

GRAPPLING FOR ANSWERS: EXPLORING THE PROCESS OF LIFE SKILLS
DEVELOPMENT IN YOUTH MIXED MARTIAL ARTS ATHLETES

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Abstract

Mixed martial arts (MMA) is a form of combat sport that was legalized in Ontario in 2013. Immediately, media began to profile life skill outcomes associated with youth participation in MMA. Evidence in support of these claims is often anecdotal. To date no studies have utilized Positive Youth Development (PYD), a strengths-based approach to youth development (Lerner et al., 2005) to explore youth in MMA. Therefore, the overall objective of this research project was to explore the potential benefits, factors and processes of youths' (ages 9-18) life skill development in MMA using a PYD approach. Data was collected in three phases. In phase one data was collected from Toronto MMA gym websites (N=18). One manuscript was written that identified the life skills MMA gyms suggest they can develop in youth. Findings revealed that MMA gym websites included general information, developmental outcomes (4Cs) and processes, resources and not relevant messages. In phase two semi-structured interviews were conducted with youth (n=13) and coaches (n=10) from MMA gyms. Two manuscripts were written, the first manuscript identified the life skills youth developed in MMA and the factors that contributed to their development. The second manuscript explored the role of the MMA coach in the process of facilitating life skills development and transfer of life skills from MMA to non-sport contexts. MMA coaches primarily used explicit techniques to facilitate life skill development and transfer. In phase three, two manuscripts were written. First, a pilot study was conducted to determine the effectiveness of using an online journal and two types of questions (i.e., direct and indirect) as a method of recalling transfer experiences. Second, youth in MMA (N=9) completed an online journal over a one-month period. Findings revealed that MMA coaches facilitated the development of a value for life skills transfer. Participants in the direct and indirect groups demonstrated differences in their description of transfer experiences.

Dedication

When I was twelve I wrote a speech on life lessons. It began, “Life, means the time of existence. Lesson, means something learned. Together they mean more and combined over time even more.” At the time, I thought that it was so profound. After re-reading this speech it’s evident that it’s less profound than I originally thought. It was also lacking academic evidence and I made up most of my theories. I will give credit to myself (of course) as I was able to accurately describe the impact of parents, siblings, friends and yourself on the process of learning through life lessons. I explained the differences between the different types of life lessons; lessons discovered by mistake, earned through mistakes, enjoyable lessons, and lessons that cause pain. Then, I highlighted the impact of life lessons writing, “the life lessons we have will shape our lives forever.”

While, I no longer refer to these instances as “life lessons” but rather “experiences” and I’ve narrowed my focus from life to just the sport context, that childhood interest for how people learn from experiences was the passion that fuelled this dissertation. I’d like to dedicate this dissertation to my twelve-year-old self. Here you are sixteen years later, you turned a fascination into five years, 283 pages and a completed PhD dissertation—this one’s for you.

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“Any experience that does not violate expectation is not worthy of the name experience” (Hegel)

The completion of this dissertation was just that, an experience. I would like to thank all the people, moments and changes—even the hard ones that made my PhD journey.

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Chapter One: Introduction

Extensive literature has suggested that sport is an effective context for facilitating positive developmental outcomes in youth (e.g., Danish, Petitpas & Hale, 1993; Fraser-Thomas, Côté & Deakin, 2005; Gould & Carson, 2008; Petitpas, Cornelius, Van Raalte & Jones, 2005; Smoll & Smith, 2002). Positive youth development (PYD) is a branch of developmental psychology that emphasizes an “asset building” approach to explore youth development (Lerner, Almerigi, Theokas, & Lerner, 2005; Roth & Brooks-Gunn, 2003). The PYD approach considers youth as assets to be developed and explores youths’ optimal developmental potential (Lerner, Almerigi et al., 2005; Roth & Brooks-Gunn, 2003). PYD is the predominant approach used by current research to explore youth developmental outcomes in sport. Prior to the emergence of PYD, youth developmental research applied a “deficit reduction” approach which emphasized youth as problematic or as lacking positive characteristics or attributes which could be resolved with effective programming or interventions (Damon, 2004).

A variety of youth activities (e.g., faith based programs, academic leadership programs, community vocational programs, sport, school) have been explored for their ability to facilitate PYD (Hanson, Larson & Dworkin, 2003; Lerner, Lerner, Almerigi, Theokas, Phelps et al., 2005). Of the various youth activities explored for PYD, sport has been identified as the most popular organized activity amongst youth (Larson & Verma, 1999). Moreover, the sport context emphasizes personal development and can provide youth with opportunities for positive experiences of goal setting and achievement which are fundamental components of PYD (Danish, Forneris, Hodge & Heke, 2004; Danish et al., 1993). For these reasons, sport has been identified as a highly desirable context to promote developmental outcomes in youth (Danish, Forneris & Wallace, 2005; Fraser-Thomas et al., 2005; Goudas & Giannoudis, 2008).

Fraser-Thomas et al.'s (2005) conceptual paper identified sport program design and adult leaders (i.e., parents, coaches) as integral factors in the facilitation of PYD. In addition to coaches and sport program design in the process of PYD through sport a later study by Fraser-Thomas and Côté (2009) suggested parents and teammates were integral factors of positive and negative experiences in sport that may contribute to PYD. They found teammates facilitated PYD through developing relationships that supported the successful pursuit and achievement of the sport's demands. Findings also highlighted how the challenging setting of the club sport environment (e.g., rigorous competition and practice schedules) contributed to youths' strong work ethic while competition setting required youth to develop commitment, discipline and perseverance to be successful in their sport. Coaches facilitated positive experiences associated with PYD in their athletes through demonstrating belief in their athletes, providing feedback and effective communication, teaching goal setting, holding athletes to higher expectations, developing special relationships with athletes and serving as role models. Finally, parents facilitated positive developmental experiences through the special relationships they formed with their children as a result of the sport context.

Life skills are one potential developmental outcome of youth participation in sport. Danish and colleagues (2005) define life skills as "the skills that enable students to succeed in the different environments in which they live, such as school, home, and in their neighborhoods" (p.49). It has been acknowledged that many life skills learned in sport are transferable to non-sport contexts (Papacharisis, Goudas, Danish & Theodorakis, 2005). This process has been identified as the transfer of life skills (Danish et al., 2005). Life skills developed through youth participation in sport have been identified as; increased self-confidence, internal locus of control, initiative, problem solving skills, goal setting, leadership, teamwork, communication, managing

emotions, and time management (Danish, Taylor & Fazio, 2003; Hansen et al., 2003; Papacharisis et al., 2005; Petitpas & Champagne, 2000). Moreover, current research has acknowledged the need to explore the factors and processes within sport that facilitate the development of life skills (Danish et al., 2005).

Recent research has primarily focused on the role of the coach in the process of facilitating life skills development. It has been suggested that coaches can facilitate life skills development by focusing on developing relationships with their players, treating players like young adults, and encouraging open communication that included care, tact and positive components (Gould, Collins, Lauer, and Chung, 2007). Camiré et al. (2012) suggested that opportunities for life skills development were increased when coaches incorporated teaching life skills into their coaching philosophies and purposefully implementing life skills development into their behaviours towards and interaction with their athletes. Coaches also increased success in facilitating life skills when they considered their student athletes' individuality or pre-existing make-up (i.e., socioeconomic status, skills required to succeed in life after high school; Camiré, Trudel & Forneris, 2012).

These studies offer some insight into the processes and mechanisms that facilitate life skills development in specific sport contexts; however, they do little to explain how skills learned in sport may be transferable to other life contexts (i.e., school, home). Gould and Carson's (2008) proposed Model of Coaching Life Skills sheds some light on the processes of transfer. This model was developed following an extensive literature review of life skills development through sport research. The initial components focus on the role of the coach in developing athletes' life skills, and the fifth and final component describe the process of transferability of life skills developed in a sport context to a non-sport context. The final

component emphasizes the importance of coaching philosophies in the process of transfer, and outlines specific strategies (i.e., clear and consistent rules, reinforcement, quality of instruction, leadership opportunities, to make decisions, individual attention, fairness and team building) to promote life skills development and transfer in youth.

While, the exploration of youths' life skills development through sport has predominately adopted the PYD approach, past and recent studies exploring developmental outcomes of youth participation in martial arts has predominately utilized a deficit reduction approach. Using the deficit reduction approach, past research suggests a trend for increased self-regulation, stress reduction, psychological well-being, increased self-confidence and self-efficacy, reduced school violence, and a decrease in violence amongst youth who practice martial arts (Lakes & Hoyt, 2004; Smith, Twenlow, & Hoover, 1999; Theeboom, De Knop & Vertonghen, 2009; Vertonghen and Theeboom, 2010; Wall, 2005). For example, Lakes and Hoyt (2004) implemented a martial arts intervention to explore the changes in youths' self-regulation, distractibility and self-esteem with participation. Findings revealed that youth involved in the martial arts program demonstrated improved self-regulatory skills and pro-social behaviour when compared to youth in physical education classes. Results suggested that character training and life skills development were inherently attained simply through participating in the martial arts program. Moreover, gender differences were identified that outlined boys showed greater increases in all measures than girls. Rather than assessing the martial arts program for specific characteristics that could have contributed to these differences, Lakes and Hoyt (2004) attributed differences to the "prevalence of attention and conduct problems in boys" (p. 296).

Smith et al. (1999) also employed the deficit reduction approach in their investigation of the effectiveness of a martial arts program as an intervention for youth who were repeatedly in trouble

or were identified by their peers as bullies. Participants demonstrated a decrease in school violence with participation in the martial art intervention program. However, the implementation of the deficit reduction approach limited the focus of the study. As a result, Smith et al. (1999) neglected to examine how participants may have transferred life skills learned in martial arts to their general life. These studies highlight a need to explore youth involvement in martial arts utilizing a PYD lens to strengthen the understanding of the factors that are involved in the process of life skills development and the subsequent transfer of those skills into general life.

Additionally, Theeboom (2012) suggested that there is no consensus amongst current research of potential impact on development that youth acquire through participation in martial arts. While, much research exists to support the positive outcomes several studies have identified the negative outcomes associated with youth participation in modern martial arts. A seminal study by Trulson (1986) reported a similar increase in aggressiveness and delinquency in male participants who were in a modern martial arts intervention group, only focused on technique. Another study by Endresen and Olweus (2005) examined the impact of participation in martial arts, boxing, wrestling, weightlifting and power sports, individually and in combination in males ages 11-13 level of violent and antisocial behaviours. Findings suggested that males who participated in these sports had increased antisocial and violent behaviour in non-sport environments (Endresen & Olweus, 2005).

One form of modern martial arts that has received increased attention within recent years is mixed martial arts (MMA). MMA is a full contact combat sport that integrates striking and grappling techniques from a variety of other combat sports (i.e. martial arts, boxing, sumo, wrestling, karate, Brazilian jiu-jitsu, kickboxing, and taw kwon do) (MMA wiki, 2013; Downey, 2007). On April 30, 2011, UFC 129 was announced. The event had a record attendance of

55,724, the largest attendance at a UFC event (to date) in the history of the UFC (Stupp, 2011). Prior to the passing of Bill S-209 on June 5, 2013, professional MMA was classified as illegal in Canada.

Similar to youth participation in martial arts, youth participation in MMA and the potential outcomes associated with participation are controversial (Theeboom, 2012). Reporters from popular and news media have emphasized both positive and negative outcomes of participation. However, MMA gyms opt to only emphasize the positive media attention regarding youths' involvement in sport to promote youth enrolment in MMA. MMA gyms market the same developmental outcomes as those possible in outcomes in martial arts while several studies suggest that there are fundamental differences between martial arts and MMA (Cox, 1993; Theeboom, 2012; Theeboom, De Knop & Wylleman, 1995; Vertonghen, Theeboom & Cloes, 2012).

To date, no research has explored the factors or process of youth life skills development with participation in MMA, highlighting a gap in current research (Theeboom, 2012). Furthermore, no studies have used the PYD approach to explore the potential youth development that can occur with participation in MMA. Given that the outcomes associated with MMA stem from the research and beliefs of youth participation in martial arts, the newly established and rapidly growing interest for MMA in Canada, and the lack of consensus regarding the claims of developmental outcomes for youth through MMA, the overall objective of this dissertation was to explore the potential benefits, factors and processes associated with youths' life skill development in MMA. This dissertation consists of five studies that provide a comprehensive exploration of the youth life skills development in MMA. Bronfenbrenner's (2005) ecological systems theory (EST) was used to frame the research questions and interpretation of the findings.

The findings of this dissertation further our understanding of the outcomes, factors and processes involved in youth life skills development. Furthermore, this study fills a gap in the existing literature but exploring youth MMA using a PYD approach.

Thesis Overview

Chapter Two of this dissertation provides a review of the existing literature pertaining to positive youth development, life skills development, transfer of life skills and the theoretical and conceptual frameworks that informed this study. This review of the literature focuses on exploring the factors and processes of life skills development and transfer in sport with an emphasis on youth MMA. Furthermore, the review of the literature includes an overview of the evolution of MMA in Canada and current developmental theories. Chapter Three consists of study one, which is a content analysis of youth programs on MMA gym websites. This study aimed to identify the potential life skills MMA clubs suggest they can develop in youth (age 9-14). Chapter Four is comprised of study two; a qualitative exploration of the experiences of youth participating in MMA, to gain a deeper understanding of the occurrence, facilitators, factors and process of life skills development and transfer. Chapter Five consists of study three, the purpose of this study was to explore youth MMA coach's experiences to gain a deeper understanding of their role in facilitating life skills development and life skills transfer to non-sport settings. Chapter Six consists of study four; a pilot study exploring the use of an online journal using direct and indirect inquiry to capture youths' experiences of life skills transfer from sport to non-sport contexts. This study a) examined athletes' patterns of use of the online journal, b) explored the quality of online journal entries for detail and relevance, c) explored athletes' perceptions of using the online journal, and d) explored the use of a social media mobile app as a reminder for athletes' participation. Chapter Seven consists of study five, the first objective

examines youths' experiences of transfer of life skills from youth MMA to general life contexts to identify the mechanisms of transfer. Secondly, this study critically analyzes the responses of two different types of online journal questions (i.e. direct, indirect). In Chapter Seven, I discuss the findings of this dissertation in relation to existing literature and within Bronfenbrenner's Ecological Systems Theory (EST). Finally, I offer suggestions and implications for future research.

Chapter Two: Review of Literature

Positive Youth Development

In the 1990s, positive youth development (PYD) began to surface as an emergent area of interest for developmental researchers (Lerner, Phelps, Forman & Bowers, 2009). The roots of PYD are found within several areas of academic research (Lerner et al., 2009). Two contributing factors in the shift of youth development research were the decreased use of the deficit reduction approach and increased interest in the impact of environmental factors on learning. Initially, the PYD approach emerged in response to the “deficit reduction” approach of early youth development inquiry. From the deficit reduction approach youth are viewed as problematic or broken in need of psychological repair, or lacking fundamental psychosocial skills (Roth, Brooks-Gunn Murray, Foster, 1998). PYD is a “strengths based” approach that views all youth as resources to be development (Roth et al., 1998). Roth and colleagues define PYD as “the engagement in pro-social behaviours and avoidance of health compromising behaviours and future jeopardizing behaviours” (Roth et al., 1998, p.426). Rather than explore how a heavily modified and monitored youth program can facilitate desired positive societal changes in youth, PYD explores how a program can enable youth to positively develop in a naturalistic program and how the program can be enhanced to facilitate maximum learning. PYD is currently widely used and well established as a conceptualization of youth development.

Previous areas of investigation in youth development include comparative psychology and evolutionary biology, which began to document plasticity and resiliency throughout the developmental process suggesting the potential for systematic change (Lerner, Lerner, Almerigi, Theokas & Phelps et al., 2005). Subsequently, bioecological developmental psychology and life course sociology began to explore the potential for environmental factors to enhance a learners’

development (Bronfenbrenner, 2005; Elder, 1998; Lerner, Almerigi et al., 2005). Hamilton (1999) described three interdependent aspects for the application of research utilizing PYD: a) as a developmental process, b) as a philosophy or approach to youth programming, c) as opportunities of youth programs and organizations focused on facilitating healthy or positive development in youth (Hamilton, 1999).

Positive Youth Development and Sport

Recent changes in family demographic trends have encouraged PYD research to explore various outlets of youth participation (Lerner, Almerigi et al., 2005). Past research has identified that youth can develop life skills in a variety of different contexts (i.e., faith based programs, academic leadership programs, community vocational programs, sport, school; Hansen et al., 2003; Lerner, Almerigi et al., 2005). As a result of its popularity amongst youth, sport has been identified as a highly desirable context to promote PYD and has been increasingly explored by PYD researchers. Sport (Danish et al., 2005; Fraser-Thomas et al., 2005; Goudas & Giannoudis, 2008). In Canada, sport has been identified as a popular outlet for youth participation (Canadian Fitness and Lifestyle Research Institute, 2010). More specifically 75% of Canadian children and youth between 5 and 17 years of age participate in an organized sport program (Canadian Fitness and Lifestyle Research, 2010). The large number of youth participating in sport suggests that sport is a popular and familiar activity for youth. Additionally, research has suggested that the sport context places an emphasis on personal development through training (Danish et al., 1993). Sport can provide youth with the experience of goal accomplishment, through affording youth the opportunity to set and achieve goals (Danish et al., 2004).

In accordance with the PYD approach, PYD through sport research has focused on exploring the promotion of positive experiences and outcomes rather than using sport to prevent or correct negative behaviours and psychological issues among youth (Lerner, Almerigi et al.,

2005). Furthermore, sport is a vehicle for enhanced educational experiences and engagement in productive activities (e.g., Danish et al., 2004; Gould & Carson, 2008).

It is important to recognize that PYD though sport does not occur automatically (Fraser-Thomas et al, 2005; Petitpas et al., 2005). PYD is one potential outcome of youth participation in sport, and is facilitated when youth are offered opportunities and experiences that promote self-discovery. In particular, the importance of optimally designed programs has been highlighted (Fraser-Thomas et al., 2005). Giulianotti (2004) devised the term “sport evangelist” to describe people who promote and sensationalize the beliefs, wishful thinking and personal testimonials that influence sport related policy, programs and inquiry. Sport evangelists approach sport in essentialist terms, assuming that participation in sport will inevitably lead to psychosocial development (Coakley, 2011). Therefore, sport evangelists make the assumption that “sport is essentially good and that its goodness is automatically experienced by those who participate in it” (Coakley, 2011, p. 309).

Life Skills

A predominant area of investigation utilizing the PYD approach is life skills development in youth. There are several definitions for life skills. The World Health Organization (WHO; 1999) defined life skills broadly, as the ability for adaptive and positive behaviour that allows individuals to deal with the demands and challenges of everyday life. The WHO categorizes life skills into three components: critical thinking and decision making, interpersonal and communication skills and coping and self-management skills. Furthermore, the WHO has identified five areas of life skills that are applicable across cultures: (a) decision making and problem solving, (b) creative thinking and critical thinking, (c) communication and interpersonal skills, (d) self-awareness and empathy, and (e) coping with emotions (WHO, 1999). Danish et al.

(2004) defined life skills as “those skills that enable individuals to succeed in the different environments in which they live such as school, home and in their neighborhoods. Life skills can be behavioral (communicating effectively with peers and adults) or cognitive (making effective decisions); interpersonal (being assertive) or intrapersonal (setting goals)” (p. 40). Finally, following their comprehensive literature review of current PYD through sport research Gould and Carson (2008) defined life skills as “those internal and personal assets, characteristics such as goal setting, emotional control, self-esteem and hard work ethic that can be facilitated or developed in sport and are transferred for use in non-sport settings” (p.60).

A variety of life skills have been identified as outcomes of youth sport participation. While there are varying definitions of life skills there is consistency among the principles of each definition. Most notable is that life skills involve enhancement in the psychosocial characteristics of an individual that can impact overall character development. Life skills development is not solely an isolated occurrence of behavioural change experienced by the individual, but can impact their future character. Furthermore, PYD through sport research has adopted an expanded definition of life skills which recognizes that for life skills developed in the sport context to be considered life skills they must be transferred for use in non-sport settings (Camiré et al., 2012; Danish et al., 2004; Gould & Carson, 2008; Papacharisis et al., 2005).

Positive Outcomes

A multitude of life skills have been identified as outcomes of youth sport participation. Past research has identified development or enhancement of; initiative (Holt, Tink, Mandigo, Fox, 2008), goal setting (Goudas & Giannoudis, 2010; Papacharisis, Goudas, Danish & Theodorakis, 2005), positive thinking (Goudas & Giannoudis, 2010), problem solving (Goudas & Giannoudis, 2010), respect (Holt et al., 2008), teamwork (Hansen, Larson, & Dworkin, 2003;

Holt et al., 2008) leadership (Dworkin et al., 2003; Hansen et al., 2003; Holt et al., 2008), responsibility (Hellison et, 1996), social skills (Dworkin et al., 2003; Holt et al., 2009). From these past studies, it is universally understood that participation in sport programs alone does not promote the development of life skills. While research has identified several developmental outcomes associated with youth sport participation (e.g., academic achievement, personal and social skills; Camiré et al., 2012; Fraser-Thomas et al., 2005; Strachan, Côté & Deakin, 2011), much less work has focused on the context or processes that may be facilitating these outcomes (Vierimaa, Erickson, Côté, & Gilbert, 2012).

Negative Outcomes

While much research has explored the positive outcomes associated with youth participation in sport, there is some research on negative outcomes (May, 2001; Camiré & Trudel, 2010). May (2001) conducted an ethnographic study of male African American high school athletes. Findings revealed that athletes faced regular discrimination and racism. Moreover, coaches and athletes promoted a win at all cost attitude rather than fair play and equitable treatment (May, 2001). Camiré & Trudel (2010) explored male and female high school athletes' perspectives on the development of character through sport. Results demonstrated that athletes used gamesmanship tactics to gain an advantage over their opponents. Athletes further justified the use of gamesmanship tactics as being part of the game, despite opposing the fair play principles and ethical codes of conduct (Camiré & Trudel, 2010).

The 5Cs/4Cs of PYD

The 5Cs model has been applied extensively in past research to indicate the mental, social and behavioural outcomes of PYD (Lerner, Lerner et al., 2005). Initially, Little (1993, as cited by Lerner, Lerner et al., 2005) proposed the 4Cs model of PYD, which identified the

indicators of PYD as competence, confidence, connection and character. After a review of past research and practice, Eccles and Gootman (2002), Roth and Brooks-Gunn (2003) and Lerner (2004) found evidence to suggest the inclusion of a fifth C, caring/compassion, resulting in the 5Cs model.

Roth and Brooks-Gunn (2003) and Lerner (2004) provide working definitions for each of the 5Cs found in Lerner, Lerner, et al.'s (2005) model. Competence is described as one's positive view of their actions in a domain specific area. For example, social competence can include conflict resolution skills, cognitive competence pertains to decision making skills and vocational competence includes work habits and career choices (Lerner, Lerner, et al., 2005). Confidence is a positive internal sense of overall self-worth and self-efficacy. Connection refers to the bidirectional positive bonds formed between people and/or institutions, and an individual. For example, this can include relationships between an individual and their peers, parents, teachers, coaches and community (Lerner, Lerner, et al., 2005). Character is respect for societal and cultural rules, adhering to a standard or morals for correct behaviours. Finally, caring and compassion, is a sense of empathy or sympathy for others (Lerner, Lerner et al., 2005).

Côté, Bruner, Erickson, Strachan and Fraser-Thomas (2010) suggested that in sport settings the category of caring/compassion be collapsed into character. Their argument was that there is a lack of differentiation between the caring/compassion and character outcomes within sport development literature. This provided evidence for the PYD through sport research to return to the original 4Cs model (Little, 1993). Furthermore, Vierimaa and colleagues (2012) highlighted that little empirical research exists to advance our understanding of the 5Cs (or 4Cs) in sport settings, identifying a lack of understanding of the relationship between youth sport participation, PYD, and the impact on other life domains.

Factors and Processes of Life Skills Development

The coach has been identified as a primary facilitator of youths' life skills development through sport (Camiré et al., 2012; Fraser-Thomas et al., 2005; Gould et al., 2007). Camiré and colleagues (2012) explored high school coaches' and student athletes' perspectives to gain a deeper understanding of how coaches facilitate life skills development. Coaches discussed that they incorporated teaching life skills into their coaching philosophies, and adhered to their established philosophies when coaching youth athletes (Camiré et al., 2012). Coaches were more successful in facilitating life skills when they considered their student athletes' individuality or pre-existing make-up (i.e., socioeconomic status, skills required to succeed in life after high school). Both coaches and athletes discussed specific strategies that facilitated life skills development which included: the establishment of social consciousness amongst athletes, use of peer evaluations, providing opportunities to exhibit skills for athletes, modeling, and taking advantage of teachable moments.

In their study of award winning football coaches, Gould et al., (2007) highlighted a lack of research in three key areas: (a) exploring how coaches develop life skills in their players, (b) understanding the context of coaching knowledge, and (c) understanding why coaches use specific life-skills building strategies. Their study included ten outstanding football coaches' (i.e., finalists for the National Football League Coach of the Year Award) and explored their strategies for enhancing personal characteristics and life skills development in their athletes. Results suggested that when coaches focused on developing strong relationships with players, treated players like young adults, encouraged open communication that included care, tact and positive components life skills, development was facilitated.

Coaching Life Skills through Sport

Gould and Carson (2008) identified that there was a lack of theoretical explanation for the process of coaching life skills through sport. Consequently, the five component model for coaching life skills through sport was developed following an extensive review of the literature on PYD through sport and extracurricular activities by Gould and Carson (2008). This model was intended for use as a research guide, to organize findings, and as a framework for sport programs focused on developing life skills in their athletes. The first component is divided into internal (e.g., existing life skills, personality characteristics, physical abilities and inabilities) and external assets (e.g., previous coaches, parents, siblings, peers, socio-economic status), which represent the athletes' pre-existing makeup. Past research suggests that youth enter sport with already developed internal assets (Benson, 1997). Furthermore, youths' existing assets will influence the ability of a coach to facilitate or enhance life skills development.

The second component highlights the sport participation experience with an emphasis on teaching and coaching of life skills. This component is separated into three factors; current coach characteristics, direct teaching strategies, and indirect teaching strategies. Current coach characteristics include: philosophy, relationship skills, competence and accessibility. These factors were identified to have the strongest impact on a coach's ability to teach life skills (Gould & Carson, 2008). Coaches teach life skills through direct and indirect teaching strategies. Direct strategies are activities within the sport environment that intentionally teach life skills. Indirect strategies are not deliberately focused on life skills development but focus on the demands of the sport, the program success, the modeling of life skills by those in the sport environment and social reinforcement of positive norms.

The third component is focused on how athletes develop life skills in sport and how development can influence behaviour. First social environmental influences are identified as a mechanism that can impact youths' development of positive identity, membership in a peer group and in the development of positive adult relationships. Next, utility of life skills is described as the applicability of life skills learned in sport to other aspects of the youths' life. The social environment and utility can act individually or interact to enhance youth development of life skills.

The fourth component includes the positive and negative outcomes of youth sport participation. The development of life skills in sport can lead to positive outcomes, which include physical, psychosocial and emotional benefits. The inability to develop life skills in sport will lead to negative physical, intellectual, psychosocial and emotional outcomes.

Finally, the fifth component emphasizes the importance of coaching philosophies in the process of transfer, outlining specific strategies (i.e., clear and consistent rules, reinforcement, quality of instruction, leadership, opportunities to make decisions, individual attention, fairness and team building) to promote life skills development and transfer and when opportunities were provided for athlete to exhibit life skills.

Eight Setting Features of Positive Developmental Settings

Sport program design is another factor that has the potential to influence developmental outcomes of youth (Camiré et al., 2013; Turnnidge, Côté & Hancock, 2014). The National Research Council and Institute of Medicine (NRCIM) proposed eight features that can facilitate PYD: (a) physical and psychological safety, (b) appropriate structure, (c) supportive relationships, (d) opportunities to belong, (e) positive social norms, (f) support for efficacy and mattering, (g) opportunities for skill building, and (h) integration of family, school, and community efforts (Eccles & Gootman, 2002). Youth programming that possess any of these

features can enhance youth opportunities for PYD (Eccles & Gootman, 2002). When youth programs implement multiple setting features simultaneously, the youth context further optimizes opportunity for PYD (McLaughlin, 2000). These eight setting features were established following an extensive literature review within the field of developmental science, are widely recognized by empirical research and used by sport program facilitators to enhance youth opportunities for PYD.

Life Skills Transfer

The process of employing life skills developed in the sport context to another non-sport context has been identified as transfer of life skills (Camiré et al., 2012; Gould & Carson, 2008). Originally, it was hypothesized that life skills transfer from sport to non-sport contexts occurred automatically and only between identical contexts (Thorndike & Woodworth, 1901). Recent studies suggest that transfer from sport to non-sport contexts is not an automatic occurrence, but must be facilitated by coaches and sport programming (Allen, Rhind, & Koshy, 2015; Camiré et al., 2012; Gould & Carson, 2008; Papacharisis et al., 2005).

Although there is a growing body of research that explores transfer of life skills, there is inconsistent evidence regarding the occurrence of life skills transfer from sport to other environments (Allen et al., 2015; Camiré et al., 2012; Holt et al., 2008; Jones & Lavalley, 2009). Potential factors that may contribute to youths' experiences of transfer highlight that transfer is most likely to occur when the value of life skills learned in the sport setting is emphasized, the knowledge of how and in what context these skills can be transferred is outlined, and the awareness of the skills' value in other life domains is facilitated (Danish et al., 1993). Camiré, Trudel and Forneris (2013) identified the coach as a primary factor in the process of transfer. Coaches can increase the likelihood of transfer in their athletes through identifying and

explicitly communicating the connections between life skills developed in the sport context to non-sport contexts (Camiré et al., 2013).

Factors and Processes of Life Skills Transfer

Transfer of life skills from the sport setting to non-sport settings is an emerging area of research. It has been proposed that for sport programs to successfully promote PYD, the youth sport program must employ strategies that will facilitate transfer (Petitpas et al., 2005). Camiré and colleagues (2012) explored the role of the coach in facilitating transfer amongst high school athletes. Coaches identified that they recognized the importance of teaching transfer; however, they encountered difficulty conveying this to their student-athletes. Students expressed that they had difficulties knowing how to apply a life skill learned in a sport context to a non-sport context. This aligns with findings of Gould and colleagues (2007) and Mayocchi and Hanrahan (2000) who suggested the transferability of life skills only occurs when athletes are aware of the life skills they possess, and coaches continuously highlight the importance of using the life skills they learn in sport in their everyday lives. Further, a follow up study by Camiré and Trudel (2014) among high school football coaches and athletes found both groups believed life skills could be transferred from sport to general life, with all but one coach emphasizing that activities must be designed to teach life skills and transfer in order for this to occur. Furthermore, Allen and colleagues (2015) explored male athletes' perspectives of enablers and barriers of transfer and identified how support from peers, pride, rewards, transfer experience, and opportunities can enable or constrain the facilitation of life skills transfer.

While a growing body of literature is advancing the understanding of the experience and processes of transfer, there remain several methodological challenges and limitations. First, past research has predominantly utilized retrospective semi-structured interviews as the primary

method of data collection of youth experiences of transfer (Camiré et al., 2012; Camiré, Trudel, & Forneris, 2009; Holt et al., 2008; Jones & Lavalle, 2009). Secondly, within current methodologies, data collection has been conducted primarily at only one-time point (i.e., end of season). Past research has identified the need to gain a more comprehensive understanding of youth developmental experiences in sport (Fraser-Thomas & Côté, 2009), with longer term evaluations being identified as one potential strategy (Holt et al., 2008; Jones & Lavallee, 2009; Lee & Martinek, 2013). Finally, most researchers have prefaced data collection procedures with an explanation of the concept of transfer, with interview questions often including the term transfer, defining the concept of transfer within the question, or using suggestive language in favour of the experience of transfer. For example, Allen et al. (2015) stated, “Participants were also reminded of the transfer concept and encouraged to think of opportunities where transfer had occurred” (p.58).

While this approach may be deemed appropriate given the specificity and apparent novelty of the definition/construct of transfer, potential limitations to this approach should also be considered. It has been suggested that transfer is most likely to occur when the value of life skills learned in the sport setting is emphasized, the knowledge of how and in what context these skills can be transferred is outlined, and the awareness of the skills’ value in other life domains is facilitated (Danish et al., 1993). As such, it is possible that researchers may be indirectly influencing study results through subtle cues that are communicated to participants during the data collection process (Rosenthal, 1966).

Explicit and Implicit Transfer

A recent paper by Turnnidge et al. (2014) explained two approaches to sport program design aimed at promoting transfer of life skills. The first approach is the explicit life skills program that

sport environment is intentionally designed to teach life skills and the transferability of life skills (Turnnidge et al., 2014). The Teaching Personal and Social responsibility (TPSR) in sport program (Hellison, 2003; Hellison & Walsh, 2002), The First Tee (Weiss, 2006) and Sports United to Support Education and Recreation (SUPER; Danish, 2002) are examples of sport programs that use sport as a vehicle to teach life skills and emphasize the importance of using the developed life skills outside of sport. Ultimately, the explicit life skills program creates a sport environment that supports life skills development using lessons or modules administered in a sequential order by adult leaders. Transfer is facilitated by coaches, adult leaders or youth leaders who directly link the life skills developed in sport to non-sport settings (Danish, 2002; Hellison, 2003; Weiss, 2006). While these programs have been able to facilitate life skills development and some transfer, Turnnidge et al. (2014) identified that the main aim of these programs are to help the athlete create connections between the skills acquired in their sport setting and their academic and personal development and engage youth in activities that allow them reflection the applying sport skills in non-sport settings. The explicit life skills sport program's primary goal is on developing the person before the athlete which can conflict with the goal of a high performance sport program aimed at developing physical and technical skills necessary to yield high performance youth athletes.

The second approach is an implicit life skills program, which encourages physical, social, and personal skills development in youth but is focused on facilitating these skills within the sport setting (Turnnidge et al., 2014). Explicit strategies can be used to facilitate the development and transfer of life skills within these sport settings. Coaches can take advantage of teachable moments to promote leadership and conflict resolution skills, and encourage athletes to reflect on the skills they learn in their sport setting (Camiré et al., 2012). However, the implicit approach

does not employ specific programming, lessons, or modules aimed at promoting life skills development or transfer (Turnnidge et al., 2014). Within this setting coaches have been identified as a key feature of the implicit sport setting for facilitating transfer (Allen et al., 2015; Camiré et al., 2012). Furthermore, Strachan and colleagues (2011) explored the unique context of elite sport and applied the eight setting features to suggest a model that describes PYD in elite sport. Findings suggested that there were three key elements: (a) the existence of an appropriate training environment, (b) the provision of opportunities for physical, personal and social skill development, and (c) the presence of supportive interactions facilitate PYD in the elite sport setting (Strachan et al., 2011). More research is needed to examine if young athletes in the high performance sport setting can advance within their sport and develop personal and social skills while simultaneously enhancing opportunities to transfer personal and social skills into non-sport setting.

High Road and Low Road Transfer

Traditionally the term transfer has taken on a pattern of learn-it-here, apply-it-there (Perkins & Salomon, 2012). However, Perkins & Salomon (2012) suggest that we view transfer more broadly and that there are limitations to the current understanding of transfer in which a youth tackle one problem and then face another with different surface characteristics but with a similar deep structure (Lave, 1988). In educational psychology transfer is defined as near or far and is facilitated by high or low road transfer mechanisms (Perkins & Salomon, 1992). Near transfer refers to transfer of life skills between very similar contexts (e.g., sport practice, sport competition) and is facilitated by low road transfer mechanisms, pattern recognition, and the reflexive triggering of routines (Perkins & Salomon, 1992). Far transfer refers to transfer of life skills from different contexts and performances (e.g., sport context, family home life). Far

transfer is facilitated through high road transfer which involves deliberate reflective processing and mindful abstraction from the context of learning to application and the deliberate search for connections (Perkins & Salomon, 1992). Perkins and Salomon (1992) purposed five conditions for both near and far transfer.

First, thorough and diverse practice was suggested. This is practice within the various contexts in which the life skill was originally learned (Perkins & Salomon, 1992). Thorough and diverse practice results in the individual having a flexible and somewhat automatic skillset on which to draw upon in new situations. Next, explicit abstraction is the recognition of specific critical attributes of a situation. Individuals will be able to recognize when the use of certain life skills are most effective (Perkins & Salomon, 1992). Essentially, explicit abstraction is the recognition of the structure of a situation. Conversely, active self-monitoring is the focus on the individual's thinking processes, which can promote the transfer of life skills as it is the "metacognitive reflection on one's thinking processes" (Perkins & Salomon, 1992, p.7). Next, arousing mindfulness is more comprehensive than the previous two conditions as it requires the individual to be alert while engaged in activities and to be aware of their surroundings. Finally, transfer is facilitated when a new concept is explained using a metaphor or analogy within a familiar context (Perkins & Salomon, 1992). Using a familiar context to explain the new skills or usefulness of new skills can help the individual conceptualize the transfer process (Perkins & Salomon, 1992). Encouraging an individual to fulfill these five conditions of transfer in their learning environment facilitates transfer.

Mixed Martial Arts

Mixed Martial Arts (MMA) is a combination combat sport in which athletes integrate the striking and grappling techniques from a variety of martial arts and combat sports (i.e., boxing,

sumo, jujitsu, wrestling, karate, Brazilian jujitsu, kickboxing, Muay Thai and Tae Kwon Do) (Downey, 2007; MMA wiki, 2013). The term martial arts is often used synonymously for multiple techniques and practices which make-up martial arts (i.e. aikido, karate, Brazilian jujitsu, Tae Kwon Do, Muay Thai, jujitsu, wushu, judo). Past martial arts research has inadequately defined martial arts. There is a widespread belief that participation in any form of martial arts will produce positive developmental outcomes. However, the lack of description of martial arts has led to an over generalization of the findings, that assumes all techniques, contexts and cultures of martial arts will produce the same outcomes. The positive outcomes reported by previous research cannot be assumed to occur with participation across all martial arts practices (Theeboom, 2012).

There is ample empirical evidence to suggest that participation in traditional martial arts, can facilitate positive developmental outcomes in youth (Cox, 1993). Traditional Asian martial arts were integrated with the philosophical values of Taoism and Buddhism (Bäck & Kim, 1979). Traditional martial arts focus on principles and heritage and avoid violent behaviour while emphasizing respect and personal mental growth (Zetaruk, 2009). The focus of learning traditional martial arts involves the internal maturing and development and control of the mind (Forster, 1986). Participants achieved this through focusing on their internal energy through movement awareness when learning the physical skills of martial arts (Linden, 1984; Spear, 1989). Conversely, modern martial arts place an emphasis on learning fighting techniques to optimize success in a real life fight (Zetaruk, 2009). The technical and violent focus of MMA is evident throughout the history and development of the sport.

