

Running Head: GENDER AND COMPETITIVENESS

Are Females More Competitive Than Cooperative: An Investigation into Gender Differences

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Abstract

Research into the competitiveness of children will allow coaches to create training programs which may elicit more participation from athletes. The competitiveness of males and females was investigated, measured and compared in the context of sport competitiveness. Males and females, aged 10-14 years, filled out the Sport Competitive Questionnaire (SCQ) and participated in a sport scenario (basketball). They were given the option to participate alone for a prize or with another individual to better their chances of winning for half the prize. Choosing to participate alone was recorded as competitive and choosing to participate with a partner was recorded as cooperative. Results indicated that males, from grades 5-8, were more cooperative and competitive than females of the same grade. The Sport Scenario showed that both males and females were more competitive than cooperative. Further research should look at a wider age range to determine if competitiveness levels increase with age.

## Are Females More Competitive Than Cooperative: An Investigation into Gender Differences

There has been a great deal of debate concerning the definition of competition and what is competitiveness. There have been many debates over whether the drive for competition is intrinsically or extrinsically motivated, if there are differences between males and females and if it changes as the individual ages. General consensus is that males are more competitive; however, this has not been, to our knowledge, been determined. A definition of competitiveness will be established in terms of sports.

Since the first Sport Psychology questionnaire was created in 1930 by Coleman Griffith, hundreds of psychologists and researchers have added their expertise into the mix (Heil & Henschen, 2006). What started out as a survey assessing attitudes and perceptions of coaches and athletes has now evolved into multi-dimensional tests, instruments and practices that are widely varied in application methods and results. This causes concerns for generalizability of these tests and the reliability and validity of the results.

Currently, there are four major areas of sport-related assessment (Heil & Henschen, 2006). (1) Traditional Clinics, where athletes with eating disorders or substance abuse problems can be assessed and helped, (2) Health and Exercise which is the assessment of an individual's motivation to exercise, (3) Performance Enhancement, when an assessment on an individual athlete's performance is related to their mental skill, and (4) Special Assessment Topics, which is a relatively new area of research using polygraph tests and psycho-physiological assessments (Heil & Henschen, 2006).

### *Definition*

Defining competition has created problems for researchers for years. Different definitions and terms have been used in sport competition research to base their studies on or to explain their findings. There have also been different definitions for males and females in competition. Houston, McIntire, Kinnie and Terry (2002) defined sport competition as the desire to participate in a sport setting while Daniels, Sincharoen and Leaper (2005) and Ryska (2002) added that they must possess a specific competitive orientation and a motivation to participate. *Competition and Cooperation*

Benenson, Nicholson, Waite, Roy and Simpson (2001) researched group size on competitive behaviours. They hypothesized that children would be more competitive in tetrads (groups of 4) and then dyads (groups of 2). Fifty-six females and 8 males from 13 elementary schools were studied. The activity was to add beads to their sticks and the one whoever finished first or was the closest before the time expired, won. Behaviours were either non-competitive, using their own beads or beads from a common pile, or competitive, taking beads from another child's pile.

The results confirmed their hypothesis that children would compete more in groups but only for males. They found that females behaved more competitively in dyads. Reasons are still unclear, but dyads may require a greater responsiveness to each others' goals and emotions and therefore, there is equality between the two members without having to consider extra people. Target males in tetrads made twice as many competitive moves as did those in dyads. Females in tetrads divided themselves into dyads before conducting the task. Males may be more overtly competitive in their language, free play activities and aggression since larger groups diffuse expressions of strong emotions. The relationship between group size and competitive behaviour is likely bidirectional meaning that children who are more competitive may choose to interact

with groups since they foster competitive behaviour easily. Results are consistent with the theory that gender differences in overtly competitive behaviour may be due to the different types of social contexts in which children interact. The competitive and cooperative behavioural choices of males and females when participating on their own, and not in dyads or tetrads, have not yet been investigated.

Benenson and Heath (2006) created a concrete task that was appealing to male and female school children to compare their performance in one-on-one interactions versus group interactions. Children were randomly assigned to either dyads (pairs) or groups of children with whom they were already associated. The groups and dyads were given 48 cards grouped into six categories. Each category was identifiable by a unique colour and it had eight letters on the card. The same eight letters were used in all categories and children had to come up with four words for that letter in that category. Two behaviours were analyzed: (1) accurate answers on the card and (2) talking. Correct answers tested effort while talking, measured cooperation.

