Personal and Social Benefits Associated With Participation in Brazilian Jiu-Jitsu

by

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A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Arts

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Abstract

The purpose of this study was to explore personal and social benefits associated with participation in Brazilian jiu-jitsu (BJJ). Sixteen participants (2 head instructors and 14 athletes; *M* age = 33.8 years, *M* duration of involvement in BJJ = 5.5 years) participated in individual semi-structured interviews. The interviews were transcribed verbatim and subjected to qualitative data analysis. Results revealed participants reported a broad variety of benefits arising from their participation in BJJ. Personal benefits were self-confidence, analytical thinking, perseverance, stress relief, and physical health. Social benefits were respect and tolerance for others and community environment. Results revealed that the benefits were obtained through the adoption of traditional and modern types of guidance (i.e., teaching). Further, the results identified specific ways the athletes believe these outcomes transferred to their lives away from the sport.

Preface

This thesis is an original work by Aleksandar Chinkov. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Project Name “Personal and Social Benefits Associated With Participation in Brazilian Jiu-Jitsu”, No. Pro00044811, January 24, 2014.

DEDICATION

To my parents Pashka and Evgeniy, for their unconditional love, support, and belief in me. Mom, dad, I am proud of you, and I know that you are proud of me. I love you.

To my grandmother Elena, for her care and delicious meals. Thank you. I love you.

To my elder brother Dr. Tchinkov, for his unshakable belief in me. Brother, among all the inspirations in the world – you will always be my greatest one. Thank you for your guidance and for your support. I love you.

To my younger brother Lyubo, for his understanding and support. Brother, thank you for who you are and for being in my life. I love you.

To my students around the world, for being part of the greatest subject at school. I am proud of you.

ACKNOWLEDGEMENTS

I would like to thank the participants in this study for their restless spirit and dedication to the beautiful art of BJJ, whose example showed me how I can become a better person not only on the mat, but in life as well.

I would like to thank Dr Holt for his guidance and support, and for leading me through his personal example towards self-improvement and discovery. None of this would be possible for me without you Sir. Thank you.

I would like to thank Homan and Kacey for their guidance and support, and for being there for me.

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CHAPTER 1: INTRODUCTION

Martial Arts (MAs) have become a popular pastime. There is widespread participation in MAs in several countries, including Australia (161,000 participants between the ages of 5 and 14; Australian Bureau of Statistics, 2012), Canada (115,000 people over the age of 15; Canadian Heritage, 2013), and the USA (more than 5 million people over the age of 6; Sport & Fitness Industry Association's Participation Report, 2012). However, there is an ongoing debate about the effects of MAs on participants' personal and social well-being (Theeboom, 2012; Vertonghen & Theeboom, 2010).

Some MAs have a focus on personal and social skills as part of the curriculum, where learning techniques and increasing physical abilities are often complemented by spiritual life-teachings about discipline, control, and personal development. Other MAs focus on the instruction of attacking and striking moves in the absence of spiritual life teachings. Indeed, participation in MAs has been associated with both positive and negative outcomes. Positive psychological outcomes include improved self-confidence, self-esteem, and coping skills (e.g., Columbus & Rise, 1998; Duthie, Hope, & Barker, 1978; Kuan & Roy, 2007; Wargo, Spirrison, Thorne, & Henley, 2007) and physical health outcomes include improved cardiovascular function, nutrition, bone mineral density, strength and flexibility, along with reduced blood pressure and body fat (Boguszewski, Adamczyk, Suchcicka, Słyk, & Białoszewski, 2014; Burke, Al-Adaw, Lee, & Audette, 2007; Kim, Seo, & Choi, 2014; Tsang, Kohn, Chow, & Singh, 2008). Negative outcomes associated with participation in MAs include increased aggressiveness and anti-social behavior such as engaging in fights, truancy, and thefts (e.g., Endresen & Olweus, 2005; Reynes & Lorant, 2002). Furthermore, the

appropriateness of MAs for children and adolescents, and the potential injury risks associated with participation, has been questioned (Buse, 2006; Cynarski & Kudlacz, 2008; Pearn, 1998; Pieter, 2005; Zetaruk, Violan, Zurakowski, & Micheli, 2005). In order to shed more light on some of these issues, the purpose of this study was to examine the perceived personal and social benefits of participation in Brazilian jiu-jitsu (BJJ). More specifically, the following research questions were addressed:

(1) What personal and social benefits do participants perceive they have learned through BJJ?

(2) How are these personal and social benefits acquired and taught?

Literature Review

Martial Arts

The first known evidence of MAs as a combat sport dates from 648 BCE, when Greece introduced the sport of pankration (all powers) into the Olympic Games (Walter, 2003). The sport involved two opponents fighting with each other with a combination of striking and grappling techniques following only two rules – no biting and no eye gouging. Pankration fighters became heroes and the subjects of myths and legends.

A variety of different forms of MAs have emerged, which vary by cultural, historical, philosophical, and technical aspects. For instance, there are Eastern MAs (e.g., aikido, judo, jiu-jitsu, karate) and Western MAs (e.g., boxing, wrestling, capoeira, tae bo). In very general terms, Eastern MAs are usually considered to be a type of *training* with a focus on self-defence and self-improvement, whereas Western MAs are usually considered to be a s*port* with a focus on competition.

Distinctions have also been made between ‘hard’ and ‘soft’ styles of MAs. Martial arts that respond to power with the use of power are considered hard. For example, most styles of karate involve the use of blocking a strike, which can be considered hard because it depends on the person’s physical strength to neutralize the power of the strike with his or her body. On the other hand, aikido is considered a soft style of MAs because it is based on techniques that redirect the power of a strike and do not rely exclusively on physical strength to neutralize the attack. Technical aspects also divide MAs to striking and grappling styles. Striking is based mainly on performing punching and kicking techniques, whereas grappling relies on throws, takedowns, positional holds, and various joint-locks.

Further distinguishing different types of MAs, Bolelli (2003) classified MAs into five broad categories – *performance arts, internal arts, weapon arts, self-defence arts*, and *combat sports*. According to this model, *performance arts* focus on the aesthetic aspects of a particular MA, whereby techniques and movements are combined to form an art in which self-defence and combat elements are not central features. Examples of these MAs include wushu, capoeira, and tae bo, which adopt movements from gymnastics and dance with focus on the aesthetic performance of the art.

Internal arts focus on the development of internal power to attain spiritual balance through breathing, meditation, and other related techniques. Aikido and tai chi, for example, are considered mainly internal, because of their focus on ‘ki’ or ‘chi’ power to achieve internal peace and good relations with other human beings. *Weapon based arts,* like kendo and iaido, utilize swords, knives, and guns as their primary method of fighting. *Self-defence arts*, including styles such as jiu-jitsu, silat, wing chun, and

hapkido, are primarily concerned with one's protection against an assault. Some of these self-defence arts include potentially lethal techniques, which cannot be practiced in their complete form without causing irreversible physical damage.

Combat sports can be divided into grappling, striking, and a combination of the two. The main characteristic of these styles is the 'sparring' component, which means that the techniques can be practiced in their full form, speed, and power, against an opponent or a partner. Grappling sports include Kodokan judo, Brazilian jiu-jitsu, sumo, sambo, Greco-roman wrestling, and freestyle wrestling. These styles differ according to their rules of competition. As mentioned before, they are unified by techniques that include throwing, takedowns, various position holds and joint-locks, as well as ground 'fighting'. Striking sports include karate, boxing, taekwondo, muay thai, and many others. They are characterized by utilizing striking techniques as their primary strategy of fighting. Similarly to grappling sports, they differ between each other according to the competition rules they follow. Finally, combined combat sports utilize techniques from both grappling and striking styles of fighting. The most popular sports in this sense are Gracie jiu-jitsu, vale tudo (i.e., anything goes), combat sambo, and shooto. These MAs styles can be referred to as Mixed Martial Arts (MMA).

It is plausible that the structural qualities of MAs (i.e., the type of MA and its particular characteristics) create different types of experiences and lead to different types of outcomes among practitioners. This is because of the variety of purposes they serve, and the strategies utilized to obtain them. Unfortunately, several previous studies examining the effects of MAs have drawn participants from a range of different MAs (e.g., Columbus & Rice, 1998; Endresen & Olweus, 2005; Wargo et al., 2007). This

makes it difficult to establish what the benefits of a particular MA may be. To address this limitation in the literature, I focused on the benefits associated with participation in a single MA; namely BJJ.

History of Mixed Martial Arts and Brazilian Jiu-Jitsu

Japanese jiu-jitsu (the gentle art) was introduced to the Gracie family by a master named Esai Maeda who went to Brazil in 1914. Later, Carlos and Helio Gracie opened an academy to teach their new version of the art (Gracie jiu-jitsu), which had a particularly strong focus on ground fighting. They developed this form of Gracie jiu-jitsu through a 'trial-and-error' approach during competitions with martial artists from different styles (Downey, 2007). The Gracie brothers helped make their version of the sport popular by creating a marketing strategy called 'The Gracie Challenge.' This involved athletes from different styles of MAs styles testing their respective skills against jiu-jitsu, which in some ways can be seen as the precursor to the modern professional MMA industry.

Indeed, building on the popularity of Gracie jiu-jitsu in Brazil, Rorion Gracie, a son of Helio, introduced the art to a broader audience in the US. In his desire to demonstrate the superiority of jiu-jitsu over other MAs, in 1993 he created the Ultimate Fighting Championship (UFC; Cheever, 2009). The first tournament was held in Denver, Colorado, and included representatives from almost every MAs style. They were invited to compete in 'no holds barred' (i.e., almost free of rules) matches. Representing the Gracie family in the tournament was Rorion's brother, Royce Gracie, who defeated all of his opponents to eventually win the first UFC, despite being the lightest and smallest fighter in the competition. Since UFC 1, BJJ has become viewed as the most effective MA for MMA training and UFC competition (Green & Svinth, 2010). Some have argued

BJJ led to a "grappling revolution" (Gracie & Danaher, 2003, p. vii) as martial artists from all styles began to include fundamental aspects of combat-effective fighting from BJJ into their training.

BJJ rests upon the idea of maintaining control through positional leverage that can help a physically weaker person to neutralize a bigger and stronger opponent. A unique aspect separating BJJ from the other MAs is the presence of an overall fighting strategy, as well as specific positions (Gracie & Danaher, 2003), that are adapted to the opponent's responses during the course of the fight. The philosophy underpinning BJJ varies between schools and organizations. However, a common understanding is that attributes gained through participation greatly outweigh potential negative aspects, such as injuries, that are a typical consequence for the majority of sports. Discussing the philosophical aspects of BJJ, Dean (2013) wrote:

> The journey you have embarked on requires humility, perseverance, flexibility, awareness, and sensitivity. There are no shortcuts in the process, and because of the rigors of training, you will develop all of these attributes, and more. Increased strength and coordination, confidence, and a calm, centered awareness are just a few of the benefits that await you. (p. 2)

In addition, the philosophy of the Gracie family teaches *efficiency, patience,* and *control*. *Efficiency* reflects being honest, respectful, hardworking and morally correct to others. *Patience* means being patient toward both your friends and enemies, and allowing impulses to pass before acting. *Control* refers to discipline and refraining from using

drugs or alcohol. Mastering the art considered to be a way of mastering of oneself in and outside the dojo (Gracie Philosophy, 2013).