History of MMA

Today's form of MMA is the product of centuries of evolution. The combination of combative techniques for sporting competition was recorded as early as 648 BC (Gardiner, 1906). This initial form of MMA was known as Pankration and means "all strength" or "all power" and sport consisted of a combination of Hellenic boxing (Ano) and wrestling (Kato) techniques (Gardiner, 1906).

In the late 1880s, no-holds-barred fighting (NHB), emerged in North America. NHB fights involved bouts between competitors who specialized in one form of combat sport (mmaWiki.com, 2012). Implied by the name, NHB competitors did not abide by any rules and often resorted to ruthless and imprudent tactics to win competitions. Simultaneously, a similar combative sporting phenomenon was occurring in South America with the emergence of "vale tudo". Vale Tudo (translated to "anything goes") matches began in the 1930s (Downey, 2007). One family dominated Vale Tudo - the Gracie family. While Carlos Gracie owned a Brazilian Jiu-Jitsu (BJJ) academy and began to teach friends and family the art of Jiu-Jitsu.

Similar to NHB fighting in North America, Vale Tudo allowed competitors to use any technique that was required to defeat an opponent. Competitors included members from opposing karate schools, boxers and Capoeira champions (Walter, 2003). However, unlike NHB fighting in North America, Vale Tudo competitions were held publicly and attracted record crowds and were the most attended sporting event in Brazil (Walter, 2003). As the popularity of Vale Tudo increased, matches were recorded in Europe and Asia (iSport, 2013), and Vale Tudo was growing in most continents with the exception of North America. In 1969, Rorion Gracie, immigrated to the United States to teach BJJ (Downey, 2007) but struggled to popularize BJJ within California.

In September 1989, Rorion Gracie promoted BJJ on a mass scale with an article published in *Playboy* (Gentry, 2011). Rorion issued the “Gracie Challenge”, a \$100,000 prize to anyone who could defeat him or his brothers in a Vale Tudo match (Gentry, 2011; Walter, 2003). This article sparked the interest of the martial arts community and the Gracies soon had many new students and challengers. Of particular importance was the interest of Arthur Davie. Davie, was later partnered with Rorion Gracie and Robert Meyrowitz (president of Semaphore Entertainment Group; SEG) to produce a pay-per-view tournament of martial art and major combat fighting techniques in a tournament style event that would conclude with an ultimate fighter winner (iSport.com, 2013; Walter, 2003). This partnership resulted in the first Ultimate Fighting Championship (UFC) held on November 12, 1993 at the McNichols Arena in Denver, Colorado. At UFC1 fighters who specialized in one form of martial art (e.g., karate, sumo) or combat sport (e.g., boxing, BJJ) competed against each other in an exhibition to determine the ultimate fighting technique and fighter. At this time in MMA history the definition of MMA was known as fighters who used techniques from only one form of martial arts or combat sport in an exhibition against a different martial art or combat sport.

During subsequent UFC matches athletes faced resistance from sport governing bodies in the United States. The most notable was Senator John McCain’s campaign against the UFC (Walter, 2003). This campaign resulted in many American states outlawing MMA competition and the UFC was dropped by several pay-per-view providers (Gentry, 2001). Consequently, Arthur Davie sold the UFC franchise to Zuffa Entertainment on January 9, 2001 (Gentry, 2011). Later that year, the New Jersey State Athletic Control Board (NJSACB) developed and implemented a standard set of rules for professional MMA across North America known as the “Unified Rules of Mixed Martial Arts”. The definition of MMA had now reverted to the original

conception of the sport, a full contact combination combat sport in which athletes integrate the striking and grappling techniques of a variety of other combat sports. Since 2001, several states have begun to legalize MMA, most recently, New York legalized MMA after the 20-year ban, implemented by Senator John McCain (Doyle, 2016).

MMA in Canada

Québec has hosted and broadcasted professional MMA events since 1999, despite MMA being illegal in Canada (Brydon, 2010). However, in Québec the sport of “mixed boxing” known as “boxe mixte” had been legalized under the Act Respecting Safety in Sports (Brydon, 2010). The UFC capitalized on the Canadian province’s legality of MMA and on April 19, 2008, Montreal hosted the first-ever UFC event in Canada, UFC 83 (Stupp, 2008). It was estimated that 42% of tickets sold at UFC 83 were bought by Ontario residents (Ontario Ministry of Consumer Services, 2010). In March 2010, the UFC president Dana White began lobbying for MMA in Ontario (Brydon, 2010).

On August 14, 2010, the Ontario government announced that professional MMA events would legally be allowed in the province (Ontario Ministry of Consumer Services, 2010). On April 30, 2011, UFC 129 was announced. The event had a record attendance of 55,724, the largest attendance at a UFC event (to date) in the history of the UFC (Stupp, 2011). The record attendance provided the UFC with compelling evidence that supported their pursuit of legalizing MMA in Canada. Bill S-209 was passed on June 5, 2013, amending Section 83 of the Criminal Code professional and amateur MMA was considered illegal in Canada. Section 83 of the Criminal Code prohibits prize fighting and defines MMA as an activity that falls within the definition of a prize fight (Gafoor, Waldron, & Ghazi, 2013). Section 83 (2) defines a prize fight as,

An encounter or fight with fists or hands, between two persons who have met for the purpose by previous arrangement made by or for them, but a boozing contest between amateur sportsmen, where the contestants wear boxing gloves of not less than one hundred and forty grams each in mass, or any boxing contest held with the permission or under the authority of an athletic board or commission or similar body establishment by or under the authority of the legislature of a province for the control of sport within the province, shall be deemed not to be a prize-fight. (Government of Canada, 1985, Section 83).

The amendment of Bill S-209 extended the existing section of 83 to allow both professional and amateur fights in combative sport contests other than boxing. Today, MMA still remains illegal in some provinces in Canada (i.e., Newfoundland and Labrador, Prince Edward Island, Saskatchewan, Yukon, and Nunavut) however, there is increasing interest and support to promote legalization (Gafoor, Waldron, & Ghazi, 2013). It has been suggested that in Canada, the legalization of amateur MMA in most provinces and territories has facilitated an increase in the number of gyms that offer MMA, particularly to youth participants (Hunter, 2013).

Media and MMA

Since its inception the UFC and subsequently MMA has been successful in maintaining the over-the-top bloodthirsty image that had created for itself in the media to gain popularity. This was achieved through simulating violence as a strategy to maximize public interest and spectatorship (Smith, 1988; Young, 2003). The UFC marketed campaigns that suggested that “someone may die” in a match, “two men enter, one man leaves”, or “banned in 49 states” (yahoosports.com, 2013). Although this image gained the UFC popularity in its early years, the physical brutality that became associated with MMA fights made it difficult for MMA to gain further legitimacy as a sport. In addition, with fighters adopting a heterogeneous fighting style,

implementation of combat rules, judges and referees MMA was now evolving from its NHB fighting beginnings into an activity more characteristic of a sport. However, MMA remained a spectacle criticized by the media.

Following the implementation of the NJSACB the UFC aimed to gain MMA mainstream sport acceptance. The UFC sought to revolutionize the image of MMA in the media into a “good clean sport with actual rules” (Walter, 2003). Building upon the re-worked marketing strategy of highlighting the fighter Zuffa created The Ultimate Fighter (TUF). TUF was a 13-week series held on the cable broadcaster Spike TV (Gentry, 2011, p 282). TUF would mark the first time an MMA related show would air on public programming.

Prior to the premier of TUF media the UFC had marketed MMA fighters as stronger and larger than any other man. Recalling the competitor pool from UFC 1, Arthur Davies sought out men who embodied the barbaric and ruthless image the UFC was attempting to market (Gentry, 2011). Early MMA competitors were described as villains who represented an extremely masculine gender identity. The image of the UFC fighter was reframed so that competitors were regarded as athletes, and viewers were able to witness the training regiments and the psychological and physical issues MMA athletes had to endure (Gentry, 2011). More importantly, Zuffa Entertainment took over control of the production and dissemination of the UFC public image. In 2005, Zuffa Entertainment banned internet media, and utilized mainstream sports media when promoting the UFC (Gentry, 2011). The UFC had tapped the mainstream sports market and their success was evident in the increasing popularity and with strong Canadian and American audiences.

Today, MMA is described by reporters as “fastest growing spectator sport in the world” (Ferrari, 2013, p.2). Reporters from global media outlets have profiled the benefits and positive

outcomes associated with youth participation in youth MMA programs (e.g., Daily Mail UK, ABC News, USA Today, The Toronto Star, Globe and Mail, New York Times). For example, James Nye of the Daily Mail UK, reported that supporters of MMA believe youth participation encourages self-discipline, fair play and exercise. Horkay (2010) published an article in the Toronto Star that discussed the benefits for children as young as 3 enrolled in MMA classes to include enhanced confidence and self-esteem. MMA gyms have capitalized on media attention regarding positive messages about youth involvement in sport. It could be argued that MMA gyms use anecdotal evidence and selective academic research findings to highlight the benefits of MMA participation (e.g., positive thinking, stress management, anti-bullying skills, goal setting, self-confidence, social skills) to promote youth enrolment. While, popular media has promoted the belief that participation in MMA can promote PYD, their primary source of information is also anecdotal evidence or misinterpreted academic research (Kim, 1991; Seabrook, 2003; Vitali & Brouillard, 2007).

Developmental Outcomes of Martial Arts and MMA

For over 30 years, the outcomes associated with youth participation in martial arts have been empirically studied (Cannold, 1982; Penrod, 1983; Trulson, 1986). This body of research has predominantly explored youth development in martial arts using a deficit reduction approach. Martial arts programs are often used as a behavioral intervention for troubled or delinquent youth (Smith et al., 1999; Trulson, 1986; Zivin, Hassan, DePaula & Monti, 2001). Within this area of study, the identified benefits of youth participation in martial arts include increased self-esteem (Finkenberg, 1990; Theeboom, De Knop & Wylleman, 2008; Trulson, 1986), increased self-regulation (Lakes & Hoyt, 2004), emotional regulation (Konzak & Boudreau, 1984; Wall, 2005), assertiveness (Konzak & Boudreau, 1984), self-confidence

(Duthie, Hope & Barker, 1978; Konzak & Boudreau, 1984), and decreases in aggression (Smith et al., 1999; Trulson, 1986; Zivin et al., 2001).

Reynes and Lorant (2004) conducted a study that examined changes in aggression scores in children who participated in modern competitive martial arts programs, including contact judo and karate over a two-year period. Findings revealed that participation in competitive martial arts did not increase aggression scores. More specifically, youth who participated in judo experienced a decrease in physical aggression scores (Reynes & Lorant, 2004).

Theeboom and colleagues (2009) conducted the only study that has examined the developmental outcomes of youth participation in martial arts programs' using a PYD approach. This qualitative study included youth (ages 8-12) involved in judo, karate, Tae Kwon Do, aikido, wrestling, kick boxing, wushu, and boxing. Youth reported that their practice of martial art was associated with increased self-efficacy and self-confidence. Additionally, youth discussed improved conflict management and communication skills, which they transferred to non-sport contexts with their peers (Theeboom, De Knop, & Vertonghen, 2009). However, a limitation of this study was that the participants' responses were based primarily on hypothetical scenarios. Youth were asked what they "would" do, if they were in a conflict rather than recalling real life situations. In addition, this study did not focus on specific aspects of the martial arts class that may have contributed to the youths' reported experiences (i.e., processes and mechanisms that facilitated PYD).

A 2012, a follow-up study by Theeboom suggested that there is no consensus among current research on the positive developmental outcomes of youth participation in MMA. In addition to the physical injuries that can be sustained with participation in a contact sport, there are several negative psycho-social outcomes associated with youth participation in martial arts.

A study by Endresen and Olweus (2005) examined the impact of participation in martial arts, boxing, wrestling, weightlifting (components of MMA), and power sports, individually and in combination in males ages 11-13 level of violent and antisocial behaviours. Findings suggested that males who participated in these sports experienced an increase in antisocial and violent behaviour in non-sport environments (Endresen & Olweus, 2005). A seminal study by Trulson (1986) reported a similar increase in aggressiveness and delinquency in male participants who were in a modern martial arts intervention group, only focused on technique.

Factors and Processes of PYD in Martial Arts and MMA

Past research has focused on investigating martial arts that integrated Eastern philosophies. Martial arts is an umbrella term used to categorized a wide variety of component sports. There is a large variation in the focus of the components of martial arts. More specifically, the approaches to teaching martial arts can be categorized along a spectrum from traditional to modern. Trulson (1986) explored the differences of the traditional and modern approaches in Tae Kwon Do. The traditional approach includes a meditation period and reminders for self-reflection while the modern approach focuses on technical skill development and performance. The results indicated that the youth who participated in traditional Tae Kwon Do, which stressed the psychological, meditative and philosophical aspects of martial arts skills, experienced significant decreases in aggressiveness and anxiety alongside increased self-esteem, social adroitness and value orthodoxy. Conversely, youth who participated in the modern Tae Kwon Do experienced an increased tendency for aggression associated with delinquency (Trulson, 1986). These findings suggested that traditional martial arts training are effective in facilitating positive changes in youths' personality traits when compared to modern martial arts training (Trulson, 1986).

While Trulson (1986) highlighted an important distinction between the teachings of traditional and modern martial arts, current research does not acknowledge the difference inherent in the various martial art practices. Studies continue to confound the forms of traditional martial arts in their study designs. Trulson (1986) clearly identified that students of traditional martial arts are explicitly taught moral values particularly the concept of non-violence and respect in addition to fighting techniques. Modern martial arts and the remaining spectrum of combat sports (i.e., boxing, Muay Thai, kick boxing, full contact karate, fencing, kendo, aikido, competitive judo and Tae Kwon Do) share the common goal of knocking down or knocking out an opponent (Gauthier, 2009). However, the term martial arts has become synonymous for all forms of combat sport and the positive outcomes associated with traditional martial arts practice cannot be assumed to occur within modern martial arts practice.

Expanding further upon the differences between traditional martial arts and other combat sport, Trulson (1986) identified that structure of traditional martial arts class is an integral aspect related to the mechanisms that facilitate positive outcomes in youth. The structure of traditional martial arts provides an authority figure for students, whereby the instructor becomes a role model for their students. In addition to this, the practice of martial arts is physically exhausting and requires the student to focus their attention to complete skills and tasks while integrating psychological and philosophical lessons into practice (Trulson, 1986). As the integration of reflection periods, meditation and self-discovery are standard practice of traditional martial arts (Zetaruk, 2009), it could be speculated that these specific characteristics of traditional martial arts training are the mechanisms which facilitate positive outcomes and decreased aggression in youth. However, past research has identified that the absence of these characteristics within a modern martial art or combat sport program are not associated with a lack of positive outcomes

development and increases in aggression (Lamarre & Nosanchuk, 1999; Nosanchuk & MacNeil, 1989; Trulson, 1986). While the structure of the traditional martial arts class is viewed as more morally acceptable than other combat sports, the absence of traditional structure is not associated with negative outcomes in youth. The increasing popularity and subsequent increase in participation in fighting sports, in North America, has created a spike in research concerning sport practices amongst youth. The shift in popularity away from the practice of traditional martial arts explains a large gap in existing research to further the explanation of the mechanisms involved in positive developmental outcomes and decreased aggression and violent behaviour in youth. These forms of non-traditional martial arts simply did not exist when the focus on martial arts training for youth was emerging.

Study design has also been a limitation of past research, which has created a gap in understanding the mechanisms involved in developing positive outcomes for youth. The majority of intervention studies that utilized traditional martial arts included a population of delinquent youth. Delinquent youth are defined as having increased levels of physical and verbal aggression, hostility and anger (Reynes & Lorant, 2004; Trulson, 1986). While no research has replicated delinquent youth studies to include a control group of non-delinquent youth, it can be speculated that inclusion of delinquent youth into a program that provides social growth opportunities, along with adult leaders and role models may have had an integral role in the improvements of aggression and violent behaviour in conjunction with the martial arts program. Furthermore, this may explain the findings of a study that investigated the impact of an intervention for martial arts training on participants with average aggression and violence scores. This study concluded that there were less significant or no changes in scores (Rynes & Lorant, 2002; Theeboom et al., 2009). Another limitation of the study design is that most intervention

studies are short term and there are a limited number of longitudinal studies examining martial art interventions. Longitudinal studies are necessary to explore the long term impact of combat sport training on aggression in youth before it can be concluded that participation can increase or decrease aggression levels. Recent research explored the association between higher ranking students who practice combat sport and suggests that these students tend to be less aggressive than individuals from lower levels (Wargo, Spirrison, Thorne & Henley, 2007).

The technique used in MMA and the goal of submitting or knocking out one's opponent to win a match is the principle argument for why MMA is considered a violent sport. Participants of MMA are taught to make devastating hits, choke holds and locks. However, violence is not restricted to MMA, a sport that fundamentally is structured around combat and has implemented a plethora of rules regarding legal strikes and techniques, equipment and fighter health. Violence is experienced in all sports and celebrated by spectators. Fights in non-MMA sports (i.e., football, basketball, hockey, baseball) receive extensive media attention and are often glorified (Kerr, 2002). Often these fights conclude without punishment for the athletes who were involved (Nagel, Southall, O'Toole, 2004). Violent and dangerous acts receive extensive coverage by media because of the appeal to viewers (McCarthy, 2005). However, critics who suggest that participation in MMA can increase violent behaviours in youth often neglect to acknowledge the violence in other sports. Violence in non-MMA sports occurs when players act out in aggression (Vissek & Watson, 2005). Although MMA is a sport that requires participants to intentionally cause injury to one another, the violence occurring is not occurring out of an act of aggression or for media coverage, but rather, is a function of the technique of the sport.

Two main factors have been identified as an integral component of the process of PYD in MMA. First, meditation and reflection have been identified as the main facilitators of positive

outcomes in youth participating in traditional martial arts (Lakes & Hoyt, 2004; Massey, Meyer & Naylor, 2013; Trulson, 1986). Past research that has reported positive development outcomes of youth participation in martial arts often entailed an intervention methodology (Lakes & Hoyt, 2004; Massey et al., 2013; Trulson, 1986). The intervention study design primarily focuses on mindfulness training and meditation facilitated by the martial art coach. Lakes and Hoyt (2004) implemented the Leadership Education Through Athletic Development (LEAD) curriculum facilitated by experienced martial art instructors. In addition to the martial art techniques, instructors began each class with an extended period of silent guided meditation. Students were taught deep-breathing techniques and during the meditation, students were instructed to clear their mind and focus on breathing. Instructors asked students to self-reflect on three questions; (a) Where I am? (b) What I am doing? (c) What should I be doing? Instructors linked the responses to these questions with correcting student behaviour and thoughts. Finally, the instructor placed an emphasis on the student taking responsibility for their behaviour in the LEAD class and in all aspects of their life (Lakes & Hoyt, 2004). Youth in this study were not involved in an intervention program with an explicit focus on life skills development. Following involvement in this study youth they continued to report improvements in various life skills

Next, the coach has been identified as a main factor in the process of PYD in martial arts – or more specifically, the coach's approach to instructing martial arts has been identified (Theeboom, 2012; Theeboom et al., 1995; Vertonghen et al., 2012). The teaching approach of a coach can vary significantly based on the type of martial arts they instruct and their personal characteristics. Vertonghen and colleagues (2012) classified three approaches to teaching martial arts: (a) traditional, (b) efficiency and (c) sporting. The traditional approach is primarily focused on mental and physical balance and often incorporates periods of meditation and reflection into

participant training (Trulson, 1986). There is ample empirical evidence to suggest that participation in traditional martial arts, an aspect of MMA, facilitates positive outcomes in youth. The focus of learning traditional martial arts is on internal maturing and development and control of the mind (Förster, 1986). Participants achieved this through focusing on their internal energy through movement awareness when learning the physical skills of martial arts (Linden, 1984; Spear, 1989). Vertonghen and colleagues (2011) examined the various teaching approaches used in the components techniques of MMA and concluded that karate and aikido were taught using a traditional approach.

The integration of reflection periods, meditation and self-discovery are standard practice of traditional martial arts (Zetaruk, 2009). Past research has identified that the absence of these characteristics within a modern martial art or combat sport program are not associated with lack of positive outcomes development but associated with increases in aggression (Lamarre & Nosanchuk, 1999; Nosanchuk & MacNeil, 1989; Trulson, 1986). The efficiency approach to teaching martial arts represents an approach to martial arts focused primarily on the combative aspects of martial arts with the goal of enhancing fighting techniques (Theeboom et al., 1995). Kickboxing and Thai boxing are examples of MMA component techniques that are often taught using the efficiency and sporting approach (Vertonghen et al., 2012) The sporting approach recognizes the positive impact of martial arts on the physical, mental and social development of participants while practicing or improving their technical martial art skills (Vertonghen et al., 2012). It has been suggested that the traditional and sporting approaches to martial arts are more appropriate for youth than the efficiency approach (Theeboom, 2001). The approach to teaching martial arts by a coach can influence student outcomes and development (Theeboom et al., 1995;

Cox, 1993). Theeboom and colleagues (2011) stressed the importance of future research to examine teaching approaches in other forms of martial arts and their impact on participants.

Gender in MMA

Typically, youth sport in Western societies has been sex-segregated or heavily gendered (i.e., masculine sport, feminine sport; McDonagh & Pappano, 2008). MMA provides a unique environment that occurs in as mixed sex training or programming (Channon, 2014). Zimmerman (1987) suggested that gender is accomplished through an individual's performance in social interactions rather than a fixed set of attributes or genetically. As such, people will act in ways that confirm to the culturally acceptable ideals of masculinity and femininity; this performance is a way of establishing social identity (Zimmerman, 1987). The construction of gender can therefore impact how an individual behaves, dresses and communicates (Zimmerman, 1987). A hierarchy exists between the sexes that privileges men; women are perceived to be physically and intellectually inferior (Connell, 1987). Findings from sociological literature have criticized sport and physical education for facilitating gender divisions and male superiority (Connell, 1987). Recently, researchers have begun to explore the potential of sex-integrated sports to provide a chance to refute culturally determined ideas of gender (Channon, 2014). Channon (2014) explored the impact of sex-integration in martial arts and combat sports. Participation rates among men and women classes varied, some had even ratios while others were male dominated (Channon, 2014). Females physically demonstrated the potential of women's abilities in sport naturalizing stereotypes associated with female participation in martial arts (Channon, 2014). Females identified that they had an important role in helping men in their martial arts programs move past culturally determined gender ideals (Channon, 2014). Channon (2014)

concluded that mixed-sex sports can facilitate a progressive, inclusive and liberal form of physical culture.

Theoretical and Conceptual Frameworks

Ecological Systems Theory

The Ecological systems theory (EST) approach to exploring human development aims to provide a deeper understanding of the factors, processes and outcomes of human development as a joint function of the person and the environment. Fundamentally, the EST is “the study of development in real life settings” (Bronfenbrenner, 2005, p. 95). EST suggests that human development “is a function of forces emanating from multiple settings and from the relations between these settings” (Bronfenbrenner, 1999, p.17). The EST includes five nested levels of environments that exist in an individual’s life.

The first level is the microsystem and is the most proximal layer to the individual. This includes pattern of activities, roles, and interpersonal relations experienced by the developing individual in a face-to-face setting with particular physical and material features and containing other persons with their own distinctive characteristics of temperament, personality and systems of belief (Bronfenbrenner, 2005). For example, the microsystem can consist of the complex relationships between the youth and their coaches, parents and peers

The next stage is the next level is the mesosystem. This consists of the linkages and processes that take place between those within the individual’s microsystem (Bronfenbrenner, 2005). For example, youths; mesosystem can consist of the interactions between their parents, coaches, peers and MMA program. While the interactions in the mesosystem do not include the youth, the decisions, results or outcomes of the interrelationships and interactions between those within this stage can impact how those within the microsystem interact with the youth.

The exosystem is the third level and is an extension of the mesosystem. This stage is comprised of the social structures that impact those within the youths' microsystem. The exosystem explores the linkages and processes taking place between two or more settings. These settings may not contain the developing individual however, an interaction, relationship or event can occur that influences the processes (e.g., members of the microsystem) within the immediate setting that does contain the developing individual (Bronfenbrenner, 2005). For example, a parent might lose their job and while this does involve the child, the family might have to relocate for the parent to get a new job. This would change the members of the child's microsystem even though they did not initiate these changes.

The fourth level is the macrosystem and consists of the overarching pattern of microsystem, mesosystem and exosystem characteristics of a given culture, subculture or other broader social context (Bronfenbrenner, 2005). As such, the microsystem, mesosystem and exosystem are manifestations of the macrosystem (Bronfenbrenner, 2005). There is a particular focus on the developmentally instigative belief systems, resources, hazards, lifestyles, opportunity structures, life course options, and patterns of social interchange that are embedded in each of these systems. The macrosystem can consist of public policy, culture, government and economic systems.

The last level is the chronosystem, this consists of the experiences that an individual has over their lifetime (Bronfenbrenner, 2001; 2005). These experiences can impact how the individual interacts with the other stages within the EST (Bronfenbrenner, 2005). For example, major household living changes (e.g. parents' divorce) can affect an individual's behaviour towards the members of their microsystem (e.g. parents).

Experiential Learning Theory

Experiential Learning Theory (ELT) derived from prominent theories of human learning and development (e.g. Kurt Lewin; The Lewinian Model of Action Research and Laboratory Learning, John Dewey; Dewey's Model of Learning, Jean Piaget; Model of Learning and Cognitive Development, William James; James-Lange Theory of Emotion, Paulo Freire: Pedagogy of the Oppressed, Carl Rogers; Learner Centred Teaching). ELT is a widely used theory that offers a dynamic and holistic model to explore the process for learning from experience. ELT define learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (Kolb, 1984, p.41). As such ELT recognizes the importance personal experience as a learning source (Kolb, 1984).

Experience provides an information source that when reflected upon by the individual can promote learning (Kolb, 1984). The ELT model identifies two related dimensions of grasping experience (i.e. concrete experience; CE, abstract conceptualization; AC) and two related dimensions of transforming experience (i.e. reflective observation; RO, active experimentation; AE). Together these two dimensions formed by the four components (i.e. CE, AC, RO, AC) represent the ELT model (Kolb, 1984).

During concrete experience, the learner will be involved in a new experience. Reflective observation, they must be able to reflect on their experience from a new perspective. Abstract conceptualization occurs when the learner is able to create concepts that integrate their observations into logically sound theories and active experimentation is the application of these theories by the learner to make decisions and solve problems (Kolb, 1984). ELT has predominately been applied in studies of learning from experience with adults. However, it has

been suggested that the principles of ELT can be adapted to youth learning and adaptations of experiential learning have been used by past research (Burns & Gentry, 1998; Chun-Wang, I-Chun, Ling, & Nian-Shing, 2011). Furthermore, Kolb & Kolb (2008) purposed that ELT is applicable to beyond classroom learning context into non traditional learning environments (i.e. sport).

Chapter Three

What the websites of mixed martial arts gyms claim they do:

A content analysis

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Chapter Three Overview

Reporters for mass and popular media have featured the benefits of youth participation in sport. Mixed Martial Arts (MMA) gyms appear to draw upon popular media, in addition to anecdotal evidence and selective academic research findings, to promote the benefits of their youth programs to parents. The purpose of this study was to describe the content of MMA gyms' youth programs' webpages, with a particular focus on examining proposed developmental outcomes for youth, and processes of facilitation of these outcomes. This study involved a quantitative content analysis of 18 MMA youth gym websites in Toronto, Canada. A 37-item coding manual was developed to categorize all content. Categories included: general information, MMA gym's goals, 4Cs developmental outcomes (i.e., competence, confidence, connections, character; Lerner et al., 2005), 4Cs processes of facilitation, sources of information, and non-relevant messages. The findings are discussed within the context of the 4Cs and current research examining the positive developmental outcomes of youth participation in martial arts.

What the websites of mixed martial arts gyms claim they do:

A content analysis

Positive Youth Development (PYD) is a branch of developmental psychology that emphasizes an “asset building” model (Roth & Brook-Gunn, 2003). The asset building model considers youth as assets to be developed and explores youths’ optimal developmental potential, rather than the traditional “deficit reduction” model, emphasizing youths’ problems or character gaps needing modification (Damon, 2004). Lerner and colleagues (2005) have suggested that recent changes in family demographic trends have encouraged current research to explore the outlets of how and where youth spend their time after school and the opportunities within these contexts that support PYD. In Canada, sport has been identified as a popular outlet for youth participation (Canadian Fitness and Lifestyle Research Institute, 2010). More specifically 75% of children and youth between 5 and 17 years participate in an organized sport program (Canadian Fitness and Lifestyle Research Institute, 2010).

PYD through sport research has focused on exploring the promotion of youth development of positive outcomes or assets, rather than using sport as a tool to prevent or correct negative behaviours and psychological issues among youth (Lerner, Almerigi, Theokas & Lerner, 2005). More specifically, sport is seen as a vehicle for enhanced educational experiences and engagement in productive activities (e.g., Danish, Taylor, Hodge, & Heke, 2004; Gould & Carson, 2008). However, it has been suggested PYD through sport does not occur automatically (Fraser-Thomas, Côté, & Deakin, 2005; Petitpas, Cornelius, Van Raalte, & Jones, 2005); rather, sport can be used as a vehicle through which life skills development can be facilitated, offering youth opportunities and experiences that promote self-discovery. In particular, the importance of optimally designed programs has been highlighted (Fraser-Thomas et al., 2005).

The 5Cs of Positive Youth Development

The 5Cs model has been applied extensively to the study of PYD in youth developmental programs. Initially, Little (1993, as cited by Lerner, Lerner, Almerigi, Theoaks, Naudeau et al., 2005) proposed the 4Cs model of PYD, which identified the indicators of PYD as competence, confidence, connection and character. Subsequently, Lerner and colleagues (2005) added a fifth C, caring/compassion, resulting in the 5Cs model, one of the most widely used frameworks in PYD research. In sport settings, Côté, Bruner, Erickson, Strachan and Fraser-Thomas (2010) suggested collapsing the category of caring/compassion into character, arguing there was a lack of differentiation between these outcomes within sport development literature, thus supporting the return to the original 4Cs model (Little, 1993) in sport. Vierimaa, Erickson, Côté, and Gilbert (2012) highlighted that little empirical research exists to advance our understanding of the 5Cs (or 4Cs) in sport settings, identifying a lack of understanding of the relationship between youth sport participation, PYD, and the impact on other life domains. While research has identified several developmental outcomes associated with youth sport participation (e.g., academic achievement, personal and social skills; Camiré, Trudel & Forneris, 2012; Fraser-Thomas et al., 2005; Strachan, Côté & Deakin, 2011), much less work has focused on the context or processes that may be facilitating these outcomes (Vierimaa et al., 2012).

Processes of Positive Youth Development in Sport

Three context-related factors have been highlighted as contributing to the processes of PYD facilitation in sport; these include the coach, the program design, and the coach/program's overall approach to facilitating PYD. For example, in their study of ten outstanding high school football coaches, Gould and colleagues (Gould Collins, Lauer, & Chung, 2007) identified coaches' strategies for enhancing athletes' personal characteristics and life skills development; these included focusing on relationships with players, treating players like young adults, and

encouraging open communication. Further, Camiré and colleagues (2012) highlighted additional specific strategies such as establishing social consciousness amongst team athletes, the use of peer evaluations, providing athletes with opportunities to exhibit skills for other athletes, modeling, and taking advantage of teachable moments. Also noteworthy is that coaches felt they had increased success in facilitating life skills when the student athletes' individuality or pre-existing make-up (e.g., socioeconomic status, skills required to succeed in life after high school) was considered.

Sport program design is another factor that has the potential to influence developmental outcomes (Camiré & Bernard, 2013; Turnnidge, Côté & Hancock, 2014). The National Research Council and Institute of Medicine (NRCIM) proposed eight features of positive developmental settings: (a) physical and psychological safety, (b) appropriate structure, (c) supportive relationships, (d) opportunities to belong, (e) positive social norms, (f) support for efficacy and mattering, (g) opportunities for skill building, and (h) integration of family, school, and community efforts (Eccles & Gootman, 2002). These were established following extensive literature review within the field of developmental science; they are the most widely used and recognized program features that can facilitate PYD. McLaughlin (2000) suggested that PYD is optimized when sport programs implement multiple setting features simultaneously.

Furthermore, coaches and program designs can impact the overall approach to PYD facilitation through sport. Turnnidge and colleagues (2014) identified two distinct approaches to how youth sport programs may facilitate life skills development. First, an explicit approach utilizes sport-based youth programming as a context for program leaders (e.g., instructors, counsellors, coaches) to purposefully teach life skills within a sport context. In contrast, the implicit approach focuses primarily on the development of sport-specific skills; life skills are not

deliberately taught or integrated into the sport program, but social and personal skill development is encouraged. As with the research on coaches and program design, little to no research has focused specifically on examining explicit and implicit approaches; however, Camiré and colleagues (2012) found that purposefully incorporating the teaching of life skills into coaching philosophies was beneficial.

Mixed Martial Arts and Positive Youth Development?

One recently emerging and rapidly growing sport among youth is Mixed Martial Arts (MMA; Hunter, 2013). MMA is a full contact combat sport that integrates striking and grappling techniques from a variety of other combat sports (i.e., boxing, sumo, jujitsu, wrestling, karate, Brazilian jujitsu, kickboxing, and Tae Kwon Do) (MMA wiki, 2013; Downey, 2007). At its inception in the 1990s, MMA began as a fringe sport, banned and illegal in North America (Santos, Tainsky, Schmidt & Sim, 2013). Today, MMA is described as the “fastest growing spectator sport in the world” (Ferrari, 2013, p.2) and has been spotlighted extensively within popular media. While MMA remains illegal in some states in the United States and provinces in Canada (i.e. Alaska, Montana, Newfoundland and Labrador, Prince Edward Island, Saskatchewan, Yukon, and Nunavut), there is increasing interest and support to promote legalization. Most recently, New York legalized MMA within the state after a 20-year ban (Doyle, 2016). It has been suggested that in Canada, the legalization of amateur MMA in most provinces and territories has facilitated an increase in the number of gyms that offer MMA, particularly to youth participants (Hunter, 2013).

Reporters for global mass media sources (e.g., Daily Mail UK, ABC News, USA Today, The Toronto Star, Globe and Mail, New York Times) have profiled the benefits and positive outcomes associated with youths’ participation in MMA programs including positive thinking,

stress management, anti-bullying skills, goal setting, self-confidence, and social skills. For example, James Nye (2013) wrote in the Daily Mail UK that supporters of MMA believe participation encourages self-discipline, fair play, and exercise. Horkay (2010) published an article in the Toronto Star that discussed MMA's benefits for children as young as 3, including enhanced confidence and self-esteem. Yet, while popular media has promoted the belief that participation in MMA can facilitate PYD, media's primary sources of information have often been anecdotal or have been based on misinterpreted academic research (Kim, 1991; Seabrook, 2003; Vitali & Brouillard, 2007). In turn, MMA gyms appear to have capitalized on media attention regarding positive messages about youth involvement in sport to promote youth enrolment in MMA.

Only a limited amount of empirical research exists suggesting MMA can positively impact youths' development. This research identifies benefits in the areas of increases in self-regulation (Lakes & Hoyt, 2004), reductions in stress (Wall, 2005) reductions in school violence (Smith, Twenlow, & Hoover, 1999; Theeboom, De Knop & Vertonghen, 2009), and increases in self-confidence and self-efficacy (Theeboom et al., 2009); however, these studies included the practice of other forms of Martial Arts including traditional Martial Arts which possess fundamentally different philosophies and strategies than MMA (Trulson, 1986). Consequently, MMA gyms' programs could be misleading to consumers, such as parents of potential youth MMA participants.

Messages portrayed on MMA gym websites are particularly important, as the Internet has been used increasingly as a tool to gather information to make consumer decisions (O'Neill, 1999), such as parents' decisions around children's sport participation. Further, it has been identified that parents rely on the Web as a primary source of information regarding child

development (Rothbaum, Martland & Jannsen, 2008), and that parents enrol their children into organized sport programs because of the potential for their child's positive development (Neely & Holt, 2014).

Rationale and Purpose

Given that MMA is a newly established and rapidly growing sport in Canada, coupled with questions surrounding claims of developmental outcomes for youth through MMA, alongside parents' growing practices to gather and utilize website information, it is important to explore the content of the MMA gym websites. Therefore, the purpose of this study was to describe the content of MMA gyms' youth programs' webpages, with a particular focus on examining proposed developmental outcomes for youth, and processes for facilitation of these outcomes.

Methods

Quantitative Content Analysis

This study utilized a quantitative content analysis (QCA) approach. A QCA has been identified as a "research technique used in the systematic, objective and quantitative description of content used for communication" (Berelson, 1952, p.18). The quantitative approach is often used to describe the surface content of communication (Berelson, 1952), in contrast to a qualitative content analysis, which aims to focus on the "characteristics of language as communication with attention to the content or contextual meaning of the text" (Hsieh & Shannon, 2005, p.1278). A quantitative approach was preferred over a qualitative approach as the purpose of this study was to provide a description of MMA website youth program information. As this was, to our knowledge, the first study to explore MMA website content with a focus on youth programming, our aim was to initially provide a descriptive overview of

website content prior to providing an interpretation of the content. This study adhered to the five steps for developing a theoretically valid protocol for QCA: (a) identifying the purpose of the coding data, (b) identifying behaviours or content that represent the construct, (c) reviewing the categories and indicators, (d) testing the preliminary codes, and (d) developing guidelines for interpretation of the coding scheme (Rourke & Anderson, 2004).

Data Collection

Website Inclusion. During the period of August 2014 to September 2014, a search was conducted using the Google search engine, for MMA gym websites within Toronto (Canada's largest city), with youth programs or classes (i.e., for ages 9-18). Toronto was chosen as an appropriate search site, as youth MMA appears to have seen unprecedented growth in this city, since legalization of MMA in the province of Ontario in 2011 (Ferrari, 2013). Given the study's focus, key search terms were: (a) Youth MMA programs Toronto, (b) Youth MMA Toronto, (c) Kids MMA Toronto, (d) Kids MMA programs Toronto, and (e) Kid MMA classes Toronto.

Figure 1 provides a diagram of website selection and inclusion. An initial search of key phrases yielded a combined total of over three million websites; these were screened according to five inclusion criteria: (a) was displayed on the first five pages of the search results, (b) offered an explicit child or youth program, (c) specifically offered an MMA program (versus a more general martial art program), (d) was located in the Greater Toronto Area, and (e) offered currently active youth programming. One hundred and fifty-seven websites were eligible for inclusion following the application of the five inclusion criteria; however, following further manual review, 139 websites were removed, primarily due to duplication, leaving a total of eighteen MMA gym websites that were included for analysis in this study.