Males withdrew more from one-on-one interactions and females withdrew more in group settings. Effort in male dyads and female groups was less evenly distributed than male groups and female dyads. There was no gender difference in overall performance level, energy investment or degree of cooperation. Males were found to prefer competition more than females. One-on-one interactions may generate particular discomfort since, they did in this study, compare their card completion with other members in the group, which could cause negative emotions if there was only one to compare to. The results are limited to unrelated, same-sex, familiar individuals of the same age and gender. This study did not have individual participation which may show that males and females compete or cooperate differently when not paired or part of a

group.

Van Vugt, De Cremer and Janssen (2007) hypothesized that males would compete more when there is another group to compete against, based on an evolutionary perspective. They conducted three experiments. The first experiment, participants were randomly assigned to one of two experimental conditions: individual or groups of 6. Each participant was given 2€ (approximately \$4.00) for participating. They could choose to keep the money for themselves or reinvest it into the group. If the group contributed 8€ or more (at least 4 out of the 6 participants would need to donate their money) then each member of the group would receive 4€. If less than 8€ was reinvested then only those who reinvested, lost their money. They had to donate either the entire portion or none at all.

The Group Condition was told this study was being conducted simultaneously at 10 Universities and it was to investigate how well students performed the task relative to the other universities. The Individual Condition was also told about the other universities but was told the study was to see how well they performed individually. After hearing the instructions, the participants had to decide to donate their 2€ or to keep it.

No main effect was found for gender or for competition. Males did contribute more in the group condition than in the individual condition. Females contributed less in the group condition. Van Vugt et al. indicated that their results show that men become more altruistic when their group is competition with another.

In the second experiment, participants were randomly assigned to one of two experimental conditions: Individual or Group. The instructions were almost the same as the first experiment, the except they were now given 3€. They could donate all, none or a portion of their earnings

back to the group. If the group reinvested 12€ or more, each member of the group would receive 5€

There was a main effect for competition and a marginally significant effect on gender. Females contributed more than males but with no difference between the individual and group condition. Males contributed more in the group condition than in the individual condition.

The third experiment randomly assigned participants to one of two experimental conditions: Individual or Group and the manipulations were the same as experiment 1 and 2. The dependent measured was the mean contribution level (0-300 pence) across 6 trials. A post experimental questionnaire was completed about their group identity.

There was a main effect for gender. Women contributed more than men. There was also a main effect for competition, with men contributing more in the group condition. There was no difference for women. The next question was does group identification enhanced cooperation rates of men when there is an inter-group threat. There was no main effect for gender however; there was a main effect for competition. Men identified more strongly with the group in the group condition. There was no difference for females. Males' cooperation behaviour increased during the group condition because the intergroup competition increased their group identity. In this study, participants had something to lose by cooperating therefore, future research should look at a simple behavioural choice as well as different age groups.

The relationship between basic achievement orientation of competition and cooperation, along with the five-factor model of personality, as measured by the Revised NEO Personality Inventory (NEO-PI-R), was investigated by Ross, Rausch and Canada in 2003. Ross et al. identified two types of competition: Hypercompetition, the need to win at any and all cost and the Personal

Development Competition, individualism or personal growth. Two hundred and fifty-one young adults participated, 71.9% were females. All participants completed a packet of self-reports in small group sessions from 5-25 people for 1.5 hours. The packet included: (1) The NEO-PI-R is a 240 item scale to measure personality with 5 dimensions (Neuroticism, Extraversion, Openness to Experience, Agreeableness and Conscientiousness), (2) The Hypercompetitive Attitude Scale is a 26-item self report on a 5-point Likert Scale, (3) The Personal Development Competition Scale which is a 15-item self report on a 5-point Likert Scale and (4) the Cooperative/Competitive Strategy Scale which is an 8-item self report.

Results showed a positive relationship between cooperation and personal development competition, a positive relationship between personal development competition and hypercompetition, and a negative relationship between cooperation and hypercompetition. Hypercompetition is positively predicted by the Neuroticism and Extraversion dimensions of the NEO-PI-R and negatively predicted by Agreeableness. Personal Development Competition was positively predicted by Extraversion and unrelated to Agreeableness and Neuroticism. Cooperation was positively predicted by Extraversion and Agreeableness. The five-factor model of personality has many facets for each dimension. Some of the specific facets were key indicators of the difference in competitive style. This study did not have a behavioural choice option, results were solely based on questionnaire responses.

