

BIOFUNCTIONAL EMBODIMENT OF MORAL DEVELOPMENT:
THE IMPACT OF AFFECT, MORAL COGNITION, MATURATION
AND EXPERIENCE PLAYING SPORTS ON ACCEPTANCE OF
AGGRESSION IN SPORTS BY ITALIAN ADOLESCENTS

by

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ABSTRACT

The purpose of this dissertation was to examine the relationships between moral judgments, affect, moral disengagement, general aggression, and the self-reported attitudes toward the acceptance of aggression in sports among Italian adolescents. Several research questions guided this investigation: 1) Can moral disengagement, maturation, affect, and sports experience predict the acceptance of aggression in sports? 2) Are there significant differences in a model of acceptance of aggression between male and female participants? 3) Are there significant differences in a model of acceptance of aggression between participants in Northern Italy and Southern Italy?

Three hundred thirty-two adolescents from two high schools in northern and southern Italy participated in the study. They completed a demographic questionnaire about their age, gender, height, weight, main sport, years they have played their main sport, and the level of competition. They also completed five questionnaires on moral decision-making in sports, moral disengagement, a general aggression scale, a scale measuring positive and negative affect, and the Defining Issues Test-2. Data were analyzed using structural equation modeling to identify a model of adolescents who are more likely to approve of sports aggression.

The results indicated that the acceptance of sports aggression could be predicted by an integrated model based on the biofunctional modes of constructive and unconstructive functioning. It was found that adolescents who were already in a negative state and who characterized themselves as generally aggressive were more likely to accept sports aggression.

Those who participated in sports were more likely to have a positive disposition, which was not a significant factor in accepting sports aggression. The results indicated that participating in sports was not a significant predictor of sports aggression, and it was the adolescents in an unconstructive dispositional mode who were more accepting of aggressive tactics in sports. This dissertation contributes to our understanding of adolescents and their attitudes towards unethical sports behavior and moral decisions.

DEDICATION

This dissertation is dedicated to my husband, Franco, who helped me and guided me through the painstaking process of completing my degree requirements along with my children, Elisabetta and Matteo, my parents, and other family and friends who supported me throughout this endeavor.

LIST OF ABBREVIATIONS AND SYMBOLS

CFI	Comparative Fit Index: indicates fit between models
CMIN/DF	Goodness of fit statistic: minimum discrepancy between the unrestricted sample matrix and the restricted covariance matrix
CR	Critical ratios for parameter estimates
d^2	Squared Mahalanobus distance: determines multivariate outliers or numbers farthest from the centroid
df	Degrees of freedom: number of values free to vary after certain restrictions have been placed on the data
F	Fisher's F ratio: A ration of two variances
logit	logarithm function used to compute person score to replace Likert values
M	Mean: the sum of a set of measurements divided by the number of measurements in the set
n	Number: number of participants or number in a sample
p	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
PCLOSE	Closeness of fit: the probability that the RMSEA is actually greater than .05
r	Pearson product-moment correlation coefficient
RMSEA	Root mean square error of approximation

SEM	Structural Equation Modeling
t	Student's t distribution: computed value of t test
χ^2	Chi-square distribution
Y	Scaled person score computed by $m + s(\text{logit})$
%	Percent
Δ	Increment of change
>	Greater than
<	Less than
=	Equal to

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CHAPTER 1

INTRODUCTION

The purpose of this dissertation was to examine the relationships between moral judgment, affect, moral disengagement, general aggression, and attitudes toward the acceptance of aggression in sports among Italian adolescents. This study was based on responses to a series of self-reported questionnaires about adolescents' attitudes toward unethical sports behavior and moral dilemmas. The first chapter presents the background of the study, specifies the problem, describes its significance, and presents an overview of the methodology. The chapter concludes by noting the delimitations of the study and defining some special terms used.

Sports and Moral Judgments

Sports have become an important part of youth activities because of the social interaction, discipline, training, and other benefits they offer. At the same time, because they are rule-based activities, they offer multiple situations for moral dilemmas (Bredemeier & Shields, 1994). Athletes have to decide if they will break the rules in order to gain an advantage, such as in taking banned performance-enhancing substances or by intentionally injuring another player. They must decide if they want to bend the rules by means that are not illegal but do not reflect the spirit of fair play, such as trash-talking or intimidation, in order to unsettle their opponent. Likewise, coaches, fans, parents, and media all play roles in creating the moral atmosphere of the sporting context, where acceptance of aggressive tactics may be approved of and encouraged. Because of its emphasis on finishing first, the adult model of sports competition has been

questioned as an appropriate model for adolescents who are in the process of developing their own values, identities, and moral standards. The overwhelming desire to win may become more important than the ethical concerns of appropriate moral behavior.

Sports seem to represent the best and the worst of ethical conduct. The idea has persisted for generations that sport channels aggressive behavior into acceptable actions (Coackley, 2004; Miracle & Rees, 1994; Russell, 1983; Weiss & Smith, 2002). However, unacceptable behavior often dominates the sporting arena. For example, Italian cyclist Riccardo Ricco' won two stages of the 2008 Tour de France and came in second place in the 2008 Giro d'Italia while his teammate Leonardo Piepoli won one stage of the 2008 Tour. Shortly after winning the stages in July 2008, both were fired from their team after testing positive for banned substances and violations of ethical conduct ("Doping," 2008). In another sport, the Australian newspaper, *The Sunday Mail*, reported the coach of Australian Olympic swimmer Jessicah Schipper sold his top-secret training methods to the Chinese swimming coach of Liu Zige, who later beat Schipper for the gold medal at the 2008 Olympic Games in Beijing. Wood was reported to have stated that he felt "bittersweet" that his swimmer lost to her Chinese competitor, but in the end he felt his actions were justified because of his low salary (Badel, 2008). Examples of fan violence in soccer highlight the complexity of moral issues that surround sports at all levels, such as when violence erupted between fans and police following the Catania-Palermo derby in Italy in February 2007 and a police officer was killed. Therefore, while many may feel sports encourage discipline and character development, the focus on winning and the unethical behavior of others involved may actually promote unethical behavior instead.

Problem Statement

Cox (2002) wrote that part of the problem surrounding sports and moral behavior is that many sports, particularly high contact sports, often seem to encourage aggressive behavior that would normally be unacceptable outside of the sports context. Cox suggested that if athletes must constantly set aside their moral standards to compete, then their moral development may be delayed or impeded. Bredemeier and Shields (1994) discussed that an important issue for research in sports and moral development is determining whether those who participate in sports differ from the general population in their moral reasoning, given the circumstances of the sports context.

Existing research conducted by Bredemeier and others (Bredemeier, 1985, 1994; Bredemeier & Shields, 1984, 1994; Shields & Bredemeier, 1995; Shields, Bredemeier, Gardner, & Bostrom, 1995) has examined the ethics of sports behavior through moral cognition and intentional behavior and has addressed mainly physical aggression and the intent to harm an opponent. However, moral behavior may be based on more than decision-making processes, which have received the most attention in previous research. Other factors besides moral cognition affect moral behavior, and these factors remain under-investigated in sports, especially as to how they may influence the overall moral development of adolescents.

Therefore, although previous research has examined the moral attitudes and aggressive behavior of certain groups of athletes, several gaps in the literature persist. First, past research has not investigated other ethical behavior in sports such as bending the rules to gain unfair advantage or the influence of athletes' attitudes toward winning in investigating the approval of sports aggression. Second, past research has not examined additional factors such as age, affect, identity, or how these factors are interrelated and combine to influence moral judgments in

sports. All too often past research has looked at disembodied moral decision-making as the primary determinant of moral behavior, neglecting the role of biofunctional and situational factors. By examining the full context, we can understand more completely the interactions that influence moral attitudes among adolescents in sports.

Purpose of the Study

Because of the aggressive nature inherent in some sports competitions, the relationship between sports, moral reasoning, and moral behavior has been a topic of interest to researchers. The central research questions have focused on the acceptability of violating rules and of intentionally hurting opponents, both considered to be tied to lower moral reasoning and a perceived moral atmosphere which accepts the unethical behavior (see Shields and Bredemeier, 1995; Kavussanu, 2008). Another question of past research is whether sports competitions help build good character or inhibit moral reasoning development (see Bredemeier, 1994; Weiss & Smith, 2002). Much of the research looking at children's moral development and sports participation has taken place in the U.S. or in English-speaking countries and has not considered cultural perceptions in moral reasoning, with the assumptions that the findings would be generalizable across cultures.

The purpose of this dissertation was to examine the relationships in moral judgments, affect, moral disengagement, general aggression, and attitudes toward the acceptance of aggression in sports among Italian adolescents. Several research questions guided the investigation: 1) Can moral disengagement, maturation, affect, and sports experience predict the acceptance of aggression in sports? 2) Are there significant differences in a model of acceptance of aggression between male and female participants? 3) Are there significant differences in a model of acceptance of aggression between participants in Northern Italy and Southern Italy?

It was hypothesized that the acceptance of aggression in sports would vary according to maturation, gender, and sports experience. Male adolescents who were older and had played high contact sports at higher levels of competition for longer periods of time would be more accepting of aggression in sports. Moral disengagement and negative affect would also be related to the acceptance of aggression in sports. Further, it was hypothesized that aggression and the acceptance of aggression would be related to an unconstructive mode of functioning, characterized by debilitating interest, anxiety, tension, and fear.

Significance of the Study

This study examined several under-explored areas in sports moral reasoning. One of these areas was the influence of maturation on moral attitudes and moral behavior. A limitation of previous studies in moral reasoning development and moral atmosphere among sport participants is that age groups were sometimes too narrow for significant comparison (Bredemeier, 1994; Proios & Doganis, 2006). For example, studies frequently examined older adolescents in college alone or against juniors and seniors in high school or compared elementary school children to each other (11-year-olds vs. 12-year-olds). However, these narrow age spans do not allow us to see differences that might emerge in moral attitudes across different stages of adolescence. Guivernau and Duda (2002) recommended that future research examine differences in responses according to age as well as gender because they found discrepancies in the responses of younger athletes. Therefore, this dissertation examined the responses of middle to late adolescents ages 13 to 19 as well as the responses of male vs. female adolescents.

Additionally, previous research has focused on comparing athletes to non-athletes, elite athletes to athletes with less experience, and athletes of different sports to each other (see Bredemeier, 1985, 1994; Bredemeier & Shields, 1984). Kavussanu and Spray (2006) wrote that

past research in moral functioning and sports has often focused on athletes in particular sports, which has made it more difficult to generalize the findings to individuals in other sports who may have different characteristics. It also has failed to consider different sports contexts consistently, such as level of contact or level of competition, or included a control group of non-athletes. Therefore, while we have snapshots of the moral reasoning of adolescents participating in particular sports, we cannot adequately compare them to other adolescents. This dissertation investigated the responses of adolescents according to sports participation at three levels of competition (none, recreational, and elite), the number of years playing sports, and four levels of contact (no sport, non-contact, limited, and collision).

Since cognitive factors and demographics alone do not determine moral behavior, this dissertation examined the roles of identity and experience in forming our moral and emotional awareness. It also explored the connection between dispositional modes of affective functioning and moral reasoning. Identity, experience, and dispositional modes of functioning relate to how adolescents view themselves, how they interact with the world around them, and how their life experiences influence their acquired self-concept and their development. Adolescents have their own reasons for participating or not in the activities they choose; these reasons emerge not only from their self-concepts but also from how they wish to be seen by others. Therefore, it is important that additional factors such as these be investigated because they not only add to the present literature but also increase our understanding of adolescent ethical behavior.

Finally, Proios, Doganis, and Athanailidis (2004) wrote that little research has been conducted on the relationship between moral development and sports participation, and even less research has been conducted in non-English speaking countries. Therefore, this research expands the previous literature by looking internationally at Italian adolescents because few

studies have been conducted on moral reasoning development among sports participants in other countries (Aziz, 1998; Proios et al., 2004). There has been an unwritten assumption in past research that sports behavior has the same cognitive origins or is based in the same moral decision-making patterns regardless of cultural context. There has also been an assumption connecting morality with fairness and justice so that the “best” or highest moral decision would be the fairest for all parties (Rest, Narvaez, Bebeau, & Thoma, 1999); however, all cultures may not base their moral decisions on justice operations. Therefore, this research investigated expanded age groups of adolescents in different sports and in a new cultural context, thereby adding to what we currently know about sports, adolescent development, and moral judgment.

Overview of Methodology

More than any other time, adolescence is a period of multifaceted change in the lives of individuals. Biology, cognition, emotion, morality, and identity impact growth dynamically in all areas simultaneously. While past research has provided pieces of the puzzle of moral development, it has looked primarily at a few pieces at a time, ignoring the larger picture of the situational whole. Therefore, this research was based on a theoretical framework which provides a foundation for interpreting this larger context: the roles of affect, identity, moral judgment and moral motivation in adolescents’ attitudes toward unethical behavior in sports. It draws upon biofunctional theory (Iran-Nejad, 1990, 1994), social identity theory (Dechamps & Devos, 1998; Puddifoot, 1997), and Rest’s Four Component Model of Morality (Rest, 1983).

The participants in this research were 332 Italian high school students in Northern and Southern Italy. Two regions in different sections of the country were chosen so that data would not be biased coming from one high school in one region alone. Data were collected using five questionnaires. The Attitudes on Moral Decision-making in Youth Sport Questionnaire

(AMDYSQ) measured the acceptance of sports aggression (Lee, Whitehead, & Ntoumanis, 2007). Moral disengagement was measured using a scale from Bandura, Barbaranelli, Caprara, and Pastorelli (1996), and general aggression was measured by a scale from Orpinas and Frankowski (2002). The DIT-2 (Rest & Narvaez, 1998) was used to measure moral judgment. Finally, the Positive Affect and Negative Affect Scale (PANAS) (Watson, Clark, & Tellegen, 1988) was used to measure the biofunctional constructs of constructive/unconstructive modes of functioning. In addition, the participants were asked to give their gender, age, height, weight, main sport, the level of competition they play, and the number of years they have played their main sport. Through examining more variables related to moral attitudes and ethical conduct in sports, this research extends previous research and provides the context for integrating the multiple influences on moral behavior.

Delimitations

This study was limited to an investigation and analysis of the attitudes of 332 Italian adolescents from Northern and Southern Italy. This study did not include the attitudes of other adolescents, and it did not study the sports behavior of adolescents. Instead, the main focus was to investigate whether sports participation influenced moral reasoning, attitudes, and behavior of Italian adolescents toward aggression in sports.

Key Terms

Acquired concept of self is defined in Biofunctional theory as the particular ideas about ourselves based on other ongoing, active elements (Iran-Nejad, Clore, & Vondruska, 1984). This is the part of ourselves that is related to our self-esteem, personal history, and goals.

Aggression is defined in traditional sports psychology as the intent to harm one's opponent (Cox, 2002). Aggression in this research is defined as breaking rules, such as harming one's

opponent, as well as bending the rules to gain an unfair advantage by behavior that does not violate a specific rule but violates the spirit of fair play, such as intimidation of an opponent. In addition, aggression also entails the acceptance of winning at all costs. Players who will do anything it takes to win are defined as being more aggressive than those who accept losing as a part of life.

Biofunctionalism is a theory that views learning and behavior as being more deeply entrenched in biology than mind-initiated thought. Iran-Nejad (2000) explained, “The idea is that the brain has evolved to build and sustain, on an ongoing basis, an internal ground—not just for navigating our way around in the physical world but for all aspects of mental functioning” (p. 73). The present research assumes that moral development attitudes are biofunctionally and situationally embodied in a manner much more profoundly than past research has investigated.

Cheating is an attitude toward breaking rules of play for gaining unfair advantage. Lee et al. (2007) described cheating as having two main components: attempting to gain unfair advantage by breaking the rules of play and at least partially succeeding in concealing the behavior. This is one of the ethical attitudes measured by the AMDYSQ (Lee et al., 2007).

Constructive/unconstructive modes of functioning form the basis of interaction in biofunctional theory. In biofunctional theory, moral and other forms of attitudes do not function in disembodied rational thought. Rather, they are grounded in dispositional modes of biological functioning characterized antithetically as being either in an unconstructive or constructive mode of functioning. The unconstructive mode of functioning is a dynamic state of imbalance heading in the direction of disintegration that in the process generates “fear, stress, tension, and anxiety” (Iran-Nejad, 2000, p. 75). This mode of functioning is a source of debilitating anxiety and interest in harmful action toward self and others or in disintegrative and impulsive behavior that

is morally disengaging. By contrast, the constructive mode of functioning is guided by interest and curiosity, leading to morally engaging behavior, moral coherence, and spontaneously reflective moral action (Iran-Nejad & Gregg, 2001).

Four Component Model of Morality is a more comprehensive model which explains the basis of moral behavior. While Kohlberg's theory of moral development concentrated mainly on moral cognition, Rest (1983) designed the Four Component Model of Morality to address additional factors that comprise moral behavior. The four components are moral sensitivity, moral judgment, moral motivation, and moral character. A major characteristic of the Four Component Model is that it is interactive and not linear; the four components may work independently or with each other. These four components of morality are likely to gain their attitudinal and behavioral potency in biofunctional and situational embodiment.

Inherent self in biofunctional theory is a global sense of self. Iran-Nejad et al. (1984) discussed that our experiences of the moment create an overall, general sense of who we are. This general sense is the "unitary experience of self-awareness" (p. 294). It is this ability that allows us to have an overall sense of self whether we are in a group or alone. It is the general sense of being "us" that persists even when our circumstances change, such as when we suffer a severe physical trauma.

Moral disengagement refers to the concept that people who engage in inhumane behavior have somehow found a way to disengage their moral standards. The theoretical basis for moral disengagement is social cognitive theory (Bandura, 1991). However, in biofunctional theory the sources of moral disengagement are likely to be embodied in the unconstructive mode of functioning and situations such as when the individual is part of the losing team.

Moral functioning is a disposition or attitude directed at moral integration of cognition and behavior. It is likely to encompass the interaction of the four components in Rest's Four Component Model of Morality (Rest, 1983). From a biofunctional perspective, its sources are embodied in the constructive mode of biological functioning and situations such as when the individual is performing well on the winning team.

Moral reasoning refers to the cognitive side of moral behavior that is a factor in moral actions.

Morality as defined Bredemeier (1985) is "a process of balancing one's own needs and interests with those of others" (p. 120).

Social cognitive theory, proposed by Bandura (1991), states that people who disengage their actions from their moral principles do so based on justifications of their behavior to themselves. From the biofunctional perspective, not all self-justifications are morally disengaging. More specifically, only self-justifications that have their sources in the unconstructive mode of biological functioning are morally disengaging. Most importantly, moral disengagements that have their origin in debilitating interest and anxiety are not self-justifiable. They occur under functional disintegration and impulsive action.

Social identity theory, according to Dechamps and Devos (1998), explains that identity is a socially-constructed part of ourselves that determines our behavior. They wrote, "It is a guide for individuals' actions and it is essential for the functioning of our society" (p. 3).

Understanding how adolescents react to awareness of their personal and social identity is an important part of understanding their moral development.

Sports participation as a concept is difficult to define, for, as Bredemeier (1994) stated, most people have participated in physical activities throughout their lifetime. However, in this

research, sports participation refers to playing organized sports through a recreational, scholastic, or club team.

Sportspersonship is the term used to describe unethical, but not illegal play. Sportspersonship comes from the British term gamesmanship, which was coined by Potter (1950). Lee et al. (2007) defined this as “a category of actions that do not actually violate the rules of the sport but that do appear to violate the spirit of the contest, perhaps using the laws to gain some advantage that might be considered to be unfair or dishonourable” (p. 372). This is one ethical attitude measured by the AMDYSQ (Lee et al., 2007).

CHAPTER 2

LITERATURE

The period of adolescence is a time of fluctuation where young people alternate between periods of growing as they progress toward adulthood. Physically, emotionally, cognitively, and morally, adolescents struggle to understand who they are and what their purpose is in life. Adolescents must learn not only about themselves but how to get along with others as well. During this time of growth, adolescents may feel torn between what they know, what they have been taught, and what their peers or others expect of them. Navigating these difficulties is at the heart of adolescent development.

Sports are popular extracurricular activities for youth because they assist adolescents in developing physically through motor control and coordination as well as in developing control and coordination in other biofunctional areas, through deeply embodied experiences in discipline and moral reflection. Moral reasoning, the growing sense of cooperation and fairness that people acquire, is a central concept in adolescent development because it is essential to forming relationships; both playing games and living with others in society involve cooperating with others and treating people fairly. This research examined the relationships between moral judgments, affect, moral disengagement, general aggression, and the self-reported attitudes toward the acceptance of aggression in sports among Italian adolescents through a theoretical framework based on Rest's Four Component Model of Morality, biofunctional theory, and identity formation.

Moral Development Theory

Much of the early research on moral reasoning and sports was based on Kohlberg's Stages of Moral Development. As a cognitive-developmental theory of moral development, Kohlberg's (1984) theory centers on the concept that moral development progresses through different stages across the span of childhood, adolescence, and adulthood and forms the basis for moral behavior. Kohlberg identified three major levels of moral reasoning: pre-conventional, conventional, and post-conventional. Each level contains two stages. Pre-conventional level reasoning, encompassing most of childhood to early adolescence, represents 1) obedience and punishment and 2) individualism and exchange or making deals. The conventional level encompasses early to middle adolescence. It is also comprised of two stages: 3) interpersonal relationships and 4) maintaining social order. Finally, the post-conventional level is more adult thinking, present beginning as early as age 12 and above, and is made up of 5) social contracts and 6) universal ethical principles.

