21	Most people are better liked than I am.		
22	I usually feel as if my family is pushing me.		
23	I often get discouraged with what I am doing.		
24	I often wish I were someone else.		
25	I can't be depended on.		

Appendix B
(Consent Forms)

March, 1996.

School Staff Member,

Thank you for agreeing to participate in the data collection stage of my thesis. The consent-waiver sheets should be handed out on Monday and the actual questionnaire be done in class on Thursday. Please collect the returned consent-waiver sheets before handing out the questionnaire sheets. I will pick up the completed questionnaires and consent-waiver sheets at noon on Thursday and will be in the school during the period for any assistance you may require. The test requires approximately 20 minutes.

Please emphasize to your students;

1. Ethics procedures for the Lakehead Board as well as Lakehead University prevent me from using any data without the informed consent form being signed and returned.
2. Parental consent is only required for those students under 18 years old.
3. The purpose of the study is to try to relate the positive effects of students athletic participation within and outside of school on their academics and personal self-esteem.

Thank you,

G.R.Main

March, 1996.

Dear Participant and Parents/Guardians,

I would appreciate your participation with a survey, which is a part of a research project undertaken by myself and the Kinesiology Department of Lakehead University. The information will be used as part of the requirements for completion of my masters degree in coaching. My faculty advisor is Dr. Joey Farrell from the Kinesiology Department at Lakehead University.

The purpose of the study is to investigate the relationship between sport participation and academic achievement, self-esteem and academic aspirations. Potential gender differences will also be examined.

Students will be asked to fill out a short questionnaire regarding their sport participation and academic achievement and aspirations. This will require approximately 20 minutes.

All information will be kept strictly confidential. No individuals or groups will be referred to in the study. Names will be required for academic achievement verification only. A random sample of students' marks will be verified from the Ontario Student Record files kept in the school. Once the data is compiled the individual subjects names are deleted.

If you agree to participate in the study, please complete and return the attached consent form. This form will be collected before doing the survey later this week. If you have any questions or concerns, please contact me at Lakehead University, through the Kinesiology Department at extension 343-8605.

Thank you for your assistance.

Yours truly,

G.R.Main, B.Sc.
Graduate Student, Lakehead University.

Joey Farrell, PhD
Faculty Advisor, Kinesiology Department , Lakehead University.

PARTICIPANT CONSENT FORM

(for all participants)

I_____agree to participate in the study concerning the positive
(Print Full Name)
effects of sports participation at high school. The study will be conducted by Mr. Bob Main, a teacher with the Lakehead Board of Education on deferred leave at Lakehead University, as part of a study for the Kinesiology Department. Dr. Joey Farrell is the faculty advisor.

I understand that I will be asked to answer a questionnaire that will require about 20 minutes to complete. The data obtained will be kept on file at the university for a period of seven years.

I understand that all information collected will be confidential and that I may withdraw my voluntary participation in the research project at any time.

SIGNATURE:_____
DATE:_____

Freedom of Information Waiver:
I agree to allow Mr. Main access to my Ontario Student Record file to verify the marks I entered on his survey. I understand my name will be removed from the data file once the information is verified and my confidentiality will be protected.

SIGNATURE:_____
DATE_____
Note: This waiver does not have to be signed to participate in the actual study. The waiver allows me to verify the course marks you enter in the survey.

Parent/Guardian Consent Form

PARENT/GUARDIAN CONSENT FORM

(for students under 18 years old only)

I_____ agree to permit my
(Print Full Name)
daughter/son _____ to
participate in the
(Print Full Name)
study concerning sport participation conducted by Mr. Bob Main of the Kinesiology Department of Lakehead University.

I understand that participation by my child will involve completing a short questionnaire and **may** involve access to the **Ontario Student Record files if the above waiver is also signed.**

I understand that all information collected is completely confidential and that the participation in this research study may be withdrawn at any time.

SIGNATURE:_____**DATE:**_____

Appendix C
(Pilot Study Results)

Pilot Study

A pilot study was conducted with a class of 30 OAC calculus students. The informed consent and freedom of information waiver material was handed out by the class teacher and collected over the following two days. The questionnaire was administered under classroom conditions and collected for analysis. The time required for the last student to complete the survey was 20 minutes. An initial investigation of the results for participation suggest that the three categories for the levels of participation are;

Low Participation.....0 to 200 hours (4 males, 3 females)

Medium Participation.....201- 400 hours (5 males, 6 females)

High Participation.....401 hours and above (9 males, 3 females)

Note: The athletic participation categories were changed to have equal numbers of subjects in each group. The total number of subjects were divided into three equal groups based on their total participation hours.