*Competitive Orientation: Intrinsic or Extrinsic*

Interpersonal Competitiveness (IC) was described by Griffin-Pierson (1990) as doing or being better than others, the desire to do better than others, the desire to win interpersonal situations, or the enjoyment of interpersonal competition. This competitive orientation has a horizontal focus



of wanting or needing to be better than others or being extrinsically motivated. Goal Competitiveness (GC) is the desire to excel or the desire to obtain a goal which has a vertical focus of achieving a goal or being intrinsically motivated. Both IC and GC contain the idea of pursuing a goal and being better than others however; the difference lies in the focus.

The Competitiveness Questionnaire was created to test males and females to determine if one gender was more predominantly motivated by interpersonal competition. One hundred and ninety-five students from a small Midwestern university and a junior college participated using the revised version of the questionnaire. One hundred and twenty-six participants were female and the participants varied in ethnicity and academic year. The questionnaire consisted of 15-items on a 5-point Likert scale. Seven items made up the GC component and eight items constituted the IC component. Social desirability was also assessed. Participants completed a 16-item questionnaire from the Marlowe Crowne Scale at the time they completed the Competitiveness Questionnaire. Neither the scores from the IC or GC component were related.

The results indicated a low correlation between the IC and GC scales thus supporting their independence. Men did score higher than females on the IC subscale and there was no gender difference present on the GC subscale.

To establish construct validity, the questionnaire was delivered to three target groups: (1) female counselling psychologists, (2) female medical residents, and (3) female competitive swimmers. All three groups scored high on the GC subscale and relatively low on the IC subscale. The competitive swimmers scored the highest on both subscales. There were no males in the target validity groups which is a concern since, the questionnaire results themselves are

being used to generalize for both genders. The GC scale also had relatively low internal consistency and Griffin-Pierson cautions the interpretation of these results.

With the increased interest and commitment to Sport Psychology, there is a need for more adequate testing instruments (Singer, 1996). Future research needs to focus on creating valid and reliable multi-dimensional tests for sport psychology that will test males and females equally. The test should also include personality assessments, questions to determine whether they are intrinsically or extrinsically motivated and where the test taker is given a choice to compete or cooperate. With a better understanding of what makes people want to be competitive and what drives them to attain certain goals, athletic directors and coaches will be more capable of creating athletic programs, specific to each gender's needs.

From the previous studies, the hypothesis were formed. Are Boys more competitive than cooperative? Are Girls more cooperative than competitive? Are Girls equally as competitive as Boys? Are Boys equally as cooperative as Girls? Do levels of competition increase as Boys and Girls age?

### *Method*

*Participants:* Seventy-six students from St. Mary's French Immersion Catholic School, in the Huron Superior Catholic District School Board, between grades 5-8, who gave consent and had received parental consent participated. One class from each grade were selected to participate based on principal and teacher approval.

*Materials:* The Sports Competitive Questionnaire (SCQ) (Appendix A) was created for this study based on The Competitiveness Questionnaire created by Griffin-Pierson (1990). The SCQ is

comprised of two parts. The first part is a 19 question, 5-point Likert Scale, 1 being not at all like me to 5 being this is me, which is to determine whether the participant is more competitive or cooperative. Competitive questions are such as “I get upset when my friend does better on a test than I do”. Cooperative questions as such as “I prefer team sports, like soccer and hockey, over individual sports, like swimming and track”. There are also filler questions such as “Rihanna is my favourite singer”. This section also asks for Gender, Age, and GPA.

The second part of the SCQ is a 25 question 5-point Likert Scale, 1 being not at all like me to 5 being this is me, which lists 25 different sports ranging from Hockey, to Figure Skating, to Dance, to Darts.

There was a sport scenario component to this study. This requires 2 basketball nets, regulation height, with the key outline, 4 basketballs and a stop watch that counts seconds.

*Procedure:* The participants, when it was their classes turn to participate, were sat down and given a brief overview of the experiment. They were informed that this was for an undergraduate thesis and that their involvement was completely voluntary and anonymous. It was explained to them how the numbers on the questionnaires they were about to be given would match the numbers they were asked to wear during the sport scenario. They were then told that anyone who did not wish to participate could go for recess, no one in any of the 4 grades left. A questionnaire was given to each participant in a manila envelope. Each envelope had the student number written on the top right corner and inside the envelope was a two page questionnaire, a contact information page, a ¼ page size number and a blue pen.