Data Extraction. For each of the 18 websites included in the study, the home page and all links and pages with youth MMA program information were screenshot and saved into a word document file, resulting in 18 separate files. Given the study's objective to describe the content of MMA gyms' youth programs' webpages, each website's written content for the youth MMA section was coded using a coding manual (described below).

Data Analysis

Coding Manual. A coding manual (Table 1) was developed to capture the content of information presented on MMA websites. A priori coding was used, as suggested by Neuendorf (2002). The researcher identified potential codes for topics inherent within the websites' content, drawing upon existing theory and frameworks of PYD through sport (e.g., Camiré, Forneris, Trudel, & Bernard, 2011; Camiré et al., 2012; Fraser-Thomas, & Côté, 2009; Fraser-Thomas et al., 2005; Gould, & Carson, 2008; Holt, Tink, Mandigo & Fox, 2008). Revisions were made when necessary to ensure the categories were concise and relevant (Weber, 1990). Six main categories were established: (a) general information, (b) MMA gym's goals, (c) 4Cs developmental outcomes, (d) 4Cs processes of facilitation, (e) sources of information, and (f) non-relevant messages. Three categories (i.e., general information, MMA gym's goals, and sources of information) included content that suggested the program could promote PYD. Two categories (i.e., 4Cs developmental outcomes, and 4Cs processes of facilitation) included content related to developmental outcomes and processes by which MMA programs facilitated these outcomes. The final category (i.e., non-relevant messages) encompasses all other content. A total of 37 subcategories were developed within the six main categories; sample content for each subcategory is provided within Table 1.

Coding Procedure. First, a draft coding manual was applied to three websites. A line-by-line coding protocol was administered to each sentence. As suggested by Krippendorff (1980), coding units were defined by their intuitive borders, therefore, if more than one category appeared in a sentence it was coded for each category. The first draft manual required minor revisions, as some coding units were unable to be placed in a category or sub-category.

Coding Reliability. To establish inter-rater reliability of the revised coding manual, three websites were randomly chosen and coded independently by two researchers. The codes were then compared for any differences, which were discussed until an agreement was reached. The primary researcher then coded the remaining websites.

Code Analyses. First, in line with the purpose of the study, the coding manual was used to describe the content of MMA gyms' youth programs' webpages. All coded statements were counted to determine a frequency count for each of the 37 possible codes. Next, all frequencies were summed to determine a total frequency count for all codes. Frequency counts and percentage scores were then calculated for all categories and sub-categories. Between category frequencies were identified by dividing each of the six categories' frequencies by the total frequency of all coded statements. Within category percentages were determined by dividing each subcategory by their respective total category frequency.

In line with the study's focus on examining proposed developmental outcomes for youth, and processes of facilitation of these outcomes, the two main categories related to the 4Cs were further analyzed. Specifically, the developmental outcomes (e.g., focus, respect, self-esteem, communication) were categorized into one of the 4Cs, and the total frequency for each of the 4Cs outcomes (i.e., competence, confidence, connections, and characters) was determined. Finally, the processes for facilitation (i.e., mechanisms to facilitate outcomes, coach role,

opportunity to use, peer role) were categorized into one of the 4Cs, and the total frequency for each of the 4Cs processes of facilitation (i.e., competence, confidence, connections, and characters) was then determined. The percentage scores of 4Cs developmental outcomes and 4Cs processes of facilitation were calculated by dividing the frequency of each by their respective 4C total frequency.

Results

Description of MMA Program: Written Website Content

Table 2 provides the frequencies and percentages for all coded written website content. Overall, a total of 811 statements were coded. Approximately one quarter of all website content contained general information (23.80%), while MMA gyms' goals represented only 9% of website content. One quarter of codes were also represented by 4Cs developmental outcome (25.03%), and 12.21% reflected information on 4Cs processes for facilitation. Sources of information accounted for 15.54% of all website content and non relevant messages represented 14.43% of all website content.

General information. Overall the category of general information was comprised of 193 coded statements. Information regarding the coach or instructor's background and experience and the gym's environment or physical setting (32.12%) was the most prominent subcategory for general information that appeared on MMA gym websites. This information often included descriptions of coaches' MMA competition history and training, and the description of a safe and fun environment. Scheduling (42.47%) and weekly class times (reasons for participating in MMA; 23.32%) appeared as the next most prominent sub-categories of general information.

MMA gym's goals. This category was comprised of 73 coded statements. Of the three sub-categories only transfer of life skills goals (69.86%) and positive development and

experiences (30.14%) appeared on MMA websites; no negative development and experiences were presented within any of the 18 websites. The positive development and experience subcategory included vague statements about the potential for youth development such as, “your children will learn basic skills” (MMA website 1) and “developing the child as a whole” (MMA website 18).

4Cs developmental outcomes. A total of 203 coded statements reflected 4Cs developmental outcomes. Specifically, competence related outcomes represented the greatest number of statements on MMA websites (i.e., 38.42%), followed by character-related outcomes (26.11%), confidence outcomes (18.72%) and connection outcomes (16.75%).

4Cs processes of facilitation. Overall 99 coded statements related to the processes of facilitating developmental outcomes, representing 12.21% of all websites written content. Descriptions about program related mechanisms facilitating developmental outcomes comprised 71.72% of all coded process statements, followed by details regarding the coach’s role (15.15%), the opportunity to use life skills (7.07%), and peers’ role (6.06%).

Sources of information. This subcategory consisted of a total of 126 coded statements. Within this category cited academic evidence (1.59%) and child testimonial (0%) represented the least used sources of information by MMA websites. Un-cited academic evidence (20.63%) and non-referenced statements (42.86%) made up nearly two thirds of the sources of information.

Developmental Outcomes Categorized by 4Cs

A total of 33 different developmental outcomes were identified by MMA websites, which were organized into one of the 4C categories. Thirteen developmental outcomes represented the category of competence with the three most frequently stated outcomes related to fitness (11.82%), anti-bullying (6.90%) and balance (3.94%). Five developmental outcomes aligned with the category of confidence including self-confidence (7.88%), self-esteem (5.91%) and self-

knowledge (2.46%). Only three developmental outcomes represented the category of connection: social skills (7.39%), communication (5.42%) and cooperation (3.94%). The category of character was comprised of twelve different developmental outcomes with the most frequently appearing outcomes on MMA websites being discipline (5.42%), respect (5.42%) and control (3.35%). Overall, patience, anger management, inner resolve, courage, and drug avoidance were the least frequently mentioned developmental outcomes appearing only once on youth MMA websites.

Processes for Facilitating Developmental Outcomes Categorized by 4Cs

Competence. Statements regarding the processes of facilitating competence in youth MMA participants represented the most prominent category (36.67%). Approximately one quarter (25.25%) of processes outlined program-related mechanisms to facilitate competence, 5.05% outlined the coach's role in facilitating competence, 3.03% outlined opportunities for use of competence learned in MMA, outside MMA, and 3.03% of statements were characterized by peers' roles in facilitating competence.

Confidence. Processes for facilitating confidence were described by 16.16% of all website content. Program-related mechanisms made up 13.13%, the coach's role was comprised of 2.02% of statements and peers' role was described by 1.01%. No information was provided on any websites regarding opportunities to use confidence developed in MMA.

Connection. One third (33.33%) of content related to the processes for facilitating connection in MMA. Specifically, program-related mechanisms made up 19.19% of statements, the coach's role in developing connection was represented by 8.08% of content, opportunities to use connection made up 4.04%, and the peers' roles represented 2.02% of statements on MMA websites.

Character. Finally, processes for facilitating character represented 14.14% of all statements, with all statements in the form of program related mechanisms. No statements regarding the coach and peer role or opportunity to use character skills appeared on any websites.

Discussion

The main findings of this study highlight that 23.7% of extracted data was general information, 9% focused on MMA gyms' goals, 25.03% emphasized developmental outcomes (i.e., 4C's of competence, confidence, connections, character; Lerner et al., 2005; Vierimaa et al., 2012), 12.21% spoke to processes of facilitating developmental outcomes, 15.54% provided sources of information, and 14.43% was comprised of non-relevant messages. This study described the content of MMA gyms' youth programs' webpages, with a particular focus on examining proposed developmental outcomes for youth, and processes of facilitation of these outcomes. Below, we discuss the findings of this study within the context of current PYD through sport research and outcomes of martial arts research, given the limited work conducted on MMA specifically. Further, we discuss the overall website content with a particular focus on the parent as the targeted viewer. Finally, we conclude by outlining some the study's strengths and limitations, and subsequent directions for future research.

Developmental Outcomes and Processes of Development

As noted above, the largest portion of website extracted data (25.03%) focused on developmental outcomes, which were found to align with the framework of the 4Cs, identified as indicators of PYD through sport (Lerner et al., 2005; Vierimaa et al., 2012). Past PYD through sport research has highlighted associations between youths' sport participation and increased self-confidence, internal locus of control, initiative, problem solving skills, goal setting, leadership, teamwork, communication, managing emotions and time management (Danish,

Taylor & Fazio, 2003; Hansen, Larson & Dworkin, 2003; Petitpas & Champagne, 2000; Papacharisis, Goudas, Danish & Theodorakis, 2005). Similarly, in their extensive review of the literature exploring the social-psychological outcomes associated with martial arts practice in youth, Vertonghen and Theeboom (2010) concluded that participation in martial arts demonstrated a trend for improved psychosocial skills. Thus, while there is substantial evidence suggesting youth sport participation has the potential to facilitate PYD, it is important to remain cognizant of the appeal of assuming cause and effect (i.e., that participation in MMA leads to positive developmental outcomes) and recognize that this process is not automatic (Camiré et al., 2012; Fraser-Thomas et al., 2005; Holt et al., 2008; Strachan et al., 2011).

In this study, nearly two thirds of the content in the developmental outcomes category was coded as a competence (38.42%) or character (26.11%) outcome. These website claims are in line with past research on youths' participation in martial arts, which has identified increased self-regulation (Lakes & Hoyt, 2004), self-confidence, and self-efficacy (Theeboom et al., 2009), in addition to reductions in stress (Wall, 2005), school violence (Smith et al., 1999; Theeboom et al., 2009; Zivin, Hassan, DePaula, Monti, Harlan, Hossian, & Patterson, 2001), hostility, and aggression (Edelman, 1994; Norsanchuch & MacNeil, 1988; Reynes & Lorant, 2004). However, Rosenstein (2010) conducted a quantitative study to examine change in character strength (i.e., measuring values in action, strengths for youth; Peterson & Seligman, 2004) in youth participating in Brazilian Jujitsu, finding that participation *did not* have an impact on character development. Additionally, Brazilian Jujitsu participation has actually been linked to increased levels of aggression and violent behaviour in youth (Trulson, 1986; Nosanchuck & MacNeil, 1998), highlighting that in some cases, developmental outcomes can actually be negative.

As smaller portion of website content (12.21%) focused on processes by which to facilitate developmental outcomes; this lesser emphasis is consistent with the minimal research focus on this component of PYD. As previously noted, existing (limited) research has focused on coaches' roles, program design, and program approach in PYD facilitation; content of MMA websites aligned with and advanced understanding within each of these streams of facilitation. Specifically, 71% of the content within the 4Cs processes category spoke to the program-related mechanisms, with six of the eight setting features outlined by NRCIM (Eccles & Goodman, 2002) represented: physical and psychological safety (e.g., MMA programs had established practice plans, proper coach supervision), appropriate structure (e.g., MMA programs had clear rules and expectations, detailed descriptions of training settings), positive social norms (e.g., through MMA programs, youth learn to respect rules), support of efficacy and mattering (e.g., MMA programs develop youth to meet program goals), supportive relationships (e.g., with MMA coaches and peers), and opportunities for skill building (e.g., through MMA coach and peer-facilitated learning).

The role of the coach represented 15% of the context within the 4Cs processes category; however, this percentage may be misleading, given the inherent role of the coach in facilitation through various mechanisms (noted above). Past research has emphasized the importance of coaches having a coaching philosophy, developing meaningful relationships with their athletes, and intentionally planning to teach life skills and transfer to athletes (Camiré et al., 2011). Interestingly, MMA websites did not provide information regarding the youth coach's individual coaching philosophy in the youth section of their websites. Rather the content most often focused on explaining how the coaches intentionally integrated life skills development into their MMA

programs. The purposeful integration of teaching life skills in the MMA sport context aligns with the aims of the implicit approach of youth sport program design (Turnnidge et al., 2014).

One final point of note in considering this study's findings - it is important not to confound understanding of MMA outcomes and processes of facilitation, with outcomes and processes in other forms of martial arts. Theeboom (2012) argued that the duality of outcomes associated with youth participation in martial arts has created an ambiguous public belief regarding the value and legitimacy of martial arts as a youth activity. MMA is comprised of a variety of forms of martial arts (e.g., boxing, Brazilian Jijitsu), and (limited) research suggests some forms of martial arts are associated with positive and education outcomes because of the focus on philosophical and spiritual aspects, while other forms are associated with aggression and violence as they are perceived to empathize physical power (Theeboom, 2012). It is not yet clear where MMA may fit on this spectrum of developmental processes and outcomes. Based on this study's findings, it is likely there is also much variability across MMA programs. As such, there is a need for future researchers to clearly define and describe in detail the martial arts programs being investigated, with consideration to developmental outcomes and processes of achieving those outcomes, to in turn advance knowledge and understanding of specific martial art forms.

Overall Website Content: Drawing in Parents

Finally, a large portion of extracted data fell in the category of general information (23.7%), with a smaller amount falling into the category of MMA gyms' goals (9%). These categories are particularly noteworthy for their focus on positive (albeit general and vague) benefits, development, and experiences of MMA participation. More specifically, none of the MMA gym websites reported any negative outcomes associated with youth participation.

It has been suggested that positive beliefs regarding psychosocial outcomes of youth participation in martial arts have been predominantly shaped by media, the entertainment industry, and anecdotal stories from those involved with martial arts (Grady, 1998; Martin, William, Whisenaunt & Dees, 2014; Santos, Tainsky, Schmidt & Shim, 2013; Smith, 1999), making MMA highly susceptible to misguided perceptions of developmental outcomes. This is consistent with the findings of this study, as approximately 98% of website content regarding youth development outcomes in MMA is not scientifically referenced information. The majority of information on MMA websites was presented as an instructor or parent testimonial, or as statements providing information without an original source. It has been suggested that a successful online presence is achieved by providing a website with accurate, informative, updated and relevant information for customers (Hernández, Jiménez & Martín, 2009); however, the inherent irony is that impressionable customers (i.e., parents) are relied upon to also provide a critical lens to what they are most eager to hear.

Parents have been identified as the gatekeepers for their child's involvement in sport and physical activity (Fredricks & Eccles, 2004; Gustafson & Rhodes, 2006). Parents most often provide tangible support for their child's involvement in sport, such as providing registration fees and equipment, transportation, enrollment, access and opportunity (Green & Chalif, 1998; Hovell, Kolody, Sallis, & Black, 1996; Sallis, Alcaraz, McKenzie et al., 1992; Wuerth, Lee, Alftermann, 2004). Neeley and Holt (2014) suggest that parents typically chose a sport program for their child based on the positive benefits their child may acquire through participation. Therefore, organized sport programs are designed to meet the parent's expectations for experiences and development for their child (Neely & Holt, 2014). Parents perceive the benefits of sport participation to be development of personal, social and physical skills (Neely & Holt,

2014). In turn, MMA gyms have developed websites that promote the positive developmental outcomes desired by parents.

Testimonials are a strategy used by businesses in which a typical customer discusses their experiences and describes the positive outcomes of benefits they received as part of their interaction with the business (Belch & Belch, 1998). Testimonials are an effective marketing strategy for businesses as potential consumers often trust, believe and have confidence in the customer providing the testimonial (Raphel, 1997). Also, consumers are more likely to be persuaded by the testimonial when it aligns with their needs and values (Appiah, 2006). Lantz (2002) identified several reasons families participate in martial arts including: improved self-defence, self-confidence, physical fitness, concentration, respect and moral development, and social networks. This aligns with the content within the testimonial used on MMA gym websites. Most MMA gyms' websites are operated or controlled by gym owners, leaving the posting of information entirely to owners' own digression, to in turn control the content displayed to the public. Thus, it appears that content of MMA websites included in this study were products of a business strategy utilizing testimonials to attract consumers, rather than providing objective information regarding MMA participation.

Strengths, Limitations, and Future Directions

There are several strengths to this study. To our knowledge, this is the first study to examine the content of MMA websites using a PYD framework. The QCA provided a robust systematic method for describing the content of MMA gyms' youth programs' webpages, with a specific focus on the developmental outcomes for youth, and processes for facilitation of these outcomes. Further, this study took place at a key time in the history of MMA, as the sport rapidly evolved from being illegal in most western countries, to acquiring legal status in almost all

American states and several Canadian provinces/territories, which has been accompanied by a wave of interest and promotion among youth participants.

Despite the strengths of this study there are a few limitations. First, while a robust methodology for showing trends in website content, the QCA methodology does not provide an explanation for these trends. For example, findings from this study suggested that competence and character are the most reported 4Cs outcomes on MMA gym websites while connection and confidence appear less often. Future research should explore underlying reasons for these frequencies. Do the most commonly stated outcomes align with the most commonly promoted and developed outcomes within these programs? Or perhaps stated outcomes have a greater alignment with consumer (i.e., parent) preferences for youths' developmental outcomes. Future studies should use a variety of methodologies including observation, journaling, questionnaires and interviews to better understand the potential alignment or misalignment between websites' stated outcomes stated and actual developmental outcomes expressed by youth involved in MMA.

A second limitation relates to the generalizability of the findings, given this study's unique position in time and place (i.e., in Toronto, a hub of MMA growth, at a time of tremendous evolution within the sport). Although any generalizability of findings should be done with caution, the strength of the QCA approach provides a clear methodological guide for future researchers wishing to replicate this study in other contexts, as the sport of MMA becomes legalized, emerges, grows, and/or remains challenged in other cities, provinces, and states. Findings from such studies will continue to build a foundation of knowledge and understanding around the sport of MMA among youth, and can help inform researchers, parents and policy regarding how to optimize youth development through participation in MMA.

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Table 1

Content Analysis Coding Guide

Category	Code	Factor	Example statement
General information	1	YD general	“focusing on the different stages and behaviour and development in children”
	2	Benefits of PA	“after school activities—like dance, gymnastics, hockey or soccer—teaches kids a lot of things”
	3	Benefits of MMA general	“It also increases energy, alertness and overall happiness.”
	4	Reasons for participating in MMA	“We aim to provide your children with the keys to starting their journey in the martial arts”
	5	Schedule	“2-3 classes per week”
	6	Coaches/instructors/environment	“The program will introduce the basics while creating an environment where fun is priority”
MMA gym’s goals	7	Negative development and experiences	n/a
	8	Positive development and experiences	“we guarantee that your child will have a positive experience, benefit from their training and have a lot of fun in the process!”
	9	Transferring life skills	“Our primary aim is to provide your child with the necessary life tools required for success in both martial arts and in the real world!”
4Cs (Competence)	10	Outcome	“children will develop body awareness”
	11	Program related mechanisms	“in our program children benefit by gaining a clearer and more natural understanding of how their bodies feel, move and react to their physical environment.”
	12	Coach role	“reinforcing shared values of discipline and respect”
	13	Opportunity to use	“kids are also involved in demonstrations and community events”
	14	Peer role	“positive and encouraging team environment”
4Cs (Confidence)	15	Outcome	“develops self-confidence”
	16	Program related mechanisms	“classes will offer a combination of all forms of MMA that will teach young children confidence.”

	17	Coach role	“your child and teen will be surrounded by great people who are accomplishing their goals”
	18	Opportunity to use	n/a
	19	Peer role	
4Cs (Connection)	20	Outcome	“our curriculum focuses on team building”
	21	Program related mechanisms	“we provide a friendly environment for your child to make friends”
	22	Coach role	“unlocking the unique abilities within each child and cultivating their tools for dealing with their surrounding”
	23	Opportunity to use	“work with our team to put together choreographed demonstrations”
	24	Peer role	“constructive interactions with their teammates”
4Cs (Character)	25	Outcome	“Character development is job number one”
	26	Program related mechanisms	“a student’s character builds through the 12 life skills modules being taught in their MMA class”
	27	Coach role	n/a
	28	Opportunity to use	n/a
	29	Peer role	n/a
Sources of information	30	Cited academic evidence	“Almost 1/3 of students in Ontario experience bullying at school and one quarter report having bullied someone else.” (CAMH, 2009)
	31	Not cited academic evidence	“A recent study showed that 63% of black belts became college graduate!”
	32	Media and popular media reference	“Our one of a kind Warrior Junior program has been featured on Rogers and CTV news”
	33	Parent testimonial	“You have put together an incredible program, thank you so much.”
	34	Child testimonial	n/a
	35	Instructor testimonial	“I can tell you my parents have thanked me profusely when it starts to happen.”
	36	Not referenced statement	“approximately 26% of Canadian children ages 2-17 years old are currently overweight and obese”
Non-relevant message	37	Not relevant message	“for more information please contact us”

Table 2

Description of MMA Program Written Websites' Content

Category	Sub-Category	Sub category frequency within category n(%)	Category Frequency of total n(%)
General information	YD general	20(10.36)	193(23.7)
	Benefits of PA	1(0.52)	
	Benefits of MMA general	34 (17.62)	
	Reasons for participating in MMA	45 (23.32)	
	Schedule	31(42.47)	
	Coaches/instructors/ environment	62(32.12)	
MMA gym's goals	Negative development and experiences	0	73(9.00)
	Positive development and experiences	22(30.14)	
	Transferring life skills	51(69.86)	
4Cs Outcomes	Competence	78 (38.42)	203 (25.03)
	Confidence	38 (18.72)	
	Connection	34 (16.75)	
	Character	53 (26.11)	
4Cs Process	Program related mechanisms	71(71.72)	99 (12.21)
	Coach role	15 (15.15)	
	Opportunity to use	7(7.07)	
	Peer role	6(6.06)	
Sources of information	Cited academic evidence	2(1.59)	126 (15.54)
	Un-cited academic evidence	26(20.63)	
	Media and popular media reference	1(0.79)	
	Parent testimonial	26(20.63)	
	Child testimonial	0(0)	
	Instructor testimonial	17(13.49)	
	Non-referenced statement	54(42.86)	
Not relevant messages	Not relevant message	117(100)	117 (14.43)
Total frequency			811(100)

Table 3

Developmental Outcomes Categorized by 4Cs: Frequencies and Percentages

4C	Developmental Outcome	Sub-category Frequency (%)	Total frequency (%)
Competence	Fitness	24(11.82)	78 (38.42)
	Anti-bullying	14(6.90)	
	Balance	8(3.94)	
	Self-defense	6(2.96)	
	Focus	5(2.53)	
	Concentration	4(1.97)	
	Attention	3(1.48)	
	Coordination	3(1.48)	
	Stranger danger	3(1.48)	
	Goal setting	3(1.48)	
	Anti-violence	2(0.99)	
	Decision making	2(0.99)	
	Drug avoidance	1(0.49)	
Confidence	Self-confidence	16(7.88)	38 (18.72)
	Self-esteem	12(5.91)	
	Self-knowledge	5(2.46)	
	Self-reliance	4(1.97)	
	Courage	1(0.49)	
Connection	Social skills	15(7.39)	34 (16.75)
	Communication	11(5.42)	
	Cooperation	8(3.94)	
Character	Discipline	11(5.42)	53 (26.11)
	Respect	11(5.42)	
	Control	7(3.35)	
	Leadership	5(2.24)	
	Character development	4(1.97)	
	Work ethic	4(1.97)	
	Determination	3(1.48)	
	Good manners	3(1.48)	
	Positive attitude	2(0.99)	
	Inner resolve	1(0.49)	
	Patience	1(0.49)	
	Anger management	1(0.49)	
Total		203 (100)	203(100)

Table 4

Process of Facilitating Developmental Outcomes Categorized by 4Cs: Frequencies and Percentages

4C category	Process for facilitating developmental outcomes	Sub-category Frequency (%)	Total frequency (%)
Competence	Program related mechanisms	25(25.25)	36 (36.37)
	Coach role	5(5.05)	
	Opportunity to use	3(3.03)	
	Peer role	3(3.03)	
Confidence	Program related mechanisms	13(13.13)	16 (16.16)
	Coach role	2(2.02)	
	Opportunity to use	0(0)	
	Peer role	1(1.01)	
Connection	Program related mechanisms	19(19.19)	33 (33.33)
	Coach role	8(8.08)	
	Opportunity to use	4(4.04)	
	Peer role	2(2.02)	
Character	Program related mechanisms	14(14.14)	14 (14.14)
	Coach role	0(0)	
	Opportunity to use	0(0)	
	Peer role	0(0)	
Total		99(100)	99(100)

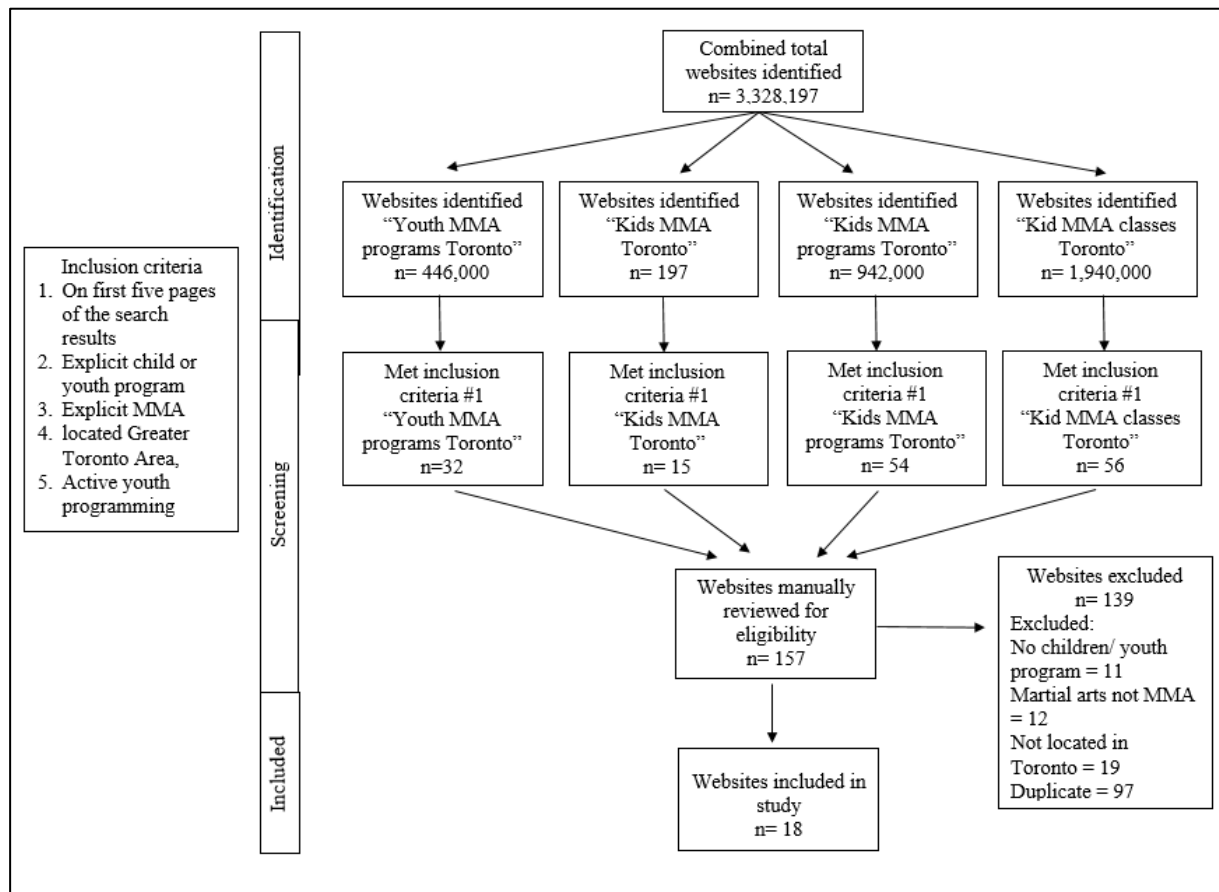


Figure 1. Website selection and inclusion diagram

Chapter Four

Examining the role of youth MMA coaches in the process of facilitating life skills development and transfer

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Chapter Four Overview

Extensive research has emphasized the role of adult leaders and coaches in the process of life skills development through sport (Allen et al., 2015; Camiré et al., 2012; Danish et al., 2004; Holt, Tink et al., 2008;). Gould and Carson (2008) proposed the model of coaching life skills through sport as a framework for youth sport coaches and to guide future research. The aim of this study was to explore youth MMA coaches' experiences, to identify their role in the process of life skills development and transfer in MMA. Semi-structured interviews were conducted with 10 male coaches of youth MMA programs, from 10 MMA gyms in Toronto, Canada. Results indicated that coaches' previous experience as an athlete impacted their values and beliefs about MMA. Coaches stressed the importance of the parent relationship in facilitating life skill development and transfer. Specific strategies used by coaches to facilitate life skills development and transfer included: identifying their athletes' pre-existing make-up, explicitly addressing life skills and transfer, encouraging successful experiences, providing opportunities to use life skills in MMA. These results are discussed within the context of Ecological Systems Theory (Bronfenbrenner, 2005) and Gould and Carson's (2008) coaching life skills through sport model.

Examining the role of youth MMA coaches in the process of facilitating life skills development and transfer

It has been widely acknowledged that sport is an avenue through which youth can experience positive youth development (PYD) (Danish, Forneris, Taylor, Hodge, & Heke, 2004; Fraser-Thomas, Côté, & Deakin, 2005; Gould & Carson, 2008). Life skills have been identified as one potential outcome of PYD through sport. Life skills are described as skills that enable students to succeed in the different environments in which they live, such as school, home, and in their neighborhoods (Danish, 1997). More importantly, life skills developed in the sport context must be transferred for use in non-sport settings to be considered life skills (Danish, Forneris et al., 2004; Chinkov & Holt, 2015; Gould & Carson, 2008). “Life skills can be behavioral (communicating effectively with peers and adults); cognitive (making effective decisions); interpersonal (being assertive); or intrapersonal (setting goals)” (Danish Forneris, & Wallace, 2005, p. 49). Recently, research has shifted towards identifying the process by which life skills can be taught in a sport context. This research has emphasized the role of adult leaders and coaches in the process of life skills development through sport (Allen, Rhind & Koshy, 2015; Barnett, Smoll & Smith, 1992; Camiré, Tudel & Forneris, 2012; Camiré, & Trudel, 2013; Danish et al., 2004; Gould & Carson, 2008; Holt, Tink et al., 2008; Lerner, 2000; Strachan, Côté, & Deakin, 2011).

Turnnidge, Côté, and Hancock (2014) highlighted that there are two distinct approaches of youth sport program design that facilitate life skills development. The type of program design can impact the strategies used by the coach to teach life skills. First, explicit life skills sport programming is sport based youth programming in which life skills are purposefully taught by program leaders (e.g., instructors, counsellors, coaches) in a sport context. The Teaching

Personal and Social responsibility (TPSR) in sport program (Hellison, 2003; Hellison & Walsh, 2002), Sports United to Support Education and Recreation (SUPER; Danish, Fazio, Nellen & Owens, 2002), Play It Smart (Petitpas, Van Raalte, Cornelius & Presbrey, 2004) and The First Tee (Weiss, 2006) are examples of explicit life skills sport programs. The key focus of these programs is to use sport as a vehicle to teach life skills and emphasize the importance of using the developed life skills outside of sport. TPSR, SUPER, Play It Smart and First Tee use life skills intervention programs and modules that can be implemented by a trained coach or adult leader in various sport contexts (e.g., physical education class, school sport teams, recreational sport teams).

The ultimate goal of explicit programs is to create a sport environment that supports life skills development and transfer using lessons or modules administered in a sequential order by adult leaders. SUPER has been one of the more investigated explicit sport programs (Goudas, 2010; Goudas, Dermitzaki & Leondari, 2006; Goudas & Giannoudis, 2010; Papacharisis, Goudas, Danish & Theodorakis, 2005). SUPER, is implemented similarly to a sport clinic; youth participants engage in three activity programs to learn: (a) physical skills related to the sport, (b) life skills related to sports in general, (c) playing of the sport. SUPER staff train and teach SUPER student-athlete leaders how to implement the intervention through a 10-20 hours course. SUPER leaders are older youth chosen to teach younger youth the SUPER program. Once trained, SUPER Leaders proceed through multiple program modules with youth, each lasting 20-30 minutes. The number of program modules can vary dependent on the goals of the sport program. After each module is completed youth are asked to discuss or write about their learning. Leaders guide the youth through their reflection of life skills development in their sport setting and the transferability of life skills to non-sport contexts.

The second approach to youth sport programming is recognized as the implicit approach and focuses primarily on the development of sport-specific skills (Turnnidge et al., 2014). Life skills are not deliberately taught or integrated into the sport context; however, social and personal skills development within the sport setting is encouraged. While there are no formal modules or programs, explicit strategies can be used to facilitate the development and transfer of life skills within these sport settings. Coaches have been identified as the main factor for the facilitation of life skills development in an implicit approach (Camiré et al., 2012; Fraser-Thomas et al., 2005; Gould & Carson, 2008; Holt, Tink et al., 2008); however, only a few studies have explored coaches' implicit transfer processes. Gould, Collins, Lauer, and Chung (2007) highlighted a lack of research in three key areas: (a) exploring how coaches develop life skills in their players, (b) understanding the context of coaching knowledge, and (c) understanding why coaches use specific life-skills building strategies. In their study, Gould and colleagues explored ten outstanding football coaches' (i.e., finalists for the National Football League Coach of the Year Award) strategies for enhancing personal characteristics and life skills development in their athletes. Results suggest coaches focused on relationships with players, treating players like young adults, as well as encouraging open communication that included care, tact and positive interactions.

In another study, Camiré and colleagues (2012) examined high school athletes and coaches' perspectives of transfer. Coaches suggested their coaching philosophies encompassed the teaching of life skills, and in turn, purposefully implementing their philosophies through specific behaviours towards their athletes. Further, coaches had increased success in facilitating life skills when the student athletes' individuality or pre-existing make-up (i.e., socioeconomic status, skills required to succeed in life after high school) was considered. Both coaches and

athletes discussed specific strategies such as the establishment of social consciousness amongst athletes, use of peer evaluations of teammates, providing athletes opportunities to exhibit skills for each other, modeling (i.e., beyond physical skills; from a personal and social perspective). Additionally, coaches took advantage of teachable moments to promote leadership, develop conflict resolution skills, and encourage athletes to reflect on the skills they learn in their sport setting.

One sport that has been acknowledged for its ability to promote PYD and specifically develop life skills is martial arts (Lakes & Hoyt, 2004; Rew & Ferns, 2005; Wall, 2005). Martial arts has been identified as one of the top ten most participated non-scholastic sports by Canadian youth (Clark, 2008). Martial arts is often used as an umbrella term for the variety of different forms of martial arts, including Mixed Martial Arts (MMA). MMA is currently the most popular form of martial arts amongst youth (Horkay, 2010). MMA is a full contact combat sport that integrates striking and grappling techniques from a variety of other combat sports (i.e., boxing, jujitsu, wrestling, karate, Brazilian jujitsu, Muay Thai, kickboxing, and Tae Kwon Do) (Downey, 2007; MMA wiki, 2013).

Very little research exists exploring the process of life skills development of youth participating in MMA; however, a substantial amount of research has examined the component sports (i.e., boxing, jujitsu, etc.) of MMA. Recently, Chinkov and Holt (2015) explored life skills transfer of adults participating in Brazilian jiu-jitsu (BJJ). Consistent with past research in sport (Camiré et al., 2012; Fraser-Thomas et al., 2005; Gould & Carson, 2008; Holt, Tink et al., 2008), instructors were identified as a main contributor to life skills development in BJJ. Consistent with other research in martial arts (Theeboom, 2012), head instructors created an atmosphere in the gym that was perceived by participants as safe and disciplined; they also integrated reflection

into the practice of BJJ and suggested they role modeled appropriate behaviours (e.g. demonstrating care with concern for well being and giving attention to each individual student). Participants also commented on the personal qualities of their head instructor, highlighting that patience and care supported their development of life skills.

While little research has specifically focused on coach strategies to facilitate optimal development of youth through martial arts, the role of the coach has been examined under the broader definition of martial arts. The coach's approach to instructing martial arts can vary significantly based on the type of martial arts they instruct and their personal characteristics (Theeboom, 2012; Theeboom, De Knop & Wylleman, 1995; Vertonghen, Theeboom & Cloes, 2012). Vertonghen and colleagues (2012) classified the approaches to teaching martial arts as: (a) traditional, (b) efficiency, and (c) sporting. The traditional approach is primarily focused on mental and physical balance and often incorporates periods of meditation and reflection into participant training (Trulson, 1986). Conversely, the efficiency approach is focused primarily on the combative aspects of martial arts with the goal of enhancing fighting techniques (Theeboom, De Knop, & Wylleman, 1995). Lastly, the sporting approach recognizes the positive impact of martial arts on the physical, mental and social development of participants while practicing or improving their technical martial art skills (Vertonghen et al., 2012).

In an attempt to better understand the role of the coach in martial arts, Theeboom and colleagues (2011) examined the various teaching approaches used in different martial art forms. Karate and aikido were taught using a traditional approach while, kickboxing and Thai boxing were taught using the efficiency and sporting approaches. It has been suggested that the traditional and sporting approaches to martial arts are more appropriate for youth than the efficiency approach, and that the approach to teaching martial arts can influence student

outcomes and development (Cox, 1993; Theeboom, 2012; Theeboom et al., 1995). Theeboom and colleagues (2011) stressed the importance of future research to examine teaching approaches in other forms of martial arts and their impact on participants.

Recalling that MMA is an amalgam of several forms of martial arts, youth have the potential to be exposed to a wide variation of teaching approaches. To date, there are no empirical studies that have examined coaching approaches or the processes of life skill development in youth MMA sport contexts. Furthermore, while current PYD through sport research has highlighted the importance of coaches as a facilitator of positive developmental outcomes, no studies have examined how MMA coaches actually promote life skills development. As such, the purpose of this study was to explore youth MMA coaches' experiences to gain a deeper understanding of their role in facilitating life skills development and transfer.

Methods

Research Design

In this study, we adhered to the principles of a phenomenological approach; this was selected as the most appropriate method as it aims to provide a description of a shared phenomenon of individuals (Creswell, 2013). The specific goal of the phenomenological approach is to describe “how” and “what” the individual experienced of the phenomenon (Moustakas, 1994). Based on popular media and website promotion (Beesley & Fraser-Thomas, in preparation), it was assumed that all MMA coaches in this study aimed to facilitate life skill development through their coaching strategies. The phenomenological approach is comprised of three key aspects: open description, investigation of essences, and phenomenological reduction (Moustakas, 1994). The researcher was actively aware of these three key aspects throughout the

research process. Open description is a description of the individuals' experiences without explanation or analysis. Investigation of essences speaks to the examination of the construction of individuals' experiences as objective and subjective interpretations by the individual. Phenomenological reduction extends investigation of individuals' experiences beyond "what" to "how" they were formed or interpreted (Creswell, 2013). Finally, the phenomenological approach acknowledges the impact of the researcher's interpretation of the participants' experiences. Therefore, throughout the study the primary researcher kept a journal and documented her thoughts, feelings and interactions as they occurred throughout the study.