Low Participation.....0 to 234 hours

Medium Participation.....235 to 441 hours

High Participation.....442 to maximum.

The pilot study was done to run through the testing procedures and to obtain a test duration time. The pilot study was conducted with an OAC class with 29 students. The class was 37.9% female and 62.1% male. For varsity participation the mean is 137.24 hours and for recreational participation the mean is 281.93 hours. The number of

completed OAC courses, M = 31.86. The correlation coefficient for self-reported (M = 73.66%) and OSR verified marks (M = 74.93%) was .98 which explained 97% of the variance between the two marks. The pilot study data are included with the study results since the test instruments and testing conditions were the same for all classes in the survey including the pilot study.

Appendix D
(Participation Means Graphs)

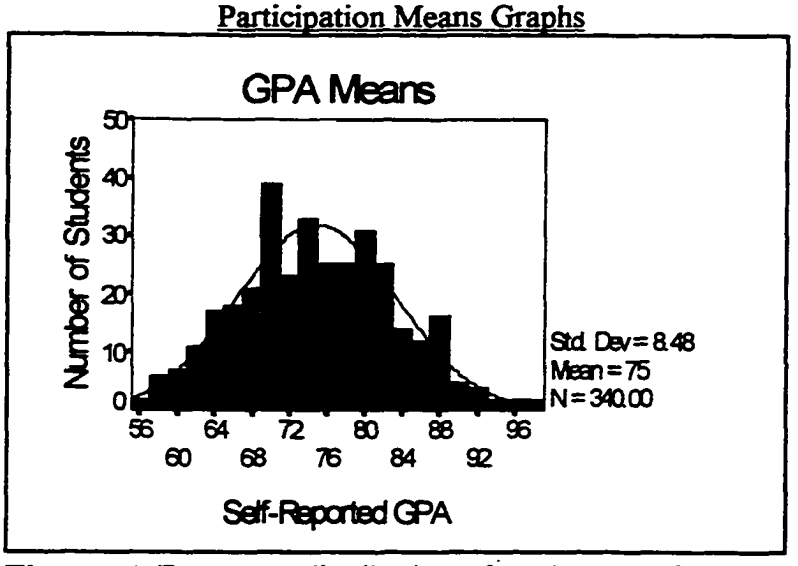


Figure 14. Frequency distribution of grade means for the sample.

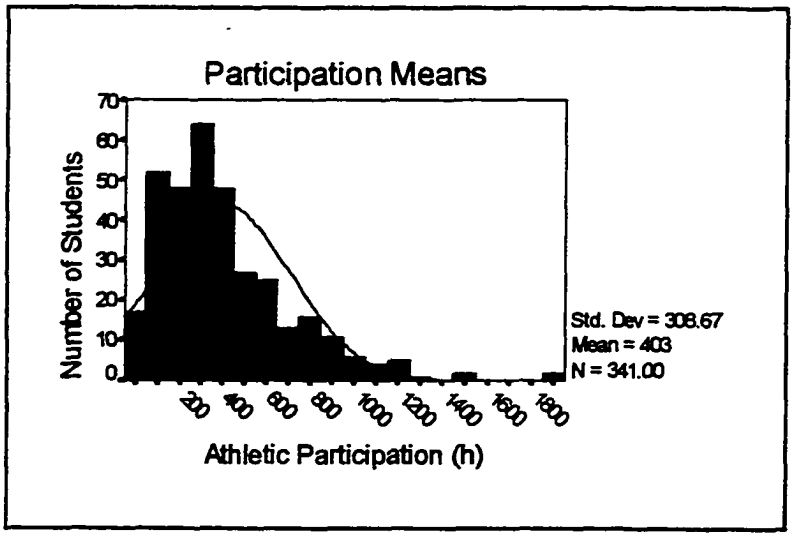


Figure 15. Frequency distribution for total athletic participation for the sample.