Once they were finished with the survey they were to put it and the pen back in the envelope and bring it and their number to me. The number was tapped to their left shoulder at the front

and the envelope was put into a pile. Once everyone was completed the questionnaire the sport scenario was explained. They were informed that they would be playing basketball. Due to the size of their classes, their class would be divided into two, one group at each end of the court/gym. They needed to score 7 baskets in 1 minute, while shooting from anywhere outside the key, to be successful and receive the prize. They could attempt to be successful alone or with a partner however; they would then have to share the prize. If a participant was selected as a partner, they were also given their own turn. They could select their own partner from the group they were in. They were shown the prize (2 Peanut/Nut Free Chocolate Bars wrapped in newspaper) but were not told what it was. The participants were then divided equally into two groups. The first people on each team had a basketball as well as the second. When the whistle blew, at the minute mark, the first people began their turn to score 7 baskets before the next whistle. If there was a ball in the air when the whistle blew and it scored, it counted. At the whistle blow, the current participant cleared the court and the next participant began their turn.

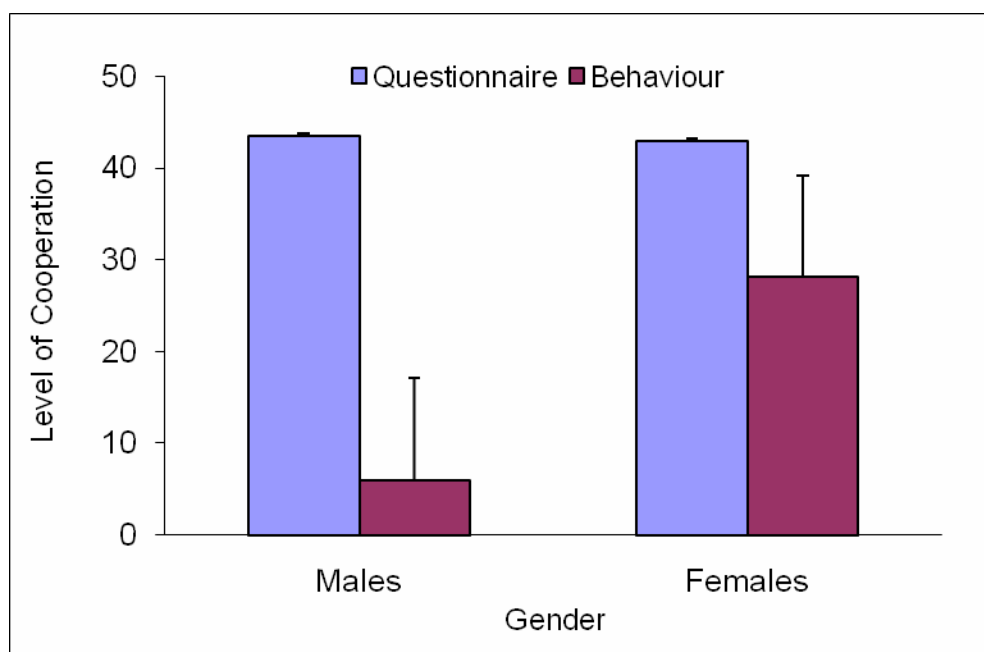
The number of baskets scored was recorded, by student number, as well as whether they played alone or with a partner. It was then determined, whether they succeeded or not. At the end, once everyone had participated, they received their prizes.

