

Social-Ecological Determinants of Elite Student Athletes' Dual Career Development in Hong Kong and Taiwan

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Raymond Kim Wai Sum¹, Hsiu-Hua Tsai², Amy Sau Ching Ha¹,
 Chih-fu Cheng³, Fong-jia Wang¹, and Minghui Li¹

Abstract

Previous research has encouraged a cultural specific framework to be developed through research in Asian countries, such as China, to help internationalize the findings and help athletes to adapt them to their society and culture. Based on a socioecological framework, this study investigated how social-ecological determinants affect elite student athletes' (ESA) experience of the socialization process of dual career development in Hong Kong and Taiwan. We interviewed eight ESAs who trained at the national level, studying simultaneously at universities in Hong Kong and Taiwan. Grounded theory techniques and procedures were used to analyze the data. Results revealed that ESAs are affected by interrelated determinants at different levels: individual (career aims, identities, roles, characters, self-efficacy, and motivation), micro-level (coaches, teammates, parents, siblings, physical education [PE] teachers, other teachers, alumni, seniors, and classmates), meso-level (interrelations between individual and micro-level), exo-level (government, financial, policy, academic, medical, and parent–teacher association), macro-level (attitudes, norms, values, beliefs, resources, and culture), and chrono-level (transition).

Keywords

social-ecological determinants, career development, elite student athletes, Hong Kong, Taiwan

Introduction

Common practices to support elite student athletes (ESA) can be identified in different countries and cities around the world (Radtke & Coalter, 2007; Stambulova & Ryba, 2013). As athletic performance and career development of elite athletes are closely linked, it is important to implement and support research into elite athletes and their careers, particularly ESAs' psychosocial determinants of dual career development, as highlighted by sociologists and psychologists (Stambulova, Engström, Franck, Linnér, & Lindahl, 2014).

An athletic career, as defined by Alfermann and Stambulova (2007), is a succession of stages and transitions that includes childhood, adolescence, adulthood, and older ages. During all stages, an individual needs to reach his or her full athletic potential to maximize the benefits of participating in sports while dealing with other aspects of his or her life. This is especially significant as an athlete enters adolescence, when they need to be educated in school and participate in sports at the same time. Therefore, the concept of dual career concerns the integration of an athletic career with education or work to attain a balance during multiyear sports activities. The notion of dual career provides a suitable solution for elite athletes to

balance their sport with education or work, and prepare for their future after sport. This can reduce the risk of unintended athletic termination or dropout (Conzelmann & Nagel, 2003; Donnelly & Petherick, 2004; Wylleman & Reints, 2010). Balancing an athletic career and education or work can be a challenging task for elite athletes due to the increasing high pressure and continuous demands for elite performances.

Regarding the different phases of elite athletes' career development and transition, researchers have proposed different conceptual “transition models,” such as Sussman's (1972) analytical model, which stressed the role of personal, social, and environmental factors; Schlossberg's (1981) model of human adaptation to transition, which emphasized the athlete's perception, attributes, and environmental characteristics;

¹The Chinese University of Hong Kong, Shatin, Hong Kong

²National Taiwan University, Taipei, Taiwan

³National Taiwan Normal University, Taipei, Taiwan

Corresponding Author:

Raymond Kim Wai Sum, Department of Sports Science and Physical Education, The Chinese University of Hong Kong, G07, Kwok Sports Building, Shatin, Hong Kong.
 Email: kwsun@cuhk.edu.hk