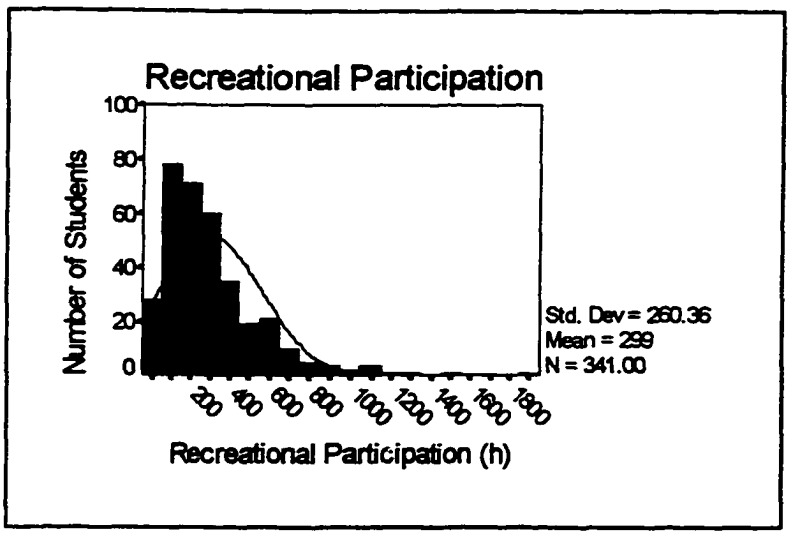


Figure 16. Frequency distribution for recreational participation for the sample.

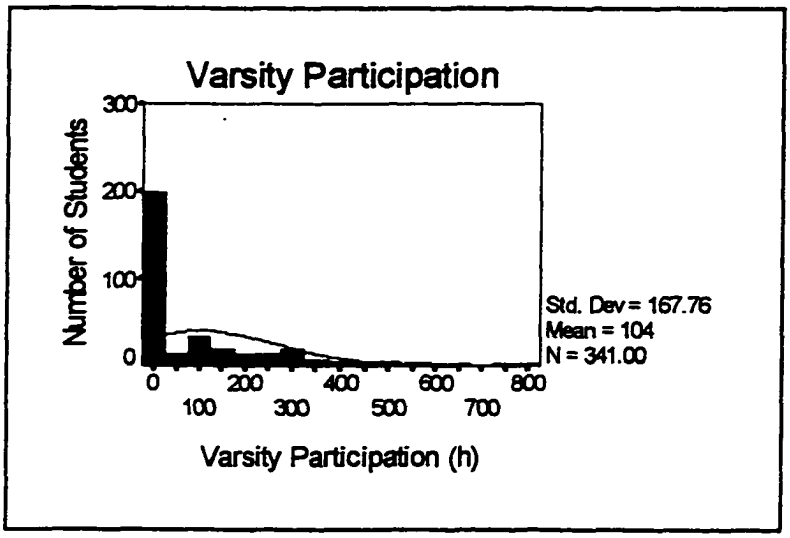


Figure 17. Frequency distribution for varsity participation for the sample.

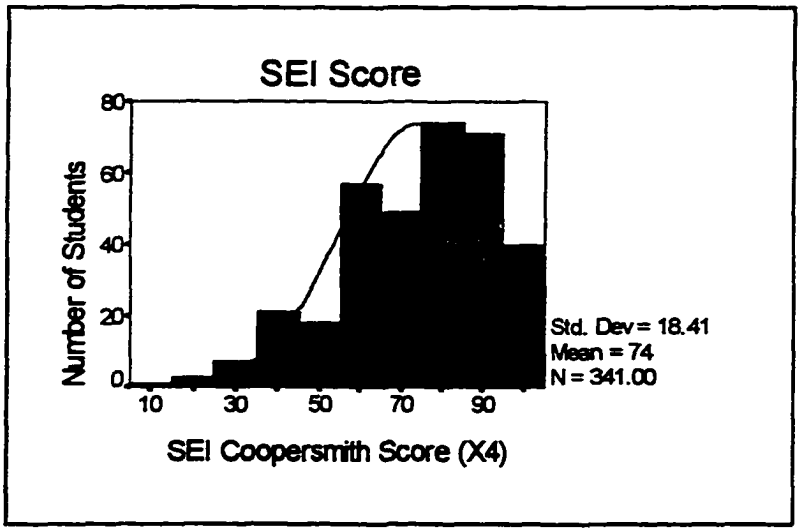


Figure 18. Frequency distribution of SEI score for the sample.