Outcomes Associated With Sport Participation

Sport participation in general (as opposed to specific participation in MAs) has been associated with a range of negative and positive outcomes. Compared to their peers who do not participate in sport, adolescent athletes report higher self-esteem, emotional regulation, problem-solving, goal attainment, social skills, grade point averages, and reduced school dropout (Barber, Eccles, & Stone, 2001; Eccles, Barber, Stone, & Hunt, 2003; Marsh & Kleitman, 2003; Richman & Shafer, 2000). On the other hand, participation in competitive youth sport during adolescence has been associated with negative outcomes including anxiety and burnout, misuse of alcohol, engagement in delinquent behaviors, and use of performance-enhancing drugs (Begg, Langley, Moffitt, & Marshall, 1996; O'Brien, Blackie, & Hunter, 2005; Siegenthaler & Gonzalez, 1997; Wiersma, 2000). The act of simply participating in sport does not lead to particular outcomes (Coakley, 2011). Rather, the attainment of (positive) outcomes is contingent on the effective structure and delivery of programs (Blom, Bronk, Coakley, Lauer, & Sawyer, 2013; Petitpas, Cornelius, Van Raalte, & Jones, 2005; Weiss, 2008; Weiss & Wiese-Bjornstal, 2009). Given that many types of MAs have specific philosophies and modes of instruction designed to foster positive outcomes, they represent a potentially interesting context for the study of development through sport participation.

Outcomes Associated With Participation in Martial Arts

Despite the potential benefits of MAs philosophies and modes of instruction, positive and negative outcomes have been associated with participation in MAs. Positive

outcomes include improved self-confidence (Duthie et al., 1978; Konzak & Boudreau, 1984; Kuan & Roy, 2007; Spear, 1989), self-esteem (Richman & Rehberg, 1986; Wargo, et al., 2007), coping, and a sense of control (Columbus & Rise, 1998). Further, participation in MAs has been associated with decreased levels of hostility (Daniels & Thornton, 1990; 1992), aggressiveness (Lamarre & Nosanchuk, 1999; Nosanchuk & MacNeil, 1989; Trulson, 1986), anxiety (Kurian, Caterino, & Kulhavy, 1993), and stress (Wall, 2005).

Reported positive outcomes of MA participation for children and adolescents include personal growth and self-acceptance (Steyn & Roux, 2009), self-control, discipline, and self-esteem (Theeboom, De Knop, & Wylleman, 2008), self-regulation, prosocial behavior, improved performance in school (Lakes & Hoyt, 2004), and self-reliance and optimism (Kurian, Verdi, Caterino, & Kulhavy, 1994). In addition, young participants have been found to experience decreased levels of hostility and aggressiveness as opposed to non-participants (Edelman, 1994; Skelton, Glynn, & Berta, 1991; Steyn & Roux, 2009; Zivin, Hassan, DePaula, Monti, Harlan, Hossain et al., 2001).

Theeboom, De Knop, and Vertonghen (2009) conducted a study with 40 children between the ages of 8 and 12 years old to examine the relationship between MAs/combat sports practice and socio-psychological outcomes. Five boys from eight MAs (judo, karate, taekwondo, aikido, wrestling, kickboxing, wushu, and boxing) were interviewed in regards to their participation motives, training and competition experiences (except for aikidoka, since there are no competitions in this MA), and perceived effects on behavior. Findings from the study supported a positive relationship between MAs training and increased self-confidence, self-control, social skills, and non-violent attitudes toward

conflict. Children indicated that they believed in themselves more, learned better in school, and felt more appreciated by their peers as a result of their involvement in MAs.

In terms of negative outcomes associated with participation in MAs, a highly discussed Norwegian study by Endresen and Olweus (2005) revealed a relationship between participation in power sports (i.e., boxing, weightlifting, and oriental MAs – karate, taekwondo, judo) and violent and antisocial behavior. Four hundred and seventy seven boys between the ages of 11 and 13 years were examined within a two-year period in relation to possible participation in activities like use of physical force to inflict injury or discomfort, starting a fight with another student, and hurting somebody using a weapon. Findings from this study demonstrated increased violent and non-violent antisocial involvement among participants (compared to the control group of students who did not participate in these sports), manifested outside of the sport setting through starting fights, vandalism, truancy, and thefts. The authors suggested that through power sports participants were exposed to repeated 'macho' attitudes from coaches, peers, and even parents, which contributed to the adoption of violent and antisocial behaviors. However, because findings of this study did not distinguish between participants in different types of MAs it was not clear what specific outcomes were associated with each MA.

Another negative aspect of MAs on the personal and social well-being of participants is the potential risk of injury (Baker, Devitt & Moran, 2010; Buse, 2006; Cynarski & Kudlacz, 2008; Pieter, 2005; Rodriguez, Vitali, & Nobili, 1998; Terry, 2006; Zetaruk et al., 2005). In some MAs, like judo and BJJ, one of the primary goals to win a fight is to choke the opponent with a variety of techniques for that purpose, which if not

released immediately after a tap out (i.e., the opponent surrenders) may lead to a state of unconsciousness. Considering the sport of boxing, Pearn (1998) argued "…there is no place in contemporary society for a youth sport which has, as its primary goal, the infliction of acute brain damage on an opponent" (p. 311).

Positive Youth Development

Ways to promote positive outcomes through sport participation have been examined from the perspective of Positive Youth Development (PYD). PYD is a strength-based approach to child and adolescent optimal development, regarding to youth as 'resources to be developed' as opposed to 'problems to be solved' (Damon, 2004). As such, PYD frameworks focus upon identifying physical, personal, and social qualities that may be gained through sport participation, as well as the characteristics of the environments that can promote these qualities. It is therefore of utmost importance to explore and identify these outcomes and environmental characteristics in order to improve policies and programs that can promote optimal development through sport participation. Some concepts from the PYD literature helped inform the current study, particularly in terms of the need to understand contextual influences that may help produce positive outcomes (such as the type of MA and type of guidance provided by an instructor), which have rarely been studied in the MAs literature.

For instance, Strachan, Côté, and Deakin (2011) examined PYD in sport using eight contextual setting features demonstrated to facilitate youth development in community programs (e.g., arts, music, and service groups; National Research Council and Institute of Medicine [NRCIM], 2002). These features are (1) physical and psychological safety, (2) appropriate structure, (3) supportive relationships, (4)

opportunities to belong, (5) positive social norms, (6) support of efficacy and mattering, (7) opportunities for skill building, and (8) integration of family, school and community. Strachan et al. (2011) investigated the extent to which five elite Canadian coaches (who had received provincial awards for their coaching) from the sports of swimming, artistic gymnastics, and diving, incorporated these features into their coaching of athletes aged 10-16 years old. The authors found three key setting features can support the delivery of youth sport programs to foster PYD: (1) an appropriate training environment (e.g., proper training structure, physical and psychological safety, and technical correction and feedback), (2) the provision of opportunities for physical, personal and social skill development (e.g., basic skills and proper progressions, responsibility, decision-making, etc., and teamwork), and (3) supportive interactions (e.g., with coaches and parents, and community exposure and integration). The results from this study suggest that sport can be utilized as a setting that promotes PYD when certain conditions are intentionally included within their delivery.

Paralleling the PYD literature, sport psychologists have argued for many years that 'life skills' can be taught in combination with athletic skills in sport contexts (Danish & Nellen, 1997). From this perspective, life skills have been defined as the skills that are required to deal with the demands and challenges of everyday life (Hodge & Danish, 1999). They can be physical, behavioural, or cognitive, and may be transferable to other life domains (Papacharisis, Goudas, Danish, & Theodorakis, 2005). There is a growing body of literature examining the role of the coach in athletes' development and acquisition of life skills in sport, some of which is reviewed below.

Harrist and Witt (2012) examined the developmental context within youth basketball, addressing issues such as goals associated with participation, methods of promoting PYD, and players' perceptions of coaches' behaviour. Three basketball coaches and 31 female players (ages 12 to 16 years) were interviewed in relation to developmental outcomes of participation. Two major areas were identified in relation to (1) coaches' and players' perspectives on participatory goals, and (2) pedagogical approaches utilized to achieve them. A central finding was the importance of the development of life skills (such as positive qualities and integrity, and focus on academics) that had application to the players' lives outside of basketball. In addition, similar to the results of the Strachan et al. (2011) study, player improvement and enjoyment of the sport were important factors that contributed to PYD. Furthermore, coaches focused on taking appropriate corrective actions (e.g., providing feedback when players made mistakes), promoting teamwork, and being consistent in both practices and games.

The role of the coach as a facilitator of a positive developmental context has also been considered in the literature. Coaches can play an important role in the enhancement of physical and psychological development (Côté, 2002; Côté, Baker, & Abernethy, 2003). Coaches can also serve as role models for the acquisition of positive values, qualities, and behaviors that can be transferred from sport into other areas of life. Vella, Oades, and Crowe (2011), for example, conducted a study with 22 coaches to discover how they facilitated a positive developmental context within a variety of sports. Coaches saw themselves as responsible for PYD in terms of providing opportunities for athletes to learn about competence, confidence, connection, character, life skills, climate, positive

affect and, positive psychological capacities. In another study, Gould, Collins, Lauer, and Chung (2007) interviewed 10 award-winning high-school football coaches from the US to discover how they develop life skills in their athletes. They found that coaches did not see coaching life skills as separate from the development of the players, and in fact the personal development of their players was a top priority.

In a recent study, Camiré, Trudel, and Bernard (2013) explored the facilitation of PYD in a Canadian high school hockey program, which was unique in that it was specifically designed to teach life skills and values. They utilized Petitpas et al.'s (2005) framework, which proposes that four components must be present in order to create opportunities for PYD: (1) an appropriate environment (context), (2) caring adults (external assets), (3) opportunities to learn skills (internal assets), and (4) research and evaluation. Interviews were conducted with administrators, coaches, parents, and players to identify challenges faced and possible strengths that may limit or produce PYD within the setting. Reported challenges included a compressed academic schedule, demanding travel schedule, conflicting opinions on the mandate of the school/program, tension between coaches and director, lack of financial resources, and shortage of coaches and support staff. Reported program strengths included shared developmental philosophy, regular coach-parent-player meetings, and the inclusion of planned and structured development activities (e.g., identifying behaviours consistent with certain values, establishing goals, and engaging in volunteer work). Furthermore, the program format allowed coaches to spend time with the athletes in teaching values and life skills utilizing innovative strategies. Together, these studies in the area of PYD highlight it is important to consider both the potential positive outcomes (or 'life skills') individuals may attain

through participation in sport, and the ways in which coaches/instructors may influence the attainment of these outcomes.

Martial Arts as a Tool for Positive Youth Development

Despite the controversial light in which MAs have been presented in so far, the lack of conclusive evidence regarding their effects on health and well-being has not prevented their use as a tool for personal and social development. In fact, MAs have been employed in a variety of settings to achieve educational, recreational, and therapeutic ends. Countries including Germany, the Netherlands, England, France, Belgium, Luxemburg, and Czech Republic use MAs within schools for children aged from 10 to 14 years old (Theeboom & De Knop, 1999). With the exception of England, these countries have MAs as part of both their national physical education curriculum and their teacher education programs. Similarly, the American Taekwondo Association provides MAs programs for children in over 900 schools in the US and other countries (Moody, 1999), with the intention to integrate 12 themes into MAs practice – goal setting, self-control, courtesy, integrity, friendship, confidence, self-awareness, self-esteem, perseverance, self-improvement, respect, and dedication.