Moving from Stage 2 thinking to Stage 3 thinking is considered a critical developmental phase because it pushes the individual from egocentric thinking to including others' perspectives. It represents a progression from individualistic values to those supportive of and supported by conventional society (Crain, 1985). For example, intentionally breaking a rule may be avoided in Stage 2 because the person does not want to be punished. In Stage 3, a person may avoid breaking a rule because he or she thinks his or her teammates would disapprove. There is an assumption that as people progress to higher moral reasoning, aggression, or intentionally hurting another person, will decrease. Therefore, there is a potential conflict when adolescents begin moving toward Stage 3 reasoning where group identity is important if the group adopts a

lower stage of moral reasoning, such as doing whatever an athlete can get away with for the personal goal of winning the game.

Kohlberg's theory of moral development has received criticism from many researchers. Rest et al. (1999) discussed many major limitations of Kohlberg's theory. They noted that Kohlberg's theory relied extensively on stages and linear development. They wrote that moral development is no longer viewed as a linear progression through rigidly defined stages; instead, moral behavior is fluid and progresses more like a succession of waves. Additionally, Kohlberg's theory seemed to place greater emphasis on abstracts than people or relationships, so that progression up the moral development scale meant that people moved away from loyalty to friends or family to a loyalty toward abstract concepts. Finally, Rest et al. discussed the criticism that research based on Kohlberg's theory relied on interviews for data collection, and moral decisions are based on more than what an individual may be aware of or can communicate. In addition, the moral dilemmas were limited and did not address the totality of morality. Proios et al. (2004) wrote that many researchers have raised questions about the reliance of Kohlberg's theory on individual cognition. They have objected to defining morality by an individual's mental operations in isolation from other aspects of the moral decision, ignoring the embodied situational and contextual factors. Finally, Rest et al. (1999) noted that there has been no evidence confirming Stages 5 and 6 of Kohlberg's theory.

Rest's Four Component Model of Morality

To address the criticism, Rest designed the Four Component Model of Morality which recognizes additional factors that comprise moral behavior, and moral cognition or moral judgment remains only part of this model. Rest et al. (1999) defined the four components as moral sensitivity, moral judgment, moral motivation, and moral character. According to Bebeau

and Thoma (1999), moral sensitivity is the recognition that a situation can be interpreted as moral with consequences for oneself and others. Moral judgment is the cognitive component that Kohlberg's stages focused on. Moral motivation refers to the fact that sometimes people have motivations other than ethical ones that guide their behavior. Finally, moral character means that a person is able to decide on, implement, and continue to follow his or her moral choices.

The Four Component Model is based on a revised theory of moral development. Instead of stages, there are two main schemas for moral decision-making (Rest et al., 1999). First is the *maintaining norms* schema, based on the view that law and order are so interconnected that one cannot exist without the other. This view represents conventional thinking and the view that without laws, anarchy would result. The second schema is the *post-conventional schema*. It represents ideals that can be shared by all. It views moral codes as principles to be followed because of their purpose, not because of their existence. It also implies a reciprocal relationship over the maintaining norms schema. Conventional thinking in maintaining norms views that all people are answerable to the laws equally. Post-conventional thinking views laws as equitable to all people, not for the benefit of only a few.

A major characteristic of the Four Component Model is that it is interactive and not linear; it is fluid so that there is a gradual shift to increased higher stages of thinking with decreasing reliance on lower stages. Cognitive, behavioral, and affective domains combine to affect all areas of moral functioning, and the four components may work independently or with each other. In the Four Component Model, there is the recognition that people have multiple ways of thinking about moral situations. The schemas are frames for thinking and acting; they do not rely on people's interpretations of justice to move or progress in moral development.

Moral development is seen as an overlapping of schemas rather than a “staircase” of progression. Unlike Kohlberg’s theory of moral development, the Four Component Model incorporates additional aspects outside considerations of justice. It recognizes,

Development is more a matter of richness of experience and stimulating experiences than the mere passage of years. Chronological age is at best a rough proxy variable for development; development involves the cumulative impact of people trying to construct moral meaning in their lives in response to stimulating social experiences. (Rest, et al., 1999, p. 125)

Therefore, moral development encompasses more than simply aging; it is the totality of one’s experiences, requiring rich, stimulating social experiences. As well, moral behavior is based on more than moral cognition, and moral decisions consider more than what’s “fair.” As Rest et al. wrote, issues of justice are important, but they do not encompass all moral issues.

Research into Moral Reasoning and Sports

The early studies into moral reasoning and sports examined ethical behavior apart from a moral development theoretical framework. Silva (1983) conducted one of the first major studies to look at the approval of rule violations in different sports. Two hundred three participants rated the acceptability of rule violations in a series of slides depicting behavior in different sports. In addition to gender, participants were categorized according to the amount of physical contact present in sports they played as well as the level of organized sport (such as youth, recreation, and high school or college athletics) and number of years playing organized sport. Over all, results of linear regression analyses indicated that males approved of rule-violations more frequently than females did, and gender accounted for 57.1% of the variability in scores. Also, approving of rule violations increased according to years having played sports for both males and females. For females, acceptance of rule-violating behavior increased as a function of years having participated in sports; however, a quadratic relationship was noted, with those who hadn’t

played sports and those who had played more than 11 years approving of more behaviors. There was a significant linear trend for males; males who had participated in sports in high school or college were more accepting of rule-violating behavior than those who hadn't played sports or who had participated in only youth sports. While Silva's research looked at the approval of unethical behavior in sports, it considered only sports participation and gender. It did not examine the behavior from a moral reasoning theoretical framework nor did it consider additional biofunctional factors that may influence moral behavior.

Kohlberg's Theory of Moral Development and Sports

Later studies examined aggression in sports using Kohlberg's Theory of Moral Development. Bredemeier and Shields (1984) looked at the difference between levels of moral reasoning among 120 high school and college athletes and non-athletes. They based their research on Kohlberg, Hickey, and Scharf (1972) and Haan's structural developmental model of morality (Haan, 1978, 1983). Bredemeier and Shields presented the participants with four hypothetical moral dilemmas: two Haanian stories and two set in a sports context. The results of the data analysis indicated that moral reasoning in sports contexts was significantly lower than in life dilemmas for all participants, although when results were divided according to subgroups, the results remained significant only for high school female non-athletes and basketball players. While Bredemeier and Shields included a moral reasoning framework in their research, they did not consider additional factors outside moral cognition that may influence ethical behavior, and data collection relied on interviews without triangulation with other instruments.

Bredemeier, Weiss, Shields, and Cooper (1987) interviewed 78 boys and girls in grades 4 through 7 on moral reasoning and sport involvement. They found that boys accepted more rule violations than did girls. They also found that 5th and 6th graders accepted more aggressive sport

behavior than 3rd and 4th graders. In addition, they found that children accepted more aggressive sport behavior from adults than from other children. Boys who accepted more aggressive sport behavior also ranked more highly on aggression as measured by Deluty's Children's Action Tendency Scale (Deluty, 1979). Bredemeier et al. compared the ethical behavior of children; however, they did not examine factors outside moral cognition that could contribute to moral behavior.

Another study, Shields, Bredemeier, Gardner, and Bostrom (1995), investigated 298 male baseball and female softball players at high schools and community colleges in order to identify teammates' and coaches' influence on the moral atmosphere and moral reasoning judgments of players. They found that overall cheating and aggression were more expected at higher levels of play and by males, older athletes, and more experienced players. Interestingly, they also found a positive relationship between playing on a winning team and higher expectations of cheating. In addition, non-starters ranked higher in expecting unfair play than starters. Shields et al. expanded on previous studies by investigating the perceived moral atmosphere of teams, they did not include additional variables that could influence moral behavior.

Sports and Rest's Four Component Model of Morality

More recent studies have looked at moral development from a theoretical framework based on Rest's Four Component Model of Morality. Kavussanu and Roberts (2001) based their work on the third component of Rest's model of morality, moral motivation. Kavussanu and Roberts looked at achievement goals and their relationship to moral functioning, sportpersonship, and attitudes towards fouls among college basketball players. Kavussanu and Roberts wrote that achievement goal theory (Ames, 1992; Duda, 1989, 1992; Nicholls, 1984, 1989; Roberts, 1992, 1993) was related to moral motivation because it explained the motivation

behind certain activity; however, this interpretation of moral motivation tends to conserve the biofunctional disembodiment of moral cognition.

Kavussanu and Roberts (2001) explained that an ego orientation places an emphasis on the value one has on his/her individual performance compared to others so that he or she always tries to outperform others while a task orientation emphasizes the value of mastering a task based on self-referenced criteria, although it does not consider other possible motivations. Fifty-six males and 143 females participated in the study. Participants completed four questionnaires assessing their attitudes and behavior. Moral functioning was assessed through a questionnaire developed by Gibbons, Ebbeck, and Weiss (1991) that presents soccer-specific moral dilemmas. The results indicated a relationship between ego orientation and moral judgments about the appropriateness of fouls and cheating in sports contexts. However, no significant relationship was found between self-reported moral behavior and ego orientation. In addition, Kavussanu and Roberts found that goal orientations accounted for only 9% of the variance in moral functioning, sportpersonship, and attitudes toward fouling. They concluded that moral development was dependent on more than focusing on the current task and that moral functioning growth required social interaction as well as empathy and mature cognitive functioning. They recommended that future research focus on age differences as well as play at different competitive levels.

Ommundsen, Roberts, Lemyre, and Treasure (2003) also based their study on Rest's Four Component Model of Morality, and they focused specifically on components two, three, and four, or moral judgment, moral motivation, and moral character. They examined whether performance or mastery orientations were associated with lower levels of moral functioning, sportpersonship, and attitudes toward fouling in sports. They looked at 279 male soccer players

12-14 years of age in Norway. Participants responded to four questionnaires during the Norway Cup, a national youth soccer tournament. Moral judgment was measured by the soccer-specific questionnaire developed by Gibbons et al. (1991). Moral motivation was assessed by asking whether the participants would engage in the behavior described in the moral dilemmas, and moral character was measured by asking participants how many times they had actually performed the described actions. The results indicated that a performance orientation was associated with lower levels of moral functioning, lower sportspersonship, and a higher rate of approval of inappropriate sports behavior. However, this study does not substantially overcome the problem of biofunctional and situational embodiment because of its reliance on the limited sports dilemma at hand.

Kavussanu and Ntoumanis (2003) looked at the relationship between participating in contact sports and moral functioning. They used Rest's model of morality for the theoretical framework and examined the last three components of the model in a manner similar to Ommundsen et al. (2003). Kavussanu and Ntoumanis investigated the attitudes of 161 male and 61 female participants in basketball, soccer, field hockey, and rugby by having the participants answer questionnaires on sport participation, goal orientations (task or ego orientations), moral functioning, and prosocial behavior. Structural equation modeling analysis indicated that participation in contact sports predicted low levels of moral functioning. However, an ego orientation mediated the relationship between sports participation and moral functioning so that the relationship became non-significant when an ego orientation was introduced. While Kavussanu and Ntoumanis expanded previous research by examining contact sports, moral behavior is still considered as being determined principally by cognitive processes and decision-making.

Romand, Pantaleon, and Cabagno (2009) examined age differences in moral cognition and moral behavior among soccer players. The participants were 96 male athletes ages 8 to 25. Romand et al. looked specifically at the relationship between sport participation and moral development and whether sport participation encourages prosocial behavior such as fair play or whether it teaches players to break or bend rules to get ahead. They also wanted to examine directly the relationship between moral reasoning and moral behavior through observation. Their work was based on Rest's Four Component Model of Morality. Participants completed a questionnaire on moral cognition, and they were videotaped while playing in three games. Moral functioning was assessed through the questionnaire developed by Gibbons et al. (1991). Participants were also asked to indicate what they would do and to choose a reason explaining their choice. Results indicated that the older players were, the more they chose reasons for their actions. They also found that children thought fouls were more inappropriate, and younger children were less approving of this behavior than older children or adults. Therefore, the results indicated that while moral reasoning increased with age, soccer players also became more approving of inappropriate behavior and indicated more frequently that they would engage in such behavior. They also found that moral judgment and moral intention were significant predictors of moral behavior in the sports context. Romand et al. expanded our understanding of ethical sports behavior by comparing moral cognition to actual sports behavior. However, it still does not overcome the problem of disembodied cognition as the sole determinant of behavior.

Finally, Proios and Doganis (2006) investigated the connections between age, education, and moral reasoning among 535 Greek athletes, ages 14 to 49 years representing junior high school to postgraduate students. Proios et al. (2004) wrote that past research into moral reasoning and sports participation has often been limited by the narrow sampling of age groups

or small age spans of the participants (Bredemeier, 1994) and that the developmental characteristics of age, education, or social experience had not received much attention in research. Using the Defining Issues Test-2 (Rest & Narvaez, 1998), Proios and Doganis found that moral reasoning increased steadily across age groups. Their findings supported the longitudinal studies of Lind (2000) and Rest, Davison, and Robbins (1978), which showed that education plays a significant role in moral reasoning development. They concluded that moral judgment may develop along with general social development, which supports the view that moral reasoning development is a more embodied process than it has previously been considered.

Moral Development and Sports from Other Perspectives

Perry-Burney and Takyi (2002) examined the effectiveness of competitive team sports on girls' self-esteem, academic achievement, and moral development because sports are often mentioned as helping girls to have higher confidence and to avoid risky behavior (Weiss & Hayashi, 1996). One hundred forty-four girls who played team sports in 9th through 12th grades participated in the study. The girls completed a questionnaire on self-esteem, sports participation, and development. Moral development was measured by self-reported religious affiliation, and Perry-Burney and Takyi found that almost 80% of the girls reported a religious affiliation. The results of the data analysis indicated that the majority of the girls felt they had a responsibility to themselves first to play their best every time and second for their team. Perry-Burney and Takyi concluded that sports participation helped the girls have more confidence and control over their lives. There was a relationship between playing sports, moral standards, and self-esteem; however, the researchers noted that the absence of a control group of girls who were not involved in sports limited the interpretation of the results. In addition, using religious

affiliation to measure moral development also makes it more difficult to generalize from the findings and compare them to other research based more deeply on a theoretical framework of moral development. It would appear that the research measured only one affective behavior, self-esteem, in an isolated, disembodied context.

Long, Pantaleon, and Bruant (2008) examined the ideas of personal responsibility in adolescent athletes. Drawing on Shields and Bredemeier's game reasoning theory (Shields and Bredemeier, 1995) which states that athletes adopt an egocentric perspective and are willing to do anything to accomplish the goal of winning, Long et al. conducted semi-structured interviews with 36 male athletes. One group of 18 was the institutionalized or organized sports group which practiced and competed at the regional or local level as amateur players. The second group of 18 was self-organized. In each group, 15 athletes played soccer while 3 played basketball. Results indicated that the organized sports players felt a greater responsibility toward their team and their coach, to whom they expressed they owed complete obedience. For the self-organized players, their most common concern was for their opponents. They expressed a moral responsibility for each others' safety and the need for a mature attitude. While the organized players mentioned a responsibility to play well at all times, the self-organized players discussed the need for honesty in actions and establishing equity with other players, such as not playing hard with smaller children. Fouls were seen by the organized sports players as the consequence of tactical decisions whereas the self-organized group saw fouls as being the result of clumsiness or lack of skill. This study is interesting because of its emphasis on learning fair play through self-regulation rather than through other-regulation by referees and coaches. It is the embodied experiences of self-regulated play that appeared to contribute to moral behavior in sports by

encouraging athletes to consider the ethical consequences of their behavior and not just as tactical decisions to win.

Moral Motivation and Moral Disengagement

Rest et al. (1999) wrote that other theories of moral development often start from a different perspective and add another dimension to our understanding of moral behavior without necessarily being oppositional. Bandura (1991) has looked at moral behavior from a theoretical framework of social cognitive theory. Social cognitive theory states that people who disengage their actions from their moral principles do so based on justifications of their behavior to themselves. Moral disengagement refers to the principle that people who engage in inhumane behavior have somehow found a way to disengage their moral standards (Bandura, 1990; Bandura et al., 1996). Bandura et al. (1996) was one of the first empirical studies to look at the relationship between moral disengagement and moral behavior in adolescents. It found there was a positive correlation between moral disengagement and transgressive or delinquent behavior as well as a positive one between moral disengagement and a tendency toward aggression and a negative correlation with prosocial behavior. Only one previous study has been conducted to examine moral disengagement and unethical sports behavior (Lucidi, Grano, Leone, Lombardo, & Pesce, 2004). Lucidi et al. (2004) investigated the relationship between moral disengagement and the intention to use illegal performance-enhancing substances, and they found a significant positive correlation. Since then, Boardley and Kavussanu (2007) have developed a moral disengagement scale to use specifically for investigating sports behavior.

Additional research into moral disengagement and adolescent development has shown that moral disengagement is not stable over adolescence. In a longitudinal study conducted with Italian adolescents, Piaciello, Fida, Tramontano, Lupinetti, and Caprara (2008) found four main

patterns of moral disengagement, which showed that moral disengagement would often rise at middle adolescence before falling in later years. Piaciello et al. found that for most participants moral disengagement peaked around 15 to 16 years of age, after which it declined steadily through late adolescence until the age of 20, except for “chronic disengagers,” who remained moderately high in moral disengagement. Piaciello et al. recommended further research combining moral disengagement with moral reasoning and moral judgments as well as research that looked into the social and cultural influences on behavior. Moral disengagement is a type of moral reasoning that fits in with the Four Component Model as moral motivation. It provides justification for moral actions.

Summary

In summation, while early research into moral development and moral reasoning in sports has investigated stages of moral cognition in isolation, later research has emphasized the need for a more holistic or contextual understanding of moral dilemmas and moral decision-making. Many studies have examined moral functioning in sports from a perspective of either Kohlberg’s stages of moral development or Rest’s Four Component Model of Morality. The majority of the studies used sport-specific moral dilemmas to measure moral development while Proios and Doganis (2006) is one of the few studies to actually use the Defining Issues Test-2 (Rest & Narvaez, 1998) to measure moral development. Many researchers have discussed that future research should include larger age spans, different sports, and diverse competitive levels. The studies have not always agreed on an instrument for measuring moral development, even when basing research on a similar theoretical framework, which raises issues of reliability and validity of the findings or their ability to be generalized to other populations.

What we have learned from past research is that moral development is influenced by many factors aside from moral cognition, and moral behavior is affected by many variables, not simply the task at hand or moral reasoning. There is the recognition that playing sports involves an embodied process of growth and development that cannot be isolated into solely cognitive, physical, emotional, or moral factors. Each component explains only part of the story, and researching only part of the whole cannot fully explain attitudes toward moral behavior.

One of the unanswered questions from past research is whether athletes who participate in sports are actually more aggressive than those who do not. Cox (2002) explained the problems associated with athletic competition and moral development from a cognitive perspective. Cox observed that many athletes experience what Bredemeier (1994) called *bracketed morality*; that is, sports legitimize acts of aggression that would normally be considered against one's moral standards, and in order to participate in sports competitions, athletes must contend with deep emotions which may cause them to suspend the level of morality that they would normally use in emotionally benign every day life (Cox, 2002). It is this suspension of morality that may hinder moral development, especially among adolescents who are in the process of forming their own moral reasoning. However, past research has not always focused on the synthesis of the components of adolescent development; it has relied too much on analysis of disembodied cognition or physical changes rather than the entire situational and biofunctional context.

Biofunctionalism

Biofunctionalism is a theory that views learning and behavior as being more deeply based in biology than in thought or in cognition; therefore, it implies that there is more to moral development than disembodied cognition or cognitively-oriented goal-directed motivation (Iran-

Nejad, 1990, 1994). As a result, ethical attitudes and actions may be more biofunctionally and situationally embodied than has previously been researched. According to biofunctional theory, behavior is not determined predominately by cognition but through other deeply embodied internal and external sources, often working spontaneously outside the narrow spotlight of our active attention, that influence our actions. Biofunctional theory explains that the multi-sourced totality of the experience combines to form our perceptions, attitudes, understanding, and behavior. It states that attention is a distributed phenomenon that takes place either independently with explicit focus or globally with implicit focus.

Biofunctional theory explains that behavior is based on biologically-embodied cognition, self-regulation, and dispositional modes of affective, biological, and situational functioning (Iran-Nejad, 1990, 1994). In biofunctional theory, brain activity is based on three dispositional modes of functioning. One of these dispositional modes is the habitual vs. creative mode of functioning. In this mode, the brain is engaged in activity leading to either an energy-conserving mode or a creative problem-solving mode. The habitual mode of functioning operates in the “safety of the known world” (Iran-Nejad & Gregg, 2001, p. 879). The brain moves toward the routine and the avoidance of challenge. However, in the creative mode of functioning, the brain moves toward activity, challenge, and discovery. An important point is that the modes of functioning are not limited to any domain but they are modes of performance. To use a sports example, the habitual mode of functioning would be similar to a player performing repeated skill drills. The movements do not vary, and the athlete continues to execute the same motions habitually, regardless of the circumstances. The creative mode of functioning would be exemplified by direct game play. Since opponents’ moves cannot be predicted, successfully competing in a game requires athletes to have a deep understanding of the opponents’ moves, the

rules of the game, what is ethical, and how actions interact with the rules of sport to come up with the performance that is most fitting to the situation. This is the reason playing sport requires the creative mode of performance. The habitual mode of functioning is also necessary because it conserves energy and resources; one cannot operate indefinitely in the creative mode of functioning. However, the habitual mode does not allow for creative thinking or problem-solving without a shift to the creative mode of performance.