Context and Participants

Purposeful sampling (Coyne, 1997) was used to recruit coaches from MMA gyms in the GTA that offered actively running youth MMA programs. Youth MMA programs are not exclusively focused on MMA, as is observed with adults MMA programs. Therefore, if a program offered youth classes for both the grappling and striking components of MMA (i.e., wrestling, Brazilian Jujitsu, Muay Thai, boxing, kick boxing) it was included. Data were collected from 10 male coaches from ten different MMA gyms in Toronto, Canada. At the time of the study, participants were actively coaching a youth MMA program for ages 9-18, for at least one of the respective components of MMA. Coaches' years of experience at the youth level ranged from 4 to 12 years, with all coaches having more extensive experience (i.e., 10 to 30 years) in other MMA programs. All coaches were also active MMA athletes at the time of data collection. Coaches gained their training and experience in MMA from various countries around the world (e.g., Japan, Thailand). It is not known what level of coaching certification each coach had, as no formal coaching certification currently exists for MMA coaches (Martin, 2006).

Data Collection

Ethical approval for this study was granted by the affiliated university's research ethics review committee. As MMA programming does not have regimental seasons as observed in other sports, the primary researcher began contacting MMA gyms one year before the beginning of data collection, to establish contacts and gain scheduling information to facilitate optimal data collection. Prior to participation, all coach participants were provided information about the study, and signed informed consent forms. Data collection occurred over six months (May-October, 2015). The primary researcher conducted semi-structured phone interviews with each coach. Average interview length was 30 minutes. All interviews were audio-recorded.

Interview guide. Prior to the interview, participants were not provided an explicit description or explanation of life skills or life skill transfer, given past concerns that initial reflections regarding transfer, prompted by the interviewer, may inherently contribute to the process of transfer among youth (Beesley & Fraser-Thomas, in preparation; Danish et al., 2004). However, participants were provided with the following explanation:

Today, we are going to talk about your past in MMA - how you got into it, any experiences with your past coaches that stand out to you. Then we will get into your present experience as a coach, what informs your practice, what you think your role is as a coach, what you want your kids to learn or take away from MMA and how you conduct your practices. You're welcome to share any experiences that you think shaped your style, values, beliefs and actions as a MMA coach.

The interview questions were guided by the principles of Ecological Systems Theory (EST; Bronfenbrenner, 1977, 1986, 2005) and the Coaching Life Skills Through Sport Model (Gould & Carson, 2008) outlined below, with follow-up probes used to gain a deeper understanding within each of these topic areas (See Appendix A for interview guide).

Ecological systems theory. EST has been adopted by previous research studies as a comprehensive conceptual context to explore the dynamic environment and relationships of PYD through sport (Holt, Tamminen, Black, Sehn & Wall, 2008b; Holt, Tink et al., 2008; Strachan, Côté & Deakin, 2009). EST aligns with the principles of the phenomenological approach in that it provides a framework to describe human development via the interactions of the individual in the environment and recognizes the multiple layers, interactions and relationships between the various levels of environment.

EST was developed by Bronfenbrenner (1977) to explain human development. EST suggests that a person's development is affected by the relationships and environments surrounding them and that interaction occurs at several different levels. The most proximal level is the microsystem. In this study we explored the coach in the youth MMA context to understand how they facilitate life skills development amongst youth participants. Next, the mesosystem is described as the interaction between two members of the developing youths' microsystem. For this study we examined the coaches and their interactions with parents. Third, the exosystem is an extension of the mesosystem and includes factors or environments that are not directly linked to the developing youth but can potentially impact those within their microsystem. For this study we examined how the MMA coach's past experience with coaches or as a martial arts athlete impacted their beliefs, values and ability to facilitate life skills development. Finally, the macrosystem is the specific context that affects the developing person through culture or subculture.

Coaching Life Skills Through Sport Model. Based their extensive review of the literature on PYD through sport and extracurricular activities, Gould and Carson (2008) developed the five component model for coaching life skills through sport. This model was

intended to be used as a research guide to organize findings, and as a framework for sport programs focused on developing life skills in their athletes. The first component highlights the importance of considering internal (e.g., existing life skills, personality characteristics, physical abilities, and inabilities) and external assets (e.g., previous coaches, parents, siblings, peers, socio-economic status), suggesting these represent the athletes' pre-existing makeup. Past research suggests that youth enter sport with already developed internal assets (Benson, 1997). Furthermore, youths' existing assets can influence the ability of the coach to facilitate or enhance life skills development.

The second component highlights the sport participation experience with an emphasis on teaching and coaching of life skills. This component is separated into three factors: current coach characteristics, direct teaching strategies and indirect teaching strategies. Current coach characteristics include: philosophy, relationship skills, competence and accessibility, as these factors were identified as having the strongest impact on a coach's ability to teach life skills. Direct and indirect teaching strategies inform how coaches actually teach life skills. Direct strategies are activities within the sport environment that intentionally teach life skills. Indirect strategies are not deliberately focused on life skills development but focus on the demands of the sport, program success, modeling of life skills by those in the sport environment, and social reinforcement of positive norms.

The third component of Gould and Carson's (2008) model is focused on how athletes develop life skills in sport and how development can influence behaviour. First, social environmental influences are identified as a mechanism that can impact youths' development of positive identity, membership in a peer group, and developing positive adult relationships. Next, the utility of life skills is described as the applicability of life skills learned in sport to other

aspects of the youths' life. Additionally, the utility of dispositions of the youth sport context and the generalizability to other aspects of their life are outlined. The social environment and utility can act individually or interact to enhance youth development of life skills.

The fourth component identifies the positive and negative outcomes of youth sport participation. The model proposes that the development of life skills in sport will lead to positive outcomes, which can include physical, psychosocial and emotional benefits; however, the inability to develop life skills in sport will lead to negative physical, intellectual and psychosocial and emotional outcomes.

Finally, the fifth component of the model emphasizes the importance of coaching philosophies in the process of transfer, outlining specific strategies (i.e., clear and consistent rules, reinforcement, quality of instruction, leadership opportunities, decision-making opportunities, individual attention, fairness, and team building) to promote life skill development and transfer, when opportunities are provided for athletes to exhibit these life skills.

Data Analysis

All interviews were transcribed verbatim, with pseudonyms used throughout. A thematic analysis (Bruan & Clark, 2006) was performed on all collected data. A thematic analysis is described as “a method for identifying, analysis and reporting patterns (themes) within data” (p.79). Specifically, an inductive deductive thematic analysis approach was applied, given the limited research examining the role of the MMA coach. During the inductive analysis themes were identified and linked to the data (Patton, 1990). Specifically, analysis was guided by the six phases (Braun & Clarke, 2006). First, the researcher read and re-read the transcripts to become familiarized with the data. Next, semantic and latent level themes were generated. Semantic level analysis was conducted to identify surface meaning of the data. A latent level analysis was

conducted to identify and examine the underlying ideas identified during semantic analysis (Braun & Clarke, 2006). Codes were then collated into potential themes, and themes were reviewed to generate a thematic map of the analysis. Throughout this process, themes were defined and refined to ensure they accurately captured the essence of the data. Finally, inductive findings were explored using a deductive approach, to provide a comprehensive description of the data. Themes that emerged from the inductive analysis were categorized within the context of the extensive research that has examined the role of the coach in the process of life skills development in other sports.

Results

This study aimed to gain a deeper understanding for how MMA coaches can facilitate life skills development and transfer in youth MMA athletes. The inductive analysis revealed four main themes: (a) coaches' personal MMA background, (b) coaches' values and beliefs regarding life skill development through MMA, (c) coaches' relationships with parents, and (d) coaches' current practices. Using a deductive analysis these themes were contextualized within the EST (Bronfenbrenner, 1977, 1986, 2005) and the model of coaching life skills through sport (Gould & Carson, 2008).

Inductive Content Analysis Results

Coaches' personal MMA background. Coaches described their relationship with their past coaches as a familial relationship rather than a coach-athlete relationship. For example, Jack said, "They're all like family. They didn't really treat you as a student, they try, they treated me as like a family member." Coaches described how the familial relationship was like having a second father, brother or mother. Frank said, "We are very close, like family. He's like a second

dad.” For Dan he described his relationship as brotherly, “Our relationship was like a brother kind of thing.” Greg said,

My first martial arts instructor was one of the most important people in my life. She was a very, very strong, independent woman - a really strong role model - and I think that, that made me, made me a better, a better student. She was like a second mother to me.

All ten coaches described how their previous experience in MMA shaped their current MMA coaching practices. Several coaches mentioned the importance of their relationship with their past coaches and the impact these individuals had on their present coaching style. Chris said, “I saw what they were doing and what I liked and what worked for me. I try to incorporate that. A lot of my coaching is through imitation. I just copy the best practices and avoid the worst ones.” Similarly, Greg said,

A hundred percent my old coaches have shaped my coaching now! My teaching style is very inspired by my bad coaches and my good coaches from as early on as I can remember to even as late as university. I’ve stolen a lot of really good tricks from my favourite coaches and I’ve learned a lot of what not to do from my not so great coaches.

Coaches’ values and beliefs regarding life skill development through MMA. All ten coaches discussed their value of and belief in youth participation in MMA facilitating life skill development. Coaches outlined how these values and beliefs emerged from their initial experiences, and their reasons for personal involvement in MMA. Chris said, “Being in MMA helped with my social skills and interacting with other people my age and younger. I learned social skills and I feel MMA is really good in that sense.” Frank described some of the specific components of MMA that he felt facilitated his life skill development from an early age:

“I think that MMA is very different than other sports. It’s more personal, it’s more sensitive because sometimes it’s blood, sometimes it’s tears, and sometimes it’s sweat. But anyway it’s very extreme. It’s not just for recreational purposes it’s more - it’s a lesson for life. I think that the technical skills in MMA are just the tip of the iceberg. The character you build for yourself, the way you behave, and what people think about you is much more important than the punch and the kick.”

Greg expanded upon Frank’s insights suggesting how his early MMA experiences influenced his values and beliefs, which he in turn integrated into his coaching,

MMA gave me something to look forward during the week. It gave me structure. It helped me understand that you have to work toward something. It’s taught me how to, how to work and it taught me how to persevere. And it also helped me with my social life and kept me healthy growing up. And that’s something I try to touch upon in my classes.

As described by Harry, “I think that if I had to sum it all up - what I want to do as an MMA coach, in this environment and in this community - is provide kids with the tools so they can become the best versions of themselves.” Alex simply said, “I’m more focused on developing character.”

Coaches’ relationships with parents. Coaches felt they had good relationships with most of their athletes’ parents, suggesting they were able to talk to them easily about their children. BJ described how he established relationships with parents by using various social media outlets and provided his personal contact information to parents to encourage open communication:

I try so much at our gym to make sure we have the parents involved. We have a twitter account. We have a Facebook account. I give all the parents my cellphone number. I'm more than capable to get into contact if they want to talk.

Dan used a different strategy by encouraging parents to be part of the MMA class. He said, "Some of the parents get involved - hold fifty pound bags too - for like their son or daughter when they come to classes." He felt that incorporating parents as active participants within the MMA environment was the first step at creating a relationship between himself and the parent.

One of the most pervasive themes, discussed by all 10 coaches, was parents' presence during MMA classes. As BJ said,

I'm going to be dead honest. This one's going to be like my number one – I'm a stickler to this. I always do head counts on the parents and there are not a lot of parents that stay around. Now, that's something that really bothers me because I'm a stickler because the parents being around and watching their kids, and watching their development, because if you don't, you're not really going to fully understand what your kids are learning. Your kid's not going to fully believe that you care what he's doing... This is something that really is a barrier for me because I'm not able to talk to the parents about the kids and tell them what they need to do, to improve.

For BJ, he felt that parents' absence limited his ability to communicate and develop a relationship with the parent, that would in turn help enhance their child's life skills development in MMA. Frank echoed this sentiment, acknowledging that he had to work together with his athletes' parents to ensure optimal life skills development. He said,

The parents must be involved. I see it as a triangle. The foundation of the triangle - the parent one side and the coach on the other side. The top of the pyramid is the kid. If you

don't have a good foundation, a coach on the side, and a parent on the other side, it's going to fail the kid.

Coaches stressed that while parent presence is important, parents should not interfere with the coach during MMA class time. As Ian said,

Parent involvement's important and how the parents are with them at home is major. But there's such a thing as too much parent involvement with the MMA class itself. Parents just need to be there so they can be consistent with training, and reinforcing different things at home.

Specifically, coaches outlined how they felt parents should help the coach facilitate life skills development. First coaches stressed that the parents were an essential part of reinforcing the value and subsequent development of life skills, to provide consistency between their child's MMA class and home. Ethan said, "When you see improvement, you know it's not just something they're getting from the gym. They're doing it at home - their parents are encouraging them." Chris ensures that he speaks to parents about the importance of consistency between MMA and home, emphasizing that he sees the most life skills development in athletes when their parents reinforce the lessons learned in MMA:

Some parents reinforce a lot of my rules at home, because I made sure I tell them (parents) what the rules and what my expectations of their child are. I'll go through all of those things with the parents and the ones who are involved, I see a lot more progress in their child.

Coaches also mentioned that communication with parents about the athlete's life outside of MMA helped them facilitate life skills development in the MMA class. Alex talked about how he could change the focus of the class based on the feedback he received from parents. He said,

“I was getting a lot of feedback that one kid was distracted in at school and not paying attention so I shifted the theme of the MMA class for a couple of weeks to teamwork and focus.”

Similarly, BJ outlined how he used parents’ feedback to work with youth on a more individual level,

I’ve had parents come up and tell me that their kid is messing around in at school or that they’ve had complaints from teachers and just because of that we talk to their kid and tell them that being the class clown isn’t the best thing to be and that you’re not going to get anywhere doing that.

Finally, parents were important in communicating positive changes through life skills made in athletes, which in turn led coaches to better understand what strategies were working with youth, and/or potential need for changes in approaches. As Greg said,

What often happens is, if we have someone who’s a little bit of a, a troublemaker, someone who’s a problem listener, I’ll hear back from the parents like in September, October and they’re like, “Oh my gosh like, he or she is so much better in school, they’re actually listening to the teacher.” And it’s kind of like I set the skills groundwork for that kid.

Coaches’ current practices. Coaches’ current practices included specific coaching strategies they used to ensure the development and transfer of life skills among athletes; these are discussed in more detail in the deductive content analysis section below, given that codes within this theme fit almost seamlessly into Gould and Carson’s (2008) model of coaching life skills through sport.

Deductive Content Analysis Results

Ecological systems theory. The study design limited the scope of our exploration as such our data did not yield any findings at the most distal level of the EST – the macrosystem (Bronfenbrenner, 1977, 1986, 2005). We then examined data through the lens of the next level of the EST – the exosystem. Findings suggest that coaches began to develop their values and beliefs before they became coaches. Specifically, participants’ past coaches and past experiences in MMA had shaped their values, beliefs and coaching practices. At the mesosystem level, coaches described that they had good relationships with their athletes’ parents, and identified this relationship as an important factor in the process of facilitating life skills through MMA. Finally, we looked at the microsystem level to gain understanding of how coaches interacted with the youth that they coached to influence life skill development. Coaches discussed implementing their values and beliefs through their coaching practices. Specifically, their practices focused on developing life skills and promoting transfer to non-sport contexts. Coaches often used explicit strategies to facilitate life skills development.

Coaching Life Skills Through Sport Model. Several codes, which were drawn from the inductive theme of coaches’ current practices, seamlessly informed the first three stages of the model of coaching life skills through sport (Gould & Carson, 2008). These include: (a) knowing athletes’ pre-existing make-up, which informed the first stage of the model which emphasizes acknowledging youths’ internal and external assets, (b) explicitly addressing life skills and transfer, which informs the second stage of the model on coaching and teaching life skills, and (c) providing opportunities in MMA to use life skills, which aligns with the third stage on how life skills are developed.

Knowing athletes' pre-existing make-up. Seven participants emphasized the importance of coaches knowing their athletes' pre-existing skill set (e.g., their physical abilities, personality). More specifically, coaches suggested the value of being aware of athletes' determination, self-confidence, shyness, or aggressiveness. As Alex said,

Some kids don't come with a determined mind. They don't pick up the techniques and lessons right away and need to practice. And some kids say, "I don't get it" and then you know give up right away. But some kids come into the gym and they already have great flexibility strong, fast, and pick up things really quickly.

Ethan emphasized the importance of recognizing self-confidence, "A lot of kids coming in are very low in confidence. They've been bullied and parents want them to practice MMA so it won't happen again." Frank further acknowledged the value in knowing the athlete's personality. "Everybody's different. The shy kids do not feel so comfortable to be close to the coach, while the more open kid does."

Further, coaches suggested that recognizing pre-existing makeup was only the first step in the process of effectively developing life skills - they must also adapt their teaching style to optimize each individual's learning. As BJ highlighted,

I get kids that I can teach and I get kids that are a challenge. It's all about getting to the challenging ones and teaching them that they're able to do it. They've just got to have that confidence level in order to do it.

For Jack this meant recognizing when his athletes were having difficulties learning life skills. He said, "I need to be aware when someone is struggling. I need to be aware of what or why they're struggling. Coaches should be attentive, you know, and listen to your students."

Coaches also indicated that they considered youths' family and school contexts to be part of the athletes' pre-existing make-up. For example, Ethan said, "How you teach life skills depends on how their parents treat them, how they're treated at school, and what environment they're coming from". Chris also spoke directly to the variety of different social backgrounds that athletes came from: "You can see some kids are obviously coming from a more well off background verses other children who are coming from less. There's a wide variety there.

Explicitly addressing life skills and transfer. All coaches highlighted that they directly addressed the development of life skills with their athletes in MMA, but to varying degrees, using a wide variety of differing approaches. The most common generic strategy was undoubtedly the use of conversation. As Frank said,

We have a lot of conversation—a lot of conversation. It can be sometimes a half of a session. Let's say I ask one of the kids to help and he says, "You know what, I don't want to help today." We will have a conversation about that. Just talk about why is it important to help. It can be about other skills too. I explain to them why I think the way I do and why it makes sense. Even when it's hard to do something like help out, you just do it. It's lessons for life, you know?

However, the quantity and quality of conversations seemed to vary. As Alex said,

Every once in a while usually at the end of class, I'll take a moment to talk to them about what we did in class and try and give them an example of using that life skills outside of the gym. It gives the kids a chance to talk about what they learned and apply the concepts that we have been working on in class to things outside class. Depending on the size of the class this can take 5-15 minutes, if the kids are really talking.

Further emphasizing the coaches' value of conversations in developing life skills, was the terminology developed for this practice. Explicit talks where coaches addressed the potential for life skills to develop in the MMA contexts, the importance and value of life skills, and the transferability of life skills learned in the MMA to other life contexts were called "mat chats." As Harry said,

We have this open forum of, what we call in the industry, "a mat chat." It's where we talk about life skills. We talk about them and why they are important. I think that the biggest tool we use is a mat chat. So we will talk about a particular word or a particular concept from the day's class and I'll ask the kids where they think that they can use these skills. For example, if I'm talking about focus I'll ask, "Where do you use focus?" And you know the kids will say, "Well we use focus when we're at school."

Another form of conversation that coaches used to guide youths' understanding of life skill development, was sharing their own anecdotal and personal stories. As Ethan said, "I always relate back to my learning experiences. So whenever I'm teaching kids I like telling the story about how I learned the technique and I give examples from my real life."

Greg also mentioned how he drew upon teachable moments to engage youth.

Every once in a while in someone will forget to bring one glove to class. That's my favourite thing that kids forget. They forget one glove. They don't forget both, they forget one. So I'll ask who packed their bag. Most of them will say their parents or blame their parents. Then I will say, "Well you're 10 or 11 years old. Why don't you pack your own bag? You need to have responsibility for yourself."

Some coaches used more directive conversation styles, whereby they clearly outlined to athletes the life skills they could or should be developing through MMA, and the benefits of

developing these skills. As BJ stated, “I tell them to act most humble and understand that you should always help others - that helping others is going to get you a lot further in life than someone that’s only in it to train themselves.” Similarly, Ethan described that at his MMA gym, he spoke general about the overall potential benefits of developing life skills in MMA.

We just stress being able to get along with your peers, social interaction, being able to treat everybody with respect, and never, never looking past anybody even if they’re not getting things as quickly as you are, if they’re a little bit slower than you in picking up certain things.

Chris used a similar strategy, putting a particular focus on how potential life skills were being developed. This is evidenced in his explanation of why he paired two athletes together:

I’ll pull aside an older kid and say hey I’m putting you with this person, you need to understand and know that you are going to have to coach them little bit. I explain to them why I paired them up and let them know that they’re really good at this and that I want you to share that with the kid they are coaching so they can become really good at it just like them.

All coaches felt that they had to explicitly discuss the process of transfer with athletes (i.e., the applicability of life skills developed in MMA to the non-sport context). As Ethan explained,

We talk about life skills because otherwise the kids don’t realize it. They’re kids! They don’t realize what they’re doing, and how it’s going to affect them later on. If we don’t talk they will come to the gym, do one thing, go home, do a different thing, go to school, do a different thing, go with their friends, do something completely different.

Similarly, Greg said that he often speaks to his athletes to stress the importance of applying life skills learned in MMA to non-sport contexts:

We, always remind them that the skills that they're learning with us aren't just skills that they use at the gym. They can use them everywhere, and they're going to be with them forever. It's not just something that we expect at the gym. We expect it from them all the time. We tell them, these are your, your essential skills for life - like treating people with respect.

Providing opportunities in MMA to use life skills. Finally, coaches suggested that in order to develop life skills through their MMA programs, they needed to provide opportunities within the MMA programs for youth to use life skills. Most commonly discussed were opportunities to develop and use life skills through exposure to diverse peer groups, partnering with peers, role modelling, and leadership.

Several coaches drew attention to the structure of MMA programs, which allowed for mixed age classes, recognizing the uniqueness of the MMA class environment in this regard. As Chris highlighted, children had the opportunity to interact with others who were different from them,

They get to talk to people who they normally wouldn't, where as in grade school you talk with kids your age all the time. Now they get to see older kids, they get to see younger kids, they get to see kids from different backgrounds, kids who go to different schools, kids who are being raised very differently from one another, and they kind of get to learn those things, which is pretty good. It teaches them how to interact with different people.

Further, coaches felt mixed aged classes provided enhanced opportunities for older youth to act as leaders and role models to the younger youth, particularly through partnering activities.

As Ian said, “We’ll do things like partner exercises, drills, pad holding, or bag work, and all of these require youth to work with their partner.” Alex expanded upon this, outlining how older-younger role modelling and leadership dynamics were pervasive.

I will divide the class up according to age range or advanced students. I make the older or more advanced kids assistant teachers and ask them teach the other kids how to do a move. This way, you are rewarding older kids and recognizing their skills and abilities to lead. They feel special and they get to work with little kids and help them out as teachers.

Similarly, BJ described,

Instead of the younger kids going, “Oh, what are the big kids doing in [my] class?” they can see what the big kids are doing in the class now. They can watch and they can go, “Oh! I want to be able to do that” or “I want to be just like them.” It’s cool that I can give them that - let the big kids be able to train with them (younger kids). It lets the older kids, set a good example.”

Dan also reinforced respect within this dynamic: “The older kids are usually really respectful. So again, that translates to the younger kids. It’s almost like a pyramid effect. They do whatever the older kids are doing. They will follow.” However, modelling opportunities were not limited in directionality from older athletes to younger athletes. One coach identified that he used “good kids” as models for the other athletes in his class, regardless of their age. Ian said, “If there’s a very good moment with a child then you use it to promote that child and use the child to model, as a model of good behaviour to the class.”

Frank also described providing opportunities for leadership and responsibility through innovative organizational program planning. Below, he describes how he helped out with younger classes if they arrived early to their class.

The way we do it is usually the kids age 6-9 train together at the club and the next class is age 10-13. And if they (kids age 10-13) come early, they know they have to come in and help. They know it's a responsibility that is, and we really pay attention to teaching responsibility at the club. We want everybody helping everybody.

In sum, all coaches emphasized the importance of providing opportunities for athletes to experience success utilizing a life skill during their MMA class. As Alex highlighted, "If the kid does not experience success then that is going to affect their desire to continue participating in the class."

Discussion

The purpose of this study was to explore youth MMA coaches' experiences, to gain a deeper understanding of their role in facilitating life skills development and transfer. Four themes emerged from our inductive content analysis: (a) coaches' personal MMA background, (b) coaches' values and beliefs regarding life skill development through MMA, (c) coaches' relationships with parents, and (d) coaches' current practices. These themes were further interpreted through the complementary lenses of EST (Bronfenbrenner, 1977, 1986, 2005) and the Coaching Life Skills Through Sport Model (Gould & Carson, 2008), which offer both a broad perspective for understanding youths' life skill development and transfer through MMA (i.e., EST, Bronfenbrenner, 1977, 1986, 2005), and the more specific practical lens of the model of coaching life skills through sport (Gould & Carson, 2008). However, given the study's design, we were unable to explore the influence of the macrosystem (e.g., MMA sport culture) on coaching strategies. Future research is needed to explore how the culture of MMA can impact coaches' experiences and practices with youth populations.

We first interpreted findings according to Bronfenbrenner's (1977, 1986, 2005) EST. At the exosystem level, coaches emphasized the importance of their experiences as MMA athletes, and past coach relationships as their main learning experiences that guided their current values and beliefs, which in turn informed their strategies to facilitate life skills development in their athletes. It has been suggested that a coach's experience as an athlete encompasses one of their key learning contexts (Côté, 2006). Coaches can learn to coach in formal, non-formal and informal contexts (Nelson, Cushion & Potrac, 2006), with previous experiences as an athlete and past interactions with coaches constituting a source of informal learning (Cushion, Nelson, Armour, Lyle, Jones et al., 2010). Furthermore, it has been suggested that informal learning can have a greater impact on coaches than formal or non-formal learning (Nelson et al., 2006). Given that that no regulatory body offers sanctioned training for youth MMA coaches, it is possible that the importance of informal learning was particularly inflated in this context, as compared to other youth sport contexts. Further, given the positive life course that instructors have taken in relation to MMA, possibility of memory bias through retrospective recall (Raphael, 1987) should not be overlooked. Nonetheless, coaches articulated specific youth experiences throughout the interview, and emphasized their continued relationship with their youth martial arts coaches. Future research may use alternative methods to capture the underlying roots of coaches' values and beliefs, such as journals, or more formalized questionnaires on learning sources.

At the mesosystem level, findings provide new insight into how an effective coach-parent relationship can facilitate life skills through sport. Coaches described that they had good relationships with their athletes' parents, and identified this relationship as an important factor in the process of facilitating life skills through MMA. Specifically, coaches suggested parents provided them with essential feedback regarding the life skill needs of athletes, which in turn

influenced the life skills the coaches chose to focus on or develop within their athletes. Additionally, parents were the only link between the coach and the athlete's non-sport environments (e.g. home, school) and coaches relied on them to provide information regarding life skills transfer. Open and frequent communication between the parent and coach enabled the coach to use effective coaching strategies to enhance specific life skills needs of their athletes. Past research in other sport contexts has identified parents as having a strong influence on the type of relationships that are formed between the coach and the athlete (Jowett & Timson-Katches, 2005). Furthermore, parents' beliefs about the benefits of sport participant can impact their child's beliefs and development within the sport (Neeley & Holt, 2014), past research has also examined parents' over-involvement and negative behaviours in sport (e.g. Bean, Jeffery-Tosoni, Baker, & Fraser-Thomas, 2016). Findings of this study are unique in that coaches were eager for parents to play a greater role in working with them to support athletes' life skill development through sport. More specifically, coaches expressed their strong preference for parents to be present throughout youths' MMA practices, but suggested attendance was fairly poor. Given the uniqueness of this finding, it may be valuable to investigate the motivations behind youths' enrolment in MMA – specifically, whether enrolments are parent or youth driven, and whether motivations are framed by an asset building approach (i.e., PYD life skills development) or a deficit reduction approach (i.e., anti-bullying, decreasing aggression, etc.).

Finally, we looked at the microsystem level to gain understanding of how coaches interacted with youth to influence their life skill development and transfer of life skills to non-sport contexts. Coaches used several explicit strategies to facilitate life skills development in line with the first three stages of Gould and Carson's (2008) model of coaching life skills through sport (i.e., determining athlete's pre-existing make-up, explicitly addressing life skills

and transfer, and providing opportunities to use life skills in MMA). Particularly noteworthy, is that some coaches even coined or drew upon terminology which framed their explicit teaching – “mat chat” – which formed a central component of each practice. Again, this finding highlights the uniqueness of the martial arts contexts in facilitating life skills development and transfer, in comparison to other sport contexts (Camiré et al., 2012). While findings offer rich descriptions of specific strategies used by coaches, the phenomenological approach of the study did not inform frequency or effectiveness of the proposed strategies. Further research may be beneficial in these areas, to develop a more comprehensive profile of MMA instructors’ practices, and complete understanding of the life skills process according to Gould and Carson’s model (i.e., the final two stages of positive/negative outcomes, and transfer to non-sport contexts).

It is also interesting to consider that coaches did not typically embrace approaches of martial art coaches surrounding the specific components of MMA (e.g., traditional approach in karate, sporting approach in kickboxing; Cox, 1993) as a guide for coaching practice. Further, while coaches discussed the development of their values and beliefs through their earlier athlete experiences, they did not translate these values and beliefs directly into a clearly articulated coaching philosophy. Past PYD research has highlighted coaching philosophies as a critical strategy in the process of facilitating life skills (Camiré, Forneris, Trudel & Bernard, 2011). It has been suggested that having an established coaching philosophy can provide a guide for effective coaching practice and offer reflection on current coaching strategies (Camiré et al., 2011).

This study offers several advances to current knowledge and provides some preliminary implications for practice. This is the first study to examine coaching in youth MMA and recognize MMA as an independent form of martial arts. The unique findings suggest that while

past research has used martial arts as a universal term, the individual component sports have distinct factors that should be explored independently. Practically, the findings from this study provide a foundation for future investigation into how MMA coaches facilitate life skills development and transfer based on their informal coaching education, beliefs and values and relationship with parents.

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Chapter Five

Life Skills and Process of Learning Life Skills in Mixed Martial Arts

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Chapter Five Overview

Life skill development has been identified as an outcome of youths' participation in organized sports (e.g., Holt et al., in press). Mixed Martial Arts (MMA) is a sport that combines techniques from a variety of martial art forms (e.g. karate, Brazilian jujitsu, wrestling, boxing). In recent years, MMA has grown in popularity, with programs often claiming to successfully develop youths' life skills; however, there is little consensus within the literature on MMA's potential to enhance youths' development (Theeboom, 2012). The purpose of this study was to explore experiences related to life skill development through MMA among youth participants, using a phenomenological approach (Creswell, 2013). Participants included 13 youth (n=11 boys) ages 9-18 enrolled in youth MMA programs in Toronto. Semi-structured interviews focused on youths' background, knowledge of life skills, MMA experiences, self-reflection, and transfer. Interviews were analyzed using thematic analysis (Braun & Clark, 2006). Consistent with findings in other sports (e.g., Camiré et al., 2013), the coach was found to be the most influential facilitator of life skill development, by having a strong connection with athletes, partnering youth with appropriate peer teachers, explicitly teaching life skills, and focusing on transfer to non-sport contexts. Perhaps unique to the MMA context, was that other adults who were present in the gym (i.e., in other adult classes/programs) had a substantive impact on some youth by modelling competence, confidence, and MMA skills. Findings are discussed using the conceptual frameworks of Ecological Systems Theory (Bronfenbrenner, 2005), and Experiential Learning Theory (Kolb, 1984).

Life Skills and Process of Learning Life Skills in Mixed Martial Arts

Positive youth development (PYD) is an approach to exploring development, that views youth as resources to be developed (Roth, Brooks-Gunn Murray, & Foster, 1998). This approach emerged in response to the deficit reduction approach, which viewed youth as broken, in need of help, or problematic (Roth et al., 1998). Within the PYD approach, a predominant area of investigation focuses on the development of life skills - defined as skills that enable students to thrive in the different environments in which they live, such as school, home, and in their neighborhoods (Danish, Forneris, Hodge, and Heke, 2004). Eccles and Gootman (2002) suggest that youth need access to a variety of contexts that facilitate their development, so as to be exposed to positive experiences, settings and people that provide opportunities to develop and enhance life skills.

Sport as a Context for Life Skill Development

While a variety of contexts have been identified in which youth may develop their life skills (i.e., faith based programs, academic leadership programs, community vocational programs, sport, school; Hanson, Larson & Dworkin, 2003; Lerner, Lerner, Almerigi, Theokas, Phelps et al., 2005), organized sport programs warrant particular attention. In the United States 60% of youth ages 6-17 participate in sport outside of school (Koba, 2014), while in the United Kingdom 81% of youth ages 5-10 and 91% of youth ages 11-15 participate in organized sport (Department of Culture Media and Sport, 2013). In Canada, sport also has a high participation rate amongst with 75% of Canadian children and youth between 5 and 17 years of age participate in sport an organized sport program (Canadian Fitness and Lifestyle Research, 2010). With this large representation of youth participating in sport, there has been growing interest in exploring sport as context for the development of life skills,

A variety of life skills have been identified as outcomes of youth sport participation including the development or enhancement of initiative, goal setting, positive thinking, problem solving, respect, teamwork, leadership, responsibility, and social skills (Dworkin, Larson, & Hansen, 2003; Hansen et al., 2003; Hellison, Martinek & Cutforth, 1996; Holt et al., in press; Holt, Tink, Mandigo, & Fox, 2008; Papacharisis, Goudas, Danish & Theodorakis, 2005). While past work has highlighted universal associations between sport participation and life skill development, there is also fairly universal consensus that participation in sport programs alone is insufficient for the development of life skills (Fraser-Thomas, Côté & Deakin, 2005; Holt & Neely, 2011; Holt et al., in press).

Mixed Martial Arts as a Context for Life Skills Development

One sport particularly worthy of study is mixed martial arts (MMA). MMA athletes learn techniques from a variety of martial art forms (i.e. karate, Brazilian jujitsu, wrestling, Muay Thai, kickboxing, boxing, sambo) and combine them during practice and competition. While suggested to be one of the fastest growing spectator sports in North America (Ontario Premier: I'm tapping out on MMA, 2010), youth participation in MMA is controversial. Reporters for news media have emphasized many positive outcomes of participation (e.g., life skill development), but also raised some concerns (e.g., increased aggression) (Kim, 1991; Seabrook, 2003; Theebom, 2012; Vitali & Brouillard, 2007). Public opinion regarding youth participation is formed based on anecdotal evidence (Theebom, 2012). Furthermore, amateur participation, which includes youth programming, was illegal in parts of North America until 2015 (Doyle, 2016).

While past research has examined 'martial arts', this term has been used generally to describe a variety of often very different forms of martial arts (e.g., karate, jujitsu), with MMA

appearing to be quite distinct within the encompassing categories of martial arts. Despite differences, some of the findings from a recent review of martial arts may inform our understanding of youths' participation in MMA. Vertonghen and Theeboom (2010) conducted an extensive review of the social-psychological outcomes of youth participation in martial arts (i.e. judo, karate, boxing, Tae Kwon Do, jujitsu, wushu, wrestling, kempo, aikido). The review suggested MMA facilitated positive outcomes in two main categories. First martial arts enhanced personality traits with improvements in self-confidence, autonomy, self-esteem, self-reliance, independence, personal growth, self-regulation, prosocial behaviour, and self-acceptance. Second, martial arts facilitated decreases in aggression (e.g., hostility, aggressiveness, violent conflict, attitudes towards violence, verbal aggression and antisocial behaviour).

While Vertonghen and Theeboom's (2010) review provides an overview of the positive outcomes associated with youths' participation in martial arts, Theeboom (2012) suggests that there is no consensus on the potential impact of MMA on youths' development, as some research has also identified the negative outcomes associated with participation. For example, a study by Endresen and Olweus (2005) examined the impact of participation in martial arts, boxing, wrestling, weightlifting (components of MMA), and power sports, individually and in combination, in males ages 11-13 with high levels of violent and antisocial behaviours; findings suggested this participation led to an increase in antisocial and violent behaviour in non-sport environments (Endresen & Olweus, 2005). A seminal study by Trulson (1986) reported a similar increase in aggressiveness and delinquency in male participants who were in a modern martial arts intervention group, which focused primarily on technique (versus life skill development).

Martial Arts' Facilitation of Life Skills

Thus, while studies have provided evidence of both positive and negative outcomes associated with martial arts, there are additional factors related to program design that are important to consider. Turnnidge, Côté, and Hancock (2014) identified two approaches to facilitating life skills through sport: explicit and implicit approaches. Explicit programs are sport based youth programming in which life skills are purposefully taught by program leaders (e.g. instructors, counsellors, coaches); these programs use sport as a vehicle to explicitly teach life skills and emphasize the importance of using the developed life skills outside of sport. Examples include the Teaching Personal and Social Responsibility in sport (TPSR; Hellison, 2003; Hellison & Walsh, 2002), Sports United to Support Education and Recreation (SUPER; Danish, Fazio, Nellen & Owens, 2002), Play It Smart (Petitpas, Van Raalte, Cornelius & Presbrey, 2004) and The First Tee (Weiss, 2006). In contrast, implicit programs focus primarily on the development of sport-specific skills, and do not deliberately teach or integrate life skills into the sport context. While social and personal skill development within the sport setting is encouraged (Turnnidge et al., 2014), coaches do not use formal modules, programs, or strategies to explicitly teach the development and transfer of life skills.

Few studies have examined implicit and explicit approaches to transfer in martial arts programs; however, Vertonghen, Theeboom, and Cloes (2012) identified three approaches to training in the martial arts - traditional, sporting, and efficiency. Most similar to the explicit approach, Vertonghen and colleagues propose the traditional approach involves a strong focus on mental and spiritual development in harmony with physical development. Bearing resemblance implicit approach, the sporting approach recognizes that participation in martial arts can enhance physical, psychological and social aspects of participants by focusing on developing these

aspects within a sport environment. Further, Vertonghen et al. propose the efficiency approach, which emphasizes the competitive technical and combative development of the athlete, with the primarily focus on physical enhancement.