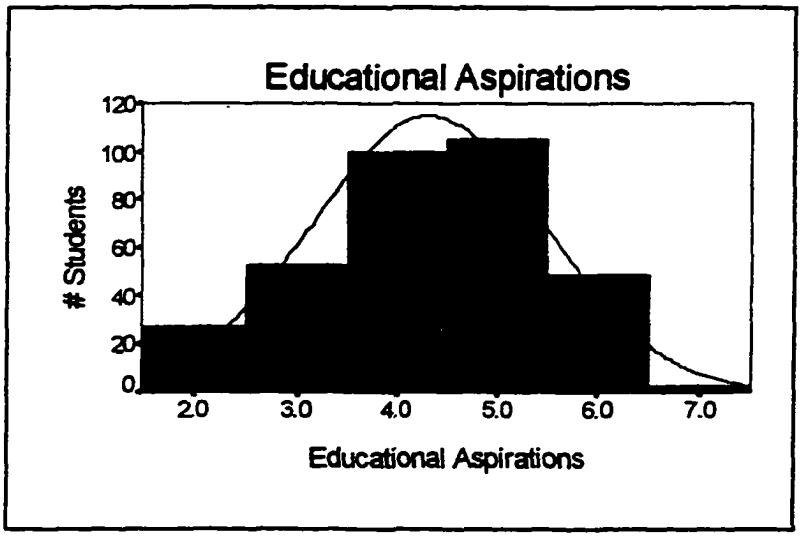


Figure 19. Frequency distribution for educational aspirations for the sample.

Appendix E
(Participation Results)

Participation Results

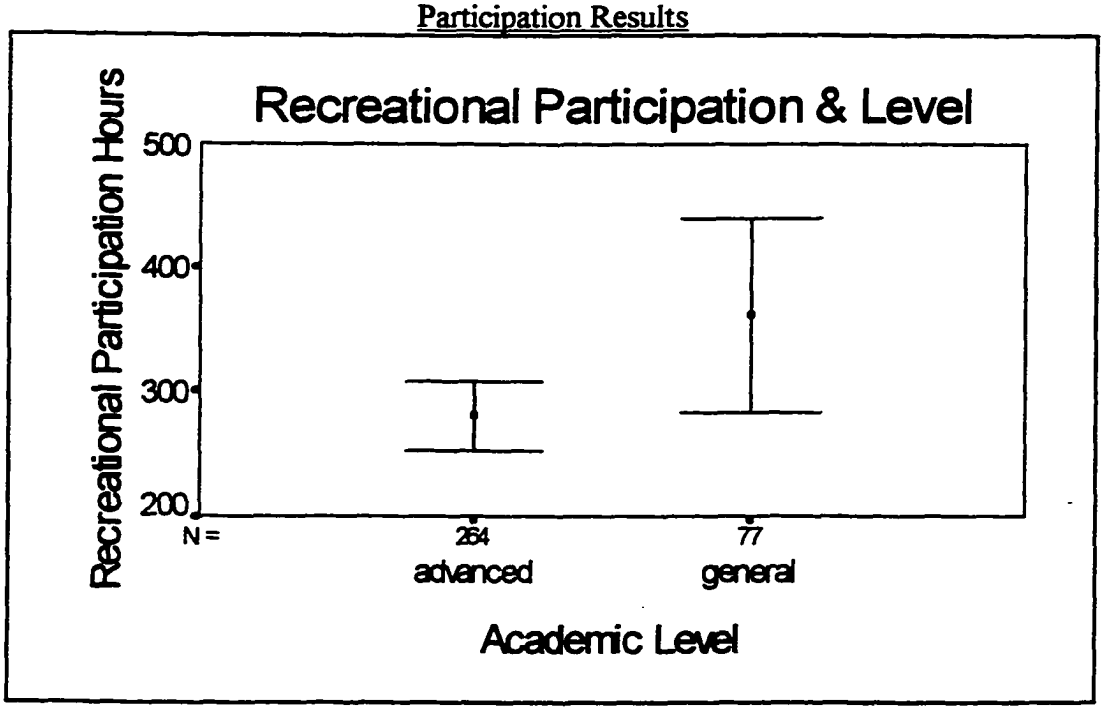


Figure 20. The relationship of academic level to recreational participation.