Next, there are two additional dispositional modes of functioning, unconstructive and constructive. An unconstructive mode of functioning describes a state of imbalance that “generates a state of fear, stress, tension, and anxiety” (Iran-Nejad, 2000, p. 75). In sports, the unconstructive mode of functioning can be represented by the idea of focusing too much on an opponent’s strengths to the point of intimidation or being too excited in a competition to play well, which may occur when a team continues to advance toward the finals in tournament play. An unconstructive mode of functioning may also lead to moral disengagement strategies consistent with it. By contrast, the constructive mode of functioning is guided by interest and curiosity, leading to coherence (Iran-Nejad & Gregg, 2001). Iran-Nejad and Gregg (2001) wrote that the constructive mode of functioning is the default mode of the inherent self or preferred mode of functioning for the brain since it promotes self-coherence, efficacy, and balance. However, one cause of the unconstructive mode of functioning could be if a person were trying to complete a challenging task, which would require using the creative mode of functioning, while being in the habitual, energy-saving mode of functioning. While a few sports, such as weightlifting, may allow athletes to compete with habitual preparation and actions, others require players to be creative to create scoring opportunities.

Finally, in the active vs. dynamic mode of self-regulation, actions are regulated either through active attention or intuitive knowledge (Iran-Nejad & Gregg, 2001). Active self-regulation requires effortful attention while dynamic self-regulation operates internally through curiosity and interest. Iran-Nejad (1990) explained that active self-regulation is under the conscious control of executive processes. It is the part attention plays in learning. When we actively focus attention on something, we are exercising active control of self-regulation. When we use mnemonics to memorize answers for a test, we are using the active mode of self-regulation. Dynamic self-regulation is not under active control; it is characterized by the energy and activity that accompany our quest to discover something we are innately curious about. Active self-regulation, however, is mediated by intentions.

To explain active and dynamic self-regulation in a sports context, learning the rules of a game requires active self-regulation whereas the experience of kicking two different balls is dynamic, for each ball may have a different weight, produce a different sound when kicked, and exhibit a different response to the same amount of force exerted on it. A person can execute a soccer kick using active self-regulation; however, the mind may misdirect the kick because the athlete “thinks too much.” By contrast, using dynamic self-regulation is more akin to a goalkeeper training blindfolded. Blindfolded, the keeper must learn to use other senses rather than just looking actively at the ball in order to know where to make the stop. An example of dynamic vs. active self-regulation is seen in Long, Pantaleon, and Bruant (2008). Long et al. discussed differences in players’ understanding of their responsibilities based on controlled vs. self-organized play. They found that players in self-organized play learned more about fair play almost instinctively as opposed to youth athletes playing in adult-organized leagues. This emphasizes the differences in learning that can occur under the different levels of self-regulation.

The importance of dispositional modes of functioning cannot be overemphasized, for dispositional modes are a fundamental part of learning. As explained earlier, fear, tension, or stress can cause a state of imbalance which would prevent someone from learning or performing at his or her best. Some people may feel more energized with tension and stress while others may feel more threatened and paralyzed. However, biofunctional theory explains that it is not necessarily the presence, absence, or quantity of emotion that determines our performance; rather, it is the dispositional mode of functioning. To put it another way, interest can be a key component for performing well in the constructive mode of functioning, but it can be debilitating in the unconstructive mode of functioning. While an athlete in the constructive mode of functioning may become more fired up when challenged during a game, one in the unconstructive mode may not be able to move past his or her anger and may continue to retaliate against another player to the point of being ejected from the game.

Biofunctional theory has been explored in different studies dealing mainly with academic learning (Iran-Nejad & Chissom, 1992; Iran-Nejad, Watts, Venugopalan, & Xu, 2007; Larkin, Colvert, Ellis, Iran-Nejad, Casareno, Gregg, Rountree, & Schlichter, 1995; Schapiro, & Livingston, 2000; Stewart, Iran-Nejad, & Robinson, 2008). Alldredge, Derryberry, Crowson, and Iran-Nejad (2000) discussed the role of biofunctional theory in moral development, but they focused on wholetheme impacts on morality and did not consider dispositional modes of biological and situational functioning. However, Alldredge et al. did argue that it is the brain and the body that have evolved in response to the environment; therefore, biology has a greater influence on moral functioning than the mind alone. It is the “total process” or total experience that contributes to moral development (Alldredge et al., p. 119). Iran-Nejad, McKeachie, and Berliner (1990) wrote that human behavior is multiple-source in nature and that it is the body

that must regulate the multiple sources of stimuli. Therefore, the point is made that there is no black box, file cabinet, computer, or material entity inside our brains called the mind that experiences for us. It is our bodies that experience and relate the sensations to our brains, which then allow us to interpret what is happening around us.

Learning, then, according to biofunctional theory, is the result of what takes place inside the brain, and while external sources are important, we would not be able to develop independent moral reasoning if this reasoning depended merely on external sources. Social stimuli are also important; otherwise, we could never grow or change with our experiences or learn from our mistakes. In moral development, both active and dynamic self-regulation must come together in order for an individual to solve a moral dilemma. Likewise, experiences that allow for individuals to understand not only overt approval or disapproval from others but also one's own responses to one's behavior based on self-reflections are the experiences that form moral development from a biofunctional perspective.

Adolescence and Identity Formation

During the adolescent years, many changes take place, particularly with regard to moral, physical and cognitive development. However, adolescence is also the period for biofunctionally and situationally embodied identity formation. Identity formation is also an important part of research with adolescents because how adolescents see themselves influences the types of activities they select to be a part of. In return, being a part of certain groups or participating in chosen activities will have an affect on adolescents' self-concepts. In the past, researchers have defined identity formation from several perspectives, but almost all have focused on the external, social aspects or internal cognition. For example, social identity has been considered as the concept people have of themselves and how they fit in with the groups around them (Stone,

Barber, & Eccles, 2008). It is also related to Erickson's "group identity" or the sense of one's place in society (Erickson, 1963). Dechamps and Devos (1998) explained that identity is a socially-constructed part of ourselves that determines our behavior. They wrote, "It is a guide for individuals' actions and it is essential for the functioning of our society" (p. 3). All of these definitions explain a part of identity; however, they remain disembodied concepts.

According to Houser and Domokos-Cheng Ham (2004), behavior is determined by social status, self-esteem, and the search for a positive personal and group identity. Puddifoot (1997) asserted that people in minority groups with negative or inferior group identities will often try to change group affiliations or change the status of the group identity to be more positive. In addition, social identity is associated with gender roles. Swan and Wyer (1997) wrote that while males emphasize their "maleness" when they recognize they are part of a high status group, women avoid making themselves more feminine when they recognize they are part of a low status group. In other words, one's gender is part of one's social identity, and people often work to enhance their self-esteem by seeking out membership in higher status groups. While there is a tendency to objectify social identity, there is also the understanding that external stimuli exert an influence on internal functions so that who we are is not something that is determined entirely in our minds, but the totality of the experience creates a unity of perception that is who we are.

Understanding how adolescents react to awareness of their personal and social identity is an important part of understanding their development. Stone, Barber, and Eccles (2008) wrote that while specific categories of identity may change from high school to high school, identity is an important concept to consider in examining adolescent behavior because of its relationship with particular attitudes and behavior, such as substance use (Brown, Dolcini, & Leventhal,

1997; Eccles & Barber, 1999), self-esteem (Brown & Lohr, 1987), healthy behavior (La Greca, Prinstein, & Fetter, 2001), and peer group relationships (Eder, 1985).

Adolescents, Identity and Sports

Widdicombe (1988) examined adolescent identity from the perspective that adolescents have personal and social identities. Widdicombe built on Gordon (1968), which suggested that people form social identities first based on comparison with other groups and then personal identities based on within group comparisons. However, as Widdicombe noted, Turner, Hogg, Oakes, Reicher, and Wetherell (1987) observed that all social identities are based on comparisons to someone or something else, and personal identity may be more influenced by social identity at certain times than others. Widdicombe (1988) looked at 69 males and 113 females aged 16-18 years who were asked to respond to a series of adjectives according to how they would answer for themselves, their own peer group and the group opposite their peer group. The results indicated that the participants defined their peer group outside of traditional social categories. In other words, individuals thought there was something “special” about their group outside of gender, class, work, or other traditional social categories. Widdicombe also found that participants distinguished their own identities from those in their peer groups. She noted that when the focus moved from the personal to the social, participants made themselves more similar their peer groups; however, participants also maintained a personal identity that was distinct from their group.

Tanti, Stukas, Halloran, and Foddy (2008) examined the relationship between the personal and social identities of self, but they did so through the three-part model of personal, social, and collective self. The collective self refers to the social identity related to social groups based on gender or ethnicity, for example. Five hundred thirty-one adolescents in Australia

participated in the study and were placed into four groups ranging from pre-adolescence to late adolescence. The participants answered a questionnaire that included the Twenty Statements Test. Results indicated that while the individual and collective self increased across adolescence, the relational self decreased. In other words, adolescents gained an increased sense of their personal self-concept as well as of their place in a collective group such as gender, ethnicity, or nationality; however, their sense of self determined by peer-group affiliation declined across adolescence.

Identity and behavior are connected in many ways for adolescents. Palmer (2009) detailed the results of an ethnographic study of young female Muslim refugees and their participation in sports. The study focused on the search for identity and sports participation of the young women. The adolescent girls who came mainly from Somalia and Ethiopia were living in public housing in Australia. They lobbied their local health services for sports opportunities in their neighborhood. There were already opportunities for males in the housing complex, but the girls wanted their own culturally appropriate sports opportunities to participate in, and they asked for opportunities to organize soccer teams. The young women ages 12-20 organized teams and began participating yearly in a soccer tournament during Refugee Week.

According to Palmer (2009), the first challenge of identity the teams faced was accommodating different views of Islam since some believed in covering their hair, face, arms, and legs during competition while others wore shorts, short-sleeved shirts, and no head covering. Some of the young women and their families did not believe in allowing men to see the girls' physical female identities. One mother stated, "So, the idea of the veil is about covering their bodies and not having men who aren't their family seeing their intimate identity as a woman" (p. 30). For other participants, the issue was not so much concealing their identities as females but

not presenting themselves as males. One girl stated that her father said that by wearing uniforms similar to males' uniforms, the soccer team was trying to be too masculine. In spite of their parents' views, some of the young women stated that they wanted to join the soccer team specifically to be noticed by the other males in the housing complex. The uniforms represented ways the girls negotiated identity between following parental wishes and handling their resentment for wearing clothes that were too hot and restrictive for movement. Palmer stated that the second challenge for the girls was in particular soccer movements in practice and in games. The girls' bodies were supposed to be used in nonphysical ways so that they did not show masculinity, power, or sexuality. Participating on soccer teams both affirmed and challenged the girls' views of themselves and of Islam.

Another point Palmer (2009) observed is that the girls often "played" at being feminine. Palmer noted that the girls talked about being in "background" roles, such as the back-up singer or the girlfriend of someone, but never in the starring role. However, the girls were also keenly aware that participation in the Refugee Week competition presented another aspect of their identities since the girls were also representing their countries. Family members brought flags, and many parents wore traditional clothes. They expressed a sense of pride at their daughters' participation in the tournament. In the end, sports allowed the girls to experience identity in differing contexts and to negotiate others' interpretations of Islam. Their identities were fluid in that the political, social, and cultural contexts were always changing.

Summary of Identity Research in Adolescents

Adolescence is often understood as a time of Erikson's psychosocial stage of identity versus role confusion. However, adolescence is not a disembodied psychosocial period; it is a stage of biofunctional flux where material-world, social-world, and biological-worlds intertwine

to create the inner and outer concepts of self. Therefore, biofunctional and social embodiment are both essential and go hand in hand, especially during adolescence. Yet the majority of research into adolescent development has examined principally either the cognitive or social aspects of identity.

Identity is an important concept in adolescent research because the teenage years represent a time of searching for one's true self. Adolescents are becoming aware of how society sees them as part of collective and relational groups as well as individuals, and their choices of behavior and participation in groups and activities have consequences for their self-concepts. Developing a clear sense of self is also important for meeting the challenges and stressful events adolescents face. Perry-Burney and Takyi (2002) wrote that when girls develop a sense of their own identity, they have a more optimistic outlook on life and are more optimistic about themselves and other people. They are more confident about being their own person. However, when girls do not develop an adequate sense of identity, they become more cynical towards life, themselves and others (Hamacheck, 1988), and they put a greater emphasis on pleasing others rather than themselves. One limitation of past research is that identity is considered to be a disembodied cognitive function that, although built on social interactions and influenced by physiological concerns, remains disconnected from a holistic perspective of development.

Identity and the Inherent Self

Erickson discussed identity formation as the consolidation of experiences into an overall concept people accept about themselves. However, Widdicombe (1988) discussed identity as the personal and the social self. Tanti et al. (2008) used a three-part model of the personal, social, and collective self. We seem to accept that while there may be an overall perception of self, we may have other conceptions that differ or conflict with one another. These social and collective

selves are built from relationships and group membership. Iran-Nejad et al. (1984) discussed a biofunctional view of identity formation in their discussion of the *inherent self* and the *acquired concept of self*.

Iran-Nejad et al. (1984) discussed that our experiences of the moment create an overall, general sense of who we are, much like Erickson's description of identity or Widdicombe's personal self. This general sense is called the *inherent self* in Biofunctionalism, which is the "unitary experience of self-awareness" (p. 294). It is this ability that allows us to have an overall sense of self whether we are in a group or alone. It is the general sense of being "us" that persists even when our circumstances change, such as when we suffer a severe physical trauma. In contrast to the global sense of self, there is the *acquired concept of self*. The acquired concept of self is more specific than the inherent self, and it involves particular ideas about ourselves based on other ongoing, active elements. This is the part that is related to our self-esteem, personal history, and goals.

Usually, we will always have an "implicit concept of self" along with our inherent self (Iran-Nejad et al., 1984, p. 294). However, according to Iran-Nejad et al. (1984), it is the acquired self along with external conditions that gives valence to the inherent self. In other words, a person with negative or low self-esteem may have a generalized low, negative feeling about himself or herself. Likewise, a person with high, positive self-esteem may feel generally positive about himself or herself. However, this does not mean that a person with low, negative feelings does not experience good times; it is that this person will have a generalized negative feeling despite occasional positive moments, just as the generally positive person may experience difficult challenges and hard times but will remain positive. Therefore, identity is not an homunculus in our minds, but it is a distributed phenomenon based on both external and

internal stimuli affecting the “schema-of-the-moment” (p. 295), and people may indeed try to change their external circumstances in an effort to alter the valence of their global inherent selves. Likewise, according to biofunctional theory, the outward changes people make to their circumstances may not always lead to the improvement in self-valence that they desire.

Summary

Moral behavior is a fundamental concern for society, and moral development, or the development of cooperation, is an important part of adolescent development. The idea that sports channel aggressive attitudes into acceptable actions has continued for centuries. Roosevelt stated, “Only aggressive sports can create the brawn, the spirit, the self-confidence, and quickness of men essential for the existence of a strong nation” (Miracle & Rees, 1994, p.30). These concepts are highly descriptive of biofunctional theory’s constructive mode of biological functioning; however, the same emotions can readily turn unconstructive under other circumstances in a different mode of functioning. Therefore, the assumption that sports offer character-building experiences that necessarily assist in the moral development of young people is an incorrect assumption from a biofunctional perspective because the ability of the sports context to provide discipline and control would depend more on the athlete’s dispositional mode of functioning than the outer, disembodied context.

Past research has looked at the influence of moral reasoning in aggression in sports and in general behavior by examining moral cognition in decision-making or by examining the situational context. For example, because of the focus on winning inherent in the competitive model of adult sports, it is not considered appropriate for children and adolescents because it may lead to decreased moral reasoning. Past research has also examined the justification of intentions to harm, assessing moral reasoning in isolation from other contexts. Past research has

not considered other equally important facets of sports behavior, such as a willingness to bend the rules if it serves one's purposes or an inability to keep winning and losing in proportion. It has also infrequently taken into account other factors that may influence moral behavior beyond moral motivation. It has not examined the relationships of affect or identity to moral decision-making or how the totality of experience spurs moral development. Therefore, this research investigated attitudes toward aggression in sports as a complex behavior based on a theoretical framework that acknowledges moral behavior as being the embodied product of a combination of factors at any given time. It is hoped that through the synthesis of Rest's Four Component Model of Morality, Biofunctionalism, and identity formation a more complete understanding of moral behavior in sports will emerge.

CHAPTER 3

METHODOLOGY

This research examined multiple attitudinal sources of adolescent development inclusive of embodied relationships in moral judgments, affect, moral disengagement, and attitudes toward the acceptance of aggression in sports among Italian adolescents. Previous research has tended to explore disembodied moral constructs largely in English-speaking countries (Proios & Doganis, 2006). However, there is the need to investigate contexts that are more inclusive, more biologically and situationally embodied, and more encompassing of multiple sources in moral decision-making and behavior through culturally diverse settings outside English-speaking environments. This chapter explores the methodology used in carrying out the pilot study and the dissertation study, giving special emphasis to the analysis of data.

Context

Italy was chosen as the site for research because of several factors that make the environment unique. First of all, Italy is a nation with a strong history of popular interest in sports. One popular sport, soccer, has especially been the scene of violence over the past several years, and this violence may influence the attitudes of sports participants and enthusiasts. Second, two different regions of Italy were chosen for this study because of the socioeconomic and political differences between the North and South. Southern Italy is a poorer, more traditional region of the country while Northern Italy is richer financially, offering greater opportunities for young people through employment and education. Being more traditional, the

culture of the South places more emphasis on the group or the collective. Individualism is not valued highly, and there is the underlying feeling that the individual can do nothing alone; it is only the group which can accomplish anything. In the North, the culture places more emphasis on individual effort and individual merit. The South has an agricultural-based economy while the North is industrialized. There is higher unemployment in the South than in the North among young adults (Bureau of European and Eurasian Affairs, 2009). Therefore, those who graduate high school in the North with a technical/vocational degree know they can work in factories or industry almost immediately whereas young people in the south cannot. In the south, older adolescents may choose to pursue additional education until they find some type of work. In addition, because of its economic wealth, Northern Italy has had an active political party for several decades that wishes to secede from Italy because its members believe they are supporting the less productive South through higher taxes. For these reasons, sampling only one region may not reflect attitudes and behavior generalizable to the entire Italian adolescent population.

In addition to the previously mentioned political and economic differences between northern and southern Italy, there are certain situations which would place some Italian adolescents into negative group status. Italy is a male-dominated culture, and women are frequently used as objects for sexual exploitation in the media (Michaels, 2007). Also, there is a gap in economic progress between the northern and southern parts of the country, which has often been reflected in intense prejudice of Northerners against Southerners. The economic gap also means that adolescents in Northern Italy have a more realistic chance of finding employment after graduation than those in Southern Italy. Southern Italian adolescents may choose sports participation as a way to enhance or elevate their status or seek participation on a

winning team to increase their self-esteem. Therefore, this dissertation investigated the attitudes of adolescents in high schools in Northern and Southern Italy.

Pilot Study

A pilot study was conducted to identify the relationships between age, gender, playing sports, attitudes toward moral behavior in sports, and prosocial behavior. In the summer of 2008, a study was conducted with 314 high school students in southern Italy. Institutional Review Board approval was obtained, and participants signed assent forms while their parents signed consent forms.

Participants

The participants ranged from 13 to over 18 years of age. Participants came from two high schools in a province in the region of Calabria. The high schools were technical institutes which grant high school diplomas but do not normally send their graduates to universities. Therefore, the participants were largely students who were looking for career-oriented or practical studies. While anyone with a high school diploma may go on to study at a university, most adolescents who pursue university studies attend either the classical high school or the scientific high school. In addition, Italian high schools do not have athletic departments and interscholastic competition which is common in the United States. Therefore, most adolescents who pursue sports do so at their own expense and through their own initiative. The participants completed the pilot study questionnaires during their physical education and health classes.

Data Collection

Three hundred fourteen participants answered questions on their gender, age, and years playing their main sport. Participants were then placed into four age groups: 13-14 ($n = 26$), 15-16 ($n = 124$), 17-18 ($n = 111$), over 18 ($n = 53$). There were 117 females and 197 males. The

participants indicated the number of years they had played their main sport and were grouped into 5 levels: 0-2 years ($n = 81$), 3-4 years ($n = 66$), 5-6 years ($n = 54$), 7-8 years ($n = 37$), and more than 8 years ($n = 77$). Participants completed three questionnaires during their physical education classes: one on moral disengagement, one on sport moral decision-making, and one on prosocial behavior.

Tests and Measurements

Moral disengagement. Moral disengagement was measured by a 32-item scale that was already in Italian and had been used in a previous study with Italian adolescents (Bandura et al., 1996). It was provided for use in this study by one of the co-authors in Bandura et al. (1996) and deemed age-appropriate for Italian high school students. Examples of the items are “It is okay to tell small lies because they don’t really do any harm,” “If people are careless where they leave their things it is their own fault if they get stolen,” and “Kids who get mistreated usually do things that deserve it.” Responses to the items were placed on a 5-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5). Bandura et al. (1996) wrote that the items loaded onto one factor, and the scale should be summed. Bandura et al. reported Cronbach’s alpha to be .89.

Moral decision-making in Sports. Moral decision-making in sports was measured using the Attitudes on Moral Decision-making in Youth Sport Questionnaire (AMDYSQ) (Lee et al., 2007). The AMDYSQ is a 14-item scale which measures the acceptance of cheating, sportpersonship, and keeping winning in proportion. Examples of the items are “I would cheat if I thought it would help me win,” “Sometimes I waste time to unsettle the opposition,” and “It’s OK to lose sometimes because in life you don’t win everything.” Responses were indicated on a 5-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5). The scale was

developed over a series of 5 studies with British adolescents. Fifty-six items and 6 factors were initially identified, and eventually the items were narrowed to the final three-factor 14-item scale. Cronbach's alpha was reported as .73 for Acceptance of Cheating, .75 for Acceptance of Gamesmanship, and .60 for Keeping Winning in Proportion. Lee et al. (2007) acknowledged that the value for Keeping Winning in Proportion was low, but they wrote that Cronbach's alpha uses a tau-equivalent model, which is less stringent than Confirmatory Factor Analysis (CFA), and CFA was used to confirm the factors in the model. The scale was translated into Italian for the study using the back translation method where the English version was translated into Italian, and then an Italian-English speaker translated the Italian version back into English. The versions were compared for differences in meaning.