Lakes and Hoyt (2004) investigated the impact of a 3-month school-based taekwondo training program on the self-regulatory abilities within the cognitive, affective, and physical domains of 193 children from kindergarten to grade 5 in the US. The program implemented the Moo Gong Ryu (‘guardian of the peace’) approach, which is a holistic version of the traditional taekwondo style taught in an environment of respect, discipline, and self-control (Rudner, 2006). Children in this study were assessed through an observer rating measure and standardized instruments such as Response to

Challenge Scale (RCS; Lakes & Hoyt, 2004), Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997), Freedom from Distractibility Subscale (FD; Wechsler, 1991), and Self-esteem Inventory (SEI; Coopersmith, 1967). Results indicated improvements in cognition, affect, self-regulation, prosocial behaviour, classroom conduct, and performance on a mental math test in relation to the comparison group (of students who participated in standard physical education classes).

MAs have also been adopted to serve specific recreational purposes such as promoting fitness lifestyle and general well-being. For example, in the early 1980's a full-body workout system called tae bo was developed. It utilizes moves and techniques incorporated from MAs (mainly taekwondo and boxing) to achieve certain physical conditioning goals alongside a sense of commitment to what one does, self-awareness, excellence, and equilibrium of the body and the mind (Blanks, 2013).

Some authors have promoted MAs practice as an alternative to medications for children diagnosed with Attention Deficit/Hyperactivity Disorder (AD/HD). Ripley (2003) suggested that because MAs have physically and mentally challenging demands that will tire the body and mind, participation in MAs may reduce some AD/HD symptoms. Furthermore, Ripley proposed practicing relaxation techniques and meditation (techniques used in many MAs) would help reduce symptoms of anxiety and hyperactivity. In addition, Morand, Meller, Theodore, Camenzuli, & Scardapane (2004) supported the use of MAs practice as an effective intervention for children with AD/HD. Results from their study indicated that MAs intervention group, when compared to an exercise intervention group and control group, had significantly increased amount of homework completed as well as improved academic performance and the classroom

preparation. In addition, decreases in the amount of classroom rules broken and number of times of inappropriately leaving of the seat were found in the MAs group. MAs have also been proposed as a tool for conflict management (Rew & Fern, 2005), family development (Lantz, 2002), school violence prevention (Zivin et al., 2001), and working with youth at risk (Theeboom et al., 2008).

Contextual Influence

A step toward further understanding the effects of participation in MAs was made by Vertonghen and Theeboom (2012). These authors suggested that most studies that examined the effects of MAs participation primarily focused on measuring outcomes without considering the potential influence of the contextual factors that may produce such outcomes. Furthermore, they proposed that many previous studies have considered MAs as an 'unitary phenomenon' and therefore did not take into account how the various underlying conditions and teaching philosophies associated with different types of MAs may influence participants' experiences. Based on the literature related to the outcomes of sport participation in general, Vertonghen (2011) proposed contextual factors that should be considered in the study of MAs are the (a) structural qualities of the MA (i.e., type of MA), (b) the type of guidance (i.e., instruction), (c) characteristics of the participants and, (d) social context.

Structural qualities of the MA. Structural qualities of the MA generally refer to the type of classification of MA, which (as mentioned earlier) varies depending on cultural, historical, philosophical, and technical aspects. It is important to note that these classifications are relatively conditional, and their separation only serves a better understanding of the various factors in play. In other words, the classifications are mainly

based on the characteristics of certain philosophies and particular technical components within one MA in relation to another.

Regarding the structural qualities of the MAs, mainstream BJJ (as regulated by the International Brazilian Jiu-Jitsu Federation) is a combative sport and a MA, that consists mainly of biomechanical characteristics that are focused on the use of grappling components such as sets of movements (e.g., takedowns, throws, bridging, shrimping, sweeping, pinning, guard passing, re-guarding) and 'submission hold' techniques (e.g., joint locks – armbar, wristlock, shoulder lock, and choke holds – rear naked choke, triangle choke, collar choke). These structural qualities (i.e., a grappling type of MA) are likely to produce different outcomes of participation, as opposed to the outcomes obtained from a striking MA such as karate.

Type of guidance. It has been suggested that two types of teaching approaches based on the origin of the MAs exert influence on the perceived effects of participation – traditional and modern. The traditional approach of instruction originates in Eastern MAs and focuses on holistic aspects such as self-improvement, looking for peace, humanity, and restraint (Musashi, 1982). The modern approach originates in Western MAs and focuses on the physical aspects of training and preparation for competitions (Donohue & Taylor, 1994; Nosanchuk & MacNeil, 1989). Given that modern BJJ includes training as well as competitions, it often includes both traditional and modern forms of guidance.

Theeboom, De Knop, and Wylleman (1995) further distinguished between different types of instruction in youth MAs practice. They identified *traditional, sporting*, and *efficiency* approaches. Like the Eastern MAs, the *traditional approach* is considered pedagogically oriented, and emphasizes the balance of spiritual and mental with physical

elements. Although the *sporting approach* still recognizes traditional elements, it focuses on the practice of MAs as a sport, where training is restricted to the particular competition rules of the type of MA. The *efficiency approach* is concerned with the effective performance of the techniques when applied in a fight.

In addition, it has been suggested that type of guidance in MAs parallels the academic literature on perceived motivational climate (Vertonghen, Theeboom, & Cloes, 2012). In line with Ames (1992), a mastery climate, which mainly focuses on effort and self-improvement, is similar to the traditional teaching approach. On the other hand, a performance climate, which encourages participants to perform better than others and that may occur when teachers prepare the practitioners for competition, is similar to sporting and efficiency teaching approaches.

Characteristics of the participants. Psychological characteristics of the participants in MAs may be taken into consideration within two general aspects: (1) influence of the MA on the participants as a result of training, and (2) participants' predisposition to certain behavior prior to engaging training. These factors may influence the way different participants experience the same MA, which may lead to variations of the way MAs are experienced, and thus to variations in the outcomes from participation. To date, research on the characteristics of participants is limited to a focus on the level of experience or achievement of participants rather than their specific psychological characteristics.

Kuan and Roy (2007) examined the effects of the level of performance and achievement on the outcomes of MA participation by comparing medalist and non-medalist wushu athletes. Results indicated that more successful athletes (i.e., medalists)

had significantly higher self-confidence and better 'negative energy control' than less successful athletes (i.e., non-medalists). The effects of the level of experience of participants were examined by Kurian et al. (1993), who found taekwondo practitioners who had longer time in training (more than 1.5 years) showed significantly lower levels of anxiety and higher levels of independence scores than beginners. Participants with longer experience in training also reported higher leadership scores than the less experienced participants. The results for anxiety, independence, and leadership together suggested that the duration of involvement in MAs is an important factor when considering their influence on the participants. Similarly, with regard to youth sport participation, Zarrett, Lerner, Carrano, Fay, Peltz, and Li (2008) found that continuity and intensity of participation were associated with positive developmental outcomes for youth who had two or more years of participation compared to those who had less than a year.

Participants may be attracted to a particular MA because it is consistent with their personal values, beliefs, and characteristics (Vertonghen & Theeboom, 2010). Conversely, people may drop out of a MA if it is not consistent with their values, beliefs, and characteristics. Indeed, Theeboom et al. (2009) found that some children deliberately avoided MAs that they considered to be too violent. Vertonghen and Theeboom (2012) examined characteristics of 477 youth martial artists between the ages of 11 and 18 (the gender of the participants was not specified), in terms of their goal orientations, psychosocial behavior, and aggressiveness. Differences were found between kick-/thai boxing, and judo, aikido and karate, where the participants of the former showed more physical aggression and behavioral problems than those of the other three MAs. The duration of their MA involvement was not found to have relation with the

aforementioned problems. In relation to goal orientations, kick-/thai boxers and judoka were more ego-oriented than aikidoka athletes, who were primarily task-oriented. Also, more experienced kick-/thai boxers identified higher ego-orientation than the less experienced ones. Last, more experienced aikioka had higher task-orientation compared to less experienced ones (Vertonghen & Theeboom, 2012).

Social context. Little is known about the influence of the social factors in play within MAs. Vertonghen and Theeboom (2008) proposed social context consists of two broad aspects. The first refers to the direct environment in which MAs take place. This mainly includes coaches and parents (but may also include peers, event officials, and spectators). For instance, coaches influence the quality of instruction, which can lead to a variety of ways of how MAs are experienced. Parents are considered to play the most important role in the life of the child (Horn & Horn, 2007) by influencing their beliefs, values, and motivation within a continuum of under-involvement/over-involvement behavior.

The second aspect of influence includes socio-economic variables. According to Bourdieu (1984) there is a link between one's social class and their orientation to the body. In this sense, it is considered that the 'working class' develops an instrumental use attitude toward their body. On the other hand, the 'dominant class' is considered to develop intrinsic function, meaning that it perceives the body as an end by itself. These orientations may influence the selection of a MA that is consistent with the participants' disposition toward them. Participants of lower social class may choose a harder MA style like boxing to achieve respect within a higher-crime neighbourhood that they live in. It is therefore likely that higher social class participants may choose a soft MA like aikido,

which is focused more on internal spiritual development. Hence, contextual factors like the type of MA, type of guidance, characteristics of the participants, and their social context (and possible other factors) exert a profound influence on the way MAs are experienced, primarily as an environment that MAs participation takes place in and interacts with.

Limitations of Previous Research

This research addressed several limitations in the literature identified above. First, some studies (e.g., Daniels & Thorton, 1992; Duthie et al., 1978; Endresen & Olweus, 2005; Wargo et al., 2007) examined multiple MAs to generalize the effects of participation without considering the type of MA and its particular characteristics, which may produce misleading results because each art has its own qualities which can lead to different outcomes. Second, there is a need for more information about the perceived personal and social benefits, not only from participants' perspectives, but also from the perspective of their instructors. This is important in order to shed more light on what the desired goals for the athletes were from the perspective of the instructors, and the extent to which they were acquired. Finally, little attention has been given to the way MAs were being taught, a factor that may be of utmost importance considering a potential central influence of the type of guidance on the outcomes of MAs participation (Vertonghen et al., 2012).

In this sense, there is a need for more precise understanding of the positive outcomes that can be learned and taught. As BJJ is a 'foundational' MA with a specific philosophical approach that may foster personal and social development it warrants further study. The analysis of BJJ may provide important insights about how to promote

personal and social development through participation. Therefore, to reiterate, the purpose of this study was to examine the perceived personal and social benefits of participation in BJJ. More specifically, the following research questions were addressed:

(1) What personal and social benefits do participants perceive they have learned through BJJ?

(2) How are these personal and social benefits acquired and taught?

CHAPTER 2: METHOD

Methodology

An instrumental case study approach (Stake, 1995) was *initially* selected to address the purpose of this study. Case study involves exploring an issue within a bounded system (Creswell, 2007). With instrumental case study approach the focus is on exploring the typical characteristics of a particular case in order to provide insights that may be applicable to other cases in similar settings. My *original plan* in using an instrumental case study approach was to recruit participants from a single BJJ club, which would have enabled me to set the boundaries of the case and thoroughly examine contextual factors (such as the structure of the program and predominant type of guidance used). However, due to difficulties recruiting a sufficient number of participants from one club, a decision was made to recruit participants from a range of different BJJ clubs in the region.