while the Hopson and Adams (1977) and Kubler-Ross (1969) models described the stages and emotional implications of retirement (Wylleman, Alfermann, & Lavallee, 2004). Stambulova (1994) developed the athlete career transition model through her investigation of Russian athletes. She suggested that the transition was a process of coping with demands and challenges that resulted in either a successful or crisis transition. Stambulova's transition model emphasized the importance of adaptation in a successful transition process. Wylleman et al. (2004) pointed out that the interventions suggested were developed in parallel with the transition concept, such as strategies using projective techniques (Bardaxoglou, 1997), psychoanalytic approach (Chamalidis, 1995), and an information processing approach (Lavallee, Nesti, Borkoles, Cockerill, & Edge, 2000). Based on these approaches, there have been athlete life-skills programs or career development programs managed by different sports governing bodies, Olympic Committees, sports federations, and nongovernmental organizations, which have drawn on the transition approach, to help athletes develop postsporting careers. In addition, Cabrita, Rosado, Leite, Serpa, and Sousa (2014) reported that elite athletes with higher athletic identity have a higher level of career decision-making self-efficacy and higher levels of optimism for the future, and are particularly more likely to choose a sports-related profession.

Although there have been extensive researches published about sports career development and transition (Lavallee et al., 2000; Stambulova & Ryba, 2013; Wylleman et al., 2004), these studies have been mainly carried out in the United States, Canada, Europe, and Australia. Since the 1990s, researchers have been exploring the perceived social and psychological conditions of adjustment during turning phases in the career development of elite athletes (Swain & Ballard, 1991). These studies concluded that preparation, establishment of coping strategies, and goal-setting are needed to succeed at different transition stages. In addition, Stambulova, Alfermann, Statler, and Côté (2009) and Stambulova and Ryba (2013) also encouraged the development of cultural specific frameworks through research in Asian countries, such as China, to internationalize these studies and help athletes adapt within their own society and culture. Particularly, it is important that in the study of the career development of ESAs in Hong Kong and Taiwan, Chinese culture, social, political, and historical factors should be taken into account.

Career Development of ESAs in the Greater China Region

The Greater China Region comprises four cross-strait places. These are Mainland China, Taiwan, Hong Kong, and Macau. Studies related to elite athletes' career development conducted in Mainland China and Taiwan are mainly in the Chinese language. No research study has been found in

Macau. As to the Hong Kong context, a recent study conducted by Zhang, Chung, Si, and Gucciardi (2016) reported that experiential avoidance mediated an inverse association between mindfulness and ESAs' burnout in their career development. Another study (Sum & Ma, 2014) examined the support given to ESAs in Hong Kong secondary schools. The results suggested that further study is required to understand the current situation of ESAs and to explore how key determinants affect the ways in which ESAs manage their dual (academic and athletic) careers. Chow (2001) used the life history approach to examine the ways in which female ESAs feel and think about the career transition from competition to retirement. The study revealed that female ESAs experienced their career development in sport together with pursuing an education, which affected their transition to retirement and lifestyle after their sports career.

There are limited studies relating to career development in the Greater China Region. Moreover, because of funding paid by taxpayers allocated to elite athletic development, this should be used to maximum effect so that elite athletes perform to their best ability and bring good repute to their countries. As a result, there is a need to understand the determinants of ESAs' dual career development, particularly at the university level, as they approach the mastery stage (Wylleman & Reints, 2010). In particular, the multiple, interrelated social and contextual determinants that affect ESAs' career development should be considered.

A Social-Ecological Perspective

Li and Sum (in press) employed a qualitative metasynthesis method to review the literature on dual career experiences of elite athletes from 1996 to 2015. Results indicated that elite athletes underwent some individual issues (involving psychological, physical, and emotional impact on the athletes), interpersonal issues (concerning elite athletes' interactions or relationships within their families, schools, or training), and external issues (involving practical support, conditions, and environment) in their career development (Li & Sum, in press). In the context of ecological systems theory (Bronfenbrenner, 1977, 1994), the above metasynthesis review study disclosed some substantial determinants of elite athletes' dual career development, which are explicitly social-ecological in nature.

Likewise, Golden and Earp (2012) drew upon the social-ecological model on five levels, namely: (a) intrapersonal (individual), (b) interpersonal, (c) institutional, (d) community, and (e) public policy in their health education study. When applied to ESAs' career development, such a social-ecological model locates the individual ESA at the center and classifies the overlapping and interrelating systems that influence the individual ESAs. This model is helpful for exploring individual ESAs' career development by recognizing that the ESAs are situated in a complex social context.