Prosocial behavior. Prosocial behavior was measured by a 16-item scale already in Italian and used in Caprara, Steca, Zelli, and Capanna (2005). One of the co-authors, Caprara, provided the scale which was deemed age-appropriate for use with Italian adolescents. Responses were indicated on a 5-point Likert scale ranging from *never* (1) to *always* (5). Examples of the items are “I share things I like with my friends,” “I try to comfort someone who is sad,” and “I try to help others.” The prosocial behavior scale loads onto one factor, so the items are summed. Caprara et al. (2005) reported Cronbach’s alpha to be .77.

Data Analysis

The responses to the three questionnaires were recorded on Likert scales and were technically categorical data, because instead of giving a numerical value to the question, participants were actually responding to a category such as “strongly agree” or “strongly disagree.” Respondents do not actually assign the level of their agreement as a 4 or 5; they are responding to “strongly” or “moderately.” This is one reason categorical data is generally not

appropriate for statistical analysis. Categorical data also violates assumptions of normal distribution. In addition, all questions in a questionnaire do not necessarily contribute equally to measuring the construct, and the rankings of 1 to 5 for “strongly disagree” to “strongly agree” do not necessarily correspond to an equidistant scale, as would be the case if participants were asked to rank the value of something in \$5 units.

For these reasons, individual item ratings were converted and placed on a scale of 1 to 100 based on the probability of any one person having that score. This was accomplished through a series of several steps. First, the individual item ratings were converted to logit scores using WINSTEPS. Data can be copied directly into Winsteps files, and the resulting analysis displays logit scores for each individual participant. The logit scores were then converted to person scores using the following formulas (Schumacker, 2004):

$$s = (\text{wanted range}) / (\text{current range})$$
$$s = (100-0) / (\text{highest logit} - (\text{lowest logit}))$$

$$m = (\text{wanted low person score}) - (\text{current low logit} * s)$$
$$m = (0) - (\text{lowest logit} * s)$$

$$Y = m + s (\text{logit score})$$

Note: Y is the scaled score; s = standard deviation; and m = mean

A linear transformation was computed on the resulting scores using the formula $Y = m + s (\text{logit score})$. The resulting data were then analyzed using Pearson correlations, MANOVA, and structural equation modeling (SEM). The demographic data and scales were correlated using SPSS, and the MANOVA was conducted with SPSS. The SEM was conducted with LISREL 8.8.

Results

Results of the analyses indicated there were significant negative correlations with age and sportpersonship ($r = -.121, p = .032$). In other words, older participants were more likely to

disapprove of sportspersonship, or rule-bending tactics, in sports. Prosocial behavior correlated negatively with cheating ($r = -.137, p = .015$) and with sportspersonship ($r = -.193, p = .001$), and positively with keeping winning in proportion ($r = .276, p < .001$). This means that those who accepted cheating and sportspersonship were less prosocial, and those who were able to keep winning in proportion were more prosocial. Finally, moral disengagement correlated positively with cheating ($r = .395, p < .001$) and with sportspersonship ($r = .351, p < .001$), and negatively with keeping winning in proportion ($r = -.150, p = .008$). In other words, those who were high moral disengagers also approved more of cheating and of sportspersonship and were not able to keep winning in proportion. The results are listed in Table 3.1.

Table 3.1 *Correlations* ($N = 314$)

	<u>Gender</u>	<u>Age</u>	<u>Years</u>	<u>Prosocial</u>	<u>MD</u>	<u>Cheat</u>	<u>Games</u>	<u>Winning</u>
Gender		.047	.065	.110	-.057	-.066	-.031	.065
Age			.076	.102	-.078	-.067	-.121*	.029
Years				-.015	-.059	-.028	.025	.081
Prosocial					-.087	-.137*	-.193**	.276**
MD						.395**	.351**	-.150**
Cheat							.481**	-.262**
Games								-.062
Winning								—

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

A MANOVA was conducted using the independent and dependent variables. The Wilks Lambda test of overall difference among groups showed a significant interaction of age, gender, and years playing sports ($F(60, 1268.03) = 1.578, p = .004$); approving of cheating, approving of sportspersonship, and keeping winning in proportion varied through the combination of age, gender, and years playing sports. Univariate between subjects effects were significant for the

acceptance of sportspersonship ($F(39) = 1.721, p = .007$, partial effect = .197) and of cheating ($F(39) = 1.879, p = .002$, partial effect = .211). In addition, age was significantly related to sportspersonship ($F(3) = 3.128, p = .026$, partial effect = .033). In other words, 15 and 16 year olds approved of sportspersonship tactics more than any other age group, and approval of sportspersonship tactics decreased in each age group after 16. The mean scores on acceptance of sportspersonship by age (with standard deviations in parentheses) are in Table 3.2.

Table 3.2 *Acceptance of Sportspersonship by Age* ($N = 314$)

<u>Age Category</u>	<u>Mean</u>	<u>(Standard Deviation)</u>
13-14	39.89	(12.82)
15-16	48.55	(16.09)
17-18	41.71	(14.68)
over 18	40.68	(16.34)

Years playing and gender were also significantly related to the acceptance of sportspersonship ($F(4) = 2.556, p = .039$, partial effect = .036). Figure 3.1 illustrates this relationship. Males were less accepting of sportspersonship with more experience in sports while females followed the pattern noted by Silva (1983) that those with the most and the least playing experience were the most accepting of rule bending than others.

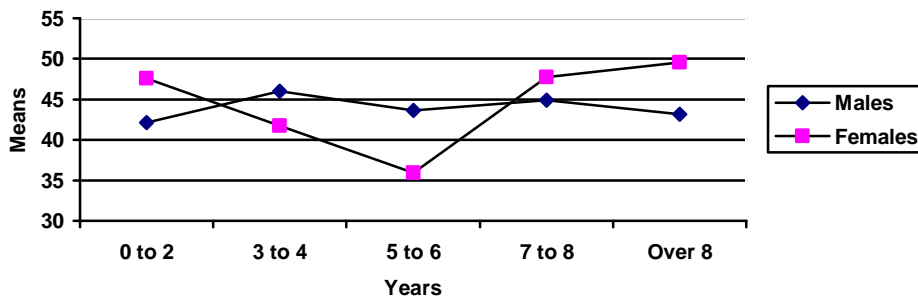


Figure 3.1. *Estimated Means of Acceptance of Sportspersonship by Gender and Years Playing Sports*

However, gender and age together were not significantly related to the acceptance of sportspersonship ($p = .816$). From these results, it would appear that years playing sports moderated the acceptance of sportspersonship for age and gender, because the interaction of gender, age, and years playing sports resulted in a significant relationship with both the acceptance of both sportspersonship and the acceptance of cheating.

The results of the SEM analysis testing a theoretical model of acceptance of aggression based on the acceptance of cheating, acceptance of sportspersonship, and keeping winning in proportion with the data collected was a perfect fit. However, a theoretical model including moral disengagement and prosocial behavior as predictors of aggression did not fit. In other words, the acceptance of aggression in sports could be measured by the acceptance of cheating, acceptance of sportspersonship, and keeping winning in proportion, but it was not measured by a model that also included moral disengagement and prosocial behavior.

While weak but significant correlations were observed between moral disengagement and cheating, sportspersonship, and the ability to keep winning in proportion, moral disengagement scores did not vary significantly among any of the groups ($p = .681$). Variation in prosocial behavior scores was not significant either ($p = .352$), although a trend was noted in the univariate

relationship between prosocial behavior and gender ($F(1) = 3.817, p = .052$). Males scored higher than females on prosocial behavior. The mean score (with standard deviation in parentheses) for females was 45.86 (16.28) and for males was 49.46 (15.5).

Summary

The pilot study examined the relationships of age, gender, and years playing sports to the acceptance of sports aggression, prosocial behavior, and moral disengagement. It was found that all three independent variables interacted to create significant variation in responses to the questionnaires. The between subjects effects showed significant variations in age, gender, and years playing sports with the acceptance of cheating and the acceptance of sportspersonship. The pattern of female acceptance of sports aggression as found by Silva (1983) was observed in this pilot study. Females who had not played sports and those who had played the most years were the most accepting of cheating and sportspersonship tactics.

It was also observed that age and gender alone did not result in significant variations in most variables until the data on sports participation was included. In addition, the three-factor model of moral decision-making in sports designed by Lee et al. (2007) was confirmed, and the data were a perfect fit. However, other trends discussed in the literature were not observed. Males did not score significantly higher than females on moral disengagement, as was found by Bandura et al. (1996). Likewise, females did not score higher on prosocial scales, as was noted by Lee et al. (2007). In the pilot study, females scored higher on moral disengagement and lower on prosocial behavior than did males. Because of the nature of the findings, I chose to continue the research for the dissertation study.

Purpose of the Study

The purpose of this dissertation was to examine the interaction of relationships in moral judgment, affect, moral disengagement, general aggression, and attitudes toward the acceptance of aggression in sports among Italian adolescents. The dissertation considered moral disengagement as moral motivation, one component of Rest's Four Component Model of Morality. It also examined general moral decision-making using the DIT-2 and general aggression using a self-reported questionnaire. It examined constructive and unconstructive modes of functioning through a questionnaire on positive and negative affect. Several research questions guided the investigation:

- 1) Can affect, moral disengagement, gender, age, type of sport, competition level, and years of playing sports accurately predict the acceptance of aggression in sports?
- 2) Are there significant differences in a model of acceptance of aggression between male and female participants?
- 3) Are there significant differences in a model of acceptance of aggression between participants in Northern Italy and Southern Italy?

Method

Participants and Sampling

Participants were drawn from two high schools in Northern and Southern Italy. Having adolescents participate from different geographical regions of the country was considered important because of the different political and socioeconomic conditions in Northern and Southern Italy. The regions also offer different opportunities for adolescents in those areas. Having participants from only one region could lead to possible bias in the results because regional differences could lead to different participant responses.

Both sets of participants came from technical institutes in their regions. The technical institutes are high schools that are vocationally focused. While studying general high school subjects, students in technical high schools also study courses such as engineering, sciences, or bookkeeping that can have an immediate application in the real world. In both the North and the South, the students attending the technical institutes are not considered academic scholars by the faculty and staff. Students who are academically inclined and intend to pursue higher education usually attend either scientific high schools or classical high schools. In addition, no female adolescents attended the technical school in Northern Italy. One of the teachers explained that since the school emphasized mechanical engineering applications for students, and upon graduation most students were expected to find work in local factories and industries, no females chose to attend. However, this was not the case in Southern Italy, where both males and females attended the institute. In addition, in Southern Italy, the lack of industry means that many older adolescents enter the ranks of the unemployed upon graduation or enroll in a university.

Participants were chosen from the classes of teachers who were interested in being part of the study. In Northern Italy, students completed questionnaires during their science classes, and in Southern Italy, students in both math and science classes participated in the study. In addition, some students were on strike in Southern Italy on the day of data collection, and so data was collected only from students who chose to attend classes. IRB approval was obtained, and the adolescents who participated signed assent forms and returned signed parental consent forms. An *a priori* analysis of statistical power was conducted with G*Power (Faul, Erdfelder, Buchner, & Lang, 2009), which recommended an adequate sample size of 142 to achieve power at .95 with a large effect size of .4. For a medium effect size of .25 and power at .95, a sample size of 357 was recommended. A total of 333 high school students completed questionnaires: 159 from

the South and 174 from the North; however, one participant from Southern Italy did not complete demographic information and was excluded from the final analysis. Of the remaining 332, there were 78 females and 254 males. There were 66 who had never played sports and 266 who reported playing sports on some level. The means and standard deviations of the data are given in Table 3.3.

Table 3.3 *Italian Adolescents (N=332)*

<i>Observed Variables</i>	<i>Means (Standard Deviations)</i>		<i>α</i>
Age	15.96	(1.648)	n/a
Height	173.00	(9.351)	n/a
Weight	64.45	(13.013)	n/a
Years	5.68	(4.206)	n/a
Cheating	36.526	(21.867)	.714
Games	46.078	(19.091)	.592
Winning	67.833	(26.419)	.657
NegAffect	50.897	(17.215)	.774
PosAffect	32.802	(12.962)	.786
MD	42.794	(18.323)	.844
GenAggress	16.831	(14.481)	.883
PSCORE	26.635	(11.069)	n/a
N2	23.956	(15.612)	.836

Participants ranged in age from 13-19 years ($M = 15.96$). The average height for females was 158.69 cm, and the average weight was 52.26 kg. For males, the average height was 172.22 cm, and the average weight was 66.37 kg. Females had played sports for an average of 4.4 years while males reported participating in sports for an average of 6.07 years. The frequencies of sport played and level of competition are given in Table 3.4.

Table 3.4 *Frequencies and Percents of Sport Played and Level of Competition by Gender(N=332)*

Descriptors	Female (n = 78)		Male (n = 254)	
	<i>n</i>	%	<i>n</i>	%
<u>Sport</u>				
None	27	34.6	39	15.4
Non-contact	39	50.0	48	18.9
Limited contact	10	12.8	23	9.1
Collision	2	2.6	144	56.7
<u>Level</u>				
None	27	34.6	39	15.4
Recreation	19	24.4	64	25.2
Club	32	41.0	151	59.4

Independent Variables

Gender. The pilot study indicated that male and female adolescents responded differently to certain questionnaires, particularly when data on age and years playing sports were included, so this was considered an important variable to examine for variation in responses.

Height and weight. Height and weight were chosen as independent variables as measures of inherent identity which was incorporated into the constructive mode of functioning.

Age. Bredemeier (1994) and Proios and Doganis (2006) observed that age groups in previous studies were not large enough to allow for comparison. In addition, Kavussanu, Seal, and Phillips (2006) noted that different components of moral functioning have been observed within different age groups but rarely across ages. Therefore, ages 13 to 20 were included in the dissertation.

Participants' main sport. Lee et al. (2007) had discussed that the types of sports played could be a factor in answering the AMDYSQ. Participants did not report their sport in the pilot study, so they were asked to indicate their main sport for the dissertation study. The sports were

grouped according to level of contact (collision, limited, and noncontact), as defined by the American Academy of Pediatrics (2001). An additional level was added to indicate no sports participation.

Level of competition. Level of competition was identified by Long et al. (2008) as a factor in sports participants' attitudes toward playing and ethical conduct. Therefore, three levels of competition were added to the study: organized or club, self-organized or recreational, and none.

Years playing main sport. Silva (1983) found that years playing sports was an important factor in the approval of fouls in his study. In addition, the interaction in the pilot study included years playing one's main sport; therefore, it was kept for the dissertation study.

Tests and Measurements

AMDYSQ. The AMDYSQ was the instrument for measuring the acceptance of aggression in sports. It measures the attitudes of adolescents toward cheating, sportspersonship tactics, and keeping winning in proportion, and therefore, is appropriate for use with high school students. Cheating and sportspersonship are positively correlated, and both are negatively correlated with keeping winning in proportion. Reliability statistics were discussed earlier in this chapter.

Moral Disengagement. The questionnaire on moral disengagement was used as a measure of moral motivation, the third component in Rest's Four Component Model. Moral disengagement is based on ways people justify their actions, and for this reason, it is considered as a measure of moral cognition. An age-appropriate Italian version of the moral disengagement scale was provided by a co-author of Bandura et al. (1996). The reliability data for the moral disengagement scale was included earlier in discussion of the pilot study.

Defining Issues Test-2. One of the important factors in studying moral decision-making is the connection between moral reasoning and moral behavior. The DIT-2 measures overall moral judgment. The DIT-2 is a shorter version of the *Defining Issues Test* that can be completed using pen and paper instead of interviews. Thoma (1994) discussed that the difference between moral judgments and behavior on the DIT was the degree that people used moral judgments in determining the moral actions on the test. In the DIT-2, participants are asked to read a set of moral dilemmas and proposed actions, mark which possible actions they agree with, and then rank a series of statements according to their importance in determining the moral decision. There are four main scales in the DIT-2: personal interest, maintaining norms, PSCORE, and N2 score. Personal interest refers to moral decisions based on arguments that appeal to personal interests. Maintaining norms refers to moral behavior based on maintaining prevalent social norms. The PSCORE and N2 scores both refer to post-conventional moral reasoning. Because of the level of reading involved, the DIT-2 is not appropriate for participants who are studying below 7th grade. Therefore, it was age-appropriate for this study. The DIT-2 was translated into Italian using the back translation method which was used for the AMDYSQ.

Aggression Scale. One reason for studying the acceptance of aggression in sports is to determine whether it has a relationship to overall aggression outside of a sport context. Therefore, an 11-item scale of general aggression created by Orpinas and Frankowski (2001) for use with adolescents was used in the dissertation. Examples of items are “I teased students to make them angry,” “I slapped or kicked someone,” and “I pushed or shoved other students.” The scale asks participants to respond about their behavior over the last 7 days. Answers can range from 0 to 6 or more times, so the total of the scale can range from 0 to 66. Cronbach’s alpha was reported to be .88. This scale of general aggression was used to determine self-

reported general aggressive activity among all participants. The back translation method was used to translate this into Italian.

PANAS. Finally, one measure of the biofunctional contribution to the acceptance of aggression in sports and overall aggression was measured by the PANAS because dispositional modes of functioning can be characterized by emotional states such as fear, anxiety, interest, or curiosity. Watson, Clark, and Tellegen (1988) created a scale of positive and negative affect that asks participants to record how much they have agreed with 20 adjectives over the past week. Examples of items are “excited,” “upset,” “strong,” and “fearful.” Watson et al. discussed that the positive and negative affect scales were not mutually exclusive, so that one could feel both fearful and excited at the same time. However, the scales note which feelings were more dominant over the week prior to taking the test. It was anticipated that the acceptance of aggression in sports and overall aggression would be related to negative affect, which is characteristic of the imbalance present in the unconstructive mode of functioning. Positive affect, measured by the positive attributes in the PANAS, would be indicative of the constructive mode of functioning.

Latent Variables

The following latent variables were utilized in the data analysis in a two-predictor structural equation model (Schumacker & Lomax, 2004).

Constructive. Constructive was chosen as a latent variable indicative of the constructive mode of functioning. It was indicated by age, height, weight, positive affect, type of sport played, years playing sports, and the PSCORE and N2 from the DIT-2. The constructive mode of functioning is characterized foremost by the type of creative, interesting, positive activity that takes place while operating in this mode. In this dissertation, age was not merely a demographic

variable, for it affects how an adolescent sees himself or herself as well as the behavior the adolescent engages in. It was considered part of the embodiment of identity. Positive affect was an indicator of the constructive mode of functioning because of the descriptors used in the scale. In the pilot study, playing sports was an important variable in the acceptance of aggression in sports. However, having participated in sports was a vague descriptor in the pilot study, and therefore, the amount of contact involved in certain sports as well as the length of time sports were played were indicators of the constructive mode of functioning. Finally, the PSCORE and N2 on the DIT-2 were considered part of the constructive mode of functioning because this is the mode of functioning that allows for productive cognitive activity. Proios and Doganis (2006) discussed the relationship between moral judgment development and general social development, so this seemed more indicative of the constructive mode of functioning than the unconstructive mode.

Unconstructive. The second latent variable was unconstructive which represented the unconstructive mode of functioning. Characterized by fear and anxiety, unconstructive was indicated by negative affect, general aggression, and moral disengagement. Those who feel negatively about themselves and others were expected to behave more aggressively towards others and to also seek to justify their negative behavior through justifications and moral disengagement.

Acceptance of sport aggression. Acceptance of sport aggression was a dependent latent variable indicated by the acceptance of cheating, acceptance of sportspersonship, and the ability to keep winning in proportion and predicted by the constructive and unconstructive modes of functioning. The purpose of the study was to determine if the acceptance of sport aggression by Italian adolescents could be predicted by the constructive and unconstructive modes of

functioning while also being measured by adolescents' acceptance of cheating, acceptance of sportspersonship tactics, and their ability to keep winning in proportion.

Data Collection

Data were collected over two days in September 2009 using the AMDYSQ, the moral disengagement scale, the DIT-2, the PANAS, and a general measure of aggression to operationalize the dependent variables. The independent observed or exogenous variables were gender, height, weight, age, participants' main sport, level of competition played, and years of sports participation. Participants completed the questionnaires during a variety of classes in Southern Italy and during their science classes in Northern Italy.

Data Analysis

In a manner similar to the pilot study, the Likert data from the moral disengagement scale, the acceptance of sports aggression, and the PANAS were transformed on a scale of 0 to 100, based on the probability of any one person in the study obtaining that score. The resulting data were analyzed using SEM with Amos 18.0 (Arbuckle, 2009). Below are two theoretical SEM models for the acceptance of aggression. One model, a disembodied model of the acceptance of sport aggression, hypothesized that the acceptance of aggression would be predicted by moral judgment, physical maturation (maturity), affect, and sports experience (experience). Moral judgment would be indicated by three scales of the DIT-2: PSCORE, N2, and maintaining norms (STAGE4P); personal interest (STAGE23) was not chosen because it is combined with maintaining norms to give the PSCORE. Maturity would be indicated by age, height, and weight. Affect would be indicated by positive affect (posaaffect), negative affect (negaaffect), moral disengagement, and general aggression (GenAggress). Experience would be indicated by years playing sports (years), type of sport played (sport), and the level of

competition played (level). The acceptance of sport aggression would be measured by the acceptance of cheating, acceptance of sportspersonship (games), and keeping winning in proportion. This theoretical model follows in Figure 3.2. It was hypothesized that all paths would be positive.