Accordingly, the original case study approach was abandoned and the study proceeded using a basic qualitative interview/analysis approach rather than following a specific methodology per se. Thus, this research resembles what Merriam (2009) referred to as a 'basic qualitative study,' which is appropriate when a researcher is interested in "(1) how people interpret their experiences, (2) how they construct their worlds, and (3) what meaning they attribute to their experiences" (p. 23).

Researcher-as-Instrument Statement

The role of the researcher in a qualitative study involves him/her being an interpreter (Stake, 1995). A researcher's pre-existing knowledge in the area of research may facilitate recognition of patterns within the data and aid with the interpretation of

findings. At the same time, researchers have to be aware of the ways in which their personal experiences and assumptions may influence the interpretation of findings. Therefore, below, I provide a researcher-as-instrument statement to help identify my personal experiences and assumptions about MAs in general and BJJ in particular.

My background in MAs began at the age of 16 when I started to train aikido, taught exclusively in a traditional manner. I associate the next eight years in this MA with a great amount of beneficial experiences that, in addition to the excellent guidance of my instructor, developed my character. Within this period I was also introduced to the basic principles of a variety of other MAs and combat sports such as kick boxing, kyokushin karate, wrestling, and Japanese jujitsu. After that, I trained submission grappling, with focus on BJJ. This taught me, among other things, effectiveness, persistence, awareness, sensitivity, timing, leverage, analytical thinking, and problem solving. My only negative experiences from MAs were related to overstretched ligament injuries, that in long term taught me how to preserve myself in a dynamic, demanding, and constantly changing environment.

My overall MAs experience helped me to recognize patterns in the participants' responses, however, I stayed aware to the possibility their perceptions may have been different than mine. This took place when conducting interviews by being closely attentive to what participants were saying and the way they conceptualized what was being said (as opposed to imposing my own conceptions), as well as within the analysis of results when I made sense of how the participants' perceptions fitted with (or differed from) my own views. Additionally, my knowledge and experience in BJJ guided the way I interpreted participants' reports related to specific BJJ-related issues like terminology.

For example, this took place when a participant explained an issue with terms used only in BJJ.

Participant Recruitment

Sampling criteria, based on the literature, were established prior to the commencement of data collection. The *original sampling criteria* were that all participants were to be (a) male (because power sports [including Mas]) are more popular among males than females; Endresen & Olweus, 2005), (b) aged 18-20 years to ensure they had sufficient experience in the sport, and (c) participated in the sport for at least two years, which appears to be a sufficient length of time for participants to gain positive outcomes via sport participation (Kurian et al., 1993; Zarrett et al., 2008). In addition, in the *original sampling plan*, it was decided that two instructors (from the initial club that was targeted) would be recruited.

Unfortunately, the original sampling criteria could not be used due to problems I faced in recruiting participants from the original club I planned to study. In this first club I approached, recruitment posters were handed out to the instructor, who was asked to put the posters on a wall in the gym. The recruitment poster (Appendix 1) contained an explanation of the purpose and a general overview of the study, further instructions for those wishing to participate, and contact information. An information letter (Appendix 2) and sample interview guides (Appendices 4 and 5) were also provided and the instructor was asked to hand them out to the students. Additionally, with the instructor's approval, I verbally presented a general overview of the study to some of the students, and provided contact information for those who wished to participate.

No athletes from this first club contacted me to participate in this study. Therefore, I changed the sampling criteria to make them broader and more inclusive in order to facilitate recruitment of an adequate sample. Specifically these changes consisted of (a) inclusion of both male and female participants, (b) aged 18 years or above, with no maximum upper limit, and (c) who participated in BJJ for a minimum of one year. In addition, a decision was made to approach more BJJ clubs.

After making these changes to the sampling criteria, I approached another club, and provided the head instructor with a general explanation of the study, an information letter, and sample interview guides. The instructor was then asked to hand out the information materials to the students, who would contact me if they wish to participate in the study. Eight participants contacted me via email or a text message to schedule an interview.

In the next club I approached, I met with the head instructor and explained the purpose of my study. Then I provided an information letter, and sample interview guides. I asked the instructor to hand them out to the students, and provided my contact information. As there was no further contact, I approached another club in order to complete the sample. Again, I met with the head instructor, and provided an explanation of the study, information letters, and sample interview guides to be handed out to the students. Seven participants contacted me via email, or in person while I was at the location conducting interviews. In addition, one participant contacted me from another club. Ultimately, participants were recruited from three different clubs.

Ethical approval from the Research Ethics Board at the University of Alberta was obtained prior to the start of this study. All participants were required to provide written

informed consent, and were informed of their rights including their voluntary participation, freedom to withdraw from the study at any time, and the freedom not to answer questions that they do not feel comfortable with. No information provided by one participant was shared with the other participants. Anonymity was ensured through replacing participants' names with codes and removing or paraphrasing statements that reveal names.

Participants

Sixteen participants took part in this study, which is consistent with sample size recommendations for attaining adequate saturation in qualitative descriptive studies (Guest, Bunce, & Johnson, 2006; Kuzel, 1992). Two were male head instructors, and of the 14 athletes, ten were males, and four were females. In the order of the hierarchy of BJJ, participants were holders of 2 black belts, 4 brown belts, 2 purple belts, 4 blue belts, and 4 white belts. The age range of the athletes was 19-54 years (M = 34.6; SD = 10.7), and the average duration of their involvement in BJJ was 4.1 years (SD = 3.1). Thus, all the athletes had sufficient experience in the sport to have gained opportunities to acquire positive outcomes (based on the literature, 1.5-2 years is required; Kurian et al., 1993; Zarrett et al., 2008), which meant they were 'information rich' cases (Mayan, 2009) who could provide detailed insights to help address the purpose of this study and research questions. Of the 14 athletes, seven were also involved in teaching BJJ in beginner, advanced, adult, female, or children's classes, which (while not a sampling criterion) enabled them to provide additional insights. One instructor was aged 27 with 5 years of involvement, and other was aged 30 with 25 years of involvement.

Data Collection

Individual semi-structured in depth interviews were conducted. This form of interviewing was suitable for the study as "each interviewee is expected to have had unique experiences, special stories to tell" (Stake, 1995, p. 65). Each participant was interviewed once. Fourteen interviews took place in quiet locations within the clubs, either before, after, or in some cases during the class where participants stepped out of class to be interviewed. Two interviews took place at a research office. Prior to switching on the recording devices, I engaged participants in informal conversation to serve as an 'ice-breaker'. We discussed their involvement in BJJ, general impressions of the sport, and my interest in studying BJJ. I also explained the purpose of the study, the option of not answering questions if they did not want to, and other related ethical information. All the participants were given the opportunity to ask questions and provided written informed consent.

Interviews were audio-recorded. During each interview, I wrote down initial notes related to the benefits that the participants identified. This, later on, guided my focus to search within the transcripts for different formulations of (what I perceived as) the same benefits, or examples of areas where a benefit was displayed. For example, if participants reported an acquisition of self-confidence as a result of BJJ training, I would write down 'self-confidence' during the interview, and later when I read the transcript I would search for statements such as 'Now I have a strong unshakable belief in myself that I can defend myself.'

Data collection ended at the point when adequate data saturation had been obtained. This decision was based upon a few factors. First, participants provided high quality accounts based on their extensive experience with the sport, which provided

meaningful points of similarity (Smith, Flowers, & Larkin, 2009) necessary for data saturation. Second, a very small amount of new information was generated within the analysis after the point of the last interview, which indicated that the results were adequately saturated. Finally, there was a great deal of consistency between the participants' reports, which provided a further indication that adequate saturation had been obtained. Therefore, further recruitment for the purpose of this study was deemed unnecessary.

Interview Guides

Two interview guides were constructed; one for the athletes (Appendix 5) and one for the coaches (Appendix 4). Initially, the athlete interview guide was constructed for a pilot study for a graduate level course in qualitative research I completed as part of my training. Sample questions were developed based on the guidance for designing a schedule for a semi-structured interview in qualitative research provided by Smith et al. (2009). The interview guides were next modified according to the purpose of the current study. During the writing of the proposal, I added new questions and changed some existing questions. I constructed the interview guides in accordance with the research questions of the study, and with the MA's literature (including Vertonghen & Theeboom, 2012). For instance, I added questions related to the type of guidance. The interview guides were consequently modified based on feedback received from the Supervisory Committee following the Proposal Meeting for this study. For example, an operational definition of the terms 'personal and social benefits' was created. This included acquired skills and outcomes from BJJ participation in terms of beliefs, values, attitudes, and habits.

The interview guide included open-ended questions in line with the purpose of the study. The aim of such questions was neither to make many assumptions of the participants' experiences, nor to lead them toward particular answers (Smith et al., 2009), but rather to focus on their own experiences and views about BJJ. In addition, probes were used to follow up on participants' responses to the main questions. Probes encourage participants to further explain their views by, for example, being more analytic or evaluative (Smith et al., 2009). Examples of probes (for instructors) included 'What are the some of the main goals that you have for your students?' and 'Why are these skills important?'

Although the interviews guides for athletes and coaches were slightly different (e.g., in the phrasing of some questions), the main components of both guides included (1) an introduction which contained general questions about the philosophy of BJJ, (2) main questions related to perceived personal and social benefits and the ways they are acquired, and (3) summary questions. In general, athletes were asked to reflect on their learning experience and perceived outcomes of BJJ. Instructors were asked to reflect on their philosophy, methods, and desired outcomes transferred to their students as a result of their teaching.

Data Analysis

All interviews were audio-recorded, transcribed verbatim, and analyzed. According to Stake (1995), initial analysis consists of giving meaning to first impressions and final compilations by "taking something apart" (p. 71). The analysis began immediately following the first interview when I reflected on the notes I made during the interview. I considered what themes might be emerging and what issues I needed to

probe further to gain more understanding. I completed this reflective process following every interview. In particular, following the last few interviews, I remained open to the possibility that there may be 'late emerging themes.' This was important to ensure that the order of the interviews did not unduly influence my analysis.

Next, while I listened to the audio tapes and transcribed them, I stopped periodically to write notes on possible formulations of the results. Within the transcripts the names of all participants were replaced with codes, where 'P' followed by a number in accordance with order of interviewing indicates a BJJ athlete, 'P/In' indicates an athlete who is also instructing, and 'P/HIn' indicates a head instructor. Having transcribed all interviews more formal analysis was then conducted. In order to guide the analysis, I initially searched for possible themes that could emerge from the data in relation to (1) personal and (2) social benefits acquired through participation; (3) ways of teaching (including various philosophies, methods, and intended outcomes); (4) any other issues relevant to the acquisition of positive developmental outcomes of BJJ.

Statements with possible relation to the research questions were identified and marked correspondently with different colors on hard copies of the transcripts. This facilitated tracking of the development of initial interpretations of the data, and was used later on when formulating the rule of inclusion for statements with common meaning within correspondent themes. I looked for patterns that could be drawn directly from the research questions, as well as new categories that did not direct to the questions but may have been important.