Interesting, in Trulson's (1986) seminal study (noted above), a second intervention group received "traditional" martial arts training (i.e., a balanced focus on technical and life skills development); this group experienced a decrease in aggression and violence, which was suggested to be in part due to the explicit focus on respect, confidence, responsibility, honesty, perseverance and honour. Positive outcomes in this group were attributed to the martial arts instructor (Trulson, 1986), who served as an authority figure and role model, and was knowledgeable in strategies to integrate psychological and philosophical training into the martial arts instruction (Trulson, 1986). More recently, in Lakes and Hoyt's (2004) study, experienced martial art instructors implemented the Leadership Education Through Athletic Development (LEAD) curriculum, using what would be considered an explicit or traditional approach. Classes began with an extended period of silent guided meditation, followed by deep-breathing techniques, guided self-reflection, and encouraging students' responsibility for their behaviours in all aspects of their life. In both of these studies, coaches were central to the life skill development process, which is consistently with research in other sports (Camiré, Forneris, Turdel & Bernard, 2011; Camiré, Trudel & Forneris, 2012; Fraser-Thomas et al., 2005; Gould & Carson, 2008; Holt, et al., 2008).

The Athlete's Experience

While there are a growing number of studies that have examined coaching styles and teaching approaches within martial arts (Cox, 1993; Vertonghen, Theeboom & Cloes, 2012), limited research has explored the perspective of the martial arts participants (Theeboom, De

Knop & Vertonghen, 2009). One recent study by Chinkov and Holt (2015) explored the experiences of athletes, focused on the life skills transfer in adults participating in Brazilian Jiu-jitsu (BJJ). Participants believed their participation in BJJ had a positive influence on their lives, as they recognized the positive changes they incurred. While participants saw themselves as active agents in their development and transfer of life skills, the facilitating roles of coaches and peers were also recognized. Thus, this study offered an important step towards understanding the process of transfer in martial arts, through the lens of the athletes.

Rationale and Purpose

The strengths based approach of PYD emphasizes the value in equipping youth with life skills that will help them be successful contributing members of society (Roth et al., 1998). As sport offers a popular context for the facilitation of PYD, recent research has expanded to consider how the process of life skill development is best facilitated (Turnnidge et al., 2014). Research on life skill development in martial arts has highlighted both positive and negative outcomes (Endresen & Olveus, 2005; Theeboom, 2012; Trulson, 1986; Vertonghen & Theeboom, 2010). Given the recent surge in youth the specific martial arts form of MMA, coupled with the relative unexplored lens of youth athletes, it is clear that further research is necessary. Chinkov and Holt's (2015) recent study among BJJ athletes offers a springboard for further exploration of the process of transfer - among youth, and within the MMA context. The purpose of this study was to explore experiences related to life skill development through MMA among youth.

Methods

Study Design

This study used principles of the phenomenological approach, which is appropriate when examining a specific phenomenon through the perceptions of the people's experiences (Lester,

1999; Creswell, 2013). The aim is to provide a deeper understanding of a phenomenon through descriptions of people's experiences, rather than explaining the phenomenon they are experiencing (Lester, 1999). This approach is optimal when exploring the experiences of a group of individuals who have all experienced the same phenomenon (Creswell, 2013). The phenomenological approach acknowledges that individuals can provide both subjective and objective retrospective accounts of their experiences. As such the focus is on explaining the interpretations of individuals' experiences (Lester, 1999). The interpretive dimension of the phenomenological approach adds the potential for the findings of this study to be used to inform MMA policy and action. Finally, the phenomenological approach recognizes the researcher's impact during the interpretation and description of individuals' experiences (Creswell, 2013). This approach requires the researcher to engage in reflexivity, keeping researcher notes as checks regarding their influence in the interpretation of individuals' experiences (Creswell, 2013; Kvale, 1983). In alignment with the key aspects of the phenomenological approach, the focus of this study was to explore experiences related to life skill development through MMA among youth participants.

Youth MMA Programs in Toronto

This study focused on the experiences of youth in MMA programs located in Toronto, Canada, over the course of the 2014-2015 school year. Toronto was considered an appropriate context for study as it holds the record for the highest attended MMA match to date (Stupp, 2011). Following this event, on June 5, 2013, Bill-S209 was amended to extend the legal definition of prize fighting to include MMA (Gafoor, Waldron, & Ghazi, 2013). These MMA programs were designed and operated by independent MMA gyms. Youth programs involved mixed sexes, grouped by age ranges (i.e. ages 3-6, ages 7-9, ages 10-18), and often operated

simultaneously with other adult programs or private training in the MMA gym. Training within programs were typically comprised of two fundamental component techniques - grappling and striking, with each class was structured to focus on one of these techniques. Different coaches often taught different component techniques for each program, depending on coaches' specialization or background. Some programs claimed to have a youth development structure or framework integrated into their technical classes to promote life skills development; however, this information was rarely available, and often could only be obtained through inquiry.

Participants

Participants included 13 youth ages 9-14 (n=11 boys; one brother-sister pair) involved in MMA for a minimum of six months, recruited through MMA gyms in Toronto. MMA gyms were first contacted by the primary researcher and provided information about the study, which was part of a larger research project exploring youth MMA through the lens of PYD. If a gym expressed interest and agreed to participate, the researcher went to the MMA gym and provided all youth participating in the gym's youth program with information about the study, in addition to parent consent and youth assent forms. If youth returned their signed assent and parent consent forms, they were contacted to participate in an interview. Participants were recruited with the aim of obtaining a sample size that would provide data richness for the phenomenon being explored and data saturation.

Data Collection

Participants engaged in semi-structured interviews, which ranged in length from 10-30 minutes. All interviews were conducted over the phone and were digitally recorded. Interview questions were informed by past PYD through sport research examining youth life skills development, and guided by the Ecological Systems Theory (EST; Bronfenbrenner, 1977, 1999,

2005), and Experiential Learning Theory (ELT: Kolb, 1984) (outlined below). Interviews focused on questions youths' experiences of life skills development in MMA and the processes that facilitated these experiences. Accordingly, interviews were structured into six sections: 1) knowledge of life skills developed in MMA, 2) past sport experiences, 3) concrete experiences in MMA, 4) transactions in the MMA context, 5) self-reflection and knowledge of learning, and 6) knowledge of life skills value outside of MMA.

Ecological Systems Theory. EST suggests that human development “is a function of forces emanating from multiple settings and from the relations between these settings” (Bronfenbrenner, 1999, p.17). The model includes five nested systems that interact to influence an individual's development. First, the microsystem is the most proximal system to the individual, consisting of individuals (e.g., coaches, parents, and peers) and structures (e.g., home, MMA gym, school), and their complex relationships with youths. Next, the mesosystem consists of the interrelationships and interactions between those within youths' microsystems. For example, a youth's mesosystem may consist of the interactions between their parents, coaches, peers and MMA program. While the interactions within the mesosystem do not directly involve youth, the decisions, results or outcomes of the interrelationships and interactions between those within this system can impact youth. Third the exosystem is an extension of the mesosystem, whereby the social structures that impact those within a youth's microsystem are recognized. For example, social changes may lead a parent to lose their job, and while this does directly involve the child, the family might have to relocate for the parent to get a new job, resulting in significant changes in a child's microsystem. The most distal system is the macrosystem which consists of public policy, culture, government and economic systems. The microsystem, mesosystem and exosystem are manifestations of the macrosystem (Bronfenbrenner, 2005); for example, an

economic downturn (macrosystem level) may lead to the social changes that contribute to a parent to lose a job and a child's microsystem shifting. Lastly, is the chronosystem, this consists of the experiences that an individual has over their lifetime (Bronfenbrenner, 1999; 2005). While the EST provides a framework to examine human development through five nested levels, the focus of this study was at the microsystem level (i.e., between athletes and their parents, coaches, peers, MMA gyms). EST was particularly important in the development of the interview guide, to assure a focus on bi-directionality in youths' relationships with others.

Experiential Learning Theory. ELT was derived from prominent theories of human learning and development (i.e., Kurt Lewin's Lewinian Model of Action Research and Laboratory Learning; John Dewey's Model of Learning, Jean Piaget; Model of Learning and Cognitive Development, William James' James-Lange Theory of Emotion, Paulo Freire's Pedagogy of the Oppressed, and Carl Rogers' Learner Centred Teaching). ELT offers a dynamic and holistic model of the process for learning from experience. While ELT has most often been applied to understand learning from experience among adults, the principles of ELT have been adapted to youth learning (e.g., Burns & Gentry, 1998; Chun-Wang, I-Chun, Ling, & Nian-Shing, 2011). Furthermore, it has been suggested by Kolb and Kolb (2008) that ELT is applicable beyond classroom learning contexts into non traditional learning environments (i.e., sport).

Experiential learning recognizes the importance of personal experience as a learning source (Kolb, 1984), suggesting that experience that is reflected upon, can promote learning (Kolb, 1984). ELT is explained through the model of experiential learning (Kolb, 1984), which consists of a four-stage cycle: concrete experience, abstract conceptualization, reflective observation, and active experimentation. The concrete experience stage involves the learner

being involved in a new experience. The reflective observation, involves the learner reflecting upon their experience from a new perspective. Abstract conceptualization occurs when the learner is able to create concepts that integrate their observations into logically sound theories. Finally, active experimentation is the application of the learner's theories through decision-making and problem-solving. The process of ELT is cyclical and the learner moves through the stages in a recursive process receptive to the learning situation and learning (Kolb & Kolb, 2008). Given the focus of this study on experiences related to life skill development, the ELT offered an appropriate framework to guide interview questions around reflective practice in relation to coaches, parents and peers throughout this process.

Data Analysis

All interviews were transcribed verbatim with pseudonyms used throughout. Given the study's phenomenological approach, experiences were acknowledged as being subjective and objective (Braun & Clark, 2006). Further, given interviews were informed by EST, it was recognized that the broader social context impacted the meaning of experience amongst individuals. Thematic analysis is not bound to a specific theoretical framework and can be used within a variety of theoretical frameworks; as such it was an optimal approach to analysis within the study's design (Braun & Clark, 2006). Thematic analysis allowed for the identification, analysis and reporting of themes within the data while adhering to six phases of analysis (Braun & Clark, 2006): 1) reading and re-reading the transcripts to become familiar with the data, 2) generating an initial list of ideas or codes for what the data is about, 3) searching and sorting themes from within all the coded data, 4) reviewing themes for ability capture a pattern in the data and relationship to the whole data set, 5) defining and naming themes that capture the essence of the data set, 6) write up of data embedded within the analytic narrative of the data's

story. Additionally, throughout the analysis process the primary researcher kept researcher notes. The purpose was to bracket, put aside any previous knowledge regarding the phenomenon of life skills development in MMA during the analysis process.

Results and Discussion

In their description of their experiences related to life skill development in MMA, all youth believed that their participation in MMA facilitated some life skill development, and that the life skills they learned in MMA could be used in non-sport settings. Youth described the influence of four groups of people on their life skills development: coaches, peers, parents and other adults (i.e., adults enrolled in other MMA programs in the gym). The level of impact from the four groups of people varied; however, the coach was consistently described as the most influential, providing the most varied experiences of life skill development and transfer. Further, peers' influence on life skill development was indirect, facilitated through coaches, who provided initial opportunities for facilitation of life skill development. While parents and other adults who were present in the MMA gym impacted some youths' life skills development, others acknowledged parents/other adults as being present in the gym, but did not feel that they had any impact on their life skills development. Additionally, youth discussed their own role in their development of their life skills.

Development of Specific Life Skills

Youth discussed their MMA participation facilitating the development of sixteen life skills. Table 1 provides a summary of the specific life skills, and the number of participants that discussed each life skill. Self-defense (n=8), self-confidence (n=7), self-control (n=4), and social skills (n=4) were mentioned by the greatest number of participants. The life skills identified by youth in this study are consistent with skills identified in past studies regarding outcomes of

youth involvement in martial arts. Specifically, increases in self-confidence, development of prosocial behaviours, self-regulation, and self-control (Lakes & Hoyt, 2004; Theeboom et al., 2009; Theeboom, 2012; Vertonghen & Theeboom, 2010; Trulson, 1986). Youth in this study also mentioned the development of social skills which have not been identified as an outcome of martial arts participation in past research. Social skills have consistently been found to develop through sport (Camiré & Trudel, 2013; Holt et al., 2008; Holt, Tammnien, Tink & Black, 2009).

Interestingly, Joseph was the only participant that did not mention developing life skills directly through participation in MMA. He explained that he was unsure if his participation in MMA facilitated life skills development or was just an opportunity to use the life skills he already had. Joseph's comments highlight an important limitation of all research in this area to date, as studies have focused on coaches' and athletes' self-reported perceptions and/or descriptive experiences, rather than systematically investigating cause and effect through more rigorous intervention and control designs.

Coaches

Coaches have been consistently identified as a crucial factor in the process of life skills development through sport (Camiré & Trudel, 2013; Camiré et al., 2012; Gould & Carson, 2008; Holt et al., 2008;). In this study, youth described two themes related to coaches that facilitated their life skills development: youths' connections to their coach and coaches' teaching of life skills. Youth described that when they developed a connection to their coach, the effectiveness of their coaches' strategies for teaching life skills in the MMA context was enhanced.

Youths' connections to their coach. This theme was further comprised of two categories: youths' perceptions of their coach and youths' relationship with their coach.

Youths' perceptions of their coach. Youth described their coaches as patient, respectful, helpful, accessible, and disciplinary. Danny said "My coaches are patient and respectful. They respect you when they talk to you and about stuff." Youth suggested such coaches often promoted an optimal learning environment for youth. Andy said "I felt comfortable because of my coach. It felt nice being in a warm environment. I felt like I just, belonged there. I could learn and everybody was friendly." Coaches' disciplinary and strict characteristics were explained by youth as a way for them to be disciplined and gain listening skills. Joseph said "My coaches told me if I didn't listen bad things would come - like, I wouldn't learn the sport and I couldn't be a good student." Further, Evan described that his strict coach used push-ups as punishment when youth in his class were not listening to their coach explaining, "Well, my coaches are pretty strict so there's not much room to fool around. If you're silly than they make you do push-ups. So, that's how they teach you to listen." This is similar to a finding by Holt et al. (2008) in their investigation of the processes of life skills development in high school sport, they identified that coaches used punishment to reprimand student athletes for failing to demonstrate respect.

Youths' relationship with their coach. Youth identified their coach's relationship to them in three different ways: friend, mentor, and father figure. A friend was the most commonly described relationship youth had with their coach. All relationships between the coach and athlete began with the development of trust in their coach. Some youth attributed the establishment of this trust as a result of the time spent together. As Evan said, "Yes I trust my coach a lot. I think it came from them being there all the time and being around them so much, and talking to them a lot - mostly talk about MMA and school." Others highlighted trust as an outcome of coaches' kind teaching. As Nick said, "I trust my coaches a lot, I trust them because they're always helping and showing us how." In turn, some youth further described how

coaches' teaching style – which often involved patience and persistence, facilitated the friendship. Andy said,

When my coach teaches us how to do things he does it over and over again and makes sure everyone does it the proper way. If they don't really catch everything, then you can just ask him and he'll show you it again and again. He's like a really good friend.

Tyler described that his friendship with his coach developed gradually by spending increased amount of time with his coach and talking to his coach about things other than MMA.

Friendship comes around when like you do private training with your coach and you talk when you're just training with them. You will talk a lot and bond, then the next class you say like, "Hi, how are you doing?" and talk about like what happened over the weekend or where we went during the weekend, and how was I doing in the last class.

Coaches' teaching of life skills. Youth described coaches' teaching of life skills as strategies MMA coaches used to develop youths' life skills. Two categories emerged - explicitly approaching life skill development and creating opportunities to use life skills.

Explicitly approaching life skill development. All youth discussed coaches' approach to developing life skills in conjunction with physical skills and technical MMA skills using explicit an explicit or traditional approach. Most often this occurred through talking about life skills development and talking about the value of transferring life skills from MMA to non-sport settings (e.g. school). As Alissa said, "In MMA, we talk about how if you come here a lot, you will become stronger - not just stronger in the body, but stronger in the mind and it'll help you in school." She went on to explain how discussing life skills she developed in MMA and discussing the value of connecting those skills to her non sport life, she in turn could use those skills at school, "Sometimes I'll think, 'Well maybe if it'll help me in school. I will want to have these

skills and feel confident’.” Michael also suggested that talking about life skills developed a sense of pride for learning: “The talks teach me what I should be doing and not be doing so if I want to become a better person I should pride myself in like, fixing my errors and continue doing the things that are good.”

Youth outlined a number of specific strategies that coaches used, inherent within the explicit/traditional approach. For example, coaches encouraged and guided youths’ self-reflections. As Michael said, “Sometimes there are days where he’ll just talk to us the whole time and teach us things. They’re (the coaches) teaching us by talking to us.” Coaches also often shared their own personal experiences regarding life skill development through MMA, which in turn encouraged youth to do the same in their life. Again, Michael spoke to this saying,

My coaches like tell us these are the things you should be using outside of here and these are things that are important to use in life, and all of life. He teaches us many things and tells us to hang on to these skills because they’re things that he’s learned and applied in his life and they’ve really helped him. So I’ve been using these skills he tells me about.

Evan described a different strategy used by his coaches to explicitly teach life skill development in MMA – “word of the day.” As he described,

We have a word for the day and they (the coaches) would teach that. The word would be like respect, honour, or discipline, and they teach you why you use that skill and how you use it in life. Then they’ll look for it and come over and talk to you and say that you can do better (on developing that life skill).

A final strategy used by MMA coaches is evidenced at the end of Evan’s quote above; coaches provided youth with feedback on their use of life skills in the MMA context. Tyler explained how coaches were aware of his actions and behaviours in class and if a conflict arose

that was not handled appropriately, his coaches would address it immediately, and provide feedback to help him find effective solutions in the future. He said,

Sometimes during class if something happened the coach will say I had trouble with this and that, to get better at it. That would involve working on stuff. Then I would work on that stuff. Then after class sometimes I'd reflect on what they (the coaches) taught us and be like, "Oh! I learned this in MMA so this is something I should work on."

Danny, elaborated on this, describing how coaches assessed athletes' needs and provided feedback on an individual basis to help facilitate developing life skills in the needed areas. He said, "They're like individually working with you and telling you what you're doing right and wrong. They like, individually work with you and see what your strengths and weaknesses are."

In considering the approach to teaching life skills that youth in this study experienced, we had some difficulty clearly classifying their experiences as explicit or implicit (Turnnidge et al., 2014). More specifically, youth did not experience an explicit martial art intervention such as the LEAD program (Lakes & Hoyt, 2004); however, given the specific coach strategies described by youth, we would argue that youths' programs were focused on more than sport-specific skills, and did more than simply encourage personal development. As such, youths' experiences may be better understood by drawing upon programming approaches within martial arts (i.e., traditional, sporting, efficiency; Vertonghen et al., 2012), aligning most closely with the sporting approach, which recognizes that participation in martial arts can enhance physical, psychological and social aspects of the participant, and maintaining a complimentary focus on all of these aspects within a sport environment. A three-streamed framework similar to that proposed by Vertonghen and colleagues for martial arts may also fit better within other sport contexts. Despite recommendations in past literature supporting an explicit approach (Turnnidge et al., 2014;

Gould & Carson, 2008), the sustainability of such programs has been questioned and instructors and coaches require substantial amount of training prior to implementation of the intervention (Turnnidge et al., 2014). Youth within this study experienced life skill development, through an approach that lacked the structure and intervention of traditional explicit programs, but nonetheless facilitated life skills development through several specific strategies.

Creating opportunities to use life skills. In addition to the strategies discussed above, youth also described how their coaches integrated opportunities to apply specific life skills during MMA class. For example, confidence was often developed through opportunities to demonstrate a skill for the class, or even to showcase of set of skills for a gym's open house. As Tyler explained,

Coaches would ask you to go up and demonstrate so after a while you would get used to it like just become confident to go up there and show the class what you accomplished... Then there are in houses, which like build up your confidence because you go in front of like a hundred people and they're watching you so at first you're like a little nervous or you're really nervous and that after you're pretty used to it.

Coaches also provided youth with opportunities to exhibit and develop leadership, communication skills, and respect, by grouping youth with different partners (i.e., peers), or allowing youth to choose different partners, who were often of a very different skill level, age, size, or sex; these peers in turn played an indirect role in facilitating youths' development of these life skills. As Alex explained,

Sometimes the coaches will split us up and make us go outside our comfort zone and go with kids even if it's a bit awkward...When you're grappling with them (peers) we also need to talk to them. If you're going with someone who's a lower level than you then you

need to ask them if they're comfortable with you doing submissions to them and you need to be aware and mindful of how the other person feels.

Similarly, Alex added, "Working with little kids helps me with like respect because you have to respect them that they're smaller. And I get like self-confidence and leadership skills teaching them what to do." Andy also acknowledged that his coach's partnering him with a peer of the opposite sex pushed him to learn social skills, explaining, "I'm fine with partnering up with anyone because if I just partner up with the same person every time, I won't learn what other people are like." Further, Tyler described how being with an older partner facilitated a mentoring relationship, which he in turn passed along to his younger peers, when he moved into the role of mentor:

The older kids that I know they really get you and mentor you.... This helped me with like respect because you have to respect them (the younger youth) when they're smaller. And with my self-confidence because I'm teaching them like what to do and being the leader now.

Coaches seemed to draw upon peer-assisted learning (PAL), a teaching strategy that uses peers as a component of direct instruction (Rosenshine, 1979), whereby youths' learning is facilitated through peers tutoring, modelling, assessing, and cooperative learning strategies (Cohen, 1994). Peer tutoring was seen in this study, whereby peers were placed into pairs and instructed to assist their partner to complete the assigned task or activity (Ward & Lee, 2005). Consistent with past studies where youth perceived this to be a positive experience for enhanced social interaction (Brya & Marks, 1993), youth in this study saw diverse partnering as an enjoyable opportunity that enhanced their leadership, communication, and respect. On occasion, youth were also given the opportunity to select their own partners, and likely partnered with

friends, which may have facilitated development in other ways, as Brya and Marks (1993) found youth provide more feedback to friends than acquaintances, and youth feel more comfortable receiving feedback from their friends. Thus, PAL appears to offer an effective strategy drawn from physical education pedagogy (Siedentop & Tannehill, 2000), that has been used effectively within MMA.

Parents

Of the thirteen youth in the study, eight discussed their parents. Three youth acknowledged that their parents often watched them during their MMA class and that they were aware of their parents' presence; however, they did not feel their parent impacted their life skills development. When probed whether her parents impacted her life skills development, Rachael replied "not really." Similarly, when asked if his parents' presence at his MMA class made any impact on him, Leo responded "probably not." Conversely, the five other youth suggested their parents' presence during their MMA classes impacted their life skills development. Specifically, youth outlined how because their parents had attended their classes, parents were aware of what they learning, and in turn helped the youth reflect on the life skills they had learned in class that day. For example, Tyler said, "After the class I talk with my parents about what I've learned. Then I would think about like what I learned that day. Then I would realize that I learned a lot of respect or self-confidence that day." Additionally, youth mentioned that having their parents watch them throughout the class increased their self-confidence. Nick said, "I like it when she's (mom) watching me. That builds my confidence because I know that she's watching me and that she'll always be proud of me no matter what I do."

Past research suggests parents can play a crucial role in their children's PYD through sport (Fraser-Thomas, Strachan, & Jeffery-Tosoni, 2013; Neely & Holt, 2014). In the present

study, some youth outlined how their parents engaged them in discussions regarding the life skills they learned in MMA, and helped them see the connection between their MMA and home environments, essentially facilitating their children's transfer of life skills. These findings are consistent with Neely and Holt's (2014) work that found parents' beliefs and behaviours can impact their children's psychosocial development in sport. In particular, the value of meaningful conversations, built upon teachable moments, have been found to reinforce the development of specific values (Camiré et al., 2012; Keegan, Spray, Harwood, & Lavalley, 2010; Lauer, Gould, Roman, & Pierce, 2010). As not all youth mentioned their parents' impact on their development through MMA, future research may want to focus on why youths' experiences differed so much. It could be speculated that parent-child conversations did not always take place, or discussions may not have been perceived by athletes as being influential to their development. As such, there may be a need to better understand the specific nature of meaningful conversations, and the processes by which parents may effectively utilize teachable moments, to in turn guide parents to be more effective facilitators of life skill development.

While past research has consistently shown parents can have a positive or negative influence on children's development within sport (Fraser-Thomas et al., 2005), this study found parents had a positive or indirect influence on their child's development through MMA. However, parents' positive influence is not always clearly understood, as some behaviours perceived by parents as "supportive" may actually be perceived as "pressuring" by youth (Fraser-Thomas et al., 2013). As such, it was particularly interesting to note that some youth in this study appreciated having their parents watch them in their MMA classes – whether for comfort, support, or a sense of enhanced self-confidence. However, in a social climate of "helicopter parents" further research may explore whether youths' appreciation of parental

presence may have the potential foster dependence among youth (Fingerman, Cheng, Wesselmann, Zarit, Furstenberg & Burdutt, 2012). As this study was conducted through a lens of PYD, further research should expand upon parents' roles and influences in MMA, with a particular focus on exploring behaviours that might negatively influence youths' development.

Other Adults in the MMA Gym

Finally, four of the thirteen youth made mentioned of other adults who were either working out or participating in adult MMA classes, while youth were participating in their MMA class. Two of the youth discussed that the presence of these adults did not impact their life skills development, while two described them as role models. For Alissa, these adult learners enhanced her desire to develop self confidence through participation in MMA. She said,

I see lots of people at MMA. Like lots of adults and people of all different ages. I see people sometimes working out and I see them every day there. I think they're confident by how much they come to MMA and how much they work their body. I feel that if they're confident about what they do and everyone else is confident about what they do in the gym then I should be confident about what I do in the gym.

For Andy the presence of other adults in the gym facilitated his development of perseverance:

I think they feel like me. I think they're trying to do the sport and trying to do their best. They inspire a lot of the younger children and, and especially me, because when you see that person try to do combos or something new, you think it's amazing, and you think you want be like that.

These findings provide new insight into the role of non-parental adults within the sport environment. While there has been an increased focus on non-parental adult influence on youth psychosocial development (Beam, Chen, & Greenberger, 2002; Greenberger, Chen & Beam,

1998; Rhodes, Ebert, & Fischer, 1992; Hamilton & Darling, 1996), little research has been conducted in youth sport contexts. In this study, youth were influenced primarily by observing other adults, in turn leading to their increased self-confidence and perseverance. Findings can be interpreted through Bandura's (1986) Social Cognitive Theory, which emphasizes how models, particularly those that are relatively similar in skill level or position, can influence youths' self-efficacy beliefs. As youth in this study suggested influence of non-parental adults occurred only through observation, further research could explore the influence of other adults, through more interactive forms of modelling (e.g., formalized buddy-system).

Youths Themselves

Finally, EST suggests that human development “is a function of forces emanating from multiple settings and from the relations between these settings (Bronfenbrenner, 1999, p.17). At the microsystem level (Bronfenbrenner, 2005), this study highlights how coaches, parents, peers, and other adults influenced youths' development of life skills through MMA, but given the bi-directionality of relationships, findings also suggest youth played a role in the dynamic process of change. More specifically, youth described how their own personality, approach, and characteristics (e.g., reasons for wanting to learn life skills) influenced the way they engaged with other members within their microsystem (e.g., demonstrated pride when developing life skills). When describing his motivations, Alex explained, “In my mind, I know I can do this. If I keep pushing I can do whatever I put my mind to. So, it's not just about physical skills but also the mental.” Rachael described her reason for wanting to learn life skills saying, “I just think about how these skills will help me later on in life.” Further, Michael appeared motivated by his desire to be his best self. “MMA teaches me what I should be doing and not be doing so if I want to become a better person I should pride myself in fixing my errors and continue doing the things

that I find good.” In turn, youth also explained how their development may have presented to others within their microsystem. As Tyler reflected, “Before I went to MMA I was very shy and like not willing to talk and when I first got there (MMA) I never wanted to say anything or do anything. Then I just built up a bunch of self-confidence and got to meet a whole lot of new friends.” While findings of this study suggest youth may possess certain characteristics or predispositions that facilitate life skills development in MMA (e.g., willingness to learn), we did not gather any specific measures of youth characteristics (e.g., personality). Future research exploring youths’ personality factors would shed additional light on optimal means of facilitating life skills development in MMA across diverse personality groups.

In sum, findings suggest youth played an active role in their development and transfer of life skills through MMA. Further, findings are consistent with recent work by Chinkov and Holt (2015) among adults practicing BJJ. Findings can also be interpreted through the lens of ELT (Kolb, 1984), showing that youths’ engagement in the life skills development process may be facilitated through experiential learning. This was evident in this study, as youth recognized personal changes in themselves, and expressed a desire to continue learning for self-improvement. Furthermore, their ability to engage in the study interview and recall experiences of life skills development they are providing descriptions of concrete experience through the recall of experiences associated with life skills development. Reflective observation, occurred when an individual is reflecting on their learning experience from a new perspective. Furthermore, abstract conceptualization was demonstrated through expressing their value and development of life skills during the interview process and active experimentation by actively using the life skills in the MMA context.

Conclusion

This study explored experiences related to life skill development through MMA among youth, using a phenomenological approach. The study advanced understanding of life skill development within MMA, and is particularly noteworthy given its focus on athletes' (versus coaches') experiences at a time of growing popularity of the sport at the youth level, coupled with ongoing controversy regarding developmental outcomes associated with the sport. In the study, we focused specifically on the microsystem (i.e., the developing individual and those within his/her immediate proximity); it is within the microsystem that the most direct interactions and relationships occur, and the other levels of the EST all have a direct or indirect impact on the interactions within the microsystem. As such, we gathered rich in depth data at the microsystem level; however, future research should explore the issue more broadly, with a focus on meso-, exo-, and macrosystems (e.g., stakeholders, sporting organizations, MMA gyms). For example, the development and implementation of a coaching philosophy has been identified as an integral strategy for facilitating life skills (Camiré et al., 2012; Camiré, Forneris, Trudel & Bernard, 2011), and coaches' philosophies often align with their stakeholders, sporting organization or school's mission statements or philosophies (Camiré et al., 2012). Such research would be valuable in complementing and expanding current understanding of the youths' microsystem in relation to MMA.

Throughout this study, we have often referred to literature conducted in martial arts programs. One of the limitations to past research (in addition to not being MMA specific), is that much of this research has focused on delinquent populations, identified as troublesome, problematic or youth with higher reported aggression and violence (Gubbels, van der Stouwe, Spruit, & Stams, 2016; Massey, Meyer & Naylor, 2013; Twemlow, & Sacco, 1998; Trulson,

1986; Duthie, Hope & Barker, 1978). While some past studies have included normative populations of youth without predetermined behavioural issues (Goldsmith, 2013; Diamond, & Lee, 2011; Lakes & Hoyt, 2004), this study explored development of life skills through the lens of PYD, which assumes the potential of every child to be successful (Roth et al., 1998). As such, this study sheds light on the potential benefits of MMA programming for broader populations.

Finally, a key rationale for investigating life skills development through MMA is due to the somewhat contradictory developmental outcomes associated with MMA participation (Theeboom, 2012). Findings of this study reinforce that many positive outcomes are associated with MMA; however, negative outcomes were not investigated. One explanation for the dichotomous outcomes may lay in the origins of various martial art forms, as there is wide variability in the quality of martial arts instruction (Cox, 1993). Some forms (i.e. MMA, kickboxing, boxing, Muay Thai; hard forms) are more likely to take a technical approach (i.e. focus almost exclusively on physical skills, techniques) and less on the overall positive development of the youth (Cox, 1993). While, MMA is classified as a hard martial art, many instructors of youth in this study appeared to be using a sporting approach (i.e., balance between physical/technical skills and personal/social development), with a modern focus when coaches adopt a sporting approach they are able to facilitate life skills development in their youth athletes (Vertonghen et al., 2012). Furthermore, the sporting approach offers an alternative to explicit or traditional approaches that can provide youth with physical sport gains (i.e. self- defense, fitness, techniques) that can initially attract youth participants (Ko & Kim, 2010). One additional explanation for differences in outcomes may be that positive and negative outcomes may not be mutually exclusive, and future research should aim to comprehensively explore positive and negative developmental experiences.

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Table 1

Frequency of life skills identified by youth participating in MMA

Life skill	Self defense	Self confidence	Self control	Social skills	Respect for others	Discipline	Self respect	Anger control	Listening	Focus	Communication	Leadership	Teamwork	listening	Responsibility	Persistence
Total Frequency N=13	8	7	4	4	3	3	2	2	2	1	1	1	1	1	1	1

Chapter Six

Pilot Study: Exploring the use of an online journal using direct and indirect inquiry to capture youths' experiences of life skill transfer from sport to non-sport contexts

*Theresa M. Beesley & Jessica Fraser-Thomas

Chapter Six Overview

Recent research has explored life skills as an indicator of positive developmental outcomes in youth (Holt et al., 2008; Jones & Lavallee, 2009). Life skills learned in the sport context must be transferred into non-sport contexts to be considered life skills (Camiré et al, 2012; Papacharisis et al, 2005). Built upon some of the methodological challenges of studying the construct of transfer among youth, this study explored the use of an online journal to capture youths' experiences of life skill transfer using direct and indirect inquiry. Specifically, this study (a) examined athletes' patterns of use of the online journal, (b) explored the quality of journal entries for detail and relevance, (c) explored athletes' perceptions of using the online journal, and (d) explored the use of a social media mobile app as a reminder for athletes' participation. Youth in the indirect inquiry group completed more journal entries, described more experiences of transfer, and wrote much longer entries than the direct group, but the indirect group's entries did not always address the issue of transfer. Athletes in both groups highlighted journaling as an opportunity to reflect on the connection between their sport and non-sport experiences, with both groups offering extensive positive and negative feedback on the data collection tools. Snapchat appeared to serve as a modestly beneficial tool to optimize youths' participation in the study. Findings are discussed in the context of moving research forward on the transfer of life skills in youth sport.

Exploring the use of an online journal using direct and indirect inquiry to capture youths' experiences of life skill transfer from sport to non-sport contexts

Life skills have been readily identified as a positive developmental outcome of youth involvement in sport (Fraser-Thomas, Côté, & Deakin, 2005). Life skills are defined as “skills needed to deal with the demands and challenges of everyday life” (WHO, 1999) and are further described within Positive Youth Development (PYD) literature as the social, cognitive, emotional, intellectual, and physical qualities needed for individuals to thrive and become successful members of society (Jones & Lavalley, 2009). Research has highlighted that for life skills developed within the sport context to be truly considered life skills, they must be utilized in non-sport contexts; transfer is the process by which this occurs (Camiré, Trudel & Forneris, 2012; Papacharisis, Goudas, Danish & Theodorakis, 2005).

Although sport has been found to facilitate life skills development in youth, there is inconsistent evidence regarding the occurrence of life skills transfer from sport to other environments (Allen, Rhind & Koshy, 2015; Camiré et al., 2012; Holt, Tink, Mandigo & Fox, 2008; Jones & Lavalley, 2009). Several studies outline potential factors that may contribute to youths' experiences of transfer. Danish, Petitpas, and Hale (1993) suggest that transfer is most likely to occur when the value of life skills learned in the sport setting is emphasized, the knowledge of how and in what context these skills can be transferred is outlined, and the awareness of the skills' value in other life domains is facilitated. Similarly, Camiré, Trudel and Bernard (2013) found that coaches can increase the likelihood of transfer for their athletes by making explicit connections between life skills developed in the sport context, to outside sport contexts.

Limited research has focused on strengthening the understanding of the specific mechanisms that facilitate the process of transfer. Camiré and colleagues (2012) explored the concept of transfer amongst high school coaches and athletes; while coaches recognized the importance of teaching transfer, they found this process challenging and student athletes had difficulties knowing how to apply a life skill learned in a sport context to a non-sport context. This aligns with the findings of Gould and colleagues (Gould, Collins, Lauer & Chung, 2007) and Mayocchi and Hanrahan (2000) which suggest the transferability of life skills occurs only when athletes are aware of the life skills they possess, and coaches continuously highlight the importance of using the life skills they learn in sport within their everyday lives. A follow up study by Camiré and Trudel (2014) among high school football coaches and athletes found both groups believed life skills could be transferred from sport to general life, with all but one coach emphasizing that activities must be designed to teach life skills and transfer in order for this to occur. Further, Allen and colleagues (2015) explored male athletes' perspectives of enablers and barriers of transfer and identified how support from peers, pride, rewards, transfer experience, and opportunities can enable or constrain the facilitation of life skill transfer.

While a growing body of literature is advancing understanding of transfer experiences and processes, methodological challenges and limitations remain. First, past research has predominantly utilized retrospective semi-structured interviews as the primary method of data collection when studying youth experiences of transfer (Camiré et al., 2012; Camiré et al., 2009; Holt et al., 2008; Jones & Lavalley, 2009). It has been suggested that current qualitative approaches have relied perhaps too heavily on retrospection (Jackson, 2000), given concerns regarding participant recall bias (Iida, Shrout, Laurenceau, & Bolger, 2012; Potter & Hepburn, 2005), highlighting a need to explore alternative approaches to data collection.

Secondly, within current methodologies, data collection has been conducted primarily at only one-time point (e.g., end of season). Past research has identified the need to gain a more comprehensive understanding of youths' developmental experiences in sport (Fraser-Thomas & Côté, 2009), with longer-term evaluations being identified as one potential strategy (Holt et al., 2008; Jones & Lavallee, 2009; Lee & Martinek, 2014). While participant retention is a concern when conducting longitudinal studies (Given, Keilman, Collins, & Given, 1990), reminder phone calls have been identified as an effective technique to increase response rates (Traina, MacLean, Park, & Kahn, 2005). Moreover, mobile communication technologies (e.g., mobile applications, text messages, picture messages) have been identified as the preferred method of communication by youth (Divitini, Hargalokken, & Norevid, 2002), with text messaging interventions found to be particularly effective (Miteitelo, Kelly & Melnyk 2012).

Finally, most researchers have prefaced data collection procedures with an explanation of the concept of transfer, with interview questions often including the term transfer, defining the concept of transfer within the question, or using suggestive language in favour of the experience of transfer. For example, Allen et al. (2015) stated, "Participants were also reminded of the transfer concept and encouraged to think of opportunities where transfer had occurred" (p.58). Camiré et al.'s (2009) participants were asked, "How would you say that the skills you learned through high school sport can be transferred to other life spheres?" (p.77) Additionally, Holt and colleagues (2008) provided an extensive explanation of the concept of life skills prior to interviewing youth regarding life skill development in school sport. These studies also used the term "transfer" when asking youth to recall experiences of transfer. While this approach may be deemed appropriate and even necessary given the specificity and apparent novelty of the definition/construct of transfer, potential limitations to this approach should also be considered.