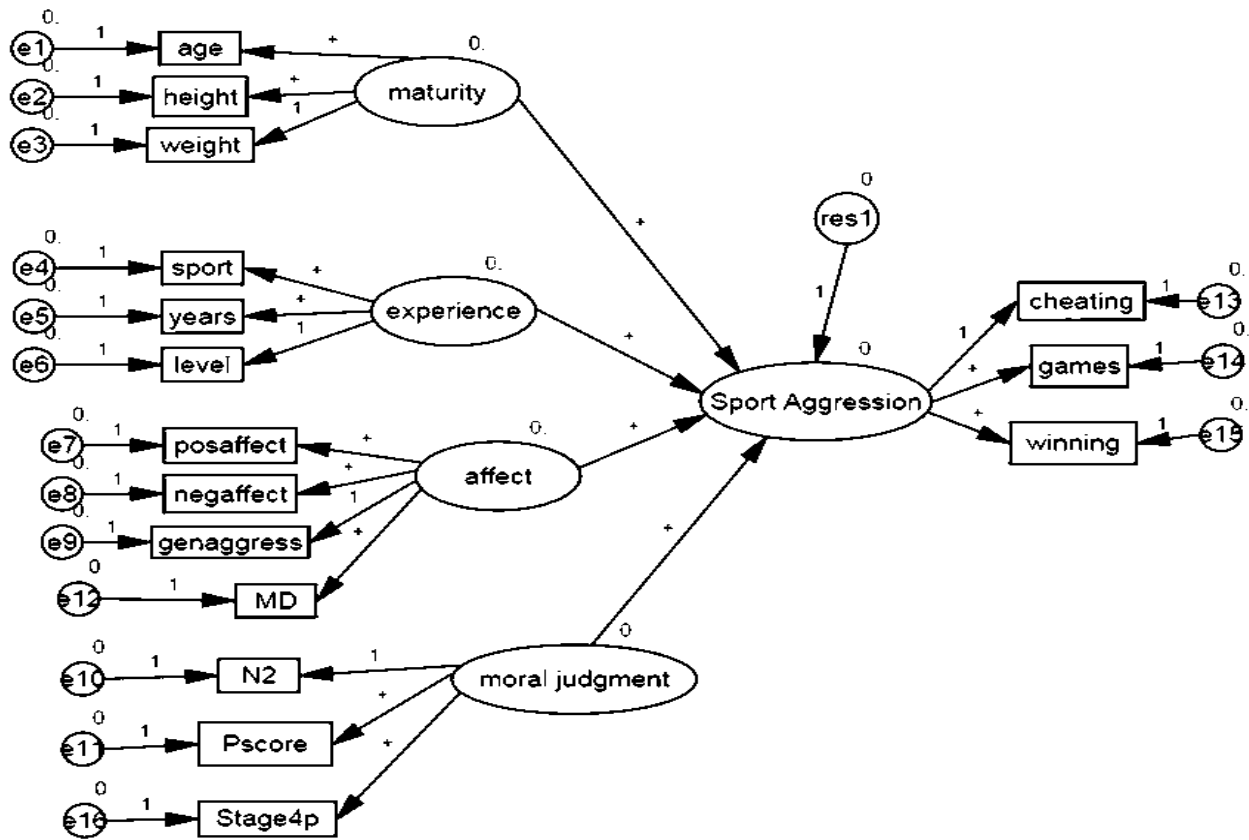


Figure 3.2. Disembodied Model of the Acceptance of Sport Aggression

The second proposed model grouped the exogenous variables according to their placement and contribution to either constructive or unconstructive functioning. It was hypothesized that the constructive mode of functioning would be indicated by age, height, weight, the PSCORE, N2, posaffect, sport, years, and level. The unconstructive mode would be indicated by GenAggress, negaffect, and MD. Sport Aggression would be predicted by

constructive and unconstructive and measured by cheating, games, and winning. All paths would be positive, and winning, age, N2, and PSCORE would be reverse scaled. This theoretical model is shown in Figure 3.3.

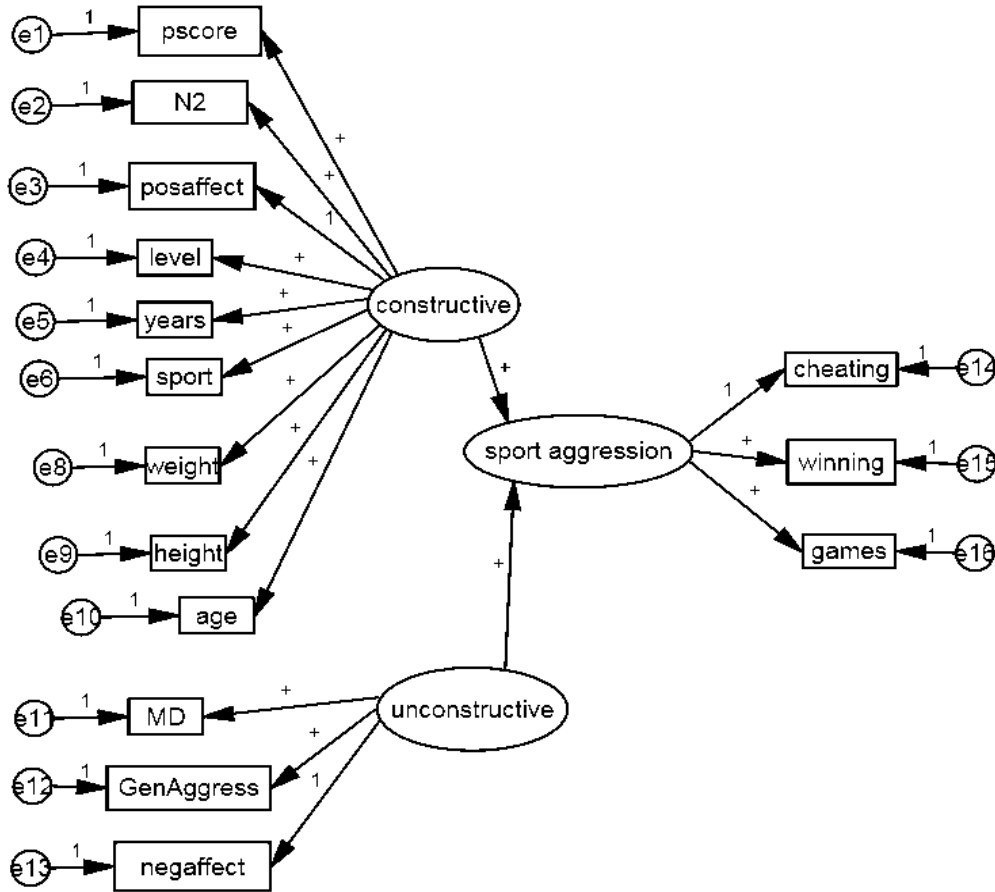


Figure 3.3. Embodied Model of the Acceptance of Sports Aggression

Summary

This dissertation investigated multiple attitudinal sources of moral development inclusive of embodied relationships in moral judgments, affect, moral disengagement, and attitudes toward the acceptance of aggression in sports among Italian adolescents. Participants completed the questionnaires during classes at their high schools. The study used the AMDYSQ, the moral

disengagement scale, a general aggression scale, and the PANAS to measure moral judgment, moral decision-making, general aggressive behavior, and affect. Likert responses were converted to person scores on a scale from 0-100. Resulting data were analyzed using SEM. The next chapter presents the results of the data analysis.

CHAPTER 4

RESULTS

As stated in Chapter 1, this dissertation examined the relationships between moral judgment, affect, moral disengagement, general aggression, and attitudes toward the acceptance of aggression in sports among Italian adolescents. The chapter is organized in terms of the model fitting and testing process and then addresses the three specific research questions posed in Chapter 1. It first reports on the model fitting and testing process recommended by Schumacker and Lomax (2004) and then discusses model validation using the data sets from Northern and Southern Italy.

Structural equation modeling (SEM) was chosen as the primary method of analysis because of its ability to analyze multiple variables simultaneously for inferential purposes (Byrne, 2010). While other multivariate analyses are descriptive in nature, SEM offers the researcher the ability to test a theoretical model against a set of data. Another reason for choosing SEM is that the model which is developed allows others to have a greater understanding of the theory behind the model because of its ability to demonstrate pictorially the theoretical constructs involved, and SEM lends itself well to hypothesis testing. In addition, SEM allows the researcher to test observed and unobserved variables. To that end, two theoretical models were designed that incorporated the predictors and indicators of the acceptance of sports aggression based on the literature review as well as biofunctional theory.

As a beginning point, the data were checked for missing items. No responses were missing on the questionnaires. The only missing data were seven height and weight omissions.

These were corrected by inputting the means depending on whether the missing data came from the Northern or Southern sample and whether they were male or female participants; however, height and weight were eventually dropped as indicators in the model so missing data were no longer a problem. Next, the data were checked for kurtosis and outliers. There was no evidence of kurtosis since no values reported in Amos were greater than seven, as recommended by West, Finch, and Curran (1995). In looking at multivariate normality, Bentler (2005) suggested that the critical ratio (C.R.) be less than five. In this sample, the C.R. value is 4.969, indicating that the sample is normally distributed. Outliers were not at an unacceptable Mahalanobis distance as determined by d^2 . The means and standard deviations for the observed variables are listed in Table 4.1 below, divided by region.

Table 4.1 *Observed Variables Means (Standard Deviations) by Region*

	Southern Italy ($n=158$)		α	Northern Italy ($n=174$)		α
Age	15.98	(1.894)	n/a	15.94	(1.394)	n/a
Height	169.08	(8.034)	n/a	176.55	(9.057)	n/a
Weight	59.83	(12.74)	n/a	68.64	(11.813)	n/a
Years	4.66	(4.108)	n/a	6.61	(4.087)	n/a
Cheating	31.344	(21.595)	.627	41.232	(21.093)	.721
Games	42.588	(21.576)	.617	49.247	(15.927)	.574
Winning	67.342	(30.681)	.629	68.279	(21.925)	.650
NegAffect	44.316	(11.330)	.792	56.873	(19.367)	.764
PosAffect	31.448	(14.007)	.817	34.031	(11.840)	.758
MD	46.446	(19.909)	.810	39.477	(16.105)	.867
GenAggress	15.095	(13.876)	.882	18.408	(14.875)	.889
PSCORE	28.311	(10.528)	n/a	25.114	(11.356)	n/a
N2	24.884	(14.709)	.852	23.113	(16.385)	.822

The means and standard deviations for the observed variables divided by gender are listed in

Table 4.2.

Table 4.2 *Observed Variables Means (Standard Deviations) by Gender*

	Females (n = 78)		α	Males (n = 254)		α
Age	16.51	(1.814)	n/a	15.79	(1.559)	n/a
Height	164.81	(5.616)	n/a	175.51	(8.820)	n/a
Weight	53.59	(10.023)	n/a	67.78	(11.978)	n/a
Years	4.40	(4.461)	n/a	6.07	(4.052)	n/a
Cheating	32.732	(23.331)	.744	37.692	(21.310)	.697
Games	38.583	(18.623)	.607	48.380	(18.672)	.574
Winning	64.874	(30.740)	.676	68.742	(24.940)	.650
NegAffect	46.509	(11.057)	.768	52.244	(18.514)	.776
PosAffect	26.375	(10.942)	.824	34.775	(12.912)	.775
MD	45.032	(19.521)	.769	42.106	(17.923)	.865
GenAggress	12.051	(11.362)	.889	18.299	(15.029)	.884
PSCORE	29.193	(9.835)	n/a	25.850	(11.324)	n/a
N2	21.714	(9.241)	.778	24.644	(17.054)	.851

The maximum likelihood estimation technique was chosen for the SEM analysis since the sample data met the assumption of multivariate normality. The covariance matrix is given in Table 4.3.

Table 4.3

Covariance Matrix (N = 332)

	AGE	HEIGHT	WEIGHT	SPORT	YEARS	LEVEL	CHEAT	GAMES	WIN	NEGAFF	POSAFF	MD	GENAGG	PSC	STAGE4P	N2
AGE	0.755															
HEIGHT	1.577	87.447														
WEIGHT	1.698	76.944	169.329													
SPORT	-0.177	3.087	4.644	1.789												
YEARS	0.567	6.259	8.816	3.071	17.686											
LEVEL	-0.151	1.444	1.965	1.622	4.025	1.944										
CHEATING	1.266	37.752	36.101	3.250	10.806	0.102	478.171									
GAMES	0.710	21.252	26.929	7.052	8.366	4.096	206.900	364.475								
WINNING	-2.057	-2.474	10.005	2.220	-6.767	1.807	-174.077	-92.570	697.948							
NEGAFFEC	2.468	37.571	44.960	1.093	5.464	-0.175	68.286	38.873	3.610	296.369						
POSAFFEC	-0.894	10.658	24.261	2.495	6.622	2.341	-21.284	24.599	27.790	-10.289	168.003					
MD	-0.899	5.873	-9.058	-0.290	-2.682	-2.917	157.036	86.053	-71.545	57.460	-7.827	335.730				
GENAGGRE	-0.501	27.090	32.196	1.983	2.272	0.089	89.905	68.273	-48.895	76.125	19.843	137.164	209.712			
PSCORE	0.429	-3.307	-3.831	-2.832	-5.833	-3.012	-10.362	-11.919	-34.548	-19.952	-6.949	7.939	0.186	122.532		
STAGE4P	-1.207	-2.962	3.275	-1.221	-0.748	-0.872	-9.165	-4.579	40.268	-1.783	1.367	-24.979	-27.569	-42.161	152.946	
N2	-1.439	-6.786	-29.401	-1.471	-6.967	-2.701	-14.211	-18.942	-9.562	-15.637	-8.329	-0.761	0.524	49.835	-17.904	243.726

Model Specification and Identification

Two initial theoretical SEM models for the acceptance of sports aggression were hypothesized based on the review of literature. The first was a four-factor model which grouped 13 observed variables as unique indicators for four latent variables; the four latent variables served as indicators for the latent variable acceptance of sports aggression, which was also measured by three observed variables. This model represented disembodied indicators of the acceptance of sports aggression because they were placed in isolated groups according to their major identifying characteristics: physiology, experience, emotion, and cognition. It was hypothesized that the acceptance of aggression would be predicted by the endogenous factors of physical maturation (maturity), sports experience (experience), affect, and moral judgment. Maturity would be measured by the three exogenous variables age, height, and weight. Experience would be measured by type of contact sport played (sport), years of playing experience (years), and level of competition played (level). Affect would be measured by positive affect (posaaffect), negative affect (negaaffect), moral disengagement (MD), and general aggression (GenAggress). Moral judgment would be measured by three scales computed in the DIT-2 data analysis (PSCORE, N2, and STAGE4P). The Acceptance of Sport Aggression (Sport Aggression) would be indicated by the acceptance of cheating (cheating), the acceptance of sportspersonship (games), and keeping winning in proportion (winning). Therefore, a four-factor model of the Acceptance of Sport Aggression was drawn using Amos 18.0 (Arbuckle, 2009). This structural model is shown in Figure 4.1.

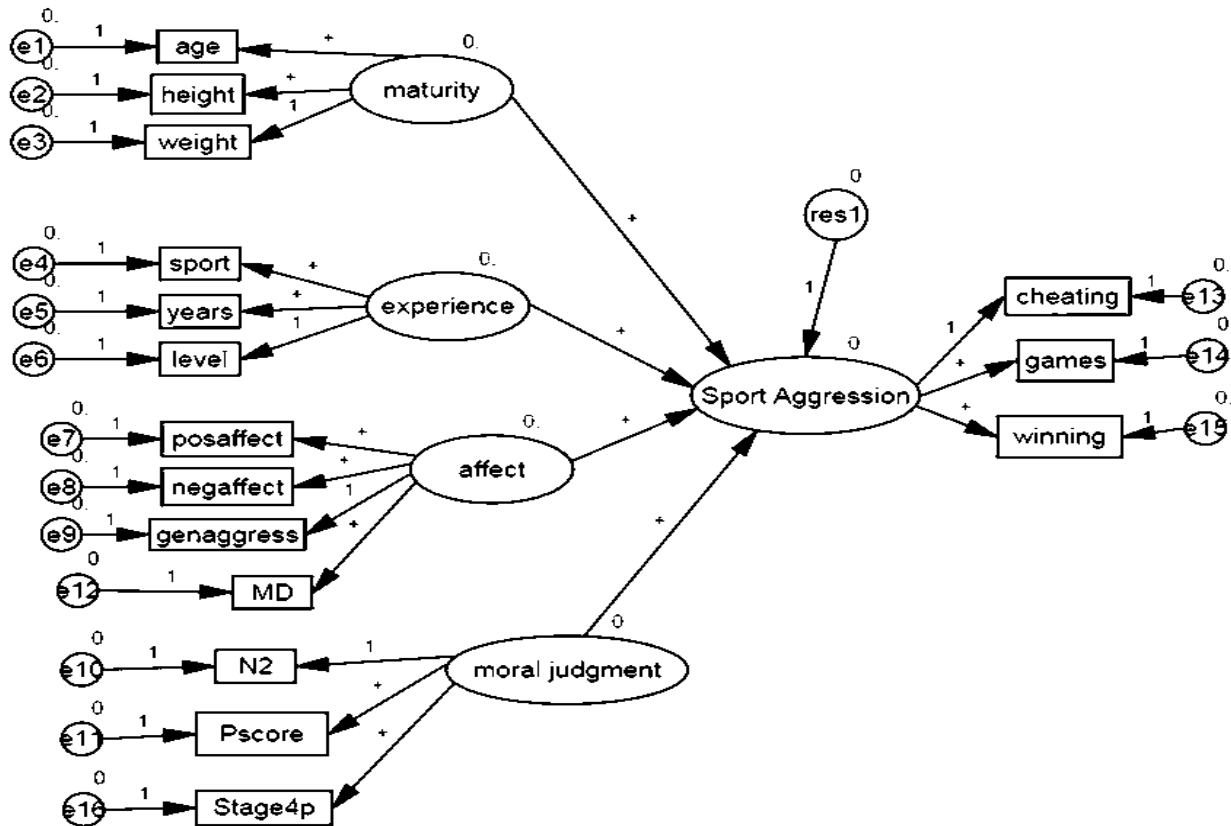


Figure 4.1. Disembodied Model of the Acceptance of Sport Aggression

There were 37 regression weights, 22 of which were fixed. The fixed regression weights were the third factor in each set of three or four factor loadings as well as the error terms. There were 21 variances, all of which were estimated. In total, there were 74 parameters, 52 of which were to be estimated. All parameters were expected to be positive. Degrees of freedom were estimated to be 100, which met the order condition. The rank condition was also met because the determinant of the matrix was nonzero, which indicated that there could be a solution to the model.

While the first model represented a traditional conceptualization of the observed variables into their separate physical, emotional, experiential, and cognitive components, another theoretical model was also designed based on the biofunctional modes of constructive and unconstructive functioning. One of the problems associated with past research was its investigation on individual parts without considering the necessary synthesis of the whole in explaining complex attitudes and behaviors. In designing this model, the first step was to consider the theoretical connections between physiology, emotion, cognition, and experience in biofunctional theory. As discussed in Chapter II, the unconstructive mode of functioning is characterized a state of imbalance that “generates a state of fear, stress, tension, and anxiety” (Iran-Nejad, 2000, p. 75). These emotional states are explored in the negative affect section of the PANAS. It was hypothesized that the unconstructive mode of functioning would also be related to general aggression and moral disengagement because adolescents who have generalized negative feelings may be more likely to strike out aggressively to others and to use moral disengagement to excuse their behavior. Therefore, those with generalized negative feelings in the unconstructive mode of functioning would be more likely to approve of aggression in sports. These exogenous factors made up the endogenous factor unconstructive.

The endogenous variable representing the constructive mode of functioning would then be composed of the exogenous variables that would represent coherence, balance, and the interaction between experience and development. As discussed in Chapter II, the constructive mode of functioning is the default mode of the inherent self or preferred mode of functioning for the brain since it promotes self-coherence, efficacy, and balance (Iran-Nejad and Gregg, 2001). Therefore, the observed variables that represented embodied concepts of the inherent self, such as age, height and weight, were included here. The observed variables of sport, years, and level

affect the valence of one's inherent self, and therefore, were included as measures of the constructive mode of functioning. Finally, positive affect was considered an indicator of the constructive mode of functioning as well as the PSCORE and N2 from the DIT-2 since it was hypothesized that moral cognition would operate more freely in the constructive mode of functioning than in the more emotional, unbalanced state of the unconstructive mode of functioning.

With these concepts in mind, a two-predictor model of the Acceptance of Sport Aggression was drawn. This structural model is given in Figure 4.2. Figure 4.2 shows the unconstructive latent variable being measured by moral disengagement (MD), negative affect, and general aggression. The constructive latent variable was measured by the physiological variables of age, height, and weight; the sports experience variables of years, sport, and level; positive affect; N2; and PSCORE.