Following the initial analysis I created a 'long list' of all themes and my initial classification of these themes into categories. For each theme I wrote a 'rule of inclusion'

(Maykut & Morehouse, 1994) which is essentially a definition of the data the theme is intended to represent. By writing these rules of inclusion I was able to constantly compare the allocation of data into specific themes to ensure they were appropriately coded. Labels were assigned to each theme and then all relevant quotes were placed in the Microsoft Word file (which included title of theme, rule of inclusion, and all possible relevant quotes). My supervisor then reviewed each of the Microsoft Word files to ensure that quotes were appropriately coded. Some quotes were removed and others re-coded as a result of his feedback. Having created this 'long list' there were no apparent gender differences within the participants' reports (i.e., there were no obvious examples in which all females reported a particular theme that was not reported by any males). Hence, data were presented as a single set rather than analyzing the responses of male and female participants separately.

The next step was to create a table of the 'long list' of themes, including the rules of inclusion, examples of quotes, frequency by which they were reported by participants. This table was reviewed by my supervisor, which resulted in changes to some of the labels and removal and re-analysis of 'duplicate' or 'overlapping' themes. Furthermore, themes with very few quotes, and/or quotes that contained very little meaningful data, were omitted.

I continued to work through the analysis, double checking the coding of data into themes and the classification of themes by categories. A detailed data matrix (Miles & Huberman, 1994; Table 1) for each category was created, which contained the participants who reported it. The final stage of analysis was the writing of the results. For this process I wrote the first theme, beginning with the rule of inclusion and included a

narrative description of the theme and numerous participants' quotes. My supervisor reviewed the first theme, checked the data were accurately coded, and provided feedback on the content and structure of the theme, before I moved on to write the next theme. This process of review and feedback was completed for each theme in the results, and resulted in some re-writing of theme labels, removal of some quotes that did not 'fit' well with the theme, and some restructuring. The final version of the data matrix (Table 1) was adjusted as a result of these changes during the writing process, which was appropriate because writing is considered as the final phase of analysis in qualitative research (Richardson, 1994).

Methodological Rigor

Part of methodological rigor is the training of the researcher, because the researcher is the 'instrument' in qualitative research. As a requirement of my program at the university, I took training in qualitative research by successfully completing a graduate level course in this area. This course included an assignment which required me to conduct the pilot study mentioned earlier. As such, prior to beginning this study I had some previous experience in qualitative data collection, analysis, and presentation. This contributed to the conduct and the organization of the design and the subsequent outline of this study in a rigorous and coherent manner.

In order to minimize possible misinterpretations within the report, analysis and organization of the data was discussed with my supervisor to ensure correct interpretation through justification of each theme within the results. The themes were accompanied with a considerable amount of correspondent verbatim extracts to support the interpretation of the results. The development of themes through a rule of inclusion

facilitated the appropriate usage of units out of context to preserve their meaning within the coding process. Consequently, several drafts and subsequent feedback on the analysis ensured rigor and coherency of the final report. The transcripts from the interviews were sent via email to the participants to check for accuracy. One participant responded back with suggestions for a few minor changes in terms of grammar to be made, which I immediately incorporated into the transcript. Finally, a summary of the results was also sent to participants via email for member-checking. The message was addressed as follows: “Thank you for taking part in my study. Please find attached the results. I would appreciate any feedback you may have on them. Thank you.” One participant replied in agreement with the results.

CHAPTER 3: RESULTS

Consistent with the purpose and research questions, results based on the categories of personal benefits, social benefits, and type of guidance are reported below. The participants who reported each theme are also described in the data matrix (Table 1).

Table 1

Data Matrix of *Participants' Responses* by *Category* and *Theme*

	Personal Benefits					**Social Benefits**		**Type of Guidance**	
Participants[a]	Self-Confidence	Analytical Thinking	Perseverance	Stress-Relief	Physical Health	Respect and Tolerance for Others	Community Environment	Traditional Approach	Modern Approach
P1/In	X	X	X	X	X		X		X
P2		X	X	X	X	X	X		X
P3/HIn		X	X	X	X	X	X	X	X
P4	X	X		X	X		X		X
P5	X		X	X	X	X	X		
P6/In		X	X	X		X	X		
P7	X	X	X		X	X	X		
P8/In	X	X		X	X	X	X		X
P9	X	X	X	X	X	X	X	X	X
P10		X		X	X	X	X		X
P11/In	X		X	X	X	X	X		X
P12/In	X		X	X	X	X	X	X	X
P13/In	X		X		X	X	X	X	X
P14/In	X		X	X	X	X	X	X	X
P15	X		X	X	X		X	X	X
P16/HIn	X		X			X	X	X	X
N	**12**	**9**	**13**	**13**	**14**	**13**	**16**	**7**	**13**

Note. The X sign indicates the presence of a participant's response in the theme.

[a]P = athlete; P/In = athlete who is also instructing; P/HIn = head instructor.

Personal Benefits

Personal benefits reflected the psychological and physical benefits participants reported they acquired through their involvement in BJJ. There were five themes here, in the domains of self-confidence, analytical thinking, perseverance, stress-relief, and physical health (Table 2). In presenting the results, I have focused on the ways in which

participants though these benefits were transferable to 'everyday life' in a variety of ways.

Table 2

Themes and *Sub-Themes Associated With Personal Benefits*

Personal Benefits				
Self-Confidence	Analytical Thinking	Perseverance	Stress-Relief	Physical Health
1. Interactions With Others 2. Self-Defence	1. Exploring Available Options 2. Planning in Advance	1. Overcoming Difficulties 2. Coping Mechanisms	1.Recuperation	1. Weight Loss 2. Becoming in Better Shape 3. Improved Nutrition

Self-confidence

Participants reported they learned to be more self-confident, both in a general sense and in specific situations. For example, in a general sense, P14/In discussed that, for him, BJJ was "about building self-confidence… BJJ has definitely made me into a more confident, comfortable person in general." With regard to more specific situations, some participants reported BJJ provided opportunities for personal growth through one being able to feel more self-confidence in the *interactions with others*. As P1/In described:

> Like whether it was my relationship with others around me and all that. And how I felt about myself as a person and the confidence it gave me when talking to other people. I know for sure, and just like success... One thing I felt is just the way how I feel around others like I always felt like I was on a like weaker mental and physical level than everyone, but one thing I can honestly say BJJ is made me feel is it's getting me to where I

> am, it's showing to me that I had it in me to you know get there and all that. And that I'm not, I wasn't afraid to talk to others and all that.

Participants also reported that BJJ made them feel more self-confident in terms of *self-defence* against a potential attack on the street. P11/In also indicated:

> I feel better on the streets too, like if someone attacked me, I'm sure they would have a good... they've know they, you know, were messing with someone training. … they'd definitely know they grabbed the wrong person…

Similarly, P7 also reported:

> I feel as though I'm not as worried about being attacked by people cause I feel that I can at least somewhat defend myself…if I'm walking around at the mall alone I'm not being like "Oh no – what do I do if someone attacks me?" I can be like "No, I have a plan" that, you know, if someone grabs me certain way I can do something to at least partially defend myself until I'm free enough.

Furthermore, participants reported that BJJ gave them the self-confidence to defuse potentially problematic situation before they had even started. For instance, P9/In said:

> Confidence, a hundred percent, I would say for everybody but especially for any girls who get involved. It's just really good to... it teaches you how to even just walk on the streets so that you don't look like a victim. You're less likely to get attacked, you're more aware of your environment because of what you learn in [B]JJ.

Analytical Thinking

Through BJJ participants learned to improve their analytical thinking when dealing with complex situations in life and to find appropriate solutions, through *exploring available options*. For example, P1/In indicated:

> ...the same way you'd apply a [B]JJ technique to like a problem in life. One way I like to look at … like [in] [B]JJ, say I'm in a bad position in [B]JJ – there's a way out of everything. It doesn't matter what it is, you just try to find [the way out]… I almost think of it like math equation... you just got to know the movements, what the working factors are around [it]. You can find pieces of the puzzle, you can get out of any situations in [B]JJ no matter how bad it is, no matter how clustered your mind is, or how… just how horrible it is – you can get out.

As the quote from P1/In suggests, this analytical thinking appeared to stem from the ways in which BJJ requires athletes to think through when applying techniques and escape inferior positions on the mat. The participant further explained:

> And I really find that it's the same way, like the way I approach a lot of problems in my life, is like... What can I do? You stop and you think about it, you analyze everything that's going on, the working parts of the problem. And there's infinite possibilities in [B]JJ to get out of something. And the same thing is in real life, you just try to find the pieces of the equation to fix the problem. I think that's a good analogy for how you'd approach a problem in [B]JJ and it transfers over to real life very well. Like you [are] going to have problems here and there and you just stop, think what's happening to you and there's a way to solve them.

Thus, it seemed as though participants were able to translate the analytic planning elements of BJJ into everyday life problems. For instance, P9 said:

> …a lot of the movements you do on the mat you have to sort of, on the fly come up with some sort of adaptation. And be able to think outside the box, get creative. So I think it helps with that because it's not just movement, it's not something that you can shut your brain off and just do – you have to be really mentally engaged all the way through, so I think that really helps a lot with school, with just everyday life you know – anything that comes up and you have to react… it has you thinking about how to resolve problems and improvise on the fly.

Last, participants learned to improve their analytical thinking when *planning in advance* and predicting potential solutions to a given problem, by thinking a few moves ahead. For example, P8/In stated:

> Jiu-jitsu is not only a physical sport but it's a mental sport, it's like human chess. My next move relies on what the person I'm sparring with is doing, right. And so, for me I find that I'm a lot more analytical I guess in situations, which if I thought hard about it will drive from [B]JJ because I rely on what the other person's doing to make my next move. So it's human chess, right. And so now in my life my personal life I have... I think two steps ahead like I would in [B]JJ.

Perseverance

Participants reported that, through their training in BJJ, they had learned to persevere when facing challenges. Many reported they were able to withstand adversity

and 'stick' with their path as a result of their training, by *overcoming difficulties* in life. For example, P6/In stated that "…you get to where it needs to be no matter how disastrous it looks at the moment…" He also continued "…with extra effort to get something done and it's getting done now. Whereas prior to [B]JJ, I was more like… make a quick excuse and get out of it." (P6/In) Perseverance as a result of the BJJ training process was also described as transferrable to life in a number of areas such as work and interactions with others. As P15 indicated:

> The single most important value to get good at BJJ is to not give up, it's to walk through the door every day, no matter how bad you'll do. To persevere under pressure, no matter where you are – in opponent's guard, when your opponent's crushing you down, you don't give up just because it's uncomfortable. You persevere, you have heart, you carry on. These are values that also take place out into the work place, and take place out into your social interactions. The idea that you don't give up, when you do badly at something, you don't stop doing it, you do it more until you stop doing it badly.

For some participants perseverance in BJJ meant developing *coping mechanisms* that could help them to deal with everyday challenges. For example, P9 indicated:

> Both just technique wise but also practical skills that they can use in everyday life… they are going to put you in situations that you are uncomfortable, but they want you to be able to cope. So it's also just building those coping mechanisms and that type of thing... an environment where you can feel overwhelmed, you can feel inferior. And you have to

> not give up. So it really teaches you how to fight even when you feel like all the odds are against you....And not getting overwhelmed or not feeling like I can't cope. Just knowing that no matter what, I can push through, I can survive whatever is thrown at me.