In particular, by providing information about the process of transfer prior to and during the interview, researchers may indirectly be facilitating the process of transfer. As Danish and colleagues (1993) suggested, transfer is most likely to occur when the value of life skills learned in the sport setting is emphasized, the knowledge of how and in what context these skills can be transferred is outlined, and the awareness of the skills' value in other life domains is facilitated. As such, it is possible that researchers may be influencing study results through subtle cues communicated to participants during the data collection process (Rosenthal, 1966). Additionally, transfer research has highlighted that a key facilitator of transfer is the coach, and they facilitate transfer by encouraging reflection on transfer experiences (Gass, 1985; Gould & Carson, 2008). Thus, a methodology where transfer is defined and/or discussed, may in turn create a sense of value for transfer within athletes, whereby they recognize the applicability of life skills developed in sport to another context and eventually acknowledge the occurrence of this phenomenon. As such, there is a need to examine experiences of sport transfer through less direct inquiry.

Given past challenges and limitations in methodological approaches to studying transfer, this study explored the use of an online journal to capture youths' experiences of life skill transfer. A journal combines both the personal reflections, ideas and experiences of a diary, with observations, facts, and events of a log, providing a method of data collection that minimizes long retrospective delay in reporting experiences of transfer (Chabon & Lee-Wilkerson, 2006; English & Gillen, 2001; Hedlund, Furst & Foley, 1989; Iida et al., 2012), while also having the potential to reduce researcher bias during data collection (Risko, Quilty & Oakman, 2006). Thus, the overall purpose of this study was to explore the use of an online journal to capture youths' experiences of life skill transfer using direct and indirect inquiry. Specifically, this study a)

examined athletes' patterns of use of the online journal, b) explored the quality of online journal entries for detail and relevance, c) explored athletes' perceptions of using the online journal, and d) explored the use of a social media mobile app as a reminder for athletes' participation.

Methods

Participants

Participants included nine adolescent females (ages 13-14) who made up a competitive basketball team that competed at the AA level (second highest), and had been playing together for six months. All ten players on the team were invited to participate, but one athlete did not complete any online journals. The team practiced twice a week for two hours each practice; practices were facilitated by two female coaches and one athletic trainer. Every three to four weeks the team would participate in a two-day weekend tournament. Participants had varying degrees of basketball experience from one season to five years. Participants were randomly divided into two equal groups (i.e., n=5 per group) to experience direct and indirect inquiry; however due to one participant's withdrawal from the study, only four participants made up the indirect inquiry group.

Data Collection

Ethics approval was granted by the affiliated university's research ethics review committee. Participants and their parents were provided with detailed information regarding the study, and subsequently parents and youth completed consent and assent forms respectively. Participants were then given a web link and instructions to log onto one of two survey monkey sites for the direct and indirect online journals (described below). Participants were informed that they could log into the online journal on their own accord over a two-week period to answer questions for up to three entries per week (i.e., six entries total). Youth were instructed to

complete the journal whenever they felt they had an experience that related to the questions outlined in the journal. Youth were given four reminders over the 14 days of the study to complete an entry. The first and third reminders were provided using Snapchat on the fourth and eighth days of the 14-day process. The snap was sent out to all participants at 4pm and consisted of a black background with the text asking if they had completed a journal. The second and fourth reminders occurred on days six and thirteen and consisted of a verbal reminder stated by one coach, "Did you fill it out?" After the two-week period, the page was removed and no further responses could be entered.

Online Journal

A semi-structured approach to journaling was used over an open-ended format to ensure that the youth responses provided a complete description of their experiences. The semi-structured online journal questions were developed based on previous research on transferability of life skills in sport (Allen et al., 2015; Camiré et al., 2012; Camiré & Trudel, 2013; Camiré, Gass, 1985; Gould et al., 2007; Holt et al., 2008; Trudel & Forneris, 2014).

To address our research objectives related to direct and indirect inquiry, two versions of the online journal were developed. The direct guide was developed to be similar to previous protocols exploring life skill transfer, by first introducing the participant to the topics of life skills and transfer, then explicitly asking if they had learned life skills in basketball that they transferred to other life contexts. Specifically, the first question of the direct guide stated,

Youth can have experiences in sport that lead to the development of life skills. These life skills can be transferred from the sport setting to general life. Examples of experiences might include using a personal skill like responsibility or a social skill like teamwork that you learned in basketball and transferring that to home or school with family and friends.

Did you have any experiences this week in your daily life that reminded you of life skills that you learned in basketball?

The indirect question guide did not use either of the terms “life skills” or “transfer”, nor did it introduce these concepts to the participant. Specifically, the first indirect question stated, “Do you think that youth learn valuable skills through basketball?”

Both groups had the option to respond with a “yes” or “no” to the initial question outlined above. If the youth responded “yes”, they were prompted to complete a series of questions that asked them to provide the details of their experience including who was involved, why they chose to discuss this experience, and the role of participating in basketball in relation to this experience. If the youth responded “no”, they could exit the semi-structured online journal. Again, the direct group’s follow-up questions included life skill and transfer terminology/definitions (e.g., “Describe your experiences this week that included using a personal, social or life skill you learned in basketball and how you used these skills in another part of your life”), while the indirect group’s question did not (i.e., “Describe an experience this week that reminded you of your basketball class”).

To address the research objective related to athletes’ perceptions of the online journal, participants were also asked to provide comments regarding the questions, language and method of data collection. Both youth in the direct and indirect groups were asked to answer “yes” or “no” to the question, “Did you understand the previous questions?” Both groups of youth were also asked to describe the aspects they liked and did not like about the online journal (i.e. “What did you like about the questions?” “What did you not like about the questions?”).

Snapchat

To address the research objective related to social media reminders for participation, Snapchat was chosen as an appropriate mobile communication technology. Snapchat is a mobile app that allows users to send videos and pictures to their contacts that automatically delete after being viewed. To set up a Snapchat account the user must download the mobile app, create a user name, and can subsequently send or receive messages with other Snapchat users. To send a Snapchat (a term used to describe the digital image or video sent while using the app) the user must take a picture or video using the app, set the length of the Snapchat viewing time for up to 10 seconds, and add text or utilize other editing tools if desired. Once a message is sent, recipients receive an alert that they have been sent a Snapchat.

Snapchat was chosen for this study as the most appropriate mobile technology, as it is the third most popular social media app among those born from 1980-2000 (Lipsman, 2014; Perez, 2014), and all participants in the study were regular Snapchat users prior to the start of the study. Unlike Facebook and Instagram, the first and second most popular apps among youth (Lipsman, 2014; Perez, 2014), Snapchat provides a quick delivery of messages to users without the development of a user home profile. The username feature of Snapchat also allowed for the researcher to add the participants' Snapchat contact to her list with a username, while maintaining the anonymity of the participant. Further, the researcher was able to identify when each participant had viewed the reminder, as the notification on Snapchat indicates when the snap has been opened. Finally, one of the safety features of Snapchat is that it requires the user to accept friend requests, which prevents automatic adding of unknown people or fake users to one's friends list.

Data Analysis

To address the first objective regarding participants' patterns of use of the online journal, frequency of online log entries per participant over the 14-day period of the study were recorded from www.surveymonkey.com's user settings. Participants names have been changed and given a pseudonym to protect their anonymity. Participant log information pertaining to the number of experiences discussed within each entry, length of time to complete an entry, and date and time of day of each entry were also recorded.

To address the second objective regarding quality of participants' journal entries, entries were read and re-read with consideration to the relevance and detail of participants' responses pertaining to life skills and transfer. Specifically, the primary researcher recorded notes throughout readings of each participant's online journal, and recorded overall thoughts after reading all participants' (i.e., direct and indirect inquiry) online journals. Notes were summarized to provide a descriptive explanation of the researcher's interpretation of online journal entries, including similarities and differences between entries that drew upon direct and indirect inquiry.

To address the third objective of exploring participants' perceptions of the online journal, and comparing perceptions of direct and indirect inquiry, a content analysis was used to analyze participants' responses in their online journals. Krippendorff (2005) identifies a content analysis as "a research technique for making replicable and valid inferences from texts to the contexts of their use" (p. 19). First, an inductive content analysis was utilized to understand the effectiveness of using direct and indirect questions and having participants complete an online journal. This included open coding of participants' responses in the feedback section of the online journal. The open codes were subsequently grouped into categories and higher order headings as suggested by Burnard (1991). Next, abstraction was applied as described by Elo and Kyngäs (2007) to develop

a general description of the categories. Finally, to address the fourth objective of exploring a social media app as a reminder for participation, participants' response entry date and time was compared to the date and time of verbal and Snapchat reminders.

Results

Patterns of Journal Use

The first objective of this study was to identify athletes' patterns of use of the online journal. As noted above, nine participants completed the online journal; five through the direct inquiry and four through indirect inquiry. Table 1 provides a descriptive summary of the number of journal entries, the total number of experiences discussed, and the mean time to complete journal entries per participant. In the direct group, the mean number of journal entries was 2; one participant completed six journal entries while the remaining participants completed only one journal entry. In the indirect group, the mean number of entries was 3.75, with a range of 1-7 entries (i.e., one participant exceeded the suggested three entries per week and completed a seventh journal entry). The mean number of experiences discussed was 1.6 in the direct group, and 5.25 in the indirect group, with an overall range of 0-12 experiences per participant. With regards to mean time to complete entries, Jessie's entry was excluded from means, as she appeared to have failed to logout until the next day. Excluding Jessie's entry time, the mean time to complete each journal entry for the direct group was 13:03 (min:sec), ranging from 3:26 to 25:51, and for the indirect group, a mean of 35:01, ranging from 22:44 to 58:10.

Quality of Journal Entries

The second objective of this study was to explore the quality of online journal entries for detail and relevance. Participant responses in the direct group were complete and easy to follow. Responses provided detailed descriptions of the context of transfer, initial learning experience in

basketball, and the connection from the basketball context to general life. For example, when asked, “Did you have any experiences this week in your daily life that reminded you of life skills that you learned in basketball?” Jenny outlined how she used her skills of teamwork, time management and patience, learned in basketball, to another context – school (i.e., her science project):

This week, I had a science project due on simple machines with my friend from school. She and I had to build a machine using simple machines. We had a very hard time at the start with making our ideas work and actually putting the project together. It was assigned and due in the time span of about 2 weeks and because she and I both play on different ringette teams, it made it harder to get together. We did the project at my house, which made it easier to find materials. It took a long time but we finally finished it with a few days before the project was due.

Additionally, participants in the direct group who completed multiple entries demonstrated increased detail and reflection in their responses over the two-week period. For example, in the quote below Jenny described her experience working with a peer on another school project, clearly identifying the life skills she has developed in basketball, the connections between her basketball experiences and school, and how she transferred these life skills to school.

For this project, a major skill that I used that I learned through basketball is collaboration. I would not have been able to complete this project myself and it was useful to know how to listen and use other peoples’ ideas. Just like in basketball, there is no way a team will be successful if they don't work together. Another skill that I used for this project was patience. We had a lot of trial and error but we had to keep trying and did not rush the

work. I learned this in sports. Especially in basketball because there is no shot clock so you have time to set things up and get good passes and make good scoring opportunities. You really need patience when playing because throwing up random shots is not going to help you, just like rushing a project will not help you do well and get a good grade.

Participants in the indirect question group, who were not provided a description of the concept of transfer, often had responses that were long, difficult to follow, and did not necessarily address the question posed. Specifically, participants would often explain that they valued the life skills they learned in sport, and that they used them in other contexts, but they would not provide information pertaining to why they valued the life skills they learned in sport, or how they utilized these skills outside of sport. For example, Jamie stated,

I think that my basketball experience helped me with my experience in school because like I say in all of my journals, without my basketball experience I would have never learned or at least gotten good at skills like coordination, team work and listening skills, which are all things that people use on a day to day basis.

Furthermore, without direct questions about the basketball context, participants would use the term “basketball” to describe anything related to their basketball experience, failing to outline what specific components of their basketball experience facilitated the transfer process (e.g., their coach, teammate, practice or game setting). In more extreme cases, participants did not even mention basketball, nor any life skills that they were applying in everyday life contexts, making entries very challenging to interpret. For example, Grace included a 241 word entry, elaborately describing her day and the conflicts that she encountered, but appeared to simply be venting her frustrations with peers, friends, and dynamics within a school club.

Athletes' Perceptions of Online Journals

The third objective of this study was to examine athletes' perceptions of using an online journal. Table 2 outlines data in two main categories (i.e., positive and negative feedback), with two main subcategories within each category (i.e., related to benefits/challenges of keeping a journal, and effective/ineffective journal questioning, formatting, and content).

Similarities between the direct and indirect groups. The direct and indirect participant groups' shared two themes highlighting some consistencies in athletes' perceptions of using an online journal. Perhaps most significantly, within the category of the benefits of keeping a journal, both groups described how the journal gave them an opportunity to reflect on the relationship between basketball and everyday life, and provided them with a medium to express their reflections about the life skills they had learned in basketball. Tina from the direct question group said, "I get to relate my experiences real life at school and outside of basketball", while Jessie emphasized, "I liked how they *made you* think back and think about how basketball relates to your everyday life style." Similarly, Emma, from the indirect group said, "the questions forced me to think, and next week I'll look for something that reminds me of basketball." Grace, also from the indirect question group said, "it (the online journal) gave me time to reflect on what I learned in basketball because I usually don't think about it." These findings suggest that both the direct and indirect inquiry groups were making a connection between basketball and life, and appeared to be engaging in a reflective process around the concept of transfer.

Secondly, in the category of effective online journal questioning, formatting, and content, both groups discussed their preference for the unlimited space that was provided for responses. Specifically, Jenny from the direct group stated, "I liked how there weren't restrictions on how much detail I could put." Similarly, Jessie from the indirect group wrote, "I liked how the journal

gave us space to write as much as we wanted.” The lack of word restriction was an important feature of the journal, as this allowed the participants to fully reflect on their experiences.

Differences between the direct and indirect groups. There were several differences between the direct and indirect groups in the areas of both positive and negative feedback. First, while both groups shared similar experiences around the benefits of keeping a journal, they differed when providing feedback on their struggles of keeping a journal. Within the direct group, participants struggled with their belief that there was a “correct” answer for each question. As Jenny wrote, “I wish that you gave me an example of what kind of explanation you wanted to see.” On a related vein, participants in the direct group also felt pressure to provide responses that detailed experiences of transfer, even if they did not occur. For example, Tina prefaced her responses with “I don't really have much to relate to basketball outside of basketball”, yet still provided a response for each question detailing an experience of transfer. In the indirect group participants expressed uncertainty about the experience they were supposed to be reporting on in their journal, and an overall lack of clarity regarding the term “experience” (i.e., general meaning). For example, Helen wrote, “I was confused at what experience I was talking about by the third question!” Similarly, Jamie wrote,

The questions sometimes confused me because I didn't know if you wanted me to talk about an experience outside of basketball and then say how basketball helped or if you wanted me to talk about a basketball experience this past week and then say how all of my basketball experiences have helped me... When it said to describe your experience, I didn't know if it was asking me to describe a life experience or a basketball experience. I had to figure that out from other questions and what they asked.

Participants in the direct and indirect groups also expressed differences with regard to effective and ineffective journal questioning, formatting, and content. Some participants in the direct group suggested they appreciated how questions were broken down into smaller specific questions, allowing for detailed responses on each sub-section of the questions. As Jenny wrote,

I liked that there were separate questions for each part of the experience so that I can explain in detail...I like how they tell me what to talk about instead of just giving me a bunch of space and say to write about my experience - not telling me what to talk about.

Interestingly, some participants in the direct group considered these same questions to be problematic – suggesting they were too broad and repetitive. For example, Jessie wrote, “I thought that these questions were too general and that I could have many different answers that may not be the ones that the study was looking for.” Of further interest still is that some participants in the indirect inquiry group appreciated their questions - because they were broad and did not take a long time to complete. As Jessie wrote, “I liked how general the questions were. They were simple and easy to understand and it did not take long to respond.” Yet others in the indirect group suggested they were confused by the broad questions. As Helen wrote, “I think the questions were a little confusing... like how they said, ‘draw upon these experiences’. How do you draw upon experiences?” Collectively, these findings suggest that there was little consistency in how participants viewed their differing questions, with individuals in both the direct and indirect groups finding questions broad, specific, clear, confusing, detail oriented, and quick to complete.

Effectiveness of Snapchat Reminder

The final objective of this study was to explore the use of a social media mobile app as a reminder for athletes’ participation. The Snapchat reminders resulted in a trend of increased

journal entry participation at both reminder points, and were more effective than the verbal coach reminders. Figure 1 displays the number of journal entries for each of the 14 days of the study. Overall, there was a total of one journal entry per day; however, following Snapchat reminders, this increased to two entries on days 4 and 5 after the day 4 reminder and also increased to three entries on days 9 and 10 after the day 8 reminder. The number of journal entries did not change following verbal coach reminders to complete on days 3 and 13.

Discussion and Conclusion

This study explored the use of an online journal to capture youths' experiences of life skill transfer using direct and indirect inquiry. More specifically, this study applied a new methodological approach to address questions around transfer in sport, with the aim of negotiating some of the limitations of past research in this relatively new area of study.

Online Journaling and Use of Mobile App

Findings suggest that generally, the use of an online forum for youth to journal their experiences, coupled with a mobile app as a reminder to engage in the process, served as a successful data collection method, with some minor caveats. Research suggests the internet has increased as a vehicle to collect data in recent years (Ryan, Wilde & Crist, 2013), given online tools can provide access to diverse demographic samples, improve data management, and reduce missing data (Birnbaum, 2004; Casler, Bickel & Hackett, 2013). The use of journaling through an online forum is increasingly being explored as a new medium for data collection (Wilkes & Jackson, 2012). In this study, journaling allowed participants to reflect on new experiences and previously learned concepts, in turn promoting knowledge attainment and personal development (Chabon & Lee-Wilkerson, 2000; English, 2001; Gillis, 2001; Hettich, 1976); however, because personal reflection has been linked to understanding and recognizing the occurrence of transfer

(Gass, 1985; Gould & Carson, 2008), journaling in this study may have inadvertently facilitated the process being explored - life skill transfer. Further, it has been proposed that online journaling can reduce the social desirability of participants (Candour Hypothesis; Buchanan, 2000) in part due to the elimination of the physical presence of the researcher; however, some of the participants in this study (i.e., those in the direct inquiry group) appeared to be influenced by social desirability. These ongoing challenges in the study of transfer are further discussed below.

The use of a mobile app appears to offer a promising strategy to enhance the quantity of collected data. Although there was no change in journal entry activity following verbal reminders, mild increases in entries were seen following Snapchat reminders. Snapchats may also serve as a strategy to reduce attrition. Although only a small number of participants were recruited for this study, all recruited participants (i.e., 100%) completed the study, which is particularly noteworthy when considering the time-intensive nature of this longitudinal study. Attrition is a common problem in longitudinal studies (Howard, Krause & Orlinsky, 1986); however, modern technological strategies have been found to enhance adherence (Cavallo, Tate, Ries, Brown, DeVellis, & Ammerman, 2012; Kim, Oh, Steinhubl, Kim, Bae et al., 2015; Pop-Eleches, Thirumurthy, Habyarimana, Zivin, Goldstein, De Walque et al., 2011).

When utilizing mobile apps in research, consideration should be given to the optimal tool for the intended study purpose and population. In this study, Snapchat's popularity among youth, coupled with the increased appeal of picture-based platforms (Lipsman, 2014; Meyers, 2015; Perez, 2014) contributed to our choice of tool. As this study included a small sample of youth female basketball athletes (N=9), future research should consider examining larger samples which include participants of different ages, sexes, sports, and cultural contexts, to better

understand how these socio-demographic factors may influence participant engagement and retention.

Direct versus Indirect Journaling

Central to the design of this study, were the direct and indirect questioning protocols, designed to explore if and how different approaches may affect youths' transfer experiences. Given suggestions that providing information about the process of transfer prior to and during the interview (i.e., through the direct method of inquiry) may inherently facilitate the process of transfer (Danish et al., 1993), this study aimed to address these concerns. Specifically, indirect questioning was used with one group of participants, and the more normative direct questioning approach was used with a second group. While groups differed in their patterns of journaling, quality of entries (i.e. details, relevance) and perceptions of the program (i.e., positive/negative feedback), they also shared some similarities (i.e., Snapchat effectiveness).

With regard to journal pattern use and quality of entries, youth in the indirect group provided more entries, recorded more experiences of transfer, took more time to complete each entry, and made less clear and articulate connections between sport and non-sport contexts than the direct group. These findings seem to be a symptom of question type, with the indirect group's more generic open questions facilitating more entries, more experience descriptions, and longer responses.

Despite these differences, it is important to note that participants in both groups highlighted their appreciation of having the opportunity to reflect on the relationship between their sport and other life contexts, and their appreciation of the unlimited space permitted to provide these responses. While the reflection process was very clear within all entries among the direct group, this process took a bit more time for the indirect group, not becoming evident until

after the first few entries. These findings demonstrate that youth participants are able to provide reflective experiences of life skills transfer and reflection can occur without a description of formal concept of transfer. As past life skills transfer research has identified a main mechanism and facilitator for transfer is the belief or value that life skills developed in the sport contexts can be transferred to non-sport contexts (Allen et al., 2015; Camiré & Trudel, 2014; Camiré et al., 2009; Gould & Carson, 2008; Holt et al., 2008); it appears youth in the indirect group developed these beliefs and values regarding transfer over the course of the first few journal entries, without the assistance of transfer terminology embedded within questions. It is possible that the process of writing exploratory journals over an extended period of time may have facilitated the indirect group's writing skills and ability to reflect on their experiences. The finding that reflection was occurring across groups is somewhat in contrast to a recent study that has challenged the reflective abilities of youth participants (Chinknov & Holt, 2015). Further, the finding that reflection was occurring in the indirect group, without the use of prompts and guidance using the term "transfer" suggests the indirect questioning approach may have advantageous potential as a method to collect data on experiences of transfer, while reducing the potential guiding effect of using the transfer terminology within questions.

Despite this positive potential of the indirect approach, the study highlighted many remaining limitations to both the indirect and direct questioning protocols. First, with regard to the indirect protocol, participants highlighted challenges around the broadness and openness of the questions, leading to confusion around the appropriate experiences to journal about, which in turn led to some very long and rambling journal entries that did not always clearly articulate experiences of transfer from sport to non-sport contexts. In contrast, youth in the direct questioning group highlighted their appreciation for the specificity of the sub-questions, which

allowed for clear sequential responses; however, some participants in the direct group also criticized this approach, suggesting this led to a great deal of repetition in responses. Further, the advantages to the research should not be overlooked, as entries among the direct group were easy to follow and provided clear sequential information regarding life skills transfer (Eyler, 2001; Kalliath & Coghlan, 2001; Korgel, 2002); however, this clarity must once again be challenged as a potential symptom of the researcher taking too much of an active role within the data collection process. While athletes in the indirect group eventually discussed life skills transfer, their initial journal entries were often extremely detailed without any reference to life skills transfer.

Collectively, these findings align with past research around the use of structured (i.e., direct) and unstructured (i.e., indirect) journaling (Eyler, 2001). In a structured journal youth respond to open-ended questions developed by the researcher regarding specific topics as opposed to unstructured journals, which allow for more free-form whereby participants record thoughts and feelings with minimal direction (Eyler, 2001; Kalliath & Coghlan, 2001; Korgel, 2002;). Often, questions in structured journals are aimed at guiding youth to provide deeper meaning and develop connections between their experiences (Waywood, 1996). It should also be acknowledged that some youth find writing journals to be a burden or undesired activity (Eyler, 2001). While participants in this study did not articulate such a burden, if they had felt this way, this would likely have been a greater disadvantage for participants in the indirect group, given that less structured questioning often led to more extensive writing demands.

With regard to limitations of the direct questioning approach, participants suggested they may have been subject to social desirability. More specifically, within their feedback, youth in the direct group described their eagerness to please the researchers, feeling that there was a “right” or “correct” response and owning up to pressure they felt to provide such responses. This

influence of social desirability (i.e., when participants provide responses that are biased towards their perception of what is “correct” or socially desired; Maccoby & Maccoby, 1954) may have been more prevalent in the direct group, given the extensive number of sequential questions which probed for responses about transfer. As the questions for the direct question group were developed based on previous transfer studies (Allen et al., 2015; Camiré et al., 2009, Holt et al., 2008), these findings again reinforce the importance of further consideration being given to methodological designs moving forward, when explaining the concepts of life skills and transfer to potential participants.

Concluding Remarks

This study explored a novel methodological approach to the study of transfer of life skills among youth. While findings do not provide one clear direction for research designs moving forward, our intention is that this work will trigger further discussion and innovation around optimal methods to study this rather complex construct. Main findings suggest that the traditional direct inquiry approach, which often includes explicit descriptions or explanations of transfer, is likely to lead to ‘cleaner’ participant responses that provide the researcher with clear and relevant data regarding transfer; however, concerns regarding the researcher’s role in guiding the participant through the transfer experience, coupled with the potential influence of social desirability should be considered by researchers aiming to move research in this field forward. While indirect questions provide one potential alternative to reducing bias and social desirability in responses, this approach offers additional challenges around time, and more complex and intensive data collection and analysis processes for the researcher. There may also be a threshold from the perspective of cognitive development, at which point this methodological approach can

be effective (Chinknov & Holt, 2015), given what could be considered more extensive reflective demands of this approach.

The findings of this study suggest that there is a need to give greater consideration to the impact of the researcher on youths' recall of life skills transfer experiences. While we proposed an indirect inquiry method as an alternative to direct inquiry, with the aim of addressing some of the challenges within current research, our findings suggest that neither approach is without methodological limitations. In keeping with the direct inquiry method, one approach moving forward may be, rather than simply trying to eliminate the researcher's impact within the research process, to identify how the researcher may be influencing participants' recall of experiences, reflection, and learning. Drawing upon reflexivity (Creswell, 2013), the researcher could also engage in journaling throughout the data collection process, to in turn consider their own roles within the process of change in participants' ability to recall their experiences, reflect on their experiences and learn from their experiences. Our findings also suggest great potential for the indirect method of inquiry, and we encourage researchers to consider and continue to evolve our proposed methodology, perhaps trying to drawing upon some components of direct inquiry to strengthen indirect inquiry, without losing the key tenants of 'indirect'. To date, much of the research on transfer has focused on the role of adult leaders or coaches in facilitating life skills transfer (Allen et al., 2015; Camiré et al., 2009, Holt et al., 2008; Gould & Carson, 2008); our findings emphasize the value in better understanding transfer experiences through the lens of the athletes themselves. Collectively, we our findings suggest that journaling as a data collection methodology may allow for increased exploration into the learning of the individual and the athlete's role in their own experience of life skills transfer from sport to non-sport contexts. Future studies can monitor this learning process overtime and examine the participants' journal

entries' evolution to identify how the belief, value, understanding and experience of transfer is facilitated by the youth.

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Table 1
Summary of Participants' Patterns of Online Journal Use

Online Journal Type	Participant	Number of journal entries (total)	Number of experiences discussed (total)	Mean time to complete one entry (minsec)
Direct journal	Jessie	1	1	Over a day*
	Tina	1	0	3:26
	Stephanie	1	1	11:43
	Christina	1	1	11:12
	Jenny	6	5	25:51
Mean		2	1.6	13:03
Indirect journal	Helen	1	1	28:01
	Emma	2	3	23:38
	Jamie	5	5	58:10
	Grace	7	12	22:44
Mean		3.75	5.25	35:01

*Removed from the total mean calculation; assumed to be left open in error.

Table 2

Positive and Negative Feedback from Direct and Indirect Group Participants

Category	Sub-Category	Direct Theme	Indirect Theme
Positive feedback	Benefits of keeping a journal	Opportunity to reflect on the relationship between basketball and everyday life	Opportunity to reflect on the relationship between basketball and everyday life
	Effective online journal questioning, formatting, and content	Questions were broken down into sub-questions, allowing specific detailed responses Unlimited space provided for responses	Questions were broad and open, requiring only a short amount of time to complete Unlimited space provided for responses
Negative Feedback	Struggles of keeping a journal	Believed there was a correct response; wanted an example Felt pressure to provide responses (i.e., report on experiences of transfer)	Uncertain of appropriate experiences to journal
	Ineffective online journal questioning, formatting, and content	Questions were broad and repetitive	Questions were confusing

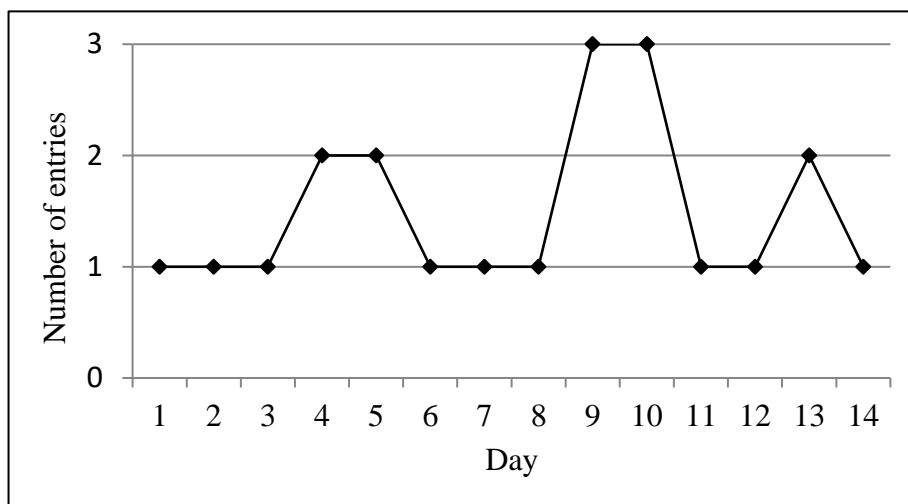


Figure 1. Number of participant responses for direct and indirect group each day of the two-week study

Chapter Seven

Using an Online Journal to Capture Youths' Experiences of Life Skill Transfer from Mixed Martial Arts to Non-Sport Contexts

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Chapter Seven Overview

Life skills have been identified as one possible outcome of PYD through sport (Gould & Carson, 2008). Recent research has begun to examine the value and process of transferring life skills learned in the sport context to non-sport contexts (Gould & Carson, 2008). There is anecdotal evidence to support that Mixed Martial Arts (MMA) can support life skills transfer in youth. The objective of this study was to identify the mechanisms that facilitate the transfer of life skills learned in MMA into non-sport contexts. Participants included 9 youth from MMA gyms in the Greater Toronto Area. Youth completed online journals with direct and indirect questions regarding their experiences of life skills transfer. Participants described that their MMA coaches facilitated their development of a value for life skills transfer and facilitated life skills transfer. Furthermore, participants in the direct and indirect groups demonstrated differences in their description of transfer experiences. Together, a value for life skills transfer and coach support for transfer facilitated the occurrence of life skills transfer from the MMA environment to non-sport contexts.

Using an online journal to capture youths' experiences of life skills transfer from Mixed Martial Arts to non-sport contexts

The Positive Youth Development (PYD) framework emerged from the field of developmental psychology. PYD emphasizes an “asset building” approach to understanding youth development. The asset building approach, considers youth as assets to be developed and explores youths' optimal developmental potential, rather than the traditional “deficit reduction” model, emphasizing youths' problems or character gaps needing modification (Damon, 2004). In sport, this shift has resulted in a focus on the positive outcomes and process by which youth can develop through their involvement in sport, rather than using sport as a tool to correct negative behaviours and psychological issues among youth. More specifically, sport is seen as a vehicle for enhanced educational experiences and engagement in productive activities (e.g., Danish, Taylor, Hodge, Heke, 2004; Gould & Carson, 2008).

Life skills have been identified as one possible outcome of PYD through sport. Danish and colleagues (2005) define life skills as “skills that enable students to succeed in the different environments in which they live, such as school, home, and in their neighborhoods. Life skills can be behavioral (communicating effectively with peers and adults); cognitive (making effective decisions); interpersonal (being assertive), or intrapersonal (setting goals)” (p. 49). Furthermore, PYD through sport research has extended the definition of life skills to recognize that for life skills developed in the sport context to be considered life skills they must be transferred for use in non-sport settings (Chinkov & Holt, 2015; Danish, Forneris, Hodge & Heke, 2004; Gould & Carson, 2008). Papacharisis and colleagues (2005) acknowledged that many life skills learned in sport are transferable to other life contexts. This process has been identified in PYD through sport research as the transfer of life skills.

It was initially posited that transfer from the sport context to non-sport contexts occurred automatically only between identical contexts (Thorndike & Woodworth, 1901). More recently, transfer has been examined as occurring in different contexts (Perkins & Salomon (2012). Empirical evidence exists to suggest that transfer from different contexts (e.g., sport to non-sport contexts) is not an automatic occurrence but is facilitated by coaches and sport programming (Allen, Rhind, Koshy, 2015; Camiré, Trudel & Forneris, 2012; Gould & Carson, 2008; Papacharisis, Goudas, Danish, & Theodorakis, 2005). Gould and Carson (2008) proposed the Model for Coaching Life Skills Through Sport developed from an extensive review of the literature on positive youth development through sport. The initial components of the model focused on the role of the coach in developing athletes' life skills, and the fifth and final component described the process of transferability of life skills developed in a sport context to a non-sport context. This component emphasized the importance of coaching philosophies in the process of transfer, outlining specific strategies to promote life skills development and transfer (i.e., clear and consistent rules, reinforcement, quality of instruction, leadership opportunities, opportunities to make decisions, individual attention, fairness, and team building), and the importance of opportunities being provided for athletes to exhibit life skills.

More recently Turnnidge, Côté, and Hancock (2014) examined explicit and implicit approaches of sport programs to facilitate life skills transfer from the sport context. In the explicit approach, adult leaders use specific programming and modules in a sport context that intentionally teach life skills and the transferability of life skills (Turnnidge et al., 2014). Transfer is facilitated by coaches, adult leaders or youth leaders who directly link the life skills developed in sport to non-sport settings (Danish, 2002; Hellison, 2003; Weiss, 2006). Examples of explicit sport programs include the Teaching Personal and Social responsibility (TPSR) in

sport program (Hellison, 2003; Hellison & Walsh, 2002), The First Tee (Weiss, 2006) and Sports United to Support Education and Recreation (SUPER; Danish, 2002). In contrast, the implicit approach does not employ specific programming, lessons or modules aimed at promoting life skills development or transfer (Turnnidge et al., 2014). Within this approach, coaches have been identified as a key feature for transfer facilitation (Allen et al., 2015; Camiré et al., 2012).

Coaches use teachable moments to promote leadership and conflict resolution skills in difficult situations, encouraging athletes to reflect on the skills they learn in their sport setting (Camiré et al., 2012). Current literature supports the effectiveness of both approaches for facilitating life skills transfer from the sport context (Allen et al., 2015; Camiré et al., 2012; Camiré & Trudel, 2010; Holt, Tink, Mandigo, & Fox, 2008; Weiss, Stuntz, Bhalla, Bolter & Price, 2013).

While a growing body of literature is advancing understanding of transfer experiences and processes, there remain methodological challenges and limitations. For example, past research has predominantly utilized retrospective semi-structured interviews at one time point, as the primary method of data collection when studying youth experiences of transfer (Camiré et al., 2012; Holt et al., 2008; Jones & Lavalley, 2009), which may rely too heavily on retrospection (Jackson, 2000), be subject to recall bias (Iida, Shrout, Laurenceau, & Bolger, 2012; Potter & Hepburn, 2005), and fail to capture the evolution of the life skill development process (Holt et al., 2008; Jones & Lavalley, 2009; Lee & Martinek, 2014). While participant retention is a concern when conducting longitudinal studies (Given, Keilman, Collins, & Given, 1990), reminder phone calls have been identified as an effective technique to increase response rates (Traina, MacLean, Park, & Kahn, 2005). Further, most researchers have prefaced data collection procedures with an explanation of the concept of transfer, with interview questions often including the term transfer, defining the concept of transfer within the question, or using

suggestive language in favour of the experience of transfer. While this approach may be deemed appropriate and even necessary given the specificity and apparent novelty of the definition/construct of transfer, providing information about the process of transfer prior to and during the interview, may indirectly be facilitating the process of transfer (Danish Petitpas, & Hale, 1993). As such, there is a need to examine experiences of sport transfer through less direct inquiry.

In addition to methodological challenges surrounding the study of the transfer of life skills, there is also a need to gain a deeper understanding of the mechanisms and facilitators involved (Camiré et al., 2012; Chinkov & Holt, 2015; Gould & Carson, 2008). One sport that has been spotlighted within mainstream and social media for having the ability to facilitate life skills development and transfer is mixed martial arts (MMA; Cameron, 2012; Hooper, 2009). MMA is a full contact combat sport that integrates the striking and grappling techniques of a variety of other combat sports (i.e., martial arts, boxing, sumo, wrestling, karate, Brazilian jiu-jitsu, kickboxing, and tae kwon do) (Downey, 2007; MMA wiki, 2013). MMA is a relatively new sport at the amateur level. In 2016, MMA became legal in all American states and is currently legal in five Canadian provinces (i.e., Manitoba, Quebec, Ontario, Nova Scotia) and one territory (i.e. Northwest Territories).

The focus of current research has been to investigate physiological changes, injury rates, technique advancement, aggression, and MMA fighter culture exclusively in adult populations. (Buse, 2006, Del Vecchio, Hirata, & Franchini, 2011; García, & Malcolm, 2010; Ngai, Levy & Hsu, 2008). Chinkov and Holt (2015) recently explored the transfer of life skills amongst adults participating in Brazilian jiu-jitsu (BJJ), finding respect for others, perseverance, self-confidence and healthy habits to be life skills transferred into other domains. These life skills were

developed implicitly through the characteristics and values of training BJJ, influenced by head instructors and peer support (Chinkov & Holt, 2015). While, this study contributes to our understanding of life skills transfer from sport to other domains, it was conducted in an adult population. To date, no research has specifically examined life skill transfer among youth in MMA programs.

Over the past 30 years, a small body of literature has examined outcomes associated with youth participation in martial arts broadly (rather than MMA specifically; Cannold, 1982; Penrod, 1983; Trulson, 1986). Examination of youth development in martial arts has primarily employed a deficit reduction approach, in contrast to the asset building approach of PYD (Lerner, Almerigi, Theokas, & Lerner, 2005). More specifically, martial arts programs are often examined as a behavioral intervention for troubled or delinquent youth (Smith, Twenlow, & Hoover, 1999; Trulson, 1986; Zivin, Hassan, DePaula, Monti, 2001). This body of research has identified benefits of youth participation in martial arts as increased self-esteem (Finkenbergh, 1990; Theeboom, De Knop & Wylleman, 2008; Trulson, 1986), increased self-regulation (Lakes & Hoyt, 2004), emotional regulation (Konzak & Boudreau, 1984; Wall, 2005), assertiveness (Konzak & Boudreau, 1984), self-confidence (Duthie, Hope & Barker, 1978; Konzak & Boudreau, 1984), and decreases in aggression (Smith, Twenlow, & Hoover, 1999; Trulson, 1986; Zivin, Hassan, DePaula, Monti, 2001).