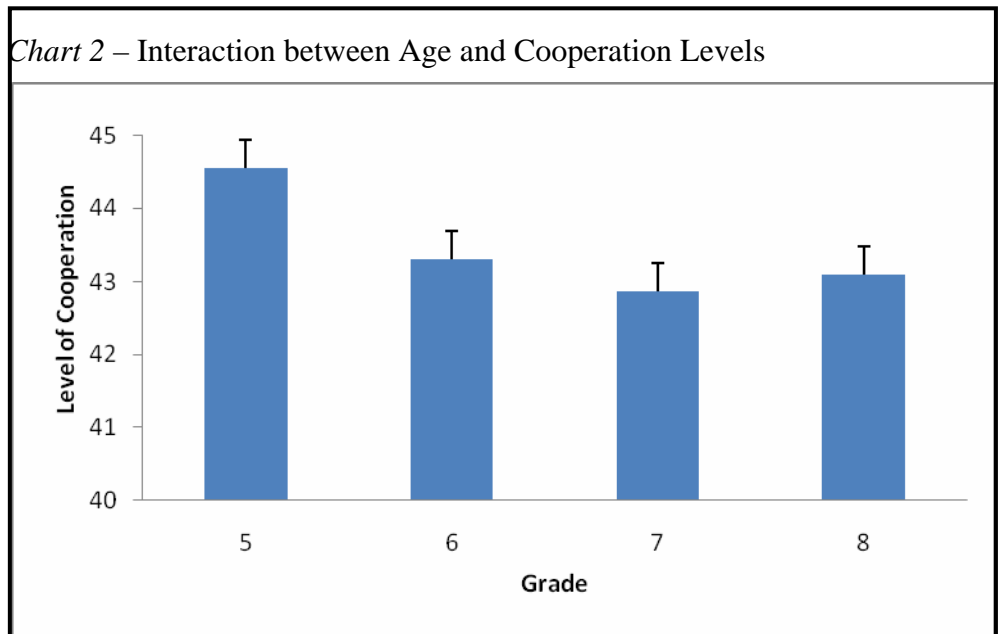
### *Results*

Filler questions from the SCQ were removed (Questions 1, 4, 9, 11, 14, 19) and the remaining questions were divided between Cooperative (Questions 2, 5, 6, 7, 10, 13) and Competitive (Questions 3, 8, 12, 15, 16, 17, 18), the Competitive scores were inverted.. A Factorial ANOVA was used to test the effect of age and gender on Competitive or Cooperative scores on the SCQ. No main effect of Age was found,  $F(3,64)= 0.286, p=0.835 > .005$ . Also, no main effect of

Gender was found,  $F(1,64)= 0.472$ ,  $p=0.495 > .005$ , *Chart 1* displays the results. There was no interaction between Gender and Age at any level  $F(3,64)= 0.348$ ,  $p=0.791 > .005$ , *Chart 2* displays the results. In other words, regardless of Age or Gender of the participant, they were neither more competitive nor more cooperative. *Table 1* depicts the scores for the SCQ and average Sport Scenario choices. No significant differences were found.

*Chart 1 – Levels of Cooperation*





*Table 1 - Gender Differences on the SCQ and Sport Scenario*

	Sport Competitiveness Questionnaire – Average Scores		Sport Scenario – Behaviour Choice	
	Average Cooperative Response	Average Competitive Response	Percentage of Cooperative Choices	Percentage of Competitive Choices
Males (33)	43.57	21.43	6.06%	93.94%
Females (39)	43	22	28.21%	71.79%

### *Discussion*

When boys are given a paper & pencil test, with probing questions into how they would act, react or behave in certain situations, they stated that they would be cooperative. When asked to make a behavioural choice in the Sport Scenario, they were more competitive. This may be explained by the possibility that they were showing off for their friends when played basketball,

perhaps they didn't want to "ask for help" to play with a partner. Had they not been in a gymnasium with the rest of their class, Boys may have chosen to cooperate more. Had they been asked to put their names on their questionnaires they may have rated themselves as more competitive as well.

In both the SCQ and in the Sport Scenario, Girls scored equally on levels of competitiveness and cooperation. This may be due to an empathetic notion to help others. Had they not been with the rest of their class, they may have chosen to be more competitive.

When comparing Boys and Girls, they are equally cooperative on the questionnaire and equally competitive in the Sport Scenario. The difference between results of the SCQ and results of the Sport Scenario may be attributed to feelings children have that they are required and should be cooperative however they naturally act competitive.

Levels of Cooperation and Competition did not differ across ages. These results may be explained by the fact that 4 years may not be a large enough difference as elementary school students are still required to be cooperative inside the classroom and out, more so than older people.

A cause for concern is the Grade 8 students found scoring 7 baskets in 1 minute quite simple while grade 5 students found the task difficult. Most grade 5 students, whether they played alone or with a partner were unsuccessful while the opposite was true for the grade 8's. This ceiling effect may be avoided in future research by using the appropriate school boards Physical Education Curriculum guide lines for basketball performance and basing the number of baskets required on that.