Stress-relief

Participants stated that through their involvement in BJJ they had learned to deal better with everyday life stressors, such as work and school, through enhancing *recuperation*. For example, P9 indicated:

> …it's just sort of fun it's a way to sort of take your mind off of the stress of everyday life to get out of that. You know [your] everyday environment of work or school or whatever, and just sort of I don't know, get to grapple and have some fun.

In addition, P12/In also described:

> … it clears your mind, it, you know, it gives you an avenue to escape from all the pressures and… stresses of your job, you know, if you're stressed about… your family…finances. You really get away for a couple hours every day when you do it. Your mind is clear and I think that's very important for… to be able to have a clear mind.

As P10 further explained: "… I have a very stressful job and so when I come here and I'll leave it all on the mat – I can go home and I can rest easy." P8/In compared BJJ training to therapy and stated:

> I have inner peace if you will. So I think it's a great stress-relief, they often say that [B]JJ is cheaper than therapy and a little bit better than

> therapy as well. Which is true – if you have a bad day, you take all your stress out on the mats. And it is not you're not being aggressive, it's you have to physically exert yourself, so it gives you that extra drive. (P8/In)

Finally, some participants indicated that they have improved the way they recuperate from stress, in terms of bettering their rest by significantly improving their sleep as a result of BJJ training. For example, P5 stated: "… sleeping – I tend to sleep a hell of a lot better than I used to." In addition, P6 noted: "… whether it's my sleep schedule… it's kind of helped a lot in those aspects."

Physical Health

Participants reported improvements to their physical health since they joined BJJ. There were three main elements to improved physical health: *Weight loss, becoming in better shape,* and *improved nutrition*. For instance, because BJJ is "physically demanding" (P4) and "a very physical sport" (P8/In) it provided high intensity exercise that resulted in *weight loss* for some participants. Being 'overweight' was an indicator of what was described as being an 'unhealthy' person, and BJJ had significantly contributed to address it. As P1/In stated:

> …before I started [B]JJ, I was… unhealthy person like I was about 20-30 pounds overweight. When I started, and I weighted about 180 pounds, and within a few months of doing [B]JJ I lost 40-50 pounds of just body fat. And just became a healthier person.

Brazilian jiu-jitsu had contributed to a number of participants for losing weight within a few months of training. For example P5 indicated that "I've shrinked [*sic*]. I've, I think

I've lost probably 30 pounds in the first 3 months." In terms of general physical fitness, BJJ resulted in participants *becoming in better shape*. As P7 indicated:

> …I guess my kind of habit before was always just to do a lots of cardio activity, not anything on those lines like a muscle building or anything, and [B]JJ is really made me shape what I see as like, almost is like a healthy figure…

Finally, it was also reported that BJJ training resulted in *improved nutrition* habits, as it 'forces' participants to adjust them accordingly in order to be able to address the physical demands of the sport and keep an optimal BJJ workout, because "you can't come here and eat a cheeseburger and fries" (P2), and " it's not just about learning to train a martial art, it's [B]JJ is also a way of life for diet" (P12/In). For example, P4 said that "I've started [to] eat a lot healthier just in order to be able to train and be effective and have good days."

Social Benefits

Social benefits reflected participants' statements related to their growth as a part of a larger compartment such as a group or a community. Two major themes were identified in this category. These include statements that can be related to respect and tolerance for others, and to being part of a community environment (Table 3).

Table 3

Themes and Sub-Themes Associated With Social Benefits

Social Benefits	
Respect and Tolerance for Others	Community Environment
1. Acceptance 2. Respect 3. Developing Bonds	1. Team Atmosphere 2. Friends and Family Atmosphere

Respect and Tolerance for Others

Participants reported they had learned more respect and tolerance for others represented by *acceptance* toward others within their involvement in BJJ. For example, P5 noted that before participating in BJJ he had "…no compassion, no empathy, I had zero patience, I worn out of all of it… I've learned to be a lot more acceptant [*sic*]" In addition, P9 explained that:

> …because you have to deal with so many different people in this environment and different personalities you become a bit more accepting of different types of people. You can't pick and choose who you're going to be working with.

Participants also elaborated on the concept of developing an everyday life attitude of *respect* for others. Some explained that:

> You're definitely more polite… And so that changes your everyday attitudes towards people. You know, you look at people differently and you look at them with a lot more respect. You know, because you don't know where they're from, you don't know who they are, you don't know so you just treat people how you should… you want to be treated. And [that] definitely changed my mental attitude towards people a lot. (P2)

In addition, *respect* was described to translate well from the mat to "even outside the gym being very respectful to people. And just, you know, seeing the differences in people and that's it. You know courtesy, modesty, being humble when you need to be humble. It's all of that." (P11/In). As described by P2: "…you are going to go to an employer and it helps, all way up through their lives is to be respectful. If you're rude you know –

nobody's going to like it." Last, another aspect of developing respect and tolerance was related to *developing bonds* with others through trust and support. As P1/In said: "…a lot of it happens through the bonds you make with people here when we're all here in the gym and you're being honest with each other."

Community Environment

Participants reported that their involvement in BJJ had built in them a sense of belonging to a community environment within a *team atmosphere*. For example, P13/In stated that: "…it's a good club, the guys are [a] good community, very good brotherhood." In addition, P1/In indicated:

> What I think, a large part of it is the team you belong to. Because you need to belong to a group of good guys. That you're on a team… you get people from all sorts of walks of life [in] the gym. Like, people you'll never talk to when you're on the street. You look at them and you're scared ahead of them or whatever. But when we're all here in the gym, ...you're being honest with each other. I think it brings a lot of people of different backgrounds together. And that's really like a helping process for sure… the fact that you've being around people you'd never be around… People from different countries, places, backgrounds, all that.

Some participants found that the *team atmosphere* in BJJ was somehow different when compared to the regular team sports, and at the same time similarly beneficial in relation to positive outcomes from participation. As P9 described:

> You sort of like grow together as a team… I think the whole classroom within [B]JJ becomes a team. Because you have to work together very

> close, very uncomfortable sometimes, uncomfortable situations, and you have to work through that with that other person. And because you keep switching partners you get to train with everybody in the room. So it's a different team environment, but I guess there's similar benefits. So the benefits you get from working in a team in another sport, you get those same benefits.

Meeting new and different people to train with and talk to, was further described as a valuable setting for a *friends and family atmosphere*. As P4 indicated:

> There's people they've played sports through their whole life, kind of like me, [and I am] meeting new people that otherwise I'd never [have] met. From different kind of social groups outside of the gym. And becoming friends with them so, yeah I find it very family orientated, I mean you just make a lot of friends and it's [a] very comforting place and a place to be all the time.

In addition, P14/In indicated:

> I find the culture is one of the..., like almost family, right, it's really an atmosphere... Everybody comes and they learn from one another, they help each other develop, so to me my team is almost like my second family, right. I spend so much time here and on the mats, ..and there's a lot of, you know, bonding that goes on.

In terms of growing popularity of BJJ among female athletes, P7 also explained that:

> …you see all these new girls coming in and everyone is accepted. And it's just kind of really nice, you know, you don't have to worry about being

> excluded because I don't know – your hair is red or something, you know [laugh], there's no exclusion criteria, everyone is more than welcome. [It] is just such a family atmosphere. Whether on the mats or off the mats, everyone is always there to help, no matter what you need. And everyone's there to support one another.

Type of Guidance

Type of guidance reflected participants' statements related to the implementation of the educational delivery approach they had embarked on when they were either teaching or learning BJJ. As noted in the method section, in addition to the two instructors, seven athletes were also involved in coaching at some level. Thus, results in this category include many of the athletes' reports. Two major themes were distinguished based on the reports in this category. These include statements that can be related to traditional approach, and modern approach (Table 4).

Table 4

Themes and *Sub-Themes Associated With Type of Guidance*

Type of Guidance	
Traditional Approach	Modern Approach
1. Holistic Self-Improvement	1. Self-Defence 2. Competition

Traditional Approach

Participants reported that the type of guidance in BJJ often is oriented toward *holistic self-improvement*, as opposed to the sole technical development used for self-defence or for sport competition, which are characteristics associated with the traditional approach in MAs. For example, P14/In indicated:

> …that's the concept of the art I guess… philosophy towards discipline and like a structure [and] hierarchy, you know, to help people develop not just skills on the mat, but develop as a person, right. Your personality creates your character.

In addition, P13/In stated:

> … I would say that doesn't matter win or lose, you know. That's the outcome of the match – it's not important, the important thing is that you went up and you actually did the competition, that you were brave enough to compete. That's the real win.

BJJ was described as a setting which could be able to promote *holistic self-improvement* that can be later transferred to other areas in everyday life such as school or workplace. As P3/HIn indicated:

> …I tend to focus less on the actual technique and more on the structure of it. Making sure they know how to line up properly…so I try my best to between every drill I let them get a water break, not cause I want them to have a water break, but so they line up back from the wall and they are forced into that position when they have to line up properly, have their thumbs in their belts and listening and paying attention. So I think I try to focus more on their life skills that they're going to help them in school and in other sports and just later on in life even when they're working, being able to follow routines… And then the skills come at the very end. I'm much happier if the kids are doing all of those things, rather than throwing an armbar perfectly. Honestly.

P12/In also indicated:

> …gives them a chance to learn focus skills and to learn how to concentrate, and learn how to… listen, they're getting that discipline from somebody who's not a parent, to tell them it's not ok – you need to follow the rules.

Finally, the traditional approach was described as having not only a positive influence on holistic development, but also as a necessary condition for one to learn what the art is able to contribute to the BJJ athletes. As P16/HIn described:

> … hierarchy and discipline, right. The daily structure of the class, you start to notice that since you step on the mat, right. You have to bow the mat, you have to bow your training partners, right. You have to go through the warmup and the specific exercises that you do…, a lot [of] the specific techniques, like a lot of repetition to build muscle memory and that requires discipline, right. If you're not disciplined then often you can't, you won't master the technique. It requires that.

Modern Approach

Participants reported that another type of guidance used in BJJ could be related to the efficiency of the technique in terms of *self-defence* or sport *competition* applicability, which are characteristics associated with the modern approach in MAs. For example, P16/HIn stated that:

> …since [B]JJ is based on *self-defence*, when you are a beginner and you have never trained before, and somebody attacks us on the street, most likely we're going to end up in a very bad position, like on our back, you

> know, in a position that you have to learn how to survive, how to deal with that.

In addition, P3/HIn stated that:

> On a skill level, I want them to be able to beat me up. My goal is to get them to the point where they can all beat me up. That means I as a teacher I've done my job... some martial arts they don't practice what they do. You know, like they drill techniques but they don't have competitions to see how well you're doing. So they don't have that practical version of putting in place. Whereas some martial arts – they do, but I think the best thing about [B]JJ is, in my opinion, [it] is the best form of *self-defence* as well as *competition*.

The importance of effective applicability of the technique in BJJ was also described as a fundamental aspect of the sport. As P11/In indicated: "The philosophy of [B]JJ is all about leverage and about the smaller person being able to sweep or submit a bigger person." In addition, P2 also described that:

> It allows you to use the movement of your body to gain advantage. So you don't..., it's not pure strength – it's a lot of technique and being able to just move your body better to gain advantage, right? That's, you know – that's the whole idea behind it. It's to be able to fight… a bigger man, to be able to handle it.