To our knowledge only one study has examined youth martial arts programs' effectiveness through a PYD approach. Theeboom and colleagues (2009) conducted a qualitative study among youth (ages 8-12) involved in judo, karate, Tae Kwon Do, aikido, wrestling, kick boxing, wushu, and boxing. Youth described that the practice of their martial art was associated with increased self-efficacy and self-confidence. Additionally, youth discussed improved conflict management

and communication skills, which they transferred to non-sport contexts with their peers (Theeboom, De Knop, Vertonghen, 2009). A key limitation of this study was that the results were based primarily on hypothetical scenarios as youth were asked what they “would do”, if they were in a conflict rather than recalling real life situations. In addition, this study did not focus on specific aspects of the martial arts class that may have contributed to the youths’ reported experiences (i.e., processes and mechanisms that facilitated PYD).

Given that transfer of life skills is critical to the fundamental definition of life skills, coupled with past recommendations to further examine sport environments that support life skills development (Gould & Carson, 2008), this study aimed to further explore life skill development and transfer in MMA, a relatively new sport environment for youth participation. This study had two objectives: (a) to examine youths’ experiences of transfer of life skills from youth MMA to general life contexts to identify the mechanisms of transfer, and (b) to critically analyze the responses of two different types of online journal questions (i.e. direct, indirect).

Methods

Participants and Context

Nine youth (ages 9-14) six males and three girls from six MMA gyms in the Greater Toronto Area participated in the study; an additional four were invited but did not return signed parental permission. To address the second objective related to direct and indirect questioning, 4 participants were assigned to the direct questioning group and 5 to the indirect group. All participants were currently participating in a youth MMA program, and had been enrolled for at least 8 months at the time of the study. The youth MMA programs were structured to focus on the striking and grappling component sports (i.e. Muay Thai, Boxing, Kickboxing, no Gi Brazilian Jiu-jitsu, wrestling) for 60 to 90 minute classes on alternating days throughout the week; however,

youth were not obligated to attend all youth MMA classes, with gyms were structured with drop in programs. All MMA gyms had one or two specific coaches for each class type (e.g., striking, grappling) that were specialized in this form of combat sport. Participants were drawn from a larger research study focused on PYD in MMA. Prior to participation in this study youth and their parents were provided information regarding this study and completed consent/assent forms.

Data Collection

Online journals. An online semi-structured journal was selected as an optimal method for data collection for this study. Online journaling presented a medium for participant responses surrounding transfer, and had the potential to reduce retrospective delay between the youth experience of transfer and reporting of transfer. Furthermore, the use of direct and indirect inquiry allowed for the examination of the possible influence of the researcher's questioning on youths' reported experiences of life skills transfer.

A journal combines the principles of a log and a diary to act as a medium to record personal reflection, ideas, accounts of events and descriptions of experiences when the writer chooses to do so (Carbon & Lee-Wilkerson, 2006; Hettich, 1976). Past research studies have used journaling as a means of documenting and reflecting on the practice of research or for data collection recording information for future analysis (Banks-Wallace, 2008; Välimäki, Vehviläinen-Julkunen & Pietilä, 2007). Furthermore, journals have been identified as an effective tool for collecting data to examine specific experiences in natural contexts (Simmons-Mackie & Damico, 2001).

While journaling encourages participants to spontaneously record their reflections, thoughts and evolving insights (Chabon & Lee-Wilkerson, 2006), there are some limitations to using an open journaling method with youth (Ricardson, 1994; Taylor, Kermode & Roberts, 2006;

Välimäki et al., 2007). For example, youth may perceive providing an insightful and meaningful journal entry as a cumbersome task and chose to write a superficial description of their day (Eyler, 2001). Additionally, lack of confidence in writing, time to complete journal, and anxiety associated with writing out feelings and emotions are reasons for youth participants' limited journal responses in research studies (Hayman, Wilkes, & Jackson, 2012). Structured journals offer a solution that encourages youth to provide a reflective journal entry (Chabon & Lee-Wilkerson, 2006; Eyler, 2001). Eyler (2001) further identified that structured journals can provide a basic template for the journal entry to encourage youth to provide information that can be used throughout the research process. Recognizing these challenges and limitations, this study applied and compared two approaches in the journaling process: direct inquiry (i.e., resembling a structured journal), and indirect inquiry (i.e., more traditional open-ended journaling).

Procedure. Ethical approval of this study was attained through the University Research Ethics Committee prior to data collection. The online journal was adapted from the original version tested by the primary researcher in a pilot study (see Beesley & Fraser-Thomas, in preparation). Youth were randomly divided into two groups, with each group representing the type of online journal the youth participant would complete (i.e., direct and indirect inquiry). Youth were informed of the website link to access their online journal and instructed to complete the journal whenever they had an experience they wanted to discuss. Once youth logged on to their journal they had 30 days to complete a recommended three journal entries. Youth could access their online journal from any Internet-accessible device. Youths' birthdates were used as an identifier to collate their journal entries. Once entries were collated all identifiers were removed.

Direct inquiry journal. Four youth completed the direct question online journal. Youth completed seven questions regarding their transfer experience. The questions were developed

based on previous transferability of life skills in sport research (Allen et al., 2015; Camiré et al., 2012; Camiré & Trudel, 2013; Camiré, Trudel & Forneris, 2014; Gass, 1985; Gould, Collins, Lauer & Chung, 2007; Holt et al., 2008). Through this journal, youth were provided examples of life skills they could potentially transfer from their MMA context to other life contexts. For example, youth were asked “What personal, social or life skills (examples of skills are: leadership, communication with others, emotional control, respect, self-control, self-confidence, etc.) did you use this week outside of MMA that you originally learned in your MMA class?”

Indirect inquiry journal. Five youth completed the indirect inquiry online journal. In this journal, youth completed three questions regarding their transfer experience. The questions were developed to provide minimal description of the concept of transfer, and not to provide examples of life skills that could be transferred from MMA class to other life contexts. An example question is “Describe an experience you had this week that reminded you of something you may have learned in MMA class.”

In both journals, youth were provided a space to enter their response below the question. Each series of questions was repeated twice within each journal entry, to allow youth to share multiple experiences within one entry, if they so chose. Youth also had the option to end their online journal entry if they were finished or did not have multiple experiences to share.

Data Analysis

All online journal entries were collected and collated by date of entry for each participant using their identifier code (i.e., birthdate). A content analysis method was used to analyze all journal entries. A content analysis has been identified as an effective strategy for analyzing written messages (Cole, 1988). It involves systematic coding and categorization of textual information to identify themes and patterns from the text to describe and quantify phenomena

(Krippendorff, 1980). The result is a broad description of the phenomenon being investigated, coupled with a concise concepts or categories that describe the phenomenon (Elo & Kyngäs, 2008).

A deductive-inductive content analysis was performed to examine all participants' online journal entries (Miles & Huberman, 1994). This type of analysis was chosen as the main categories emerged deductively, from existing concepts in previous literature and the main areas of research in this study. The two main categories that emerged were: (a) mechanisms that facilitate value of life skills transfer and (b) youths' experience of life skills transfer. Subsequently, categories and subcategories emerged through an inductive analysis of participant responses.

An inductive content analysis process consists of three phases: preparation, organization and reporting (Elo & Kyngäs, 2008). The preparation phase involved selecting a word or a theme as a unit of analysis (Cavanagh, 1997). The theme selected as the unit of analysis was "experiences of transfer." Next, open coding was conducted to establish categories. The primary researcher became immersed in the data by reading the journal entries several times and created headings during reading. Categories were formed by grouping by higher order headings (Burnard, 1991). Finally, abstraction was employed to create a general description of the data from the established categories (Burnard, 1996). During this phase of analysis, grouped categories developed during open coding are renamed to reflect content characteristic words (Elo & Kyngäs, 2008). Subcategories with similar themes are grouped together as categories and categories are grouped into main categories (Dey, 1993). Direct and indirect inquiry online journal responses were analyzed together. Any categories that emerged unique to the direct or

indirect question online journal responses were noted as an individual theme termed “impact of question type on participant journal entry responses.”

Results and Discussion

Youth identified transferring five life skills (i.e., physical skills, self-control, leadership, conflict resolution, focus, and self-confidence) from the MMA context into non-sport contexts. We present and discuss our results in three sections. The first section describes the main category of how youth learn to value life skills transfer. The second section describes the second main category of the youths’ experiences of transfer. Finally, the third section critically examines the direct and non-direct journal entries. Participants names have been changed and given a pseudonym to protect their anonymity.

Mechanisms that Facilitate the Value of Life Skill Transfer

Youth described two mechanisms that were facilitated by their MMA coaches that enhanced their value of life skills transfer. First, youth highlighted that their MMA coaches would state the value of using life skills such as self-control, conflict resolution and respect developed the MMA class in other non-sport contexts. More specifically, youth described coaches directly stating the applicability. “He (coach) always tells me to have fun but to have self-control at the same time in MMA to use the good qualities. And that you have to use these qualities in our MMA gym but also outside” (Jamie). Coaches expressed the belief that the life skills developed in MMA could be used in other settings. Youth described that their coaches placed an importance on how MMA could develop the youth beyond physical skills and highlighted the usefulness of the life skills in the youths’ non-sport contexts.

Furthermore, youth mentioned that their coaches would provide “lectures” on the usefulness of life skills developed in MMA using scenarios or members of non-sport contexts that

are familiar to the youth. One youth described that before being involved in MMA, he would respond to his parents using violent behaviours (i.e., kicking, punching, screaming). He said, “My coach has taught me to stop and think and that I should show respect to my parents” (Sam). It appears that coached acted to highlight the relevance of life skills using direct links to youths’ life outside of sport.

Cox (1993) suggested that there can be a great variation in the quality and type of teaching approaches in martial arts, and this variation has the potential to influence the outcomes of martial arts for its participants. Cox outlined three recognized approaches: tradition, sporting, and efficiency. The traditional approach uses “kata”, a meditation period that is preceded by an explanation given by the instructor regarding the philosophy or meaning of the day’s training session (Trulson, 1986). Martial art instructors that use the traditional approach have pedagogically-oriented goals and are focused on linking the mental and physical elements of martial arts practice (Vertonghen, Theeboom & Cloes, 2012). The sporting approach teaches the acquisition of fighting competence, and stresses the development of the physical, mental and social aspects of the person. Finally, in the efficiency approach, instructors are focused on providing a sport activity and teaching the combative techniques of the sport (Theeboom, De Knop & Wylleman, 1995; Vertonghen et al., 2012). The traditional approach is reflective of the explicit life skills programming and the sporting and efficiency approaches are similar to the implicit life skills programming as described by Turnnidge et al (2014).

Recent research (Beesley & Fraser-Thomas, in preparation) suggests that youth MMA coaches may have a unique background not observed in other sports. Depending on the youths’ MMA coach’s specific component martial art background they could use one of these specific strategies (i.e., traditional, sporting, efficiency) outlined by Cox (1993). Vertongen and colleagues

(2012) identified typically Aikido and Karate instructors used a traditional approach while Kickboxing and Thai Boxing coaches used the sporting and efficiency approaches; however, a specific strategy has not yet been clearly affiliated with MMA. In their Model of Coaching Life Skills Through Sport Gould and Carson (2008) identified that transfer of life skills was facilitated when coaches believed the life skills acquired were valuable in other setting, were aware of the comprehension of transfer and that they had confidence in the ability of youth to apply these skills in different settings. Youth in this study suggest their MMA coaches were using a traditional approach, as evidenced by these identified mechanisms of transfer. Specifically, the strategies identified by MMA youth in this study are similar to those outlined by the participants of Camiré and colleagues (2012) study, such as using teachable moments to explain and encourage the transfer of life skills to their athletes.

Secondly, youth discussed their coaches' role modelling of the transfer of life skills. "My Coach didn't actually teach us about life skills transfer but what I saw was him taking care of everybody and watching everyone and by showing me with his actions" (Alex). One participant described that MMA is a class in which they are supposed to develop in all domains - physical, social and psychological. They believed their coach was the best teacher in in each of these contexts, and wanted to learn what was being taught. As one participant said "he (coach) taught me about transfer by being assertive and in control and being confident" (Scout). Here, the participant was describing how the coach's confidence in the youth to learn the life skills that were being taught enabled the youth to believe they could apply these skills outside of their sport setting.

Past research has focused on the role of coaches as facilitators of life skill transfer. This study's novel methodology provides insight into the role of youth in the process of life skills

transfer. Youth identified that they learned the value of life skills transfer through observation of their coach in the MMA environment, expanding upon literature regarding transfer of learning in educational psychology (Perkins & Salomon, 1992). We suggest that prior to valuing life skills transfer in a non-sport context, youth must first learn to value life skills transfer in the sport context. Perkins & Salomon (1992) have done extensive research on different forms of transfer. Near transfer refers to transfer between very similar contexts, and low road transfer mechanisms are pattern recognition and the reflexive triggering of routines. Near transfer is typically facilitated by low road transfer mechanisms. When the youth in this study were in MMA and witnessed their coach using a life skill within that environment but outside of their specific class context, youth began to recognize the value within a fairly similar context to that of their MMA class. Near transfer occurs before far transfer, transfer between contexts that on appearance seem remote or distant to one another or transfer of life skills from the sport to non-sport context (Perkins & Salomon, 1992). High-road transfer mechanisms aid in facilitating far transfer and involve deliberate reflective processing, and mindful abstraction from the context of learning to application and the deliberate search for connections.

Mechanisms that Facilitate Transfer Experiences

Youth mentioned that they experienced life skills transfer from MMA into their school and home life contexts. Immediate family (i.e., parents, siblings), extended family (i.e., cousins, grandparents), peers, and friends were identified as the individuals involved in their transfer experiences. Youth identified three categories of their experiences of life skills transfer.

The main category youth mentioned was transferring life skills learned in MMA when they were placed in a situation that was perceived to be unpleasant or cause distress. In these situations, youth described that they often transferred the life skills of self-control and conflict

resolution. Jesse described that he learned from his MMA coach “to always walk away from conflict and only fight as self-defence.” His transfer experience was described as follows: “I was at a friend of my parent’s house with their kids playing. They wouldn’t share but said I was the one not sharing to the adults. Instead of fighting, I just walked away” (Jesse). Here Jesse was describing that he was in a situation that made him frustrated and he translated his self-control developed in the MMA context to this context to avoid conflict.

Sam, described an experience that occurred at home with his father where he transferred the self-control skill he developed in MMA.

I was at home with my dad and I was mad because he asked me to clean up a mess. He was mad at me for not doing it and I was mad at him for making me do it, I eventually did it because my coach taught me to stop and think when I am mad and that I should show respect to my parents (Sam).

Another category that youth identified occurred when they recognized the usefulness of using life skills learned in MMA in their home and school contexts. For example, Alex described that she had learned leadership and caring in MMA through role modeling provided by his coach. When he was placed in a situation at home that required her to use these life skills she recalled her experiences in MMA. Alex said, “When my cousins came over and my grandma was babysitting us, I helped her to take care of everyone and helped my grandma with my little brother Jonah.” Jamie expressed that he learned in MMA to respect the coach’s instructions. He described an experience at school that involved his classmates not respecting their teacher’s instructions.

Today, when the teacher left the class she turned off the lights and told us to be quiet.

When she left, everyone was talking, so I took leadership and told everyone to be quiet and

they listened to me. If I didn't join MMA and that happened, I would have not done anything.

In this situation Jamie transferred leadership developed in MMA to his school context. He also expressed that he would not have used his leadership skill had he not been involved in MMA.

The last category involved youth recognizing similarities between the MMA and school contexts. As Chris explained,

Today, I was in class and I was really bored. No one was really listening and I just started to zone out. Then I remembered that I should pay attention because when I set my mind to it I can learn so much more. I remembered that this happened in MMA is a class as well, and I knew how I learned best in MMA, so I focused.

Chris' experience describes that she recognized the similarity between MMA and her school context. She expressed that she learned to focus in MMA and applied transferred this life skill into her school context.

Previous research has suggested that youth act as producers of their own experiences of transfer (Allen et al., 2015; Larson, 2000). Furthermore, more recent research has suggested a shift towards a focus on the process of learning and not the outcomes to gain a deeper understanding of the positive changes life skills learned in sport can have on individuals lives (Chinknov & Holt, 2015; Forneris, Camiré and Trudel, 2012). Experiential Learning Theory (ELT; Kolb, 1984) is a model of the learning process which defines learning as “the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p.41). While, ELT has been predominantly applied to the study of adult learning and development, Kolb (1984) developed the model based on children and youth models of development (i.e., Piaget, Dewey, Lewin); it has been suggested as an effective model to explore learning in non-

traditional contexts, like sport (Kolb, Boyatzis & Mainemelis, 2000). ELT is comprised of four components; concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE) (Kolb, 1984). CE and AC represent two modes of understanding experience and RO and AE represent modes of transforming experience (Kolb et al., 2000). In this study, participants' descriptions of their transfer experiences explained by ELT begin to uncover how youth are facilitators of their own transfer experience.

CE is necessary to perceive and understand new information (Kolb, 1984). In this study each participant described an experience prior to their transfer experience regarding how they learned the life skill they transferred in the MMA. CE was described by the youth as their coach identifying applicability or lecturing on importance and value of transferring life skills.

Providing opportunities for life skills transfer is the most often mentioned facilitator of life skills transfer (Allen et al., 2015; Camiré et al., 2012; Chinkov & Holt, 2015; Holt et al., 2008). As such, providing opportunities for life skills transfer has been primarily interpreted as providing an opportunity for youth to actively experiment with the use of the life skill developed in the sport context to a non-sport context. Often, a vague description of opportunity has been provided within past research; however, it is implied that opportunity provided access to a non-sport context that enabled or encouraged the use of life skills developed in the sport context (Allen et al., 2015; Gould & Carson, 2008). Camiré and colleagues (2012) provided a more specific description of opportunity, stating that coaches provided opportunities for life skills transfer through increasing responsibility of student-athletes (participants in the study) to prioritize academic obligations, or encouraging student-athletes to demonstrate positive role modeling with younger athletes. Interestingly, youth in the present study did not mention their coach as a provider of life skills transfer opportunities.

Opportunities for life skills transfer were described to occur naturally in their non-sport contexts (i.e., school, home). Youth described stopping and thinking about their current experience prior to taking action in their non-sport context to apply life skills learned in MMA. RO is the review and reflection of an experience prior to taking action in a situation (Kolb, 1984). Youth in MMA programs that have adopted the traditional or sporting approach to teaching martial arts are provided with an opportunity for RO. Findings from this study suggest that the understanding of opportunity in the MMA context be expanded to include providing reflective guidance regarding an observation. Opportunity in this example is time and guidance needed to understand the applicability of life skills learned in sport to non-sport contexts (Vertonghen et al., 2012). Youth are active agents in RO in a transfer experience as they are instantaneously reflecting on their experiences and knowledge of life skills developed in the sport context and their applicability in the non-sport context that they are in.

AC involves understanding experiences through a symbolic representation (Kolb, 1984). Youth participants described that they observed their coach role modeling life skills and this facilitated their value of life skills transfer. Furthermore, youth in MMA were able to develop an understanding of the life skills they developed in MMA and their application in non-MMA contexts through observation of interactions between their coach and peers in MMA class. Past research has placed an emphasis on the coach for facilitating comprehension of life skills transfer. The coach's goals and aims for their program shape their approach to teaching (Vertonghen et al., 2012). Similarly, Camiré and colleagues (2012) suggested a strategy for facilitating life skills and transfer was developing a coaching philosophy that focused on these concepts among student-athletes. Past martial arts research has also drawn attention to coaching philosophies, whereby the coach or adult leader will employ a specific programming approach

aimed at facilitating life skills development in addition to physical skills development in the martial arts context (Lakes & Hoyt, 2004; Smith et al., 1999; Trulson, 1986). Through the process of AC youth in this study are the source of their comprehension of life skills.

Youth in this study described AE through taking action to apply the life skills learned in MMA and reflecting on the usefulness after the experience. Youth were able to understand which life skills would be effective in their non-sport context. When faced with a situation that caused discomfort or conflict youth engaged with the use of life skills learned in MMA to resolve the situation. Employing the skills in the non-sport situation reinforced the value of life skills transfer and the youths' confidence for application of that life skill. Coaches were previously identified as having a responsibility in the model of coaching life skills through sport to facilitate youths' confidence in the ability to apply skills in different settings (Gould & Carson, 20008). However, results from this study demonstrate that youth can also gain confidence in their ability for life skills transfer through AE. This supports current research that suggests successful transferring a life skill from a sport context to a non-sport context can motivate youth to regularly transfer life skills (Allen et al., 2015).

Critical Analysis of Direct and Indirect Online Journal Entries

There were a total of 19 journal entries. Four youth in the direct online journal completed seven entries and five youth in the indirect online journal completed twelve entries. There were two main distinctions between the direct and indirect journal entries. First, there was a difference in the occurrence of life skills transfer experiences. Youth in the direct journal group mentioned life skills and described experiences of life skills transfer from their first entry. While, some youth in the indirect question group expressed no experiences of life skills transfer until their third

journal entry. Secondly, the youth in the indirect group often expressed physical and technical MMA skills transfer as their experience in their initial entries. For example, Scout said,

There was this kid in my neighborhood that started getting aggressive with me, so I told him that I didn't want any trouble but he kept pushing me and then I said I don't want to hurt you. But he went to push me again so I grabbed him and put him in an arm bar.

And in his second entry stated, "MMA taught me how to apply moves properly" (Scout). In this series of experiences, Scout described the transfer of a technical skill developed in MMA but did not recognize the transfer of conflict resolution that he mentioned he learned in MMA. However, in a later entry Scout began to express the development of conflict resolution and self-control in MMA and how he applied these to similar situations with peers.

I was in my Grandma's complex and there was this kid that wanted to punch my sister and I stopped him with an MMA hold but I chose not to because this is not how you resolve problems. Instead I told him that he shouldn't do that. I learned in MMA that you stop conflicts by being assertive and showing self-control (Scout).

Dewey (1933) suggests that education results through experience; however, not all experience is educational. Learning is dependent on the process of reflective thinking. The ability of youth and children to demonstrate reflective thinking has been questioned by previous research (Chinkov & Holt, 2015). However, participants in this study have demonstrated reflective thinking. This reflective thinking was assisted in the direct question journal group and unassisted in the indirect question group. The indirect question journal group needed to complete multiple responses prior to identifying the relationship between learning in the MMA context and transfer of life skills into the non-sport context; this demonstrates that learning occurred as they through reflection.

Strengths, Limitations, and Future Directions

This study is not without some limitations. First, transfer was only measured from the perspective of the youth. Future studies should examine youth transfer from the perspective of those within the youths' environment (i.e. teachers, parents, coaches). This will provide a clearer connection to how the youth developed the life skills and value and understanding of life skills transfer. Furthermore, journal writing is defined as teaching/learning exercise in which students express in writing their comprehension of, response to or analysis of an event, experience or concept (Martin, 2000). Journals provide a vehicle for learners to reflect on action and practice (English & Gillen, 2001). Journals also require the individual to reflect on and record their thoughts and evolving insight. As such, the process of writing journals makes students aware of what they learn and how they learn (Voss, 1988). Youth in this study may not have been aware of their development of life skills or the value of transfer but were influenced by the data collection methodology to reflect on their experiences to provide a response.

This study provides an important contribution to literature by providing a deeper understanding of how youth in MMA develop a value for transfer and how their experiences of transfer relate to ELT. Through this examination of youths' experiences of life skills transfer we can see how youth are active agents in their experiences of transfer. Furthermore, youth mechanism of transfer in the MMA context are similar to that of other sport contexts as identified by past research.

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Chapter Eight: General Discussion

Utilizing a deficit reduction approach, past research has identified several outcomes and processes that facilitate Positive Youth Development (PYD) in martial arts (Lakes & Hoyt, 2004; Trulson, 1986). These past studies have focused on exploring PYD in troublesome or delinquent youth populations participating in martial arts. Moreover, martial arts programs were used as interventions to mediate perceived deficits in character, believed to be the cause of the youths' negative behaviours (Lakes & Hoyt, 2004; Trulson, 1986). Martial arts interventions incorporate a modified form of martial arts practice that concentrates on having youth engage in self and guided reflection and meditation to enhance positive developmental outcomes in youth (Lakes & Hoyt, 2004; Trulson, 1986). Positive developmental outcomes were identified as decreased levels of aggression and hostility and improved self-regulation and control (Lakes & Hoyt, 2004; Trulson, 1986). While these studies enhanced our understanding of the potential positive developmental outcomes possible with youth participation in martial arts, they present several limitations. First, past research has focused on exploring youth previously identified as delinquent or troublesome. Next, the outcomes associated with participation in a modified martial arts programs may not be similar to the outcomes of participation in a general martial arts program. Finally, martial arts intervention studies have stressed the importance of coach assisted meditation and youth self-reflection in the process of facilitating positive developmental outcomes. Depending on the type of martial arts (i.e., MMA) and the coach's teaching approach (i.e., traditional, sporting, efficiency), opportunity for meditation and self-reflection can vary. To address this gap in current research, this dissertation implemented a PYD approach.

To effectively implement the PYD approach into the study design of this dissertation, researchers did not perceive youth as problematic, lacking in character or possessing negatively

perceived characteristics. Moreover, sport was not used as an intervention to prevent the development of negative outcomes in youth. Finally, it was not assumed that participation in MMA produced positive developmental outcomes in youth. Rather, this study explored the opportunities within MMA that could encourage positive developmental outcomes through the experiences of youth and their MMA coaches. Through the use of several qualitative methodologies (i.e. content analysis, semi-structured interviews, journaling) this dissertation provided a comprehensive exploration of the potential benefits, factors and processes associated with youths' life skill development in MMA.

Bronfenbrenner's ecological systems theory (EST; 1999; 2001; 2005) was used as a guiding framework during the study design and implementation to help develop a more in-depth understanding of the factors and processes of youth life skills development in MMA. It has been suggested that the foundation for human development is rooted in the relations that exist between the multiple levels of human interactions and functioning (Bronfenbrenner, 2001; 2005). As such, this dissertation explored the processes of life skills development through the experiences and relations of youth MMA programs, youth and coaches in MMA. Bronfenbrenner (2005) proposed that an individual's development was influenced by five environmental systems (i.e., microsystem, mesosystem, exosystem, macrosystem, chronosystem). EST was used as a guiding framework to structure the findings of this dissertation from the most distal systems (i.e., MMA gym website content), proceeding to the more proximal systems (i.e., coaches, parents) explored within the scope of this research project. This section will contextualize study findings within EST, exploring the bigger picture issues and practical implications from the findings of this study. Finally, this section will address limitations, future research directions and recommendations.

In chapter three, we explored MMA gym websites as a potential factor within the exosystem of youth participating in MMA. The exosystem consists of the social structures that can impact the members of an individual's microsystem (Bronfenbrenner, 2001; 2005). The aim of exploration of the exosystem was to explain the linkages and processes between two or more factors or settings that may not contain the developing individual as an active participant but can have an indirect impact on the individual's development (Bronfenbrenner, 2005). It was assumed that MMA gyms control their website content and subsequently the messages they wanted to convey to website users. Findings revealed that the content of MMA gyms focused on the proposed life skills outcomes for youth and processes that facilitate these outcomes. While there is no direct interaction between the MMA gym website content and the youth participating in MMA, parents can utilize MMA gym websites to gain information about their child's program. Furthermore, parents' beliefs about MMA and subsequently the decision to enrol their child in MMA may be influenced by MMA gym website content.

Parents have been identified as the gatekeepers for their child's involvement in sport and physical activity (Fredricks & Eccles, 2004; Gustafson & Rhodes, 2006). Parents seeking information regarding their child's health and development often browse related websites to help inform their decisions (Tuffrey & Finlay, 2002). For example, a parent interested in enrolling their child in a new sport program can conduct an internet search of available programming. Next, they can select a program and view the associated website for more information. The parent can make the decision to enrol their child in that program, pursue more information or move onto another program's website. Typically, a parent can choose a sport program for their child based on the positive benefits their child may acquire through participation (Neeley & Holt,

2014). Parent believed positive outcomes of youth participation in sport include development of: personal, social and physical skills (Neely & Holt, 2014).

Findings from the current study revealed that content from MMA gym websites promoted positive developmental outcomes desired by parents. Furthermore, results suggested that the majority of MMA websites' content pertained to outcomes associated with youth participation in MMA (25.03%). Specifically, MMA websites highlighted the development of competence (38.42%) and character (26.11%). To increase parental appeal for youth participation in MMA and legitimize the claims made about the outcomes of youth participation, MMA gym websites used parent testimonials and un-cited academic evidence. Interestingly, while current interest has recently shifted towards identifying the process of life skills development in sport, MMA website content lacked information to describes the process of life skills development.

Life skills are a potential outcome of PYD though sport. Furthermore, the fundamental principles of PYD suggest that the process and opportunities for life skills development are more informative of the potential experiences and subsequently benefits youth can obtain with participation in sport (Danish, Forneris, Hodge, & Heke, 2004). The exosystem level of the EST offers insight into the bidirectional relationship between the MMA gym and the parent. Essentially, both the MMA gym and parents value outcomes of youth participation, which results in the primary focus on outcomes on MMA gym websites and as an important criterion for parents when searching for youth sport programs.

Next, our discussion explores the mesosystem level. The mesosystem consists of bi-directional relations between those within the individual's microsystem that may not be directly involve the individual but can indirectly impact the individual's development (e.g. coach-parent relationship; Bronfenbrenner, 2005). Past research has emphasized the coach as an integral factor

in the process of life skills development and transfer through sport (Allen, Rhind & Koshy, 2015; Danish et al., 2004; Holt, Tink, Mandigo & Fox, 2008; Camiré, Tudel & Forneris, 2012).

Chapter four explored the mesosystem layer of EST through the youth MMA coach's experiences. The objective was to gain a deeper understanding of the coach's role in facilitating life skills development and life skills transfer to non-sport settings. Coaches discussed their interactions and relationships with parents influenced their ability to facilitate life skills development in their athletes. Parents have been previously identified as having a strong influence on the type of relationships that is formed between the coach and the athlete (Jowett & Timson-Katchis, 2005).

Findings of this study highlighted that coaches identified parents as the only link between MMA and non-MMA environments. The coach-athlete relationship is created and sustained through the interactions between the members of the athlete's social network (Brustad & Partidge, 2002; Weiss & Smith, 2002). The "athletic triangle" also referred to as the coach-athlete-parent triad is a social network that forms in the sport context (Smith, Smoll & Smith, 1989). Similar to the effect of relations in the mesosystem, interactions between the members of the athletic triangle can have a significant impact on the psychological development of the athlete (Davis & Jowett, 2010; Weiss, 2003). More importantly, it has been identified that the parent-coach relationship can influence the quality of the coach-athlete relationship (Jowett & Timson-Katchis, 2005).

A study by Jowett and Timson-Katchis (2005) explored the opportunity, information and support by which athletes' parents affected the quality of the dyadic coach-athlete relationship. Findings from their study suggested that parents created opportunities for effective working relationships between their child and coach by having frequent formal and information

communications with the coach (Jowett & Timson-Katchis, 2005). Parents and coaches discussed the child's progress and effectiveness of the coach-athlete relationship, which helped the coach develop a clearer direction for their child's sport development (Jowett & Timson-Katchis, 2005). Coaches recognized that they are with the athletes for only a few hours a day and that they need the parent to communicate with them about the athlete's feelings, thoughts and behaviours outside the sport context (Jowett & Timson-Katchis, 2005). Coaches expressed that they valued and often incorporated this information into their coaching (Jowett & Timson-Katchis, 2005).

The findings of the current study align with Jowett and Timson-Katchis (2005) conclusions regarding the parent's role in the parent-coach relationship. Parents in this current study provided coaches with information about their athletes' life skills development and transfer. Coaches would then use this information to address the development of specific life skills during the MMA class. The parent-coach relationship helped the coach to adapt in the sport context to effectively promote PYD in their athletes. While the parent-coach relationship occurs independently, it can impact the relations between the athlete and parent and the athlete and the coach. This can in turn impact the development of the athlete's life skills within the MMA context.

Findings from the current study also highlight the coach's role within the parent-coach relationship. Past exploration of the coach's role has focused primarily on strategies for coaches to effectively communicate with parents (Smoll, Cummings, & Smith, 2011). However, the current study suggests that effective communication between the coach and parent should include creating consistency between the sport and home environments. Coaches suggested when

these two environments were consistent they felt youth exhibited optimal experiences of life skills development.

The relationships between the members of the youths' MMA environment (i.e., coaches, peers, parents, other adults) and the youth form the microsystem level. Chapter four, five and six provided a description of coach and youth experiences in MMA highlighting the bi-directionality of the relationships at the microsystem level. Experiential Learning Theory (ELT) can provide insight into the interpretation of the nuanced relations within the microsystem of youth development of life skills in MMA. ELT is guided by the idea that knowledge is created in experiential learning through reflective thinking and the transformation of experience (Kolb, 1984). The ability of youth and children to demonstrate reflective thinking of their experiences has been challenged in a recent study (Chinkov & Holt, 2015). While ELT has most often been applied to understand learning from experience among adults, findings of the current study suggest that youth can experience experiential learning with the assistance of the relationships within their microsystem. Through exploration of coach and youth experiences each of four components of ELT (i.e., concrete experience, reflective observation, abstract conceptualization, active experimentation) were recognizable and occurring in the MMA context. Chapter four revealed the strategies used by MMA coaches to facilitate life skills development and transfer. Coaches directly optimized the opportunity for four components of ELT in the MMA setting.

Findings from Chapter Four suggest that MMA coaches determined the pre-existing make-up of their athletes by familiarizing themselves with the psycho-social abilities and personality of their athletes. This influenced the strategies and opportunities for life skills development coaches provided for their athletes. Identifying athletes' pre-existing makeup and modifying coaching practices has been recognized as a component of the coaching life skills

through sport model (Gould & Carson, 2008). It has been suggested that youth already possess a developed set of life skills prior to entering an activity (Benson, 1997). Furthermore, the existing skillset of an athlete can have an influence on the success the coach will have in teaching life skills (Gould & Carson, 2008).

Coaches mentioned that they often provided opportunities for their athletes to experience success utilizing a life skill during their MMA class. Through this strategy coaches optimized the opportunity for concrete experience amongst their athletes. The MMA context explored in the current study aligned with the definition of an implicit life skills sport program (Turnnidge, Côté, & Hancock, 2014). Explicit strategies can be used to facilitate the development and transfer of life skills within the implicit sport settings (Turnnidge et al., 2014). Coaches in an implicit sport setting utilize explicit strategies when they take advantage of teachable moments to address life skills developed in the sport context and encourage their athletes to reflect on the skills they learn in their sport setting (Camiré, Trudel, & Forneris, 2012).

Explicitly addressing life skills and transfer was the predominant strategy used by coaches in the current study to facilitate positive developmental outcomes. Through their discussions on the value, importance and use of life skills in the MMA context, coaches were facilitating the practice of reflective observation. Coaches mentioned that they provided their athletes with an opportunity to use the life skills they have developed through in class partnerships with peers. By providing them with this opportunity, coaches were creating a setting that gave way to active experimentation. In chapter five, youth also mentioned the use of explicit strategies by their coaches to facilitate life skills development. Youth described that their coaches often had discussions with them about life skills. These discussions enabled youth to initiate

connections between the value of life skills in their MMA context and the usefulness in non-MMA contexts, demonstrating abstract conceptualization.

Past research has suggested that parents are another contributing factor in the process of PYD through sport (Fraser-Thomas, Strachan, & Jeffery-Tosoni, 2013; Neely & Holt, 2014). In the present study, parents who attended their child's classes were aware of what they were learning, and in turn helped the youth reflect on the life skills they had learned in class that day. Therefore, parents facilitated abstract conceptualization in their children by engaging them in discussions regarding the life skills they learned in MMA. Parents facilitated their children's transfer of life skills by guiding their child through the process of recognizing and acknowledging connections between their MMA and home environments. This finding is consistent with past research that suggests meaningful conversations built upon teachable moments can reinforce the development of life skills and the value of transfer (Camiré et al., 2012; Keegan, Spray, Harwood, & Lavalley, 2010; Lauer, Gould, Roman, & Pierce, 2010). Furthermore, findings from this study support the concept that parents' beliefs and behaviours can impact their children's psychosocial development in sport (Neely & Holt, 2014).

The current study provides new insight into the role of non-parental adults within the sport environment. There has been an increased interest to explore the non-parental adult influence on youth psychosocial development (Beam, Chen, & Greenberger, 2002; Greenberger, Chen & Beam, 1998; Hamilton & Darling, 1996; Rhodes, Ebert, & Fischer, 1992). In the present study, youth were influenced primarily through observing the other adults (e.g., adults participating in classes at the same MMA gym). Through their observation of these other adults, youth were actively engaged in reflective observation. A main aspect of reflective observation is the ability to reflect on an experience from a new perspective (Kolb, 1984). For some youth

observing other adults participating in MMA enhanced their desire to develop self-confidence and perseverance through participation in MMA.

Chapter five and six provided support for the ability of youth to engage in experiential learning. In these chapters, youth described how they engaged in abstract conceptualization, which contributed to the dynamic process of life skills development. Specifically, youth described how their own personality, approach, and characteristics (e.g., reasons for wanting to learn life skills) influenced the way they engaged with members of their microsystem (e.g., demonstrated pride when developing life skills). These findings suggest youth possess an active role in their development and life skills transfer. However, youth required the assistance of the members of their microsystem (i.e. coach, parent) to guide them through successful reflective observation and abstract conceptualization. This insight supports Allen and colleagues (2015) who suggested that youth need guidance to establish the link between using skills in sport and in the classroom had they not been told about the skills.

Practical Implications

This research project provided a comprehensive examination of the various factors and processes within the environmental systems identified in EST of life skills development and transfer for youth participating in MMA. Of additional importance are the practical implications the findings of this study can offer. In the following section we provide suggestions for MMA gyms, parents and coaches and discuss the bigger picture implications of this study.

Chapter three provided a deeper understanding of the relationship between MMA gym website content and parents' beliefs towards MMA. MMA gyms opted to promote only positive developmental outcomes associated with youth participation. There was ample content addressing the life skills outcomes; however, only a very small portion of website content

addressed how MMA gyms can facilitate these outcomes. Additionally, the life skills outcomes that appeared on MMA gym websites were specifically chosen for their appeal amongst parents.

Our suggestion for parents is to think critically when browsing youth MMA program websites. Parents must be mindful that website content may not provide a thorough explanation of both the positive and negative outcomes of youth participation. Also, consider the optimal environment for your child's development. Parents should also compare the described MMA environment to your child's optimal environment to determine if MMA is an appropriate context for their development. Finally, most MMA gyms offer a free first class, providing an opportunity for children to experience the sport, coaches, other athletes and environment before parents a decision to enroll their child. The findings of this chapter highlight the influential role of the MMA website content. Staff and management responsible for website content should be knowledgeable of the current positive and negative developmental outcomes associated with youth participation in MMA. The website should be maintained and updated regularly to reflect emerging findings.