The validity and reliability of the SCQ should be further tested before continued use to ensure the questions do accurately test competitiveness and cooperation among elementary school students of both genders.

Although no significant differences were found, this study did find that boys rate themselves as being Cooperative but behave more Competitive.

Future research should look at a wider range of ages. Once students enter into high school, there is a much more competitive atmosphere than in elementary school and therefore using students beyond grade 8 may show that females become more competitive as they continue to age. Looking at children younger than grade 5 may show higher levels of cooperation since as children age, they no longer need as much assistance and therefore may become less cooperative because they will not need to have the favour returned.

Following the same students from Kindergarten to grade 12 would give us a better understanding of how and when levels of competitiveness and cooperation change. A longitudinal study should be conducted to further test the hypotheses outlined in this study.

A more comprehensive questionnaire ought to be created which should include personality questions as well as motivational factors for competing. With more information on the participants, we may be able to find key personality characteristics which drive cooperation over competition and vice versa. Incorporating the NEO-PI-R used by Ross et al. (2003) with the Competitive Questionnaire of Griffin-Pierson (1990) as well as a behavioural choice observation would be the most thorough way to test Competitiveness and Cooperativeness.



Using different sport scenarios could further our understanding in relation to the Gender Differences of Competitiveness. More Boys rated basketball higher than the Girls meaning that more Boys play basketball on a regular basis. This may explain why Boys did not feel it necessary to cooperate while Girls did. Having 3 or more different sport scenarios in one study may eliminate gender bias for sport selection.

Looking into other areas of competition such as academic competition would be valuable as well. With a more detailed look into the participants, it may be found that Boys are more competitive in sports however, Girls are more competitive in academics or social settings.

Although the results weren't significantly different, this is the first time research looked at gender differences using a Competitiveness Survey & Behavioural Observation.

With these findings, and the future research that is waiting to be completed, Coaches, Teachers, Parents and League Officials may be able to create physical education curriculums, sport classes and training programmes that will elicit the best response from both Boys & Girls thus increasing the enjoyment and success rate for all athletes.

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Appendix A  
Questionnaire

Please answer the following questions truthfully. If you have any questions, please raise your hand and I will be happy to assist you.

Please circle the correct answer

Gender: Male (boy) Female (girl)

Age: 8 9 10 11 12 13 14 15

Most of the grades on your report cards are: A B C D F

The following are a list of common sports played by students. Please circle the most correct number to choose your answer.

		I have never played a regular basis	I rarely play I compete in this sport	I occasionally play	I play on
1. Hockey (floor or ice)	4	5	1	2	3
2. Soccer	4	5	1	2	3
3. Basketball	4	5	1	2	3
4. Golf	4	5	1	2	3
5. Swimming/Diving	4	5	1	2	3
6. Baseball	4	5	1	2	3
7. Lacrosse	4	5	1	2	3
8. Horseback Riding	4	5	1	2	3
9. Gymnastics	4	5	1	2	3
10. Dance	4	5	1	2	3
11. Volleyball	4	5	1	2	3

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12. Tennis 4	5	1	2	3	
13. Badminton 4	5	1	2	3	
14. Track & Field 4	5	1	2	3	
15. Speed Skating 4	5		1	2	3
16. Figure Skating 4	5		1	2	3
17. Rugby 4	5	1	2	3	



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6. I prefer working in groups	3                      4                      5	1	2
7. I like competitive sports because I can meet new people	2                      3                      4                      5		1
8. I like competition because I can show others how good I am	2                      3                      4                      5		1
9. I watch at least one movie every week	3                      4                      5	1	2
10. I play sports to learn new skills	4                      5	1	2                      3
11. Rihanna is my favourite singer	3                      4                      5	1	2
12. I play sports for the challenge of winning	2                      3                      4                      5		1
13. I prefer team sports (soccer and hockey) over individual sports (swimming or track)	3                      4                      5	1	2
14. I look forward to summer vacation	3                      4                      5	1	2
		Not at all like me Very like me	Somewhat like me This is me
15. I would do anything (except cheating) to win	3                      4                      5	1	2
16. I get upset when my friend does better on a test than I do	2                      3                      4                      5		1
17. I prefer working alone	4                      5	1	2                      3
18. I play sports so I can win against another team	3                      4                      5	1	2
19. I had fun taking this survey	4                      5	1	2                      3