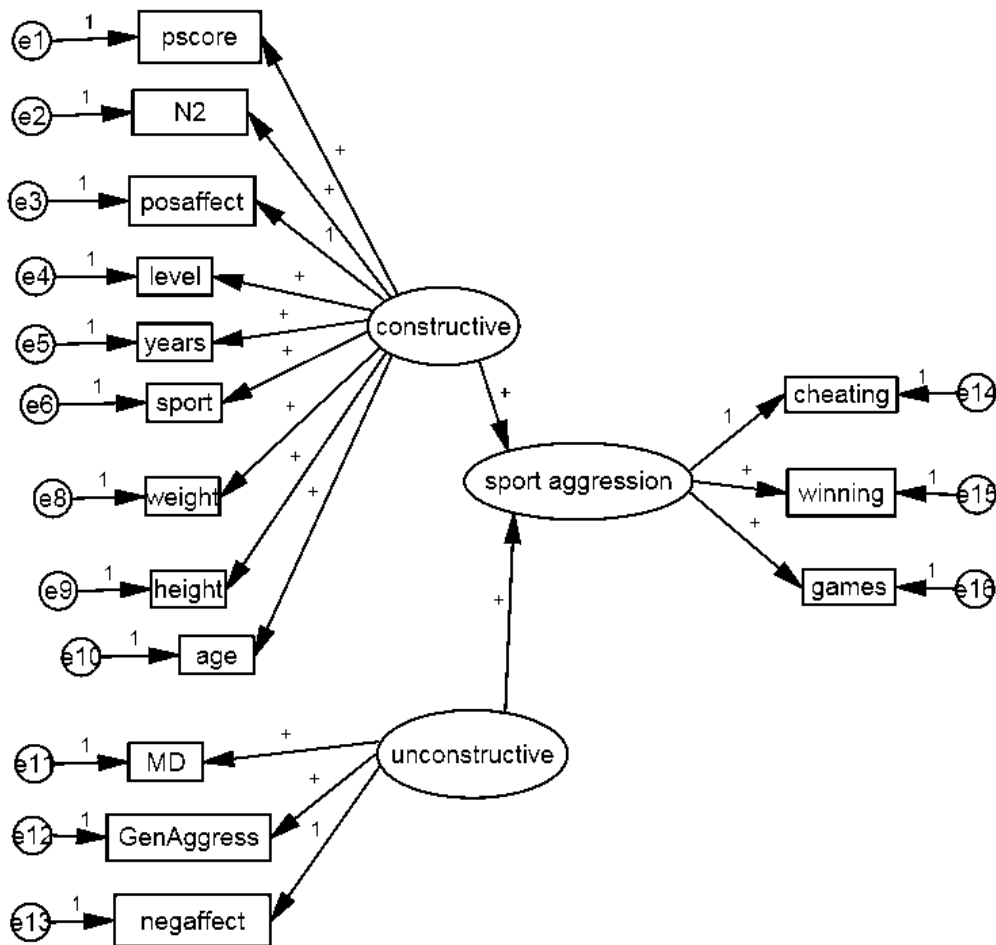


Figure 4.2. *Embodied Model of the Acceptance of Sports Aggression*

The embodied model contained 37 regression weights, 15 of which were to be estimated and 22 of which were fixed. The fixed regression terms were years, negaffect, and cheating along with the error terms. There were 21 variances, all of which were to be estimated. In total, there were 74 parameters, 52 of which were to be estimated. All parameters were expected to be positive. Degrees of freedom were determined to be 100, which met the order condition, and the rank condition was met because there was a nonzero matrix determinant.

Model Evaluation and Testing

The next step was to evaluate both models in a confirmatory factor analysis using Amos 18.0. Initial analyses validated the disembodied theoretical model in Figure 4.1; however, it varied significantly from the theoretical model ($\chi^2(100) = 282.383, p = .0001$). A correlation between affect and maturity was added, and error variances were allowed to correlate. In total, 11 error covariances were added to the model as specified in the model modifications index. However, this model still differed significantly from the theoretical model ($\chi^2(88) = 208.483, p = .0001$). The factor structures of affect, maturity, experience, and moral judgment were found to be significant, with only the path from *pos*affect to affect being non-significant. However, the paths from moral judgment and sports experience to sports aggression were found to be non-significant. While the paths from affect and maturity to sport aggression were significant (sport aggression \leftarrow affect, $p = .001$; sport aggression \leftarrow maturity, $p = .049$), it did not seem plausible theoretically or intuitively that only physical maturity and affect influenced an adolescent's acceptance of sports aggression and that moral judgment or sport experience would not. In addition, the remaining recommendations for modification were either expected to raise the degrees of freedom or lower them by no more than three. Therefore, this model was abandoned. This decision was supported by the conclusions from the literature review that the variables leading to the Acceptance of Sport Aggression should be more integrated.

Next, the confirmatory SEM analysis was conducted on the two-predictor embodied constructive-unconstructive model of the Acceptance of Sports Aggression in Figure 4.2, and this model was found to be acceptable. However, the data differed significantly from the theoretical model ($\chi^2(102) = 683.544, p = .001$), meaning that the hypothesized model did not adequately describe the sample data. In examining the model, it was decided that having three

indicators of physical maturity in constructive was unnecessary, and therefore, height and weight were eliminated from the model. Upon running the analysis again, the data still differed significantly from the theoretical model ($\chi^2 (75) = 423.591, p = .001$).

Model Modification

It was noted that winning, PSCORE, N2, and age had negative factor loadings, and therefore, the decision was made to use reverse scaling for those factors. Factor loadings typically should be positive because they attempt to explain the amount of variance in a factor. If there is a negative factor loading, it will take away from the variance explained by other factors. A negative factor loading can be indicative of a variable that is placed with the wrong factor structure. However, it is also possible for a bipolar factor to have several negative projections (Harman, 1976). In this case, a factor, such as temperature, may be measured by both hot and cold. However, bipolar factors like hot/cold temperature and positive/negative affect may be either inversely related (Russell, 1980) or are integrated biofunctionally and coexist before they diverge by mutual exclusion situationally (Iran-Nejad & Ortony, 1980). Relatively intense cold, for example, would mean the absence of relatively intense heat, but they would be biofunctionally indistinguishable at some more integrated biofunctional level. Therefore, it is important to understand the proper relationship that defined positive and negative loadings indicate in bipolar factors.

Since sports aggression was measured positively by cheating and sportpersonship, the ability to keep winning in perspective appeared to be a different concept; however, with reverse scaling, the concept changed to *not* keeping winning in proportion. Someone who is accepting of sports aggression may cheat, may use sportpersonship tactics, and may not be able to keep winning in proportion. Likewise, the PSCORE and N2 represented the ability to use moral

reasoning, and with reverse scaling higher scores represented lower aggressive tendencies. Moral reasoning is more indicative of the constructive mode of functioning because it represents a state of coherence and balance. Finally, age did not have a clear, linear relationship with the other factors in constructive or unconstructive. However, adolescence is a time of change that is reflected biologically as well as emotionally and cognitively. Age was positively correlated with PSCORE and N2 and negatively correlated with other constructive factors. A factor analysis was conducted with SPSS using the reverse scaled variables of age, PSCORE, N2, and the remaining constructive and unconstructive variables, extracting two components. Because of its negative factor loading, age was recalculated with reverse scaling so that the acceptance of sports aggression was related positively to a younger age. Age was found to lie on the same construct as the constructive mode of functioning with a positive factor loading of .109 vs. a negative factor loading of -.030 on the unconstructive component; however, age did not explain much of the variance in constructive.

Further model modifications were conducted, adjusting one parameter or path at a time. In total, ten error covariances were added to the model. Three were added to error variances within the same factor: age and years playing sports, PSCORE and N2, and negative affect and general aggression. The modification of allowing the error variance of years and age was supported theoretically because it was considered reasonable that those who had played sports longer were also older adolescents. The recommendation to correlate the error variances between PSCORE and N2 was allowed because the two scores from the DIT-2 are intended to be compared to each other. The modification of allowing the error variance between negaffect and GenAggress to correlate was supported theoretically because of the biofunctional relationship between negative affect, imbalance, and aggression and because they are part of the same factor.

The modification indices recommended that the error variances between games and sport be correlated. This change was supported theoretically by the assumption that adolescents could be accepting of sportspersonship for tactical reasons in game play, depending on the type of sport (collision or not) that they played. In the modification indices, it was recommended to allow the error variances between age and negaffect to correlate. This change was supported theoretically because in biofunctional and social identity theory physical characteristics can affect adolescents' emotional states.

Next, the modification indices indicated that allowing the error variances between posaffect and GenAggress. This change was supported theoretically by the biofunctional understanding that excessive negative or positive feelings could result in an imbalance, which could contribute to aggression. The next modification indicated was to correlate the error variances between posaffect and games. The change was supported theoretically because adolescents with higher positive affect who play sports may also be accepting of sportspersonship tactics. The error variances between cheating and years and cheating and sport as well as games and sport were also allowed to correlate because it is possible that the model does not explain all of the relationship between playing sports and the acceptance of cheating and sportspersonship. Finally, the error variances between negaffect and PSCORE were allowed to correlate because it is possible that those who have higher negative affect also have lower moral reasoning scores (represented as a higher score with reverse scaling).

The model analysis was repeated, and the data were an acceptable fit with the theoretical model ($\chi^2(53) = 67.163, p = .091$). The RMSEA was .028. The 90% confidence interval for the RMSEA was .000-.047. The PCLOSE, or the probability that the RMSEA is actually greater than .05, was .972, or non-significant, indicating that the RMSEA was not greater than .05.

Therefore, there was no significant difference between the theoretical model and the data sample. In other words, the theoretical model adequately described the sample data. This revised full structural model is shown in Figure 4.3.

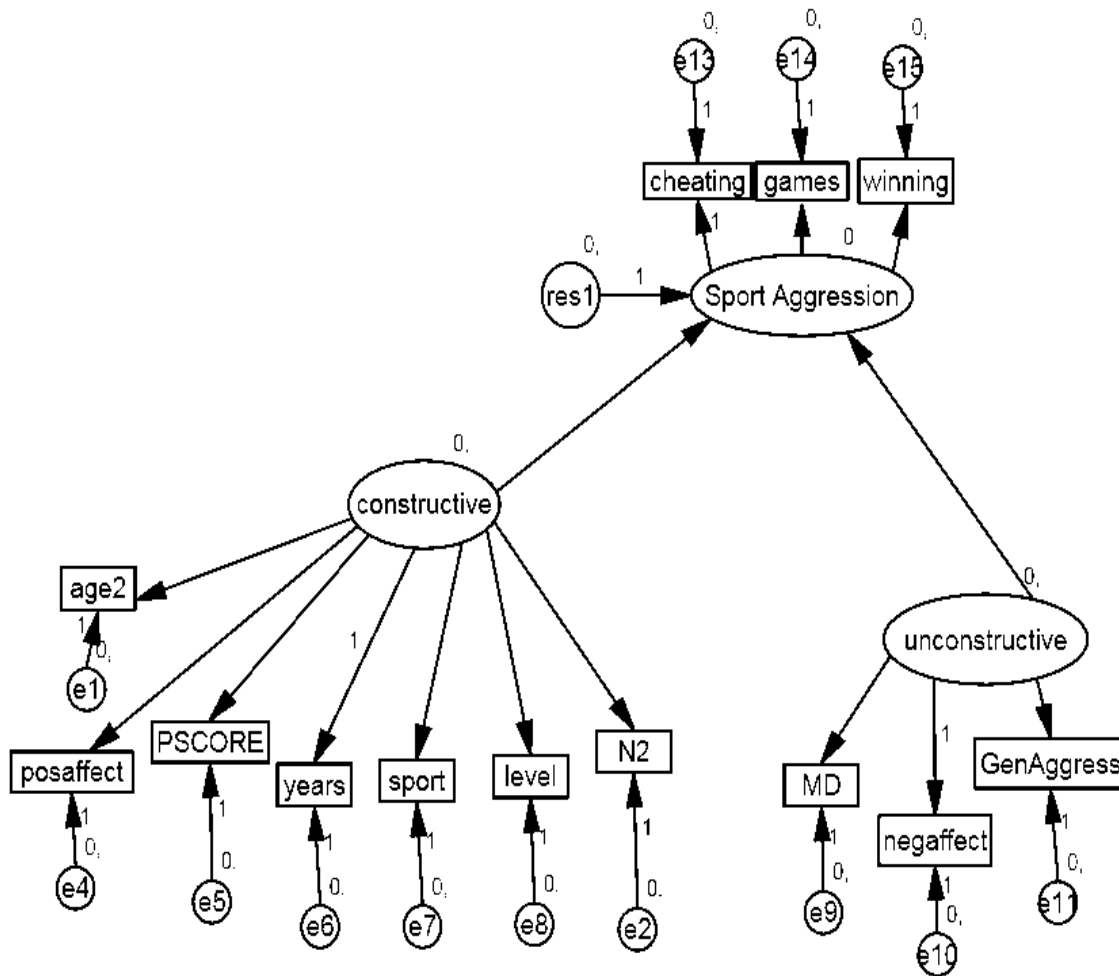


Figure 4.3. Revised Embodied Model of the Acceptance of Sports Aggression

For the revised model in Figure 4.3, there were 29 regression weights, 17 of which were fixed and 12 estimated. There were ten covariances and 16 variances. In total, there were 68 parameters, 17 which were fixed and 51 which were estimated. Additional measures of fit showed that the ratio between degrees of freedom and chi square was 1.267, which was non-significant. Table 4.4 presents the results of the analyses for the initial and final revised models. All figures are significant except for those indicated by an asterisk.

Table 4.4 *MLE and Fit Indices for the Original and Revised Models (N = 332)*

	Original Model	SE	Revised Model	SE
Standardized Regression Weights				
Constructive	.079*	.392	.069*	.388
Unconstructive	.572	.405	.537	.648
Cheating	.842	**	.853	**
Games	.592	.090	.587	.088
Winning	.345	.099	.352	.098
Years	.660	**	.673	**
PSCORE	.181	.226	.176	.221
Posaffect	.122	.264	.100*	.254
Age	.109	.034	.129	.034
Sport	.745	.027	.746	.025
Level	.972	.023	.957	.021
GenAggress	.737	.359	.631	.522
Negaffect	.334	**	.250	**
MD	.737	.480	.820	.996
N2	.118	.318	.112	.314
Correlations				
Age, years	—		-.279	
Games, sport	—		.279	
Winning, PSCORE	—		-.122	
Posaffect, GenAggress	—		.161	
Cheating, years	—		.198	
Cheating, sport	—		.225	
Posaffect, Games	—		.142	
Negaffect, GenAggress	—		.211	
Age, Negaffect	—		-.171	
PSCORE, N2	—		.270	

Squared Multiple Correlations

Sport Aggression	.334	.293
N2	.014	.012
Cheating	.708	.727
Games	.351	.345
Winning	.119	.124
Years	.435	.453
PSCORE	.033	.031
Posaffect	.015	.010*
Age	.012	.017
Sport	.554	.556
Level	.945	.916
GenAggress	.489	.398
Negaffect	.112	.063
MD	.544	.672

Measurement Error Variances

Constructive	7.678	8.042
Unconstructive	33.026	18.562*
Cheating	139.453	128.684
Games	236.130	238.570
Winning	613.191	610.520
Years	9.955	9.714
PSCORE	118.166	117.822
Posaffect	165.018	164.484
Age	2.677	2.644
Sport	.646	.627
Level	.035*	.053*
GenAggress	106.752	126.680
Negaffect	262.451	278.418
MD	152.702	109.844
N2	239.629	239.963

Covariances

Age, years	—	-1.414
Games, sport	—	3.412
Posaffect, GenAggress	—	23.271
Cheating, years	—	7.000
Cheating, sport	—	2.018
Posaffect, Games	—	28.164
Negaffect, GenAggress	—	39.677
Age, Negaffect	—	-4.636
Winning, PSCORE	—	-32.601
PSCORE, N2	—	45.435

Selected fit indices		
χ^2	182.629	67.163
<i>df</i>	63	53
<i>p</i> value	.0001	.091
CMIN/DF	2.899	1.267
RMSEA	.076	.028
PCLOSE	.001	.972
Hoetler (.05)	150	350

*Not significant ($p > .05$). All other estimates are significantly different from zero ($p < .05$).

**Fixed variables.

Direct and Indirect Effects

Direct effects of the variables in the constructive and unconstructive modes of functioning were noted in the analysis. The standardized path coefficients estimate how much a variable would change if the one predicting it changed one standard deviation. For example, moral disengagement (MD) had a direct effect on the unconstructive factor of .82. This means that an increase in MD of one standard deviation would produce a change in unconstructive by .82 standard deviations. The variables measuring the acceptance of sports aggression had an indirect effect on constructive and unconstructive through the acceptance of sports aggression. Table 4.5 displays the direct and indirect effects for the embodied model.

Table 4.5 *Direct, Indirect, and Total Effects for the Embodied Model (N = 332)*

Variables	Effect	Constructive	Unconstructive	Sports Aggression
Sport Aggression	Direct	.069	.537	0
	Indirect	0	0	0
	Total	.069	.537	0
N2	Direct	.112	0	0
	Indirect	0	0	0
	Total	.112	0	0
Level	Direct	.957	0	0
	Indirect	0	0	0
	Total	.957	0	0
Sport	Direct	.746	0	0

	Indirect	0	0	0
	Total	.746	0	0
MD	Direct	0	.820	0
	Indirect	0	0	0
	Total	0	.820	0
Negaffect	Direct	0	.250	0
	Indirect	0	0	0
	Total	0	.250	0
GenAggress	Direct	0	.631	0
	Indirect	0	0	0
	Total	0	.631	0
Age	Direct	.129	0	0
	Indirect	0	0	0
	Total	.129	0	0
Posaffect	Direct	.100	0	0
	Indirect	0	0	0
	Total	.100	0	0
PSCORE	Direct	.176	0	0
	Indirect	0	0	0
	Total	.176	0	0
Years	Direct	.673	0	0
	Indirect	0	0	0
	Total	.673	0	0
Winning	Direct	0	0	.352
	Indirect	.024	.189	0
	Total	.024	.189	.352
Games	Direct	0	0	.587
	Indirect	.040	.316	0
	Total	.040	.316	.587
Cheating	Direct	0	0	.853
	Indirect	.059	.458	0
	Total	.059	.458	.853

Figure 4.4 shows the final model of the acceptance of sports aggression with the standardized estimates. The unconstructive mode of functioning was a significant predictor of the acceptance of sports aggression, but the constructive mode of functioning was not.

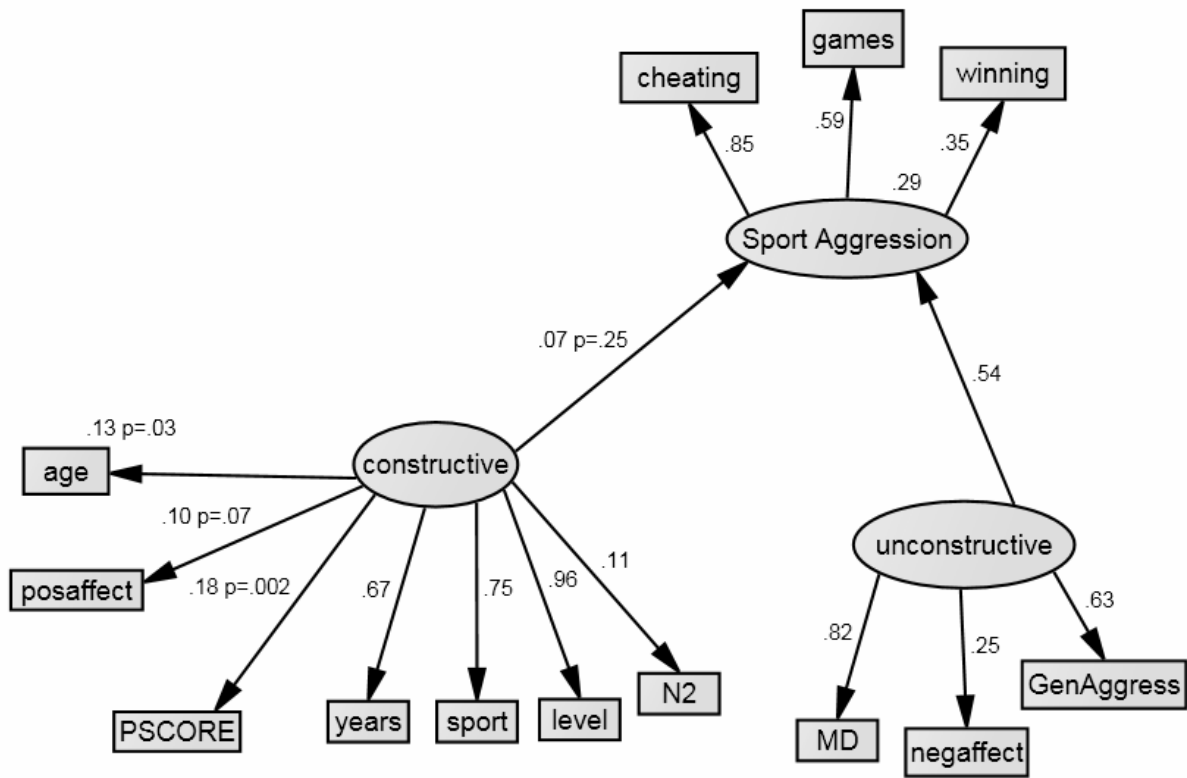


Figure 4.4. Final Embodied Model of the Acceptance of Sports Aggression with Coefficients

Multiple Group Analysis

In order to test SEM model difference in Figure 4.4, the data set was split into Northern and Southern groups. The covariance matrices for the Northern and Southern groups are included in Appendix C. In a multi-group analysis, the two models are added together, increasing the χ^2 value and degrees of freedom. Therefore, the Comparative Fit Index (CFI) was used to indicate adequate fit. For the baseline or unconstrained model, the CFI was .975, indicating adequate fit for both Northern and Southern groups. In comparing subsequent models, a change in CFI greater than .01 would indicate significant variation between models (Byrne, 2010).