Some participants described technical effectiveness as a necessary condition for training. As P8/In stated: "You definitely need technique in [B]JJ, you can't go out into the mats

and start sparring with somebody without knowing proper technique, otherwise you get hurt." In addition, P4 also explained:

> As far as *self-defence*, so it's as far as in training, it's really the only martial art that allows you to train going on 100% with your sparring partner. As opposed to that, the majority of other martial arts where you can't really go on 100% really, …cause you're going to hurt your partner.

Further, according to some participants, the modern approach of delivery of BJJ could be expressed through *competition* as a setting which allows athletes to test the effectiveness of their knowledge within the conditions of the tournaments limited by the correspondent rules (e.g., categories related to experience where certain techniques are excluded for use, age and gender, duration of a fight, the use of gi versus no-gi). As P15 indicated:

> … against a fully resisting opponent, someone who's trying to stop you as hard as they can…Becomes as close to a fight as a fight's going to get without going on the street and throwing punches. And if you believe that what you're doing is a combat sport, and if you believe in what you're doing, you have to test yourself.

In addition, P10 concluded:

> The whole idea of when we sit in class, or when I'm sitting in class, when we're working in class, is that you learn all the techniques and you try a lot of different things. And you try over and over and over again, and then when you go to a tournament or something – you do what you're best at of course.

CHAPTER 4: DISCUSSION

The purpose of this study was to examine the perceived personal and social benefits of participation in BJJ. The first research question was: 'What personal and social benefits do participants perceive they have learned through BJJ?' Participants reported a range of positive outcomes related to personal and social benefits they have acquired through BJJ. The second research question was: 'How are these personal and social benefits acquired and taught?' Participants identified different types of guidance related to the use of traditional and modern approaches.

In order to better understand the results of the present study, it is important to mention that it operated partially within the framework of Vertonghen (2011), who, based on the literature related to the outcomes of sport participation in general, identified four key factors necessary to obtain conceptually rigorous results when studying outcomes of MAs. These are (a) structural qualities of the martial arts (i.e., type of martial art), (b) type of guidance, (c) characteristics of the participants and (d) their social context. Structural qualities of MAs were addressed by focusing on a single sport (BJJ), as opposed to studying multiple MAs in one study (a limitation of previous research). The type of guidance was also taken into account.

Characteristics of the participants, and their social context were not examined here, and this remains an area in need of future research attention. For example, the level of success and experience in MAs were previously found to exert influence on the self-confidence, the 'negative energy control' and the anxiety, independence, and leadership characteristics of martial artists (Kuan & Roy, 2007; Kurian et al., 1993). In addition socio-economic variables of the BJJ athletes such as living in a high/low crime

neighborhood (Bourdieu, 1984) may have influence on the choice of this particular MA, as well as on the way it is experienced (Vertonghen & Theeboom, 2012).

Personal benefits reported by participants were improved self-confidence, analytical thinking, perseverance, stress-relief, and physical health. In general, these findings were consistent with previous research and add to a burgeoning literature about the benefits of participation in MAs. For instance, improved self-confidence as a result of participation in MAs has been reported in several studies (Duthie et al., 1978; Kuan & Roy, 2007; Spear, 1989; Theeboom et al., 2009). The current findings add to the literature by revealing some of the specific situations in which participants felt more self-confident (which is important because self-confidence is typically viewed as a situation-specific construct; Machida, Ward, & Vealey, 2012). For instance, participants in the current study reported being more self-confident in social situations or in dealing with (or diffusing) the threat of physical attack.

The findings regarding increased self-confidence in the threat of physical attack raise some questions for speculation. One study of the negative aspects of participation in MAs demonstrated participants were likely to engage in violent and anti-social behaviors (Endresen & Olweus, 2005). It should be noted this study included a range of sports (including boxing, weightlifting, etc), and other studies have shown decreases in hostility and aggression among MAs participants (e.g., Edelman, 1994; Skelton et al., 1991; Steyn & Roux, 2009; Zivin et al., 2001). Nonetheless, it is possible for MAs participants to become more aggressive as a consequence of some of the fighting skills they have learned through their sport. The current findings did not suggest that participants engaged in aggressive acts, nor that they became aggressive as a result of BJJ. Feelings of self-

confidence in the threat of physical attack *may* suggest some martial artists would be more willing to engage in physical confrontations than if they did not possess fighting skills. Self-confidence in the threat of physical attack appears to be a complex issue and a direction for future research.

Analytical thinking as a result of BJJ participation, which requires tactical understanding and planning ahead, was reported in the current study. This issue has received little attention in the literature previously, perhaps because the characteristics of BJJ training have rarely been studied. However, a study by Lakes and Hoyt (2004), which examined the effect of a school-based MAs program, demonstrated students improved their performance on a variety of cognitive tasks (including a mental math test that presumably required analytic thinking). Interestingly, participants in the current study were able to draw some connections between analytic thinking learned in BJJ and other life situations (e.g., work, school).

With regard to perseverance in dealing with adversity, Columbus and Rice (1998) conducted a study of the meaning of MAs to North Americans. The results were linked to the development of coping mechanisms when participants were challenged by adversity, as a result of MAs. Particular coping skills and strategies were found to transfer onto other difficult life situations and other sports. These findings are similar to the present study, as BJJ athletes reported that they have learned to persevere when facing challenges, and to withstand and overcome challenges in life, including those related to performance at school or workplace. Skills such as perseverance may reflect, in part, the concept of psychological resilience, which generally refers to one's ability to maintain an optimal healthy functioning (as opposed to recovery) under adversity (Bonanno, 2004).

Sarkar and Fletcher (2014) recently reviewed studies of psychological resilience in sport performers. By identifying three groups of stressors athletes encounter (competitive, organizational, and personal), the authors conceptualized five areas of factors that help athletes maintain normal levels of functioning related to *positive personality, motivation, confidence, focus,* and *perceived social support*. First, *positive personality* included traits that have desirable effect on athletes such as adaptive perfectionism, optimism, competiveness, hope, and proactivity. Second, *motivation* was found to have an important influence on resilience, in terms of one possessing autonomous values and beliefs with regards to the activity. Third, *confidence* was described as another adaptive characteristic deriving from sources including multifaceted preparation, experience, self-awareness, visualisation, coaching, and teammates. Fourth, *focus* exerted positive influence on adapting to setbacks through having an appropriate attentional focus, and focussing on task-relevant cues. Last, *perceived social support* was related to family, coaches, and teammates, and was found to enhance resilience through stress-buffering effects.

In terms of motivation, participation motives were not examined in the current study. However it could be argued that the participants chose BJJ for self-defence (extrinsic) reasons, but once they learned self-defence (as indicated earlier within the self-confidence theme) they did not drop out, and it is possible they continued practicing the sport for intrinsic motives (Vallerand, Deci, & Ryan, 1987) such as inherent enjoyment of practicing the sport. This could have further contributed for the development of coping mechanisms for perseverance in the face of adversity. Furthermore, focus (Sarkar & Fletcher, 2014) could be similar to the concept of

analytical thinking reported by the participants in the current study. Finally, participants in the current study also reported issues similar to perceived social support (in terms of being part of a community environment), which could further contribute to the development of resilience. Given these connections with the previous literature, it is at least plausible that participants developed a psychological resilience as a consequence of their participation in MAs, but further research would be required to confirm this speculative assertion.

In terms of stress-relief, Wall (2005) examined the effect of a tai chi mindfulness-based program in a public middle school. The author reported positive outcomes in relation to calmness, relaxation, improved sleep, and less reactivity. This is consistent with benefits from BJJ participation as athletes in the present study reported that they learned to relax better through relieving stress from work, calming down, sleeping better, and having fun. Similarly, with regards to general sport participation, Weinberg and Gould (2003) summarized the effects of exercise (regardless of type, intensity, and duration) on the psychological well-being. Physical exercise was found to present opportunities for reduction of stresses such as anxiety, depression, negative mood, and increases of the time for total sleep and slow-wave sleep. Last, the current findings with regards to physical health were consistent with previous research on MAs (e.g., Vertonghen & Theeboom, 2008).

Social benefits reported in the current study were respect and tolerance for others and being part of a community environment. Theeboom et al. (2008) found that MA programs for socially vulnerable youth could provide opportunities for improved social contact, acceptance, and provide youth with sense of structure in their lives. This is

consistent with findings from the current study, as BJJ athletes reported that they learned more respect and tolerance for others, and that BJJ provided them with a sense of belonging to a community. In fact, social benefits have emerged as the most robust and consistent findings across studies examining the positive effects of sport participation (Holt, 2008; Holt & Neely, 2011; Holt, Tamminen, Tink, & Black, 2009)

A strength of the current the study was that participants talked about the ways in which what they learned in BJJ helped them in other areas of their life, often providing concrete examples (such as how certain psychological skills helped them cope with demands at work, school, or in everyday life). Arguably, a limitation of much of the MA and PYD literature to date is that while benefits of participation have been reported, the ways in which these benefits transfer from sport to other life situations has been less thoroughly examined. By providing examples of such transfer this study adds to the literature.

The current study also examined the type of guidance within the training process, as it was assumed to have a central influence on the personal and social benefits associated with participation in BJJ. Consistent with Vertonghen et al. (2012), two types of guidance were identified; traditional and modern. Participants associated positive outcomes with both approaches, but it seemed there was more of a focus on teaching life skills within the traditional approach, although the competitive skill level and experience of the athletes (that may have influence on the focus on a particular type of guidance) was not taken into account. It must be noted that the results of the current study did not allow for the precise analysis of outcomes specifically associated with these different forms of guidance. Nonetheless, it may be that traditional type of guidance (which focus on self-

improvement) is associated with more benefits than modern type of guidance (which focuses on self-defence and competition). Indeed, this suggestion is consistent with a wealth of studies in sport that have compared the effects of mastery (similar to the traditional approach) and performance (similar to the modern approach) motivational climates (Keegan, Harwood, Spray, & Lavallee, 2011). A challenge in investigating these issues further is that BJJ includes both training and competition (and therefore, often, both types of guidance). In the future, it may be possible to examine the effects of type of guidance on outcomes from participation by comparing, for example, clubs that use a predominantly traditional style versus clubs that use a predominantly modern style with a focus on training athletes for competition. A club that has athletes taking part in all year competitions can be compared to such that focuses on BJJ as recreational means for staying active. Such research could make important contributions to the literature in the exploration of the type of guidance.

In judging the results of this study several limitations must be considered. The sample was drawn from participants across a very broad age range (i.e., athletes were aged 19-54 years). These individuals likely had vastly different life experiences and faced different types of challenges (e.g., some were in school while others worked). My original plan was to recruit participants from a narrow age range in order have a more homogenous group from which to compare experiences, but this could not be achieved due to recruitment problems. In the future, it would be useful to examine and compare the benefits of BJJ among participants of similar ages (e.g., younger adults versus older adults). Additionally, although no gender differences were apparent, this may have been because there were only four female participants. Power sports (including MAs) are more

popular among males than females (Endresen & Olweus, 2005), but as one of the participants in the current study suggested, they are growing in popularity among females. Thus, in the future, it will be important to examine females' experiences in MA and gender differences.