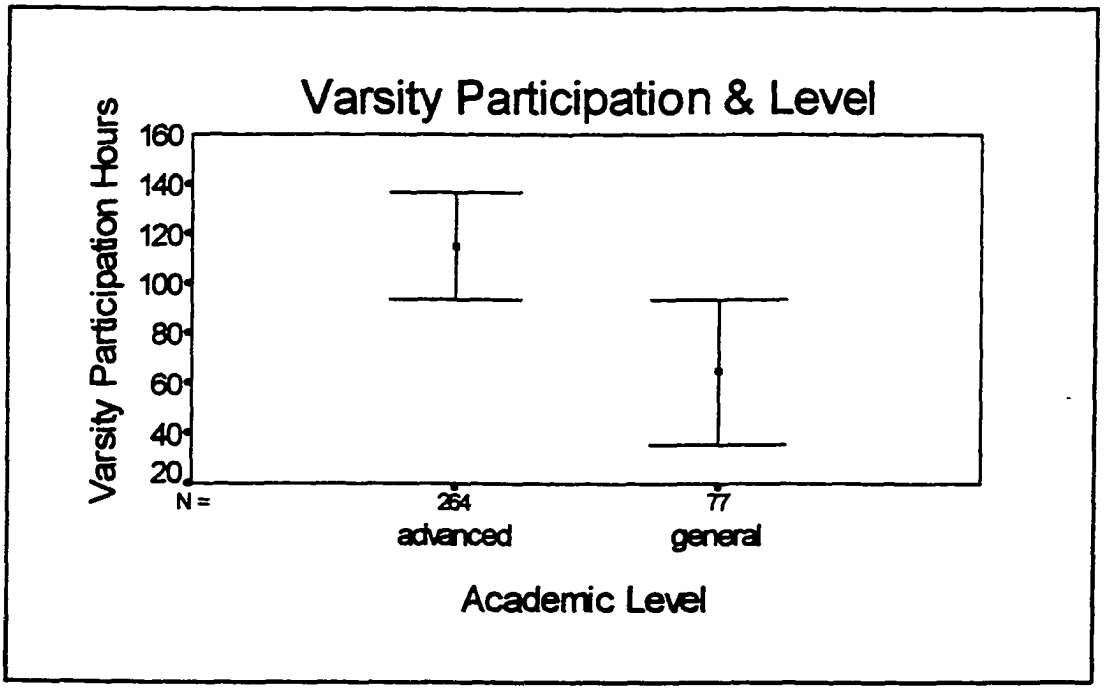


Figure 21. The relationship of academic level to varsity participation.

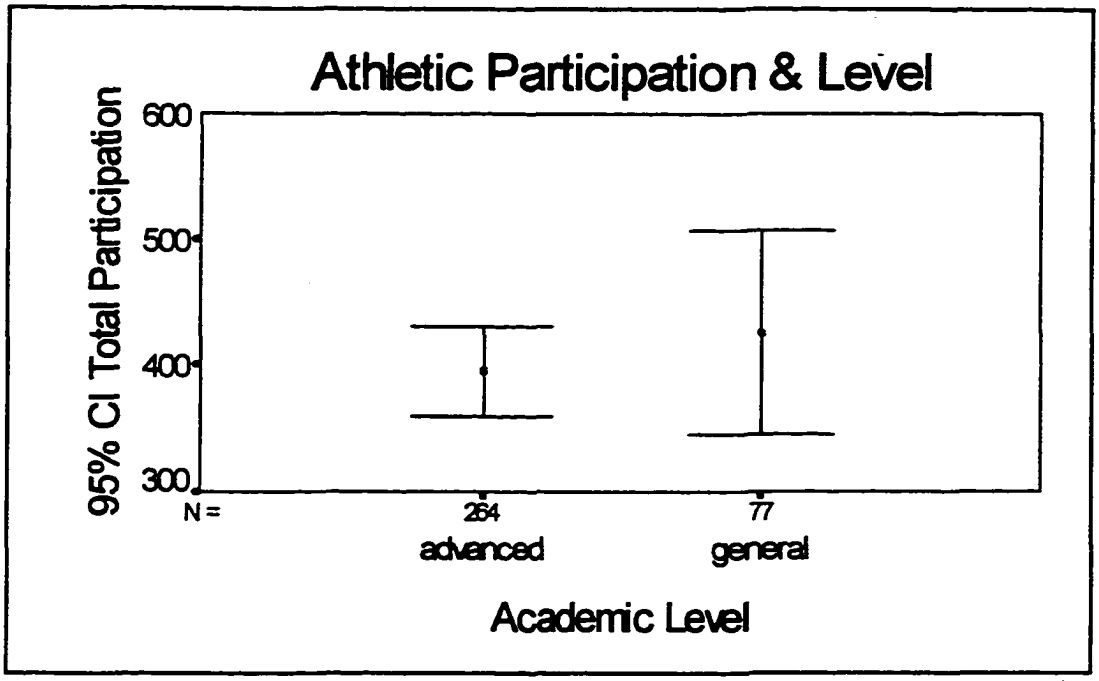
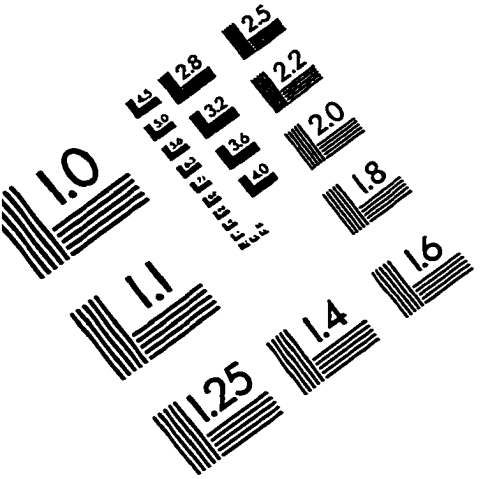
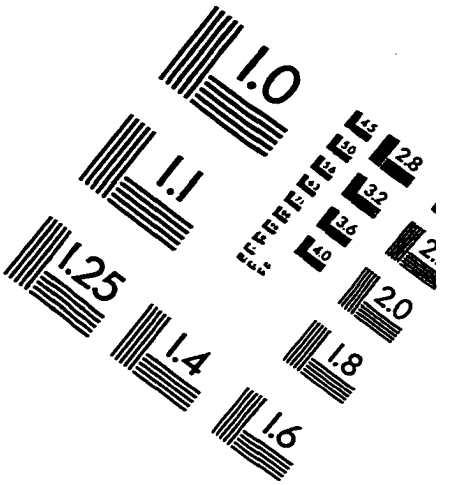
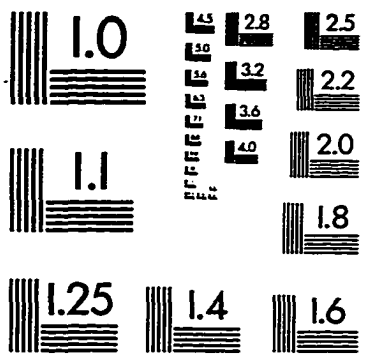