Next, the measurement model was tested for invariance with all factor loadings constrained to be equal, according to the procedure outlined in Byrne (2010). This resulted in a negative error variance, so the statistical results were not reliable. Therefore, the factor loadings were released, and each group of factors was constrained at a time and cumulatively until evidence of noninvariance was identified, except that one factor in each group was constrained to be 1, as required in SEM analysis. Constraining the factors measuring Sport Aggression did not change significantly from the unconstrained model ($\chi^2(111) = 134.684, p = .063, CFI = .976, \Delta CFI = 0$); however, when the factors in Sport Aggression and unconstructive were constrained to be equal across groups, an error variance became negative in the Northern Italy group, and the resulting statistics were not reliable. Keeping the factor loadings for Sport Aggression constrained to be equal across groups, the factor loading for GenAggress alone in unconstructive were constrained equal across groups. This resulted in a model that did not differ significantly from the unconstrained model ($\chi^2(110) = 132.951, p = .067, CFI = .976, \Delta CFI = 0$).

Factor loadings were constrained individually and cumulatively in constructive until evidence of noninvariance was identified. In the end, the measurement model with all factor loadings constrained to be equal except for MD, level, and posaffect did not differ significantly from the unconstrained model ($\chi^2(113) = 140.378, p = .041, CFI = .971, \Delta CFI = .005$). Therefore, the measurement model was considered to be equal across groups, with the noted exceptions. The structural model was then tested across groups, keeping all previously constrained factor loadings equal, and constraining both constructive and unconstructive paths to be equal across groups. This model did not change significantly from the unconstrained model ($\chi^2(115) = 141.503, p = .047, CFI = .972, \Delta CFI = .004$).

Mean Structure Analysis

While a model of the acceptance of sport aggression that was adequately equivalent across the Northern and Southern groups had been identified, it had not been established if one group scored significantly higher or lower than the other. In order to understand better whether the two groups of Northern and Southern Italy differed in their latent means, a structured means analysis was conducted. The means for constructive and unconstructive for the Southern Italy data were set to 0 as were the error variances. The intercepts for the factors were set equal across groups. The results are shown in Table 4.6. Overall, the scores from the Northern Italy group varied significantly on all factors and were higher than the scores for Southern Italy.

Table 4.6 *Unstandardized Estimates for Mean Difference (Southern Italy the Default Model)*

	<u>Estimate</u>	<u>C.R.</u>	<u>p</u>	<u>SE</u>
Sport Aggression <--- constructive	7.715	18.3	<.001	.422
Sport Aggression <--- unconstructive	2.075	5.511	<.001	.376
Games <--- Sport Aggression	.754	29.122	<.001	.026
Winning <--- Sport Aggression	.577	15.759	<.001	.037
PSCORE <--- constructive	4.368	18.241	<.001	.239
posaffect <--- constructive	4.552	14.344	<.001	.317
age <--- constructive	2.485	18.577	<.001	.134
sport <--- constructive	.257	14.635	<.001	.018
level <--- constructive	.206	12.716	<.001	.016
GenAggress <--- unconstructive	2.318	6.402	<.001	.362
MD <--- unconstructive	4.290	4.914	<.001	.873
N2 <--- constructive	11.358	20.395	<.001	.557

Mean Structure Analysis by Gender

Finally, an analysis was conducted on the data separating the groups according to gender. The covariance matrices for males and females are included in Appendix C. The same model in Figure 4.3 was used in a group analysis comparing males and females, and a similar process was used for group analysis as in the previous section. The constrained measurement model statistics

showed that it was not significantly different from the unconstrained model ($\chi^2(114) = 153.133$, $p = .009$; CFI = .955; $\Delta\text{CFI} = .002$). The noted exception is that all factors were constrained equal except for the type of sport and N2, which were not equal across gender groups. Since the degree of change in the CFI was less than .01, the models were considered invariant. When the paths for the structural model were constrained to be equal across groups, the model was also invariant ($\chi^2(116) = 158.198$, $p = .006$; CFI = .952; $\Delta\text{CFI} = .001$) because the degree of change was not greater than .01. A latent mean structure analysis was conducted using the same process that was used for the Northern and Southern groups. The default group was female, and the unstructured estimates were significantly higher for all factors for males, except for the N2 scores, which were significantly lower. Table 4.7 provides a list of the unstandardized estimates, C.R., and significance, and SE.

Table 4.7 *Unstandardized Estimates of Mean Difference (Females the Default Model)*

	Estimate	C.R.	<i>p</i>	SE
Sport Aggression <--- constructive	1.548	9.012	<.001	.172
Sport Aggression <--- unconstructive	1.541	8.569	<.001	.180
Games <--- Sport Aggression	1.017	12.764	<.001	.080
Winning <--- Sport Aggression	.865	8.698	<.001	.099
PSCORE <--- constructive	2.127	20.109	<.001	.106
posaffect <--- constructive	2.081	18.013	<.001	.116
age <--- constructive	1.200	23.814	<.001	.050
sport <--- constructive	.176	22.583	<.001	.008
level <--- constructive	.096	12.635	<.001	.008
GenAggress <--- unconstructive	1.320	10.843	<.001	.122
MD <--- unconstructive	4.181	14.332	<.001	.292
N2 <--- constructive	-.352	-2.619	.009	.134

Summary

SEM analysis was conducted on a theoretical model of the acceptance of sports aggression. Two theoretical models were proposed and tested for their ability to describe the

data. The disembodied four-factor model was not admissible. The embodied two-predictor SEM model was an acceptable fit. Mean difference was examined by dividing the data into data sets for Northern and Southern Italy. The model fit was acceptable, and there was no significant variance between the two models. A mean structure analysis was conducted, and the means were significantly different across the two regions with all factors being higher for Northern Italy. Another multiple-group analysis was conducted by dividing the data according to gender. The constrained measurement and structural models were determined to be an adequate fit across the groups. A mean structure analysis showed that the means on almost all factors were significantly higher for males than females, except for the N2 score, which was significantly lower.

This research was guided by three questions. The first was 1) Can moral disengagement, maturation, affect, and sports experience predict the acceptance of aggression in sports? The results indicated that moral disengagement, maturation, affect, and sports experience can predict the acceptance of aggression, but only when they are part of an integrated model. When they were separated into discrete factors based on demographic characteristics, only affect and maturation were significant predictors of the acceptance of sports aggression. Next, 2) Are there significant differences in a model of acceptance of aggression between male and female participants? There was not a significant difference in models for the acceptance of sports aggression based on gender, although there was a significant difference in the means. Males scored significantly higher on all factors except for the N2 score, which was significantly lower than the scores for females. Last, 3) Are there significant differences in a model of acceptance of aggression between participants in Northern Italy and Southern Italy? There was not a significant difference in models for the acceptance of sports aggression based on region,

although there was a significant difference in the means. Northern Italians scored significantly higher on all factors. The results are discussed in the next chapter.

CHAPTER 5

DISCUSSION AND CONCLUSION

This final chapter of the dissertation restates the research problem and reviews major methods used in the study. The major sections of this chapter summarize the results and discuss their implications. The purpose of this dissertation was to examine the relationships between moral judgment, affect, moral disengagement, general aggression, and attitudes toward the acceptance of aggression in sports among Italian adolescents. The research questions were 1) Can moral disengagement, maturation, affect, and sports experience predict the acceptance of aggression in sports? 2) Are there significant differences in a model of acceptance of aggression between male and female participants? 3) Are there significant differences in a model of acceptance of aggression between participants in Northern Italy and Southern Italy?

Problem Statement

Because of the aggressive nature inherent in some sports competitions, the relationship between sports, moral reasoning, and moral behavior has been a topic of interest to researchers. The central research questions have focused on the acceptability of violating rules and of intentionally hurting opponents, both considered to be tied to lower moral reasoning and a perceived moral atmosphere which accepts the unethical behavior (see Shields and Bredemeier, 1995; Kavussanu, 2008). Another question of past research is whether sports competitions help build good character or inhibit moral reasoning development (see Bredemeier, 1994; Weiss & Smith, 2002).

Existing research conducted by Bredemeier and others (Bredemeier, 1985, 1994; Bredemeier & Shields, 1984, 1994; Shields & Bredemeier, 1995; Shields et al., 1995) has examined the ethics of sports behavior through moral cognition and intentional behavior and has addressed mainly physical aggression and the intent to harm an opponent. However, moral behavior may be based on more than decision-making processes, which have received the most attention in previous research. Other factors besides moral cognition affect moral behavior, and these factors remain under-investigated in sports, especially as to how they may influence the overall moral development of adolescents.

Adolescence is a period of multifaceted change in the lives of individuals. Biology, cognition, emotion, morality, and identity impact growth dynamically in all areas simultaneously. While past research has provided pieces of the puzzle of moral development, it has looked primarily at a few pieces at a time, ignoring the larger picture of the situational whole. Therefore, this research was based on a theoretical framework which provides a foundation for interpreting this larger context: the roles of affect, identity, moral judgment and moral motivation in adolescents' attitudes toward unethical behavior in sports. It draws upon biofunctional theory (Iran-Nejad, 1990, 1994), social identity theory (Dechamps & Devos, 1998; Puddifoot, 1997), and Rest's Four Component Model of Morality (Rest, 1983).

Review of Methodology

The participants in this research were 332 Italian high school students in Northern and Southern Italy. Two regions in different sections of the country were chosen so that data would not be biased coming from one high school in one region alone. Data were collected using five questionnaires. The AMDYSQ measured the acceptance of sports aggression. Moral disengagement was indicated by a scale from Bandura et al. (1996), and general aggression was

measured by a scale from Orpinas and Frankowski (2002). The DIT-2 (Rest & Narvaez, 1998) was used to measure moral judgment. Finally, the PANAS (Watson et al., 1988) was used to measure affect indicative of the biofunctional constructs of the constructive and unconstructive modes of functioning. In addition, the participants were asked to give their gender, height, weight, age, main sport, the level of competition they play, and the number of years they have played their main sport.

Summary of Analysis

SEM was chosen as the primary method of analysis because of its ability to analyze multiple variables simultaneously for inferential purposes (Byrne, 2010). The data were also analyzed by simple descriptive statistics. Two initial theoretical models for the acceptance of sports aggression were hypothesized based on the review of literature.

The first was a four-factor model which represented disembodied indicators of the acceptance of sports aggression placed in isolated groups according to their identifying characteristics: physiology, experience, emotion, and cognition. It was hypothesized that the acceptance of aggression would be predicted by physical maturation (maturity), sports experience (experience), affect, and moral judgment. Maturity would be measured by the three observed variables age, height, and weight. Experience would be measured by type of contact sport played (sport), years of playing experience (years), and level of competition played (level). Affect would be measured by positive affect (posaffect), negative affect (negaaffect), moral disengagement (MD), and general aggression (GenAggress). Moral judgment would be measured by three factors identified in the DIT-2 data analysis (PSCORE, N2, and STAGE4P). The Acceptance of Sport Aggression (Sport Aggression) would be indicated by the acceptance of

cheating (cheating), the acceptance of sportspersonship (games), and the ability to keep winning in proportion (winning).

The second model was a two-predictor SEM model based on the biofunctional modes of constructive and unconstructive functioning. As discussed in Chapter II, the unconstructive mode of functioning is characterized by a state of imbalance that “generates a state of fear, stress, tension, and anxiety” (Iran-Nejad, 2000, p. 75). These emotional states are identified in the negative affect section of the PANAS. It was hypothesized that the unconstructive mode of functioning would be related to general aggression and to moral disengagement because adolescents who have generalized negative feelings may be more likely to strike out aggressively to others and to use moral disengagement to excuse their behavior. Therefore, those with generalized negative feelings in the unconstructive mode of functioning would be more likely to approve of aggression in sports.

The constructive mode of functioning was composed of the observed variables that would represent coherence and balance as well as those which represented embodied concepts of the inherent self, such as age, height and weight, and the interaction of experience and development. The observed variables of type of sport played, years playing sports, and the level of competition played affect the valence of one’s inherent self, and therefore, were included as measures of the constructive mode of functioning. Finally, positive affect was considered an indicator of the constructive mode of functioning as were the PSCORE and the N2 from the DIT-2 since it was hypothesized that moral cognition would operate more freely in the constructive mode of functioning than in the more emotional, unbalanced state of the unconstructive mode of functioning. The unconstructive and constructive modes of functioning then predicted the

acceptance of sports aggression, measured by the acceptance of cheating, the acceptance of sportspersonship tactics, and keeping winning in proportion.

The disembodied four-factor model was not confirmed. The model was admissible, but differed significantly from the theoretical model, and while the paths to each endogenous factor were significant, the paths of sports experience and moral judgment were not significant predictors of the acceptance of sports aggression. It did not seem plausible theoretically or logically that moral judgment and sports experience did not influence the acceptance of sports aggression or that maturity and affect were the only significant factors influencing the acceptance of sports aggression. Past research (Bredemeier et al., 1987; Kavussanu & Ntoumanis, 2003; Ommundsen et al., 2003; Romand et al., 2009; Shields et al., 1995; Silva, 1983) has indicated a connection between sports participation, aggression, and moral reasoning; and therefore, the disembodied four-factor model was abandoned. However, the two-predictor biofunctional model was an acceptable fit to the data. The model was examined for differences in two multi-group analyses based on region and gender. There were no significant differences in a model for the acceptance of sports aggression according to region or gender, although means were significantly different across groups.

Discussion

In answering the first research question, it was found that moral disengagement, maturation, affect, and sports experience could predict the acceptance of aggression in sports, but only as part of an integrated model. When they were analyzed as separate factors, only maturation and affect predicted the acceptance of sports aggression. However, as part of an embodied model that highlighted the interaction of identity, experience, and development, moral

disengagement and sports experience were significant contributors to the constructive and unconstructive modes of functioning.

The second question examined the model to determine if there were significant differences in a model of acceptance of aggression between male and female participants. The results indicated that the model was invariant across gender, except for N2 scores and type of sport. The results also showed that males scored higher on all variables than females, except for N2 scores, which were higher for females. Last, the third question asked if the model was invariant across the cultures of Northern and Southern Italy. The results indicated that it was, except for the paths of moral disengagement, positive affect, and level of competition. The scores for Northern Italy respondents were significantly higher than for those in Southern Italy.

One of the major findings in this dissertation is the ability of the biofunctional model to describe and explain the acceptance of sports aggression. This is the first time the biofunctional model has been empirically tested as a model of moral attitudes toward sports aggression. While Bredemeier (1985), Kavussanu and Roberts (2001), and Proios and Doganis (2006) all noted that moral reasoning was only one of a number of factors that influenced the acceptance of sports aggression, much of the research into sports aggression has remained focused on moral cognition, intentional behavior, and the intent to harm an opponent. However, in this dissertation, including additional variables outside of moral cognition was not sufficient for identifying a model of the acceptance of sports aggression among Italian adolescents. It was the integration of the variables outside their disembodied demographic characteristics that succeeded in accurately describing the present data.

Another major finding is that, while past research by Bredemeier and her colleagues (Bredemeier, 1985, 1994; Bredemeier & Shields, 1984, 1994; Shields & Bredemeier, 1995;

Shields et al., 1995) as well as that of Kavussanu and Roberts (2001), Ommundsen et al. (2003), and Kavussanu and Ntoumanis (2003) has focused on moral cognition and the intent to harm, it has not considered the role of affect in sports aggression. However, in the biofunctional model, the unconstructive mode of functioning was a significant predictor of the acceptance of sports aggression and contributed more to the acceptance of sports aggression than the constructive mode of functioning. Adolescents who were generally more aggressive, who had a greater feeling of negative affect, and who showed higher moral disengagement were more likely to accept sports aggression. This supports Bandura et al. (1996) which found that participants who were high moral disengagers were also more likely to be aggressive and have aggressive tendencies. It also supports the findings of Bredemeier et al. (1987), which found that boys who were more accepting of sports aggression also ranked higher on general aggression.

Although unconstructive was a significant predictor of the acceptance of sports aggression, the path from constructive to the acceptance of sports aggression was not. This is not a surprising result, for biofunctional theory states that aggression would be more closely related to the unconstructive mode of functioning. The constructive mode of functioning is more closely related to positive, creative activity, and it was not expected to contribute much to the acceptance of aggression in sports. However, it should be noted that measurement covariances were added between indicators in constructive and the acceptance of cheating, sportspersonship, and keeping winning in proportion. It is plausible that a relationship exists between playing sports and the acceptance of cheating and sportspersonship that isn't fully explained by the model; adolescent athletes who have higher positive affect may be more accepting of certain types of sports aggression. However, it should also be noted that the variables related to sports playing experience were not significant predictors of the acceptance of sports aggression in the four-

factor model either. In the embodied constructive/unconstructive model, these characteristics become important indicators of the constructive mode of functioning because of the interaction of experience with development, but they were not significant predictors of the acceptance of sports aggression.

Another important finding is the support for the predicted relationship between the acceptance of sports aggression and the unconstructive mode of functioning. The unconstructive dispositional mode is one represented by “a state of fear, stress, tension, and anxiety” (Iran-Nejad, 2000, p. 75), and in this dissertation, adolescents who reported higher general aggressive tendencies, negative valence of the inherent self, and higher moral disengagement were more likely to accept sports aggression in others. These findings support Bredemeier (1994) who observed that children who reported aggressive tendencies in sports also reported being more aggressive outside of sports. However, this dissertation clarifies the relationship because general aggression predicted the acceptance of sports aggression. Adolescent athletes were not more aggressive overall than those who didn’t play sports.

Another finding is that the constructive mode of functioning was not a significant factor in the acceptance of sports aggression. This, again, is supportive of the explanation in biofunctionalism that aggression is not part of the balanced, constructive dispositional mode of functioning. If aggression comes predominantly from a negative view of self, negative emotions, and moral disengagement, then moral cognition, maturity, or experience would understandably contribute little to the acceptance of sports aggression. That is not to say that there is no relationship between playing sports and accepting cheating or sportspersonship tactics; however, overall, the relationship was not a significant factor.

One important contribution of this dissertation is that it extends the present literature on the acceptance of sports aggression to include more than physical aggression and the intent to harm as the definition of sports aggression. It included the less explored concept of fair play and rule-bending by examining attitudes toward sportspersonship. It investigated how adolescents felt about the use of psychological tactics or behavior that wasn't against the rules but went against the spirit of fair play. In other words, sports aggression was defined as more than trying to physically harm an opponent. It involved the idea of cheating without actually breaking the rules, or gaining an advantage in any way possible, especially if there were no rules against the behavior. The present findings support Lee et al. (2007) that sportspersonship was an important concept in sports aggression.

In addition to the modes of functioning, it was found that moral cognition through the PSCORE and N2 could serve as part of the constructive mode of functioning. Since moral judgment was expected to have a negative linear relationship to the acceptance of sports aggression, it was not surprising that it explained only a small amount of variance in the constructive mode. However, it was still a significant factor, and it was an important theoretical part of moral decision-making. Moral behavior is not determined solely by instinctual, emotional reactions, but it also involves moral decision-making, and the present research found that higher moral reasoning was not a predictor of the acceptance of sports aggression.

The role of identity in the constructive or unconstructive modes of functioning was seen in the interaction between age, positive and negative affect, and sports participation. As adolescents age, they go through various physiological changes that can affect their self-confidence and how they feel they appear to others. Biofunctional and identity theories state that adolescents with lower self-concepts will engage in certain behaviors to raise their self-concepts,

and those who had greater negative affect were more likely to engage in general aggression. Playing sports was associated with higher positive affect.

Implications

Examining aggression and the acceptance of sports aggression through the embodied model based on biofunctional theory has several implications for intervention with adolescents. First of all, aggressive behavior and the acceptance of sports aggression are not isolated from emotions or moral cognition. Previous research has tended to emphasize moral cognition or moral decision-making and its relationship with sports aggression isolated from any other variables. However, when aggressive behavior is seen as an integral part of adolescent personality and not a consequence of context, then an intervention program can be implemented that addresses the role of affect in behavior. From a biofunctional perspective, changing adolescent behavior will necessarily involve working with adolescents to change the valence of their inherent self. According to a biofunctional, embodied perspective, a singular focus on decision-making without considering adolescents' emotional or affective status will have only limited success because it does not address the largest contributors to the acceptance of sports aggression.

Next, there is a connection between playing sports and the acceptance of sportspersonship tactics outside of the dispositional modes of functioning. If sports programs want to reduce aggression among athletes, then athletic programs need to emphasize technical and tactical expertise over rule-breaking and rule-bending. Coaches and program administrators should place more emphasis on honoring the spirit of the game over winning at all costs. However, they should also teach athletes ways to resolve challenges without resorting to sports aggression. Athletes are sometimes rewarded either through additional playing time or praise

from fellow teammates, coaches, and fans for sports aggression. Shields et al. (1994) found that non-starters were often the most aggressive players, perhaps because they felt they would be rewarded by their coaches for this type of play and become starting players. Likewise, operating in the habitual or unconstructive dispositional mode could result in athletes' believing they have no choice but to break or bend the rules in order to win. However, as athletes learn additional skills, and if they are encouraged to use their skills, they may find themselves more creative and less habitual in their responses, including resorting less often to aggression.

In the end, the results of this dissertation indicated that adolescents who were already in a negative state and who characterized themselves as generally aggressive were more likely to accept sports aggression. Those who participated in sports were more likely to have a positive disposition, which was not a significant factor in accepting sports aggression. The results of this dissertation indicated that participating in sports was not a significant predictor of sports aggression, and it was the adolescents in an unconstructive dispositional mode who were more accepting of aggressive tactics in sports.