As mentioned in the method section, in the initial design of the study, the plan was to use a case study approach in order to examine the influence of contextual factors surrounding a particular club. However, because I was unable to recruit a sufficient number of participants from a single club, contextual factors were not examined in-depth (although structural issues were considered by focusing on BJJ rather than multiple MAs, and type of guidance was also examined). Nonetheless, this is a limitation of the study considering the proposed importance of the contextual influence on the acquisition of personal and social benefits (Vertonghen, 2011). Another limitation was the exclusive use of self-report data in the absence of other data sources (e.g., observation), which could have shed more light on how different types of guidance might be linked with different types of benefits. Observation would allow for gaining direct understanding of the environment, and indication of features that the participants usually take for granted within the setting and therefore – would not mention in the interview. Finally, participants in the current study described outcomes in BJJ in a positive light. This could reflect a sample selection bias. That is, it is possible only those individuals who had positive experiences in BJJ and had positive things to say about their particular clubs chose to participate in this study. At the same time, a sample selection bias might have been a function of the structure of questionnaires that were drawn from the purpose of the study.

Conclusion

Findings from this study revealed personal and social benefits associated with BJJ participation. Brazilian jiu-jitsu was identified as a program that fostered positive psychological, physical, and social development, through the philosophy specifically incorporated in its design. Furthermore, findings revealed particular ways of implementation of the skills learned in BJJ, into everyday life in order to cope with the demands of different situations in school or work, which can be considered a potential unique contribution to the literature, given that skills transfer from sport to life has been less examined in the literature. This MA was also found to accommodate a variety of settings for development, based on the specific needs of the athletes in terms of holistic self-improvement, self-defence and competition, or simply as a general lifestyle of being active and staying healthy.

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APPENDICES

Appendix 1: Recruitment Poster

UNIVERSITY OF ALBERTA
Physical Education and Recreation
Van Vilet Centre http:www.physedandrec.ualberta.ca Tel: 780.492.1000
Edmonton, Alberta, Canada T6G 2H9 Fax: 780.492.1006

Participants for a study are needed

The study will explore personal and social benefits (including beliefs, values, habits, and attitudes) that are gained through BJJ participation, and it will be presented in a masters thesis.

There are positive and negative outcomes associated with martial arts participation in general. By talking to BJJ participants the researcher may be able to identify 'best practices' for positive development through BJJ. A better understanding of these issues may contribute to the way martial arts are delivered among young people.

If you are interested to take part in the study, you will be asked to complete one individual face-to-face interview (30-60 minutes). The interview will be audio recorded.

Anonymity and Confidentiality
Any information that you provide remains confidential. Only the researcher and his supervisor will have access to the data. The results may be presented at conferences and in academic journals.

Freedom to Withdraw
This study is voluntary without any consequences for non-participation. You may withdraw from the study at any point up to four weeks after the interview is conducted.

This study has been approved by the University of Alberta Research Ethics Board. Any questions you may have about this study may be directed to Aleksandar Chinkov at chinkov@ualberta.ca. If you have concerns about this study or any questions about your rights as a research participant, you may contact the University of Alberta Research Ethics Office at 780-492-2615. This office has no direct involvement with this project.

If you would like to participate in this study, please contact Aleksandar Chinkov (chinkov@ualberta.ca)

Child and Adolescent Sport and Activity Lab

Appendix 2: Information Letter

UNIVERSITY OF ALBERTA

Physical Education and Recreation
Van Vilet Centre http:www.physedandrec.ualberta.ca Tel: 780.492.1000
Edmonton, Alberta, Canada T6G 2H9 Fax: 780.492.1006

Principal Investigator	Supervisor
Aleksandar Chinkov Faculty of Physical Education and Recreation University of Alberta E: chinkov@ualberta.ca	Dr. Nicholas L. Holt, Professor Faculty of Physical Education and Recreation University of Alberta T: 780 492-7386 E: nick.holt@ualberta.ca

"Personal and Social Benefits Associated With Participation in Brazilian Jiu-Jitsu"

Dear BJJ Instructor,

I am a masters student in the Faculty of Physical Education and Recreation at the University of Alberta. I would like to invite you to take part in a research study. **The purpose of the study is to learn more about BJJ instructors and participants' perspectives and experiences regarding potential benefits of BJJ participation.** Specifically, I am looking to recruit 2 instructors and 15 students of theirs. This study is being conducted by Aleksandar Chinkov (under the supervision of Dr. Nicholas Holt) and will be presented in a written thesis work.

There are positive and negative outcomes associated with martial arts participation in general. By talking to you and your students about what personal and social benefits are gained through BJJ participation (including beliefs, values, habits, and attitudes), I may be able to identify 'best practices' for positive development through BJJ. A better understanding of these issues may contribute to the way martial arts are delivered among young people.

If you would like to take part in the study, you will be asked to complete one individual face-to-face interview (30-60 minutes). The interview will be audio recorded.

Benefits
Findings from this study may reveal personal and social benefits gained from BJJ participation. This may contribute to identify 'best practices' to deliver martial arts among young people. Particularly related to BJJ, this study can be compared to outcomes of other martial arts, and thus promote BJJ as a program that develops both physical and psychological skills.

Risks
There are no known risks to taking part in this study.

Anonymity and Confidentiality
When the audio files from the interviews are typed up I will remove your name (and assign you a number) and remove any personal information. Any information that you provide remains confidential. I will keep all data private. Data will be kept locked in the researcher's office. Only my supervisor and I will have access to the data. I am required to keep the data for five years after

the study has been completed. After five years data will be destroyed. Once I have finished the study I may present the results at conferences and in academic journals.

Freedom to Withdraw

This study is voluntary. There are no negative consequences for non-participation. You do not have to answer any questions that you are not comfortable with. The audio recording can be switched off at any time upon your request. You may withdraw from the study up to four weeks after the interview is conducted. I will remove your data upon request.

This study has been approved by the University of Alberta Research Ethics Board. Any questions you may have about this study may be directed to Aleksandar Chinkov at chinkov@ualberta.ca. If you have concerns about this study or any questions about your rights as a research participant, you may contact the University of Alberta Research Ethics Office at 780-492-2615. This office has no direct involvement with this project.

If you would like to participate in this study, please contact Aleksandar Chinkov (chinkov@ualberta.ca).

Thank you,

Aleksandar Chinkov

Appendix 3: Informed Consent Form

UNIVERSITY OF ALBERTA
Physical Education and Recreation
Van Vilet Centre http:www.physedandrec.ualberta.ca Tel: 780.492.1000
Edmonton, Alberta, Canada T6G 2H9 Fax: 780.492.1006

Informed Consent Form

Title of Project: Personal and Social Benefits Associated With Participation in Brazilian Jiu-Jitsu		
Principal Investigator: Aleksandar Chinkov Faculty of Physical Education and Recreation University of Alberta E: chinkov@ualberta.ca	**Supervisor**: Dr. Nicholas L. Holt, Professor Faculty of Physical Education and Recreation University of Alberta T: 780 492-7386 E: nick.holt@ualberta.ca	
Do you understand that you have been asked to take part in a research study?	Yes	No
Have you read and received a copy of the attached information letter?	Yes	No
Do you understand the benefits and risks involved in taking part in this research study?	Yes	No
Do you understand that you are free to contact the researcher to ask questions and discuss this study?	Yes	No
Do you understand that you are free to refuse participation, or to withdraw from the study up to four weeks after your interview, without consequence?	Yes	No
Do you understand the issues of confidentiality and do you understand who will have access to your information?	Yes	No

I would like to take part in this study:

Your Signature: _____

Printed Name: _____

Date: _____

Preferred contact number: _____

E-mail address: _____

Appendix 4: Instructor Interview Guide

Instructor Interview Guide

DEMOGRAPHICS

Code:
Age:
Years of experience in BJJ:
Years of experience as a BJJ instructor:
Belt rank:

INSTRUCTIONS

Thank you for agreeing to participate in this interview. I am interested in learning more about what you have learned through your involvement in BJJ. This way I may be able to identify 'best practices' for positive development through BJJ. A better understanding of these issues may contribute to the way martial arts, and BJJ in particular, are delivered among young people. There are no right or wrong answers.

INTRODUCTION

(1) To begin I would like to ask you some general questions. First, how would you describe the philosophy of BJJ?

(2) How would you describe the philosophy or atmosphere (or culture) in your club?

MAIN QUESTIONS

(3) Now we will get to the main questions. Can you tell me what are some of the beliefs, values, attitudes, or habits that you teach to your students?
Probing questions: What are the some of the main goals that you have for your students? Why are these skills important?

(4) If you have to describe the ideal BJJ student, what would that look like?
Probing question: How do you attempt to do this?

(5) I am very interested in **how** people learn personal and social skills in BJJ. Can you give me any examples of how you think your students learned some of the skills you identified?
Probing questions: Do you have a teaching philosophy that guides the way you teach, and the skills you teach? How have you developed it? How do you communicate it to your students?

(6) Do you think BJJ has the ability to influence other areas of life?
Probing questions: Do you purposefully teach skills that can be transferred to life? Do you think BJJ influences performance in school/work? Do you think there might be other areas that can be positively influenced?

SUMMARY QUESTIONS

(7) If you were teaching BJJ to adolescents only, what are some of the beliefs, values, attitudes, or habits that you would focus on?
Probing question: How would you teach these skills to them?

(8) In conclusion, is there anything else you think I should know about what personal and social skills you have learned and taught as being involved in BJJ?

Appendix 5: Participant Interview Guide

Participant Interview Guide

DEMOGRAPHICS

Code:
Age:
Years of experience in BJJ:
Belt colour:

INSTRUCTIONS

Thank you for agreeing to participate in this interview. I am interested in learning more about what you have learned through your involvement in BJJ. This way I may be able to identify 'best practices' for positive development through BJJ. A better understanding of these issues may contribute to the way martial arts, and BJJ in particular, are delivered among young people. There are no right or wrong answers.

INTRODUCTION

(1) To begin I would like to ask you some general questions. First, how would you describe the philosophy of BJJ?
Probing question: Can you describe how you think you have changed as a person since you joined BJJ?

(2) How would you describe the philosophy or atmosphere (or culture) in your club?

(3) What makes BJJ different from the other sports (or from the other martial arts)?

MAIN QUESTIONS

(4) Now we will get to the main questions. Can you tell me what things you think you have learned through participating in BJJ?
Probing questions: Have you grown physically, mentally, or in any other way since you started BJJ? What are some of the beliefs, values, attitudes, or habits that you think you have acquired or improved? What impact do they have on the way you view the world?

(5) I am very interested in **how** people learn these skills in BJJ. Can you give me any examples of how you think you learned some of the social and personal skills you identified?
Probing questions: How important is the personal example of your instructor(s)? How important is the interaction with the others in the gym?

(6) What role do you think your instructor(s) play in influencing your improvement?
Probing questions: What are some of the personal values your instructor(s) teach? How do they communicate and teach these values?

(7) Do you think your participation in BJJ has influenced any other areas of your life?

Probing questions: Do you think BJJ influenced your performance in school/work? In what ways? What are some the things you experience in your everyday life that you attribute to skills you have learned through BJJ?

SUMMARY QUESTIONS

(8) If you were teaching BJJ to adolescents, what types of beliefs, values, attitudes, or habits would you focus on?
Probe question: How would you teach these skills to them?

(9) In conclusion, is there anything else you think I should know about what personal and social skills you have learned from being involved in BJJ?