Past research has placed an emphasis on both the parent and coach as primary factors in the process of life skills development through sport. Findings from Chapter four provide insight into the impact of the parent-coach relationship on the coach-athlete relationship. Coaches in this study stressed the importance of two-way communication with parents. Moving forward, coaches should actively pursue developing a relationship with parents that encourages discussion of the athlete in the non-sport context. Using this information, the coach can adapt the focus of the practices to enhance the learning opportunity of the athlete in the MMA environment. Moreover, the coach can communicate their philosophy, goals for the athletes, teaching strategies for life skills with parents. Additionally, parents should inquire about the philosophy,

goals and teaching strategies used in the MMA environment and blend these factors into in the home environment. Finally, coaches and parents should communicate the best strategies to maintain a consistent learning environment for the athlete (i.e. home, school, MMA).

Lastly, MMA is currently not governed by a national sport organization (NSO). One responsibility of a Canadian NSO is to provide professional development for coaches and officials in their sports. Findings from the current study suggest several strategies for coaches to enhance life skills development in youth. More importantly, this study provides a deeper understanding of the interactions, teaching approaches and strategies described by coaches that align with the principles of PYD. The absence of a NSO to govern coaching practices in MMA offers the potential for a wide variation amongst coaching practices with youth. While variation in coaching can potentially have positive benefits on youth, negative outcomes are also a possibility. Administering the findings of this study in a brief report that highlights the key findings for MMA gyms to consider when training youth may contribute to the development of a foundation for youth MMA coaches best practice to enhance life skills development in youth.

Limitations and Future Directions

Findings from this comprehensive research project provide a deeper understanding of the factors and processes that contribute to youths' life skills development in MMA; however, we must recognize that this study has a few limitations. The scope of this study was limited to the exploration of the microsystems, mesosystem and exosystem. Given that positive beliefs regarding life skills outcomes of youth participation in martial arts have been predominantly shaped by media, the entertainment industry, and anecdotal stories from those involved with martial arts (Grady, 1998; Santos, Tainsky, Schmidt & Shim, 2013; Smith, 1999) and the lack of consensus amongst empirical evidence and media's representation of the findings of youth

participation in (Reynes & Lorant, 2004; Theeboom, De Knop, & Vertonghen, 2009), future research is needed to explore the social forces that shape MMA's macrosystem. The macrosystem consists of the overarching pattern of microsystem, mesosystem and exosystem characteristics of a given culture, subculture or other broader social context (Bronfenbrenner, 2001; 2005). As such, the microsystem, mesosystem and exosystem are manifestations of the macrosystem. Future studies should explore the beliefs, customs, media coverage and social media influence on youth development through participation in MMA. Furthermore, findings from chapter four suggest that MMA coach's history can influence their teaching approaches. Future studies are needed to explore the chronosystem of youth and MMA coaches in relation to youth life skills development in MMA. Additionally, future research should explore the role of gender in the experience of life skills development through sport.

Past research has prefaced data collection procedures with an explanation of the concept of transfer. Interview questions often including the term transfer, defining the concept of transfer within the question, or using suggestive language in favour of the experience of transfer. Furthermore, during interviews, the term "transfer" was used when asking youth to recall experiences of transfer. This can be problematic, providing information about the process of transfer prior to and during the interview, researchers may indirectly be facilitating the process of transfer. Awareness of the value for life skills in other life domains has been identified as a facilitator of transfer. As such, it is possible that researchers may be influencing study results through subtle cues communicated to participants during data collection process (Rosenthal, 1966). To address these limitations, the current research project explored the use of a novel method for capturing transfer experiences. Results offered insight into a new method for capturing the experiences of youth life skills transfer. Findings suggest that the use of an online

journal coupled with indirect questions regarding transfer could address the limitations of past research. The development of indirect questions was challenging and participant responses suggested that the indirect questions might still be influencing participants' responses. Additional research is needed to explore effective indirect questions to assist in the capture of youths' experiences of life skills transfer.

Conclusion

This doctoral dissertation contributes to the current literature on PYD through sport by increasing our understanding of how the context of MMA can be enhanced to promote life skills development in youth. Study one (chapter three) described the content of MMA gym websites. Findings of Chapter three revealed that MMA website content is comprised of: general information, MMA gym's goals, 4Cs developmental outcomes (i.e., competence, confidence, connections, character; Lerner et al., 2005), 4Cs processes of facilitation, sources of information, and non-relevant messages. Chapter four explored the experiences of youth MMA coaches to provide a deeper understanding of how they facilitate life skills development. Results demonstrated the importance of the coach-parent relationship as a facilitator of life skills development and transfer. Coaches identified determining their athletes' pre-existing make-up, explicitly addressing life skills and transfer, encouraging successful experiences, providing opportunities to use life skills in MMA as strategies to facilitate life skills development and transfer. Findings from chapter five provide a deeper understanding of the factors and processes of life skills development from the youth's perspective. Chapter six included a pilot study that explored the use of an online journal and direct and indirect questions to capture youths' experiences of life skills transfer. Chapter six also explored the use of a refined version of the

online journal and direct and indirect questions to identify the mechanisms that facilitate the transfer of life skills learned in MMA into non-sport contexts.

To our knowledge this dissertation provides the first exploration of the factors and process of life skills development for youth participating in MMA. Moreover, chapter six presents the first study to apply experiential learning theory to aid in the explanation of life skills transfer from sport to non-sport contexts in youth. This doctoral dissertation produced new knowledge regarding methodology for the capture of youths' experiences regarding transfer of life skills. The findings of this doctoral dissertation offer many practical implications for MMA gyms, coaches, parents, youth, MMA and combat sport organizations. Finally, this doctoral dissertation provided suggestions for future research to explore the role of the parent in the process of life skills development and transfer.

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Appendix A

Researcher's MMA gym descriptions

The names of MMA gyms have been changed to protect the anonymity of participants

MMA Gym One

The main entrance of the facility is grand. To the left there is a smaller entrance to a fitness gym and to the right there is a series of sales desks and a hallway that leads to the entrance of the MMA gym. In the center of the facility entrance there is a juice bar and a clothing stand where patrons can purchase freshly squeezed juice, smoothies, fitness and MMA related clothing. To enter the MMA gym you will walk along a short hallway on the walls are large pictures of “success stories” of patrons who have lost a significant amount of weight from their enrollment in the MMA fitness programs. The walls are painted black and the last wall decoration is a large banner which has various fitness and MMA sponsor logos embossed on it. This poster is used as a back drop for pictures when professional MMA fighters are conducting their weigh ins. Standing at the entrance to the MMA gym you will see a large mat on the left, a legal size boxing ring on the right and a regulation size octagon in the center. There are many punching bags that hang from the ceiling in the unoccupied spaces between the three sections. There are always an abundance of people occupying the space. Trainers for the specific disciplines can be found training a fighter or client or hanging around waiting for a fighter or client. They are often socializing with anyone who is in the environment. Youth classes run simultaneously with the adult classes. The mat space is shared between the various classes. Youth programming is structured so that youth wear a Gi (traditional attire for Brazilian jujitsu) on alternating days. The youth program consists of a warm up, grappling practice, striking practice and a cool down.

Youth that are over the age of 16 are able to participate in adult classes after or in

replacement of the youth programming. Youth are often interacting with adults who are a part of the adult classes or the instructors for the various disciplines. The relationships appear to be at a friend level and it is clear the youth and adults have a history and familiarity with one another.

MMA Gym Two

The main entrance of the facility is a very small hallway that leads to a reception desk and a doorway which acts as the entrance to the MMA gym. There is a large wall that divides the gym which restricts spectator view from the main entrance. The front of the gym is a large mat, followed by a legal size boxing ring with a legal size octagon in the very back. Adult classes and youth classes run simultaneously. There is low adult class member and youth interaction. Youth are very friendly with the facility staff and the MMA coaches. They are often “high fiving” or talking about their lives with them. Youth are not required to wear a gi to any of their programs. Youth are in a general fitness attire. The gym is painted black and yellow and there are pictures of former UFC fighters who trained at this gym throughout the building. There are many posters of boxing competitions and upcoming events on all the walls of the gym. The gym can be empty at periods when there are no classes scheduled. The adult classes primarily begin an hour after the youth classes have finished. Youth classes are broken up into striking and grappling days, these alternate throughout the week and youth can attend on the day they want.

MMA Gym Three

Upon entering this gym, you notice that it is very clean and well designed to promote the gym branded Gi and attire. In the main gym space there are two mats on the left and right. These mats are smaller than in other gyms. The mats are surrounded by a 3-foot tall black padded wall. There is a walkway that runs between the two mats to the back of the gym at the end of the walkway there is an octagon and a boxing ring. There are several hanging punching bags that line the

back wall of the gym. Behind the wall where the punching bags hang there is another large room. This room is not visible unless you enter it and this space is where the CrossFit programming occurs. There is an upstairs which houses another small mat area that can be closed off by a door, there are two large windows for spectators to view. There are motivational quotes that hang from banners on the ceiling, these quotes read: "Once you learn to quit it becomes a habit", "the harder you work the harder it is to surrender", "things may come to those who wait but only what's left behind by those that hustle", "the quality of a person's life is in direct proportion to their commitment to excellence regardless of their chosen field of endeavor". There are few if any posters promoting professional or amateur fights at the gym or for gym members. The posters are testimonials that promote weight loss and fitness achievement. The gym is rather empty there are typically only a couple adults training in the facility. However, there are many youths here that are under 10 who are watching and also engaging in free-play prior to the start of their MMA class. Youth use the space to their advantage. They run throughout the gym and interact with their own games on the mat. Parents are able to watch behind the 3 foot wall or tend to sit on the side of the boxing ring. Interestingly the mat at this gym is divided into two smaller gyms. There are no instructors that hang around between classes. There seems to only be one child and one adult instructor on the floor or in the facility at any time period. After their classes are completed they leave and do not interact with the other adult members like at other gyms. Other gyms have more interest from people on the facility about my study. The children classes begin at age 3, there are three age groupings for classes; ages 3-5, ages 6-11 and ages 12+. On Monday and Wednesday these classes run individually according to age groupings and on Tuesday and Thursday the three age groupings are combine for a communal class.

Quotes: “Beware your thoughts they become your words, beware your words they become your actions, beware your actions they become your habits, beware your habits they become your character, beware your character it becomes your destiny”

MMA Gym Four

The gym is located in large grocery plaza and is surrounded by many stores and other youth programs like KUMON. The entrance is very small and the location is older than previous locations. When entering the building you will begin in a small entrance, the entrance is decorated with many pictures of youth competing in MMA events, the owners and professional UFC and MMA fighters and bios on the owners and head instructors. The walls also hold many products for sale, the gym has its own line of t-shirts, there are Gis, boxing gloves, shin guards and water bottles available. The sitting area is very small; a large wall divides the main gym from the entrance. You must pass through a small doorway to enter the gym, some youth bow before entering. The wall has a large glass mirror that parents can sit behind and watch their child participating in the class. The main gym is completely padded and has a smaller boxing ring in the back. There is no octagon and only a few hanging punching bags. The first program of the afternoon is a munchkin MMA class for children ages 3-5, next is a Jr. MMA class for all ages and finally a Jr. MMA class for higher level belts and children 10 and over. All participants must wear a full traditional gi when participating in the classes. They also put on shin pads and gloves when they are practicing striking. Youth never hit at full strength, the strikes are always very gentle. One child demonstrated the intensity of the strikes on my arm, I couldn't feel when she made contact with my arm which suggests they do not make contact when practicing. The classes begin with a long cardio warm-up, there are various activities, running, jumping stretching, there is also a ball game which requires youth to stand in the center of the mats, two

or three other older youth will have soft balls and try to hit the youth standing in the center of the mats, the youth must dodge, jump, duck, and move out of the path of the ball if they are hit they must stand outside of the mat. The classes are a combination of both grappling and striking. The youth learn different aspects of MMA in every class. Before and after each class youth are required to line up along the back wall on their knees and say “Hauss” which is a formal greeting and goodbye to the instructor.

MMA Gym Five

This MMA gym is located on the lower floor of an old industrial factory that has been converted into several smaller stores and workshops. The building is in an area that has limited street parking available and is accessible via TTC. Upon entering the building, you are also entering a maze. There are no signs or directions for the many businesses that operating in the building. It took over 20 minutes for me to locate the large steel door and small sign for primal MMA. The gym has no entrance, once you go through the door you are greeted by punching bags that line a walkway to two large mats. There is no boxing ring or octagon. The gym is painted in all red and black. There is also a second gym that is on the upper floor of the building, this is a standard cross fit gym with a large second room that is empty floor space. The children’s class is only operating on Saturday mornings during the summer. During the regular school year there are classes on Tuesday and Thursday. These classes are open to all children over the age of 4 years old.

MMA Gym Six

This MMA gym is located off a main street in Downtown Toronto and has no parking and is not easily accessible by car. There are no parents that stay at this location or drop their children off. Once entering the building, you must walk up a steep flight of stairs to enter into the

gym there is no entrance space a small mat sized floor space is where you are asked to take off your shoes and enter onto the gym mat. There is a small office to the left. The classes are very small compared to previous gyms and the ages are all mixed and grouped together. The gym has some posters of professional MMA fighters and professional boxers. There are no motivational words on the walls.

MMA Gym Seven

This gym has a small entrance that leads to two change rooms (male and female) you must enter the gym through the change room. There is a large Asian themed shrine in the front entrance space that greets you when you walk in, the smell of incense burning is the second greeting you will receive followed by a hello from the reception staff. Once inside you will see the entire space is covered with mats and there is a large boxing ring in the back right corner of the gym. There is a small space along the back wall for parents to sit. The children's programs run before the adult programs so there are no adults at the beginning of the class partaking in other MMA related activities. The first kids class is for children under age 6, the second is children 7-12 and the third is an intermediate class for children 7-16. On the first visit almost all parents were present watching their child partake in the class. On the wall there are posters with motivational words that say "Respect" and "Honor". Depending on the specific discipline of practice for the day the youths' clothing varies. On days that they practice striking they are dressed in the MMA's schools brand Muay Thai apparel, BJJ grappling days require a full Gi, and there is also a non-Gi BJJ class which youth wear their Muay Thai apparel to. The first day that I was on site the instructor of the first class made a point of making sure that all the students knew each other's first name. He stopped the class to stress the importance of knowing everyone in the class and saying hi to people to get to know their name. The majority of youth participate

in multiple classes per day. They will attend two back to back classes and the classes will change their technical skills depending on what was learned in the previous class. Class size is very small, the smallest class observed was 2 youth and the largest was 10 youth.

MMA Gym Eight

When you enter there is a grand entrance the first thing you see is a long desk that is facing you. The services at the desk include reception and a shake and protein smoothie bar. To the left of this desk is a small open space where they sell their MMA gym brand clothing, traditional Gi, pads, gloves, various equipment. To the right is a large wooden bench and a flowing waterfall sculpture and Asian housing sculptures.

The walkway opens up so that you must walk past and behind the desk to enter the MMA gym portion. If you enter on the right side, you will see a large mat space and an octagon. If you enter to the left, there is a pro wrestling ring and a large viewing stand area which resemble bleachers for viewing. On the walls of the entrance there are many posted of Asian fighters who competed in Asia. The wall also has member recognition memorabilia for members who have achieved a significant amount of weight loss.

MMA Gym Nine

When you enter there is a small entrance with a turnstile. You walk through into large warehouse space the first thing you see is a mat area where all the youth classes occur. there is no merchandise for sale in the space which is different than all other gyms. Walking towards the back of the gym the next is a large boxing ring followed by a large mat space with punching bags to line the area. There are adult classes running simultaneously with the kids programs. The kids are for the most part dressed in the gym's brand clothing with t-shirts and must wear Thai or formal Gi. The classes with striking require equipment like pads and gloves. The gym seems

mismatched with odds and ends of gym equipment used. The colours of the gym are blue and red. The kids' programs like all other gyms are arranged into two age groups younger children are 6-12 and older youth 12-16. The programs are further split into grappling and striking components. On the walls of the entrance there are many picture frames with pictures and belt titles that have been won by the members of this gym.

Appendix B

Informed Consent Youth in MMA

Date: June 2, 2015

Study Name: Grappling for Answers: Exploring the process of life skills development in youth mixed martial arts athletes

Researchers: Theresa Beesley PhD. Candidate
York University
School of Kinesiology and Health Science

Jessica Fraser-Thomas
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Purpose of the Research: Martial arts have been identified as one of the top ten most participated sports by Canadian youth. Canada has been referred to as the “Mecca” of mixed martial arts (MMA) with a record number of fans spectating at the first legal professional MMA match in Canada, on April 20, 2011. Many MMA schools market youth programs as an opportunity for youth to development life skills such as positive thinking, stress management, anti-bullying skills, goal setting, self-confidence, and social skills; however, there has been little scientific research examining the role of MMA in facilitating the development of these life skills. The purpose of this study is to explore the development of life skills among youth in MMA programs.

What You Will Be Asked to Do in the Research: You will be required to complete a series of questionnaires that measure different life skills (i.e. personal skills, social skills, cognitive skills, goal setting). It will take approximately 30 minutes to complete all the questionnaires. You will also be invited to participate in a 30-minute interview, during which you will have the opportunity to discuss your experiences in your mixed martial arts program. You will be asked questions about the life skills you may have developed through MMA, and the process of this development, with a particular interest in the role of your instructors, parents, and peers. If you chose to participate in the 30-minute interview you will be invited to also complete weekly entries in an online log for 6 weeks. Log questions will ask you about your learning experiences throughout the week.

Risks and Discomforts: We do not foresee any risks or discomfort from your participation in the research.

Benefits of the Research and Benefits to You: Youth that complete the surveys and interviews will have the opportunity to reflect on their learning process through their activities.

Inducements: If you complete all three components of the study (i.e. the surveys, the semi-structured 30-minute interview and the online log) you will be provided a \$25 gift certificate to a sporting goods store as a token of appreciation for your participation. Should you withdraw from the study prior to completion of the study measurements you will still be offered the \$25 gift certificate as a token of appreciation for your participation in the study.

Voluntary Participation: Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to participate will not influence the nature of the ongoing relationship you may have with the researchers or the nature of your relationship with York University either now, or in the future.

Withdrawal from the Study: You can stop participating in the study at any time, for any reason, if you so decide. If you decide to stop participating in the study for any reason, you will still be eligible to receive the inducement offered. Your decision to stop participating, or to refuse to answer particular questions, will not affect your relationship with the researchers, York University, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

Confidentiality: Unless you choose otherwise all your information will remain anonymous. All information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of the research. Questionnaire data will be collected on hard copy papers, interviews will be audio recorded and transcribed and online logs will be kept anonymous through a password

protected online survey host and provider. All hard copy data will be safely stored in a locked storage unit and facility and all electronic data will be kept on a password protected computer and only research staff will have access to this information. All data will be filed for five years and will subsequently be destroyed. Confidentiality will be provided to the fullest extent possible by law.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact Theresa Beesley. This research has been reviewed and approved by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, York Research Tower, York University.

Legal Rights and Signatures:

I _____ consent to participate in Grappling for Answers: Exploring the process of life skills development in youth mixed martial arts athletes conducted by Theresa Beesley. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent.

Signature _____
Participant

Date _____

Signature _____
Principal Investigator

Date _____

Yes, please contact me to participate in an interview and the online log.

No, please do not contact me to participate in an interview and the online log

Appendix C

Informed Consent Parent of youth in MMA

Date June 2, 2015

Study Name: Grappling for Answers: Exploring the process of life skills development in youth mixed martial arts athletes

Researchers: **Theresa Beesley** PhD. Candidate
York University
School of Kinesiology and Health Science

Jessica Fraser-Thomas
York University
School of Kinesiology and Health Science

Purpose of the Research: In Canada, martial arts have been identified as one of top ten most participated sports by Canadian youth. Recently Canada has been referred to as the “Mecca” of mixed martial arts (MMA). A record 55,724 fans of MMA gathered to witness the first legal professional MMA match held in Toronto. The growing popularity of MMA amongst Canadian youth may be occurring because MMA schools marketing youth programs as an opportunity to for youth to development life skills such as positive thinking, stress management, anti-bullying skills, goal setting, self-confidence, and social skills. However, only anecdotal sources support this idea and limited academic evidence exists in support of MMA as sport that can facilitate life skills development in youth. Therefore this study will explore the potential benefits, processes and mechanisms of youths’ life skill development in MMA.

What You Will Be Asked to Do in the Research: Your child will be required to complete a **series of questionnaires** that measure different life skills (i.e. personal skills, social skills, cognitive skills, goal setting). It will take **approximately 30 minutes** to complete all the questionnaires. Your child will also be invited to participate in a **30 minute interview**, during which they will have the opportunity to discuss your experiences in your mixed martial arts program. Your child will be asked questions focused on exploring the process of life skill development and possible negative experiences, with a particular interest in the role of instructors, parents, and peers in the MMA environment. If your child choses to participate in the 30 minute interview they will be invited to also complete weekly entries for **an online log** which will take **15 minutes to complete**. Each week you will be asked to reflect on the skills that they learned during their most recent MMA class and any opportunities or experiences for utilizing these skills in their general life.

Parents of the youth that participated in the interview and completed the online log will be invited to participate in a **60 minute interview** focused on exploring your role in your child’s life skills development in through an MMA program, your perception of your child’s life skill development and given the opportunity describe any facilitators of life skills development. Interviews can be conducted via telephone and scheduled at the most convenient time.

Risks and Discomforts: We do not foresee any risks or discomfort from your participation in the research

Benefits of the Research and Benefits to You: Youth that complete the surveys and interviews will have the opportunity to reflect on their learning process through their activities.

Inducements: If you complete all three components of the study (i.e. the surveys, the semi-structured 30-minute interview and the online log) you will be provided a \$25 gift certificate to a sporting goods store as a token of appreciation for your participation. Parents will be provided a \$50 gift certificate to a sporting goods store in appreciation for their participation in the study.

Should you withdraw from the study prior to completion of the study measurements you and your child will still be offered the inducement as a token of appreciation for your participation in the study.

Voluntary Participation: Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer will not influence the nature of the ongoing relationship you may have with the researchers or study staff nature of your relationship with York University either now, or in the future.

Withdrawal from the Study: You can stop participating in the study at any time, for any reason, if you so decide. If you decide to stop participating in the study for any reason, you will still be eligible to receive the inducement

offered. Your decision to stop participating, or to refuse to answer particular questions, will not affect your relationship with the researchers, York University, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

Confidentiality: Unless you choose otherwise all your information will remain anonymous. All information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of the research. Questionnaire data will be collected on hard copy papers, interviews will be audio recorded and online logs will be kept anonymous through an online survey host and provider. Your data will be safely stored in a locked facility and kept on a password protected computer and only research staff will have access to this information. All hard copy data will be filed for five years and will subsequently be destroyed. Confidentiality will be provided to the fullest extent possible by law.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact Theresa Beesley. This research has been reviewed and approved by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, York Research Tower, York University.

Consent for child to participate in the study

Legal Rights and Signatures:

I _____ consent for my child _____ to participate in Grappling for Answers: Exploring the process of life skills development in youth mixed martial arts athletes conducted by Theresa Beesley. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent.

Signature _____
Parent

Date _____

Signature _____
Principal Investigator

Date _____

Appendix D

Informed Consent MMA Coach

Date: June 2, 2015

Study Name: Grappling for Answers: Exploring the process of life skills development in youth mixed martial arts athletes

Researchers: Theresa Beesley PhD. Candidate

York University
School of Kinesiology and Health Science

Jessica Fraser-Thomas

York University
School of Kinesiology and Health Science

Purpose of the Research: In Canada, martial arts have been identified as one of top ten most participated sports by Canadian youth. Recently Canada has been referred to as the “Mecca” of mixed martial arts (MMA). A record 55,724 fans of MMA gathered to witness the first legal professional MMA match held in Toronto. The growing popularity of MMA amongst Canadian youth may be occurring because MMA schools marketing youth programs as an opportunity to for youth to development life skills such as positive thinking, stress management, anti-bullying skills, goal setting, self-confidence, and social skills. However, only anecdotal sources support this idea and limited academic evidence exists in support of MMA as sport that can facilitate life skills development in youth. Therefore, this study will explore the potential benefits, processes and mechanisms of youths’ life skill development in MMA.

What You Will Be Asked to Do in the Research: You will be invited to participate in a **60 minute interview** focused on exploring the process of life skill development through experiences in the MMA class there will be a particular interest in the role of instructors.

Youth will be required to complete a **series of questionnaires** that measure different life skills (i.e. personal skills, social skills, cognitive skills, goal setting). It will take approximately 30 minutes to complete all the questionnaires. Your child will also be invited to participate in a **30 minute interview**, during which they will have the opportunity to discuss your experiences in your mixed martial arts program. Your child will be asked questions focused on exploring the process of life skill development and possible negative experiences, with a particular interest in the role of instructors, parents, and peers in the MMA environment. If your child choses to participate in the 30 minute interview they will be invited to also complete **weekly entries for an online log**. Each week you will be asked to reflect on the skills that they learned during their most recent MMA class and any opportunities or experiences for utilizing these skills in their general life.

Parents of the youth that participated in the interview and completed the online log will be invited to participate in a **60 minute interview** focused on exploring your role in your child’s life skills development in through an MMA program, your perception of your child’s life skill development and given the opportunity describe any facilitators of life skills development. Interviews can be conducted via telephone and scheduled at the most convenient time.

Risks and Discomforts: We do not foresee any risks or discomfort from your participation in the research

Benefits of the Research and Benefits to You: Youth and parents will have the opportunity to reflect on their experiences in their program. Parents will be provided all final results pertaining to the study. Instructors will also have the opportunity to reflect on their experiences and interactions with youth in mixed martial arts.

Inducements: Instructors will receive a \$50 gift certificate to a sporting goods store for their participation in the study.

Voluntary Participation: Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer will not influence the nature of the ongoing relationship you may have with the researchers or study staff nature of your relationship with York University either now, or in the future.

Withdrawal from the Study: You can stop participating in the study at any time, for any reason, if you so decide. If you decide to stop participating in the study for any reason, you will still be eligible to receive the inducement offered. Your decision to stop participating, or to refuse to answer particular questions, will not affect your

relationship with the researchers, York University, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

Confidentiality: Unless you choose otherwise all your information will remain anonymous. All information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of the research. Questionnaire data will be collected on hard copy papers, interviews will be audio recorded and online logs will be kept anonymous through an online survey host and provider. Your data will be safely stored in a locked facility and kept on a password protected computer and only research staff will have access to this information. All hard copy data will be filed for five years and will subsequently be destroyed. Confidentiality will be provided to the fullest extent possible by law.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact Theresa Beesley. This research has been reviewed and approved by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, York Research Tower, York University.

Consent to participate in the study

Legal Rights and Signatures:

I _____ consent to participate in Grappling for Answers: Exploring the process of life skills development in youth mixed martial arts athletes conducted by Theresa Beesley. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent.

Signature _____
Participant

Date _____

Signature _____
Principal Investigator

Date _____

Appendix E

Youth Informed Consent Form for Pilot Study

Date: January 21, 2015

Study Name: A pilot study: Using journaling to explore transfer of life skills in youth basketball

Researchers: Theresa Beesley PhD. Candidate

York University
School of Kinesiology and Health Science

Jessica Fraser-Thomas

York University
School of Kinesiology and Health Science

Purpose of the Research: It has been suggested that sport is an effective context for facilitating positive youth development (PYD). While recent research has begun to offer some insight into the processes and mechanisms that facilitate PYD in specific sport contexts exploration into a wide variety of sports is still necessary. It has been highlighted that for life skills developed within sport contexts to be truly considered life skills, they must be transferred into non-sport contexts. This short study will explore and compare potential methods of understanding and measuring transfer. Findings will advance understanding of effective methodology for measuring transferability and the process of transfer in sport. Therefore this study will explore the potential benefits, processes and mechanisms of youths' life skill development in MMA in comparison to soccer and non-sport youth programs.

What You Will Be Asked to Do in the Research: You will be given an online log domain and be asked to complete the online journal three times per week. Each entry will ask you to address your experiences in basketball and how they contribute to your development. It will take approximately 20 minutes to complete each journal entry.

Risks and Discomforts: We do not foresee any risks or discomfort from your participation in the research

Benefits of the Research and Benefits to You: Youth that complete the surveys will have the opportunity to reflect on their learning process through their activities.

Voluntary Participation: Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer will not influence the nature of the ongoing relationship you may have with the researchers or study staff nature of your relationship with York University either now, or in the future.

Withdrawal from the Study: You can stop participating in the study at any time, for any reason, if you so decide. Your decision to stop participating, or to refuse to answer particular questions, will not affect your relationship with the researchers, York University, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

Confidentiality: Unless you choose otherwise all your information will remain anonymous. All information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of the research. Questionnaire data will be collected on hard copy papers, interviews will be audio recorded and online logs will be kept anonymous through an online survey host and provider. Your data will be safely stored in a locked facility and kept on a password protected computer and only research staff will have access to this information. All hard copy data will be filed for five years and will subsequently be destroyed. Confidentiality will be provided to the fullest extent possible by law.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact Theresa Beesley. This research has been reviewed and approved by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, York Research Tower, York University.

Legal Rights and Signatures:

I _____ consent to participate in A pilot study: Using journaling to explore transfer of life skills in youth basketball conducted by Theresa Beesley. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent.

Signature _____
Participant

Date _____

Signature _____
Principal Investigator

Date _____

Appendix F

Parent Informed Consent Form for Pilot Study

Date: January 21, 2015

Study Name: A pilot study: Using journaling to explore transfer of life skills in youth basketball

Researchers: Theresa Beesley PhD. Candidate

York University

School of Kinesiology and Health Science

Jessica Fraser-Thomas

York University

School of Kinesiology and Health Science

Purpose of the Research: It has been suggested that sport is an effective context for facilitating positive youth development (PYD). While recent research has begun to offer some insight into the processes and mechanisms that facilitate PYD in specific sport contexts exploration into a wide variety of sports is still necessary. It has been highlighted that for life skills developed within sport contexts to be truly considered life skills, they must be transferred into non-sport contexts. This short study will explore and compare potential methods of understanding and measuring transfer. Findings will advance understanding of effective methodology for measuring transferability and the process of transfer in sport. Therefore this study will explore the potential benefits, processes and mechanisms of youths' life skill development in MMA in comparison to soccer and non-sport youth programs.

What You Will Be Asked to Do in the Research: Your child will be given an online log domain and be asked to complete the online journal three times per week. Each entry will ask you to address their experiences in basketball and how they contribute to their development. It will take approximately 20 minutes to complete each journal entry.

Risks and Discomforts: We do not foresee any risks or discomfort from your participation in the research

Benefits of the Research and Benefits to You: Youth will have the opportunity to reflect on their experiences in their program. Parents will be provided all final results pertaining to the study.

Voluntary Participation: Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer will not influence the nature of the ongoing relationship you may have with the researchers or study staff nature of your relationship with York University either now, or in the future.

Withdrawal from the Study: You can stop participating in the study at any time, for any reason, if you so decide. Your decision to stop participating, or to refuse to answer particular questions, will not affect your relationship with the researchers, York University, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

Confidentiality: Unless you choose otherwise all your information will remain anonymous. All information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of the research. Questionnaire data will be collected on hard copy papers, interviews will be audio recorded and online logs will be kept anonymous through an online survey host and provider. Your data will be safely stored in a locked facility and kept on a password protected computer and only research staff will have access to this information. All hard copy data will be filed for five years and will subsequently be destroyed. Confidentiality will be provided to the fullest extent possible by law.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact Theresa Beesley. This research has been reviewed and approved by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, York Research Tower, York University.

Consent for your child to participate in the study**Legal Rights and Signatures:**

I _____ consent for my child _____ to participate in A pilot study: Using journaling to explore transfer of life skills in youth basketball conducted by Theresa Beesley. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent.

Signature _____
Parent

Date _____

Signature _____
Principal Investigator

Date _____

Appendix G

Interview Guide Youth Interview**1. Knowledge of life skills development in MMA**

1. What do you think you learn in MMA?
 - a. What kind of skills do you learn other than technical skills?
 - b. Do you think that it is important to learn these skills in MMA?

2. Past Sport experiences

1. Are there any other sports that you participate in other than MMA?
 - a. Which sports?
 - b. Do you still play these sports?
 - c. Why don't/ do you play these sports anymore?

3. Concrete experiences in MMA

1. What skills do you think you need to succeed in mixed martial arts?
 - a. What has MMA taught you?
 - b. Do you think you can develop skills (other than physical) in MMA?
 - c. Can you describe how use these skills to be successful in mixed martial arts?

4. Transactions in the MMA context

1. Can you describe how you think you develop skills in mixed martial arts?
 - a. Who is involved in helping you learn skills for life?
 - b. What does this person (do these people) (i.e. coach, peers, parents, environment) do to help you learn skills for life?
 - c. How do they give you opportunities to use the skills for life you learned in MMA?
 - d. Do you know that you are learning skills for life while you are in MMA class or is it something that you think about after?
 - e. Is learning skills for life an important part of the MMA experience?

5. Self-reflection and knowledge of learning

1. Do you ever stop and think about MMA?
 - a. What do you think about?
 - b. What makes you want to think?
 - c. How did you learn to think about things like this?
 - d. Can you describe any difference between MMA and the sports you played before?
 - e. How is MMA better than other sports?
 - f. How is MMA worse than other sports?
2. Do you think MMA has impacted other parts of your life?
 - a. Can you describe an experience as an example?
 - b. Describe how participating in MMA is different than your participation in other sports?

6. Knowledge of life skills value outside of MMA

1. Do you think you use the skills for life you learned in MMA in other parts of your life?

- a. If yes, can you describe how?
- b. When do you realize you learned these life skills in MMA?
- c. Why do you think that you use these life skills outside of MMA?

Appendix H

Interview Guide MMA Coach Interview

Introduction

Today, we are going to talk about your past in MMA, how you got into it any experiences with your past coaches that stand out to you. Then we will get into your present experience as a coach, what informs your practice, what you think your role is as a coach, what you want your kids to learn or take away from MMA and how you conduct your practices. You're welcomed to share any experiences that you think shaped your style, values, beliefs and actions as a MMA coach.

1. Past life in the MMA context

1. How did you get into MMA?
2. What skills do you think helped you succeed in MMA?
3. Can you describe how MMA was an important part of you developing skills for life?
4. What was your relationship with your coach?
 - a. How did you past coaches shape your coaching style?

2. Current life in the MMA context

1. Can you describe the MMA environment that you work in?
2. What is the demographic of children?
3. What do you think draws kids to MMA?
4. Do you think that it makes a difference if you train in a fighter's gym or a family gym?
5. Does the different MMA gym type impact child development?

3. Preparation for MMA class

1. What do you value in your teaching of MMA to kids?
 - a. Do you think that participation in MMA can develop skills other than technical skills?
 - b. Do you believe that teaching skills for life is an important part of learning MMA?
2. What kind of opportunities do you give the kids to learn non-technical MMA skills in MMA?
3. Which skills for life so you focus on when coaching kids?
 - a. Can you give an example of what you think was a successful attempt at this?
 - b. What obstacles did you face while trying to teach skills for life to your MMA athletes?
 - c. How did you approach these obstacles when trying to teach the children life skills in MMA?
4. What strategies do you use to help the kids realize that the skills they learn in MMA can be used outside of their sport?
 - a. How can you tell if these strategies are effective/ or not?
 - b. Why is it important to let kids know about the skills for life they are learning in MMA?
 - c. Can you provide some examples of when this worked effectively – or not?

- d. What obstacles did you face while trying to teach the concept of using their skills outside of MMA to your athletes?

4. Community and family

1. Do you think that parent involvement makes a difference in the development of the kids?
 - a. What have some parents done that enhances the development of their child?
 - b. What are some things that parents have done that was an obstacle for development?

5. Instructor beliefs about MMA

1. Do you believe that youth involvement in MMA is controversial?
 - a. Can you describe any advantages of participating in MMA?
 - b. Can you describe any disadvantages when compared to other sports MMA may have?

Appendix I

Pilot Study Direct Group Online Journal Questions

1. Youth can have experiences in sport that lead to the development of life skills. These life skills can be transferred from the sport setting to general life. Examples of experiences might include using a personal skill like responsibility or a social skill like teamwork that you learned in basketball and transferring that to home or school with family and friends. Did you have any experiences this week in your daily life that reminded you of life skills that you learned in basketball? Yes or No
2. Describe your experiences this week that included using a personal, social or life skill you learned in basketball and how you used these skills in another part of your life.
3. Please answer the following questions about the experiences.
 - a. What basketball experiences did you draw upon?
 - b. Why did you draw upon this experience in this particular situation?
 - c. Did your basketball learning help you in this week's experience? If so, describe how. If not, explain why you think it did not help.
 - d. What was the final outcome of this week's experience?
4. Can you think of any other experiences this week in your daily life that reminded you of things you learned in basketball? Again, examples of experiences might include using a personal, social, or life skill you learned in basketball to another part of your life? Yes or No
5. If yes answer, describe your experiences this week that included using a personal, social or life skill you learned in basketball and how you used these skills in another part of your life
6. Please answer the following questions about the experiences.
 - a. What basketball experiences did you draw upon?
 - b. Why did you draw upon this experience in this particular situation?

- c. Did your basketball learning help you in this week's experience? If so, describe how. If not, explain why you think it did not help.
- d. What was the final outcome of this week's experience?

Feedback Questions

1. Did you understand the previous questions? Yes or No
2. What did you like about the questions?
3. What did you not like about the questions?

Appendix J

Pilot Study Indirect Group Online Journal Questions

1. Do you think that youth learn valuable skills through basketball? Yes or No
2. Describe what valuable skills you have learned through basketball and why they are valuable to you.
3. Describe an experience this week that reminded you of your MMA class.
4. Why did you draw upon this experience in this particular experience?

Feedback Questions

1. Did you understand the previous questions? Yes or No
2. What did you like about the questions?
3. What did you not like about the questions?

Appendix K

Online Journal Direct Questions

1. What is your birthday? Month/Day/Year
2. What personal, social or life skill (examples of skills are: leadership, communication with others, emotional control, respect, self-control, self-confidence, etc.) did you use this week outside of MMA that you originally learned in your MMA class?
3. Describe an experience outside of MMA that you used the life skills you mentioned above. Who was involved? Where did it happen? What happened?
4. Who helped you learn this life skill in your MMA class?
5. How did this person teach you that this life skill can be used outside your MMA class?
6. At the time of this experience were you thinking about how MMA helped you prepare for this moment?
7. Explain how you think MMA prepared you for the experience you described.

Appendix L

Online Journal Non-direct questions

1. What is your birthday? Month/Day/Year
2. Describe an experience you had this week that reminded you of something you may have learned in MMA class. Make sure to answer:
 - a. Who was involved?
 - b. Where did it happen?
 - c. What happened?
 - d. What did you learn in MMA about this situation?
3. At the time of this experience were you thinking about how MMA helped you prepare for this moment?
4. Explain how you think MMA helped to prepare you for the experience you described earlier