Group Analyses

In the process of examining multiple groups presented in Chapter 4, it was found that while the model was invariant across the northern and southern Italy groups, the groups differed on moral disengagement, level of competition, and positive affect. It was found that Northern Italian adolescents scored significantly higher on all measures. It should also be noted that since winning, N2, and PSCORE were reverse scaled, higher scores meant not keeping winning in proportion and not using higher moral reasoning. For the group comparison according to gender, males had significantly higher scores on all measures.

Delimitations and Future Directions

This study was limited to an investigation and analysis of the attitudes of 332 Italian adolescents from Northern and Southern Italy. It did not include the attitudes of other adolescents, and it did not study the sports behavior of adolescents. Instead, the main focus was to investigate whether sports participation influenced moral reasoning and development and whether moral development moderated the attitudes of Italian adolescents toward aggression in sports.

One problem encountered in the study is that not all of the DIT-2 was administered and scored which made it more difficult to determine the relationship between moral cognition and moral actions. One example is that girls had higher PSCOREs as well as higher scores on moral disengagement. Having more complete data from the DIT-2 could have helped explain this seeming discrepancy. Another limitation is that girls participated in the study only in Southern Italy; therefore, the data collected from Northern Italy reflected only males' perspectives. In addition, there was a student strike taking place in Southern Italy, so the opinions expressed by the Southern Italian adolescents who attended classes may not have been representative of all Southern Italian adolescents.

Because the questionnaires relied on self-reported data, it is possible that the responses did not accurately reflect the participants' actions but only what participants wanted to report. However, the study reflected a medium-size sampling of adolescents from two regions and two schools, so the data did not suffer the bias of being collected from only one area. Finally, while SEM lends itself well to hypothesis testing, the analysis is still correlational in nature rather than experimental. That said, SEM also offers the researcher the ability to examine multiple variables simultaneously for inferential purposes (Byrne, 2010).

Bipolar Factors

One particular problem encountered in this research was the presence of bipolar factors and the way these influenced the model analysis. A bipolar factor is one that has several variables with significant negative projections (Harman, 1976). Harman (1976) used the example of “fear,” which could have positive indicators as well as negative indicators, so that “courage” could also be considered “negative fear” (p. 100). Using this definition, there are several bipolar factors in the present research. The acceptance of sports aggression is measured by cheating, sportspersonship, and keeping winning in proportion. While cheating and sportspersonship tactics are behaviors which contribute positively to sports aggression, keeping winning in proportion is a behavior that contributes negatively to sports aggression. The presence of a negative factor loading complicates the analysis because the amount of variance explained positively by cheating and sportspersonship would be canceled out by a negative factor loading. However, according to Harman (1976), the signs of the factor can be reversed “without altering the adequacy of the solution” (p. 100). Therefore, the scale for winning was reversed, and the model was calculated before the reversal and after with no change in the model.

Next, unconstructive was measured positively by the three variables of moral disengagement, general aggression, and negative affect, but constructive was measured by a mixture of positive and negative factors. Age had a negative factor loading, was positively correlated with PSCORE, N2, and years playing sports, and was negatively correlated with the other factors in constructive. The PSCORE and N2 also had negative factor loadings, were positively correlated with age, and were negatively correlated with all other constructive variables. Since it was possible that age, N2, and PSCORE should fall under another factor, a component analysis of the constructive/unconstructive variables, extracting two components,

showed that age, N2, and PSCORE should be placed with the constructive variables. It was decided to use reverse scaling with them as well, and model analyses conducted with the negative factor loadings and the reversed positive factor loadings should almost no change. The PSCORE, N2, and age were considered important theoretical parts of the constructive latent variable even though they did not explain a large amount of variance in constructive because they represent embodied identity and moral reasoning. In addition, the four-factor model had already shown that experience playing sports isolated from other factors was not significant in accepting sports aggression. The embodied concept of constructive, which contained elements of identity, moral reasoning, and positive affect, represented more completely the constructive mode of functioning. With reverse scaling, all factor loadings became positive, and the model calculations were essentially the same.

Future Research

This dissertation applied a theoretical model based on biofunctional theory to the acceptance of sports aggression among Italian adolescents. Future research may want to apply the model to adolescents in other countries to confirm the applicability of the model across cultures. The constructive mode of functioning was not a significant predictor of the acceptance of sports aggression in either the comparison of adolescents from Northern and Southern Italy or comparing males and females. Since the model describes general dispositional modes of functioning, it is possible that the constructive and unconstructive modes of functioning would be less subject to changes in cultural context. However, this would need to be investigated.

Next because of the identification of bipolar factors in the present study, future research may want to follow up on these factors. Since most models have more than one solution, it is possible that a previously unidentified factor could be incorporated that explains the relationship

age, positive affect, and moral reasoning have to sports aggression. In addition, other factors that were not investigated in this study may be identified for inclusion.

Another point is that while negative affect defined the unconstructive mode of functioning adequately, the PANAS did not define positive affect or the constructive mode of functioning as well. The PANAS identified prevalence of certain positive emotions, and while these emotions are part of the constructive mode of functioning, the constructive dispositional mode is more than positive affect. The constructive mode of functioning is guided by interest and curiosity, leading to coherence while promoting self-coherence, efficacy, and balance (Iran-Nejad & Gregg, 2001). The PANAS is not designed to measure the constructive mode of functioning. Therefore, future research could identify or create a better instrument for measuring the constructive dispositional mode, taking into consideration the relationship with positive affect as well as coherence, balance and efficacy. Also, future research may want to apply the biofunctional model to different contexts or examine more closely the dispositional modes of constructive and unconstructive functioning, particularly the ability to move from one mode to another. Helping adolescents switch from an unconstructive mode to a constructive mode could have applications in many areas, not just in athletics.

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APPENDIX A
IRB APPROVAL

08-OR-019-R1

UNIVERSITY OF ALABAMA INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS
REQUEST FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS

I. Identifying information

IRB# 08-OR-019

	Principal Investigator	Second Investigator	Third Investigator
Name:	Sally Zengaro	Asghar Iran-Nejad	
Department:	Educational Psychology	Educational Psychology	
College:	Education	Education	
University:	Univ. of Alabama	Univ. of Alabama	
Address:	Box 870231	Box 870231	
Telephone:	657-0109	348-1183	
FAX:	348-0683	348-0683	
E-mail:	Zenga002@bama.ua.edu	airannej@bamaed.ua.edu	

Title of Research Project: Aggression and the Influence of Sports on the Moral Development of Italian Adolescents

Date Printed: 04-22-2009

Funding Source:

Type of Proposal: New Revision Renewal Completed Exempt

Attach a renewal application Attach a continuing review of studies form Please enter the original IRB # at the top of the page
--

UA faculty or staff member signature: _____

II. NOTIFICATION OF IRB ACTION (to be completed by IRB):

Type of Review: Full board Expedited

IRB Action:

Rejected Date: _____

Tabled Pending Revisions Date: _____

Approved Pending Revisions Date: _____

Approved---this proposal complies with University and federal regulations for the protection of human subject

Approval is effective until the following date: 8-17-10 e.g.

Items approved:

- Research protocol: dated
- Informed consent: dated
- Recruitment materials: dated
- Other: dated

APPENDIX B
CONSENT AND ASSENT FORMS

Sally Zengaro
Steven Thoma

Informed Consent Form

Your child is being asked to participate in a research study about sports and adolescent development. The study is called "*Aggression and the Influence of Sports on the Moral Development of Italian Adolescents*." The study is being done by Sally Zengaro, who is a doctoral student at the University of Alabama, USA. Ms. Zengaro is being supervised by Dr. Steven Thoma who is a professor at the University. Your child was selected as a possible participant because your child is in the age range we are interested in studying. We ask that you read this form and ask any questions you may have before agreeing to allow your child to be in this study.

What is this study about? The purpose of this study is to study how sports participation affects Italian middle adolescents' sense of fairness and cooperation.

Why is this study important? The answers to the questions will help teachers and others who work with adolescents to understand what they think about fair play.

Why has my child been asked to take part in this study? Your child has been asked to be in this study because he or she is in the age group that we are looking at.

How many people besides my child will be in this study? About 90 children will be in this study.

What will my child be asked to do in this study? If you agree to have your child participate in this study, the child will complete a short questionnaire about sports and another one about aggression.

How much time will my child spend being in this study? Being in this study will take about 50-60 minutes and will take place during the child's PE class at their school.

Will my child be paid for being in this study? No one will be paid for being in this study.

Will being in this study cost me or my child anything? There will be no cost to being in this study except for the time spent in completing the questionnaires.

What are the benefits of being in this study? There are no direct benefits to being in this study.

How will my child's confidentiality be protected? What will happen to the information the study keeps on my child? The records of this study will be kept private. Your child will not put his/her name on any paper. No one will be able to

UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED: 8-17-09
EXPIRATION DATE: 8-17-10

identify your child by name or description. The records will be destroyed after the research project is completed.

What are the alternatives to being in this study? Does my child have other choices?

The alternative/other choice is not to participate.

What are my child's rights as a participant? Taking part in this study is voluntary—it is your child's free choice. You may choose not to have your child take part at all. If your child starts the study, he/she can stop at any time. Leaving the study will not result in any penalty or loss of any benefits to your child.

I understand that the records of this study will be kept confidential. They will not have any names recorded on them and will be kept in locked files. No one will be able to recognize my child in any reports or publications that result from this study.

I understand that The University of Alabama Institutional Review Board (a committee that looks out for the ethical treatment of people in research studies) will review study records from time to time. This is to be sure that participants in research studies are being treated fairly and that the study is being carried out as planned.

Who do I call if I have questions or problems? If you have questions about the study right now, please ask them. If you have questions about the study later on, please call the investigator (Sally Zengaro) at 001.615.893.9690 or Dr. Thoma at 001.205.348.8146. You may also write Ms. Zengaro or Dr. Thoma at The University of Alabama, Department of Educational Psychology, College of Education, Box 870231, Tuscaloosa, AL 35487, USA. If you have any questions about your rights as a research participant you may contact Ms. Tanta Myles, The University of Alabama Research Compliance Officer, at University of Alabama Office for Research, ATTN: Ms. Tanta Myles - Participant Concern, Box 870104, Tuscaloosa, AL 35487-0104, USA or call her at 001.205.348.5152

I have read this consent document. I understand its contents and freely consent to participate in this study under the conditions described. I will receive a copy of this consent form to keep.

Research Subject: _____ Date: _____
(Parent/Guardian)

Witness: _____ Date: _____

Investigator: _____ Date: _____

CHILD'S ASSENT

You are being asked to participate in a research study about sports and adolescent development. The study is called "*Aggression and the Influence of Sports on the Moral Development of Italian Adolescents*." The study is being done by Sally Zengaro, who is a doctoral student at the University of Alabama, USA. Ms. Zengaro is being supervised by Dr. Steven Thoma who is a professor at the University. You were selected as a possible participant because you are in the age range we are interested in studying. We ask that you read this form and ask any questions you may have before agreeing to participate in this study.

What is this study about? The purpose of this study is to study how sports participation affects Italian middle adolescents' sense of fairness and cooperation.

Why is this study important? The answers to the questions will help teachers and others who work with adolescents to understand what they think about fair play.

Why have I been asked to take part in this study? You have been asked to be in this study because you are in the age group that we are looking at.

How many people will be in this study? About 90 children will be in this study.

What will I be asked to do in this study? If you agree to participate in this study, you will complete a short questionnaire about sports and another one about aggression.

How much time will I spend being in this study? Being in this study will take about 50-60 minutes and will take place during your PE class at school.

Will I be paid for being in this study? No one will be paid for being in this study.

Will being in this study cost me anything? There will be no cost to being in this study except for the time spent in completing the questionnaires.

What are the benefits of being in this study? There are no direct benefits to being in this study.

How will my confidentiality be protected? What will happen to the information the study keeps on me? The records of this study will be kept private. You will not put your name on any paper. No one will be able to identify you by name or description. The records will be destroyed after the research project is completed.

What are the alternatives to being in this study? Do I have other choices? The alternative/other choice is not to participate.

UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED: 8-17-01
EXPIRATION DATE: 8-17-10

What are my rights as a participant? Taking part in this study is voluntary—it is your free choice. You may choose not to take part at all. If you start the study, you can stop at any time. Leaving the study will not result in any penalty or loss of any benefits to you.

I understand that the records of this study will be kept confidential. They will not have any names recorded on them and will be kept in locked files. No one will be able to recognize me in any reports or publications that result from this study.

I understand that The University of Alabama Institutional Review Board (a committee that looks out for the ethical treatment of people in research studies) will review study records from time to time. This is to be sure that participants in research studies are being treated fairly and that the study is being carried out as planned.

Who do I call if I have questions or problems? If you have questions about the study right now, please ask them. If you have questions about the study later on, please call the investigator (Sally Zengaro) at 001.615.893.9690 or Dr. Thoma at 001.205.348.8146. You may also write Ms. Zengaro or Dr. Thoma at The University of Alabama, Department of Educational Psychology, College of Education, Box 870231, Tuscaloosa, AL 35487, USA. If you have any questions about your rights as a research participant you may contact Ms. Tanta Myles, The University of Alabama Research Compliance Officer, at University of Alabama Office for Research, ATTN: Ms. Tanta Myles - Participant Concern, Box 870104, Tuscaloosa, AL 35487-0104, USA or call her at 001.205.348.5152

I have read this **assent** document. I understand its contents and freely **assent** to participate in this study under the conditions described. I will receive a copy of this **assent** form to keep.

This study has been explained to me and I understand. I have been given an opportunity to ask questions and to decide whether or not to participate.

WITNESS _____ DATE _____

CHILD _____ DATE _____

UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED: 8-17-09
EXPIRATION DATE: 8-17-10

APPENDIX C
COVARIANCE MATRICES BY GENDER AND REGION

Covariance Matrix Female Italian Adolescents (n = 78)

	AGE	HEIGHT	WEIGHT	SPORT	YEARS	LEVEL	CHEAT	GAMES	WIN	NEGAFF	POSAFF	MD	GENAGG	PSC	STAGE4P	N2
AGE	0.562															
HEIGHT	0.256	64.547														
WEIGHT	0.284	58.613	162.296													
SPORT	-0.124	0.101	-0.184	0.499												
YEARS	-0.318	-5.184	-4.731	2.617	35.079											
LEVEL	-0.336	-1.928	0.956	0.943	6.993	2.580										
CHEATING	0.111	1.366	-2.446	-0.017	-0.299	-0.269	2.314									
GAMES	0.078	0.227	-1.372	-0.103	-1.421	-0.379	1.173	2.742								
WINNING	0.264	-3.097	-0.954	0.190	2.332	0.857	-1.010	-1.905	9.979							
NEGAFFEC	1.764	-3.076	3.178	-0.672	-4.920	-2.576	0.777	4.007	-1.063	122.255						
POSAFFEC	-1.672	5.184	10.307	-0.300	5.434	1.777	0.314	0.709	-1.320	-29.842	119.726					
MD	2.130	2.617	-4.935	-0.909	-8.429	-5.019	12.194	13.221	-0.710	90.479	-28.491	381.080				
GENAGGRE	1.450	-10.795	4.177	-2.519	-12.203	-6.349	7.214	8.011	-3.387	23.381	2.592	113.810	129.088			
PSCORE	0.761	10.767	12.507	-1.267	-15.079	-2.599	-2.101	-1.495	-3.365	-9.086	6.608	-26.288	-6.441	96.727		
STAGE4P	-0.979	3.199	-0.918	1.263	8.900	2.817	-0.518	-0.379	3.083	-23.339	2.083	-14.166	-17.051	-43.613	133.431	
N2	-0.716	7.512	-50.267	0.952	5.225	2.191	-1.679	-0.605	-6.692	-21.084	11.540	-85.632	-15.419	42.553	-14.605	212.912

Covariance Matrix Male Italian Adolescents (n = 254)

	AGE	HEIGHT	WEIGHT	SPORT	YEARS	LEVEL	CHEAT	GAMES	WIN	NEGAFF	POSAFF	MD	GENAGG	PSC	STAGE4P	N2
AGE	0.818															
HEIGHT	2.969	77.784														
WEIGHT	3.290	61.785	143.469													
SPORT	-0.074	0.281	1.560	2.637												
YEARS	1.088	4.831	6.353	3.449	16.417											
LEVEL	-0.016	0.492	-0.295	1.823	3.533	1.634										
CHEATING	1.800	32.105	42.610	3.941	12.195	0.251	454.116									
GAMES	1.640	3.491	5.893	8.346	10.169	4.513	199.967	348.658								
WINNING	-3.298	-4.753	1.152	0.884	-15.578	-0.748	-183.549	-72.881	622.007							
NEGAFFEC	3.283	35.609	38.657	-0.334	7.207	-0.511	77.211	23.902	4.284	342.773						
POSAFFEC	0.345	-8.842	0.490	0.315	3.803	0.940	-36.816	9.074	41.787	-15.743	166.717					
MD	-2.675	14.274	-0.556	1.359	0.680	-1.832	148.229	78.580	-75.976	51.597	4.229	321.236				
GENAGGRE	-0.599	22.953	19.940	1.631	2.701	0.719	74.092	47.915	-42.172	84.026	12.793	149.126	225.871			
PSCORE	-0.164	0.838	2.372	-2.542	-3.185	-2.556	2.366	0.352	-29.765	-18.814	-4.478	16.079	7.130	128.233		
STAGE4P	-1.007	-8.388	-0.129	-3.338	-4.928	-2.150	-12.551	-10.334	36.455	2.874	-1.623	-27.402	-32.945	-40.780	159.026	
N2	-2.034	-7.725	-18.607	-2.266	-10.155	-3.773	-6.181	-17.690	7.816	-12.198	-11.710	24.127	7.385	51.174	-18.529	253.630

Covariance Matrix Northern Italy (n = 174)

	AGE	HEIGHT	WEIGHT	SPORT	YEARS	LEVEL	CHEAT	GAMES	WIN	NEGAFF	POSAFF	MD	GENAGG	PSC	STAGE4P	N2
AGE	1.151															
HEIGHT	3.927	82.029														
WEIGHT	4.395	62.530	139.550													
SPORT	-0.111	0.119	2.934	3.010												
YEARS	1.096	2.853	9.014	4.302	16.702											
LEVEL	-0.106	0.500	1.425	2.512	4.689	2.462										
CHEATING	0.322	7.180	9.463	1.257	3.023	0.280	18.769									
GAMES	0.637	3.718	3.772	5.611	-0.130	2.720	26.482	108.745								
WINNING	-0.427	-0.007	-2.391	-0.646	-1.755	-0.580	-5.385	-6.590	12.937							
NEGAFFEC	4.443	37.638	38.093	0.475	4.578	-0.206	11.500	2.869	2.304	375.078						
POSAFFEC	-0.351	-4.794	6.737	-1.676	2.059	-1.440	-2.790	1.911	1.977	-11.096	140.188					
MD	-1.427	29.199	20.156	2.076	5.035	0.068	36.883	4.647	-8.580	85.577	11.098	259.379				
GENAGGRE	0.565	29.612	21.721	2.313	3.773	2.599	19.397	5.545	-7.785	90.662	8.389	131.273	221.260			
PSCORE	-0.414	1.447	-6.449	-1.665	-1.879	-1.065	2.202	-0.770	-5.638	-20.927	-7.143	13.725	0.727	128.955		
STAGE4P	-2.228	-10.602	-2.358	-4.328	-6.665	-3.200	-0.321	0.802	5.654	7.659	-4.396	-33.053	-28.860	-43.734	170.766	
N2	-2.685	-12.958	-36.032	-2.690	-9.618	-3.328	-4.052	-1.981	-1.580	-5.923	-10.860	10.737	-7.246	39.967	-12.031	268.465

Covariance Matrix Southern Italy (n = 158)

	AGE	HEIGHT	WEIGHT	SPORT	YEARS	LEVEL	CHEAT	GAMES	WIN	NEGAFF	POSAFF	MD	GENAGG	PSC	STAGE4P	N2
AGE	0.549															
HEIGHT	0.256	64.547														
WEIGHT	0.284	58.613	162.295													
SPORT	-0.213	2.958	3.501	1.138												
YEARS	0.310	2.366	-0.409	1.751	16.876											
LEVEL	-0.183	0.745	0.798	1.040	3.110	1.526										
CHEATING	0.154	1.464	-1.905	-0.146	-0.306	-0.321	3.848									
GAMES	0.111	0.932	0.106	0.643	-0.039	0.455	2.288	7.649								
WINNING	-0.107	-0.163	2.511	0.355	0.073	0.343	-1.106	-1.008	2.798							
NEGAFFEC	1.315	-11.734	-5.528	-2.189	-6.446	-2.721	1.427	2.443	-0.188	128.366						
POSAFFEC	-1.032	17.576	31.724	4.655	9.034	4.895	-3.462	4.682	2.639	-26.574	196.203					
MD	-0.897	7.664	-8.926	0.127	-4.031	-3.988	15.735	15.758	-3.336	73.002	-19.234	396.381				
GENAGGRE	-1.086	11.432	28.551	0.844	-2.776	-2.318	6.368	6.539	-1.434	38.648	28.077	156.709	192.532			
PSCORE	0.743	4.026	13.881	-2.771	-6.937	-3.970	-1.845	-4.839	-1.060	2.165	-2.424	-10.136	5.176	110.846		
STAGE4P	-0.419	2.054	5.511	0.448	4.883	0.878	-1.812	-2.213	1.646	-17.888	6.555	-13.085	-27.824	-39.248	133.894	
N2	-0.778	6.950	-14.052	-0.069	-2.268	-1.804	0.434	-2.491	-1.327	-14.709	-3.181	-19.946	12.184	58.040	-23.687	216.364