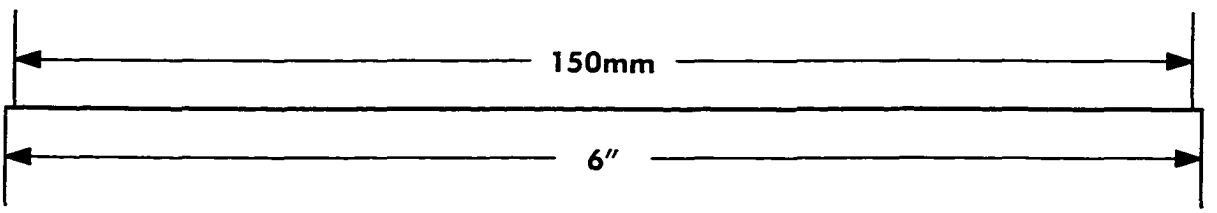
Figure 22. The relationship of academic level to total athletic participation.

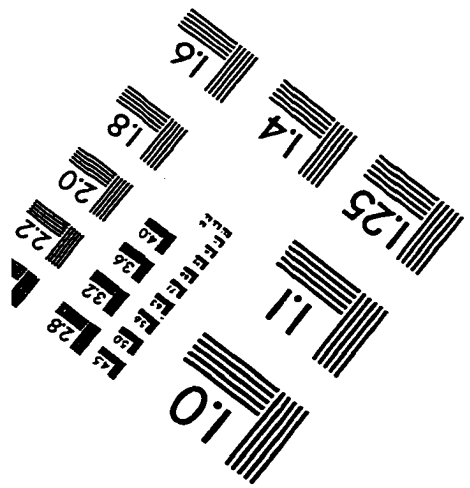
IMAGE EVALUATION TEST TARGET (QA-3)

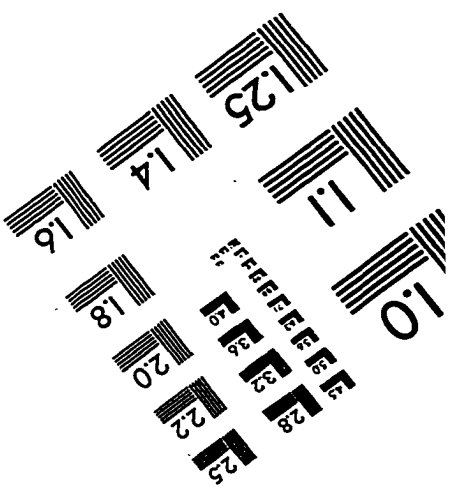












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