Table 1. Summary of Participant Characteristics.

Pseudonym	Gender	Age	Sport event	Elite sport ^a	Elite level	Years of training	Sport experience	Self-perceived SES ^b
R1-Yvonne	F	23	Taekwondo	Yes	National	12	International	Low
R2-Henri	M	20	Korfball	No	National	5	International	Middle
R3-Young	M	19	Volleyball	Yes	Youth Squad	10	International	Middle
R4-Salena	F	21	Tug-of-war	No	National	5	International	Low
R5-Snow	F	20	Swimming	Yes	National	5	International	Unknown
R6-Bel	F	19	Swimming	Yes	Youth Squad	5	International	Middle
R7-Hardy	M	25	Track & field	Yes	National	8	International	Middle
R8-Kennard	M	25	Basketball	No	Youth Squad	5	International	Unknown

Note. ESAs = elite student athletes; SES = socioeconomic status.

^aHong Kong—elite sports refer to the sporting events that are governed by the Elite Sports Committee of the Home Affairs Bureau of Hong Kong Special Administration Region (SAR) in which the Hong Kong Sports Institute provides comprehensive support throughout a 4-year cycle. Taiwan—elite sports refer to the sporting events that are competed in Olympic Games, Asian Games, East Asian Games, and/or World Championship levels.

^bESA's self-perception of the socioeconomic status of his or her family in the region of Hong Kong or Taiwan.

We, thus, conceive that ESAs' career development is socially situated and affected by multiple social and individual factors. ESAs' career development is not merely due to the individual input alone, but also due to aspects of their social contexts, such as schools, families, training places, policy, and environment.

Purpose

The purpose of this study was, therefore, to provide an initial investigation of the social-ecological determinants that help to explain how ESAs experience dual career development, using ecological systems theory (Bronfenbrenner, 1977, 1994) as a theoretical framework.

Method of the Research

The main research question of this study was, "How do social-ecological determinants affect ESAs' lives and career development?" The following specific research questions were addressed:

Research Question 1: What are the career aims of ESAs?

Research Question 2: How do ESAs describe their athletic and academic experiences?

Research Question 3: How do ESAs describe and conceptualize their career development?

Research Question 4: What are the individual, interpersonal, and external determinants, and how do these determinants affect ESAs' career development?

With more than 15 years of qualitative research experience, the research team employed individual and focus group interviews to collect relevant data. The grounded theory techniques and procedures outlined by Strauss and Corbin (1998) were used to explore the exuberance and multiplicity of experiences of ESAs conveyed in their own words. Details

of the research plan and data collection procedures are shown in what follows.

Participants

Using the snowball or chain sampling method (Patton, 2002), the researchers identified suitable participants for the study. ESAs were requested to help identify other individuals from whom the researchers could extract or generate data. Selection of the next interviewee was based on what was found during the previous round of data collection and analysis.

ESAs selected for this study were from a variety of backgrounds. Eight ESAs (four males, four females; four from Hong Kong, four from Taiwan) between the ages of 19 and 25 years were purposively recruited from a variety of backgrounds to enrich the contextual analysis. Their years of experience as ESAs were between 5 and 12 years (see Table 1).

Data Collection

To build up mutual trust and rapport between participants and researchers, the researchers contacted the participants directly to explain the aims of the study. The informants were contacted by telephone and followed up by e-mail, whereby the researchers sent a written consent form to participants to explain how data were to be collected, processed, and used. Interviews were conducted in participants' universities at their available time slots.

The researchers used one-on-one semistructured interviews (Wragg, 2002) followed by focus group interviews (Krueger & Casey, 2000). Interview questions were developed from previous literature on the dual career development of elite athletes. One ESA was invited for interview as a pilot study to check whether the interview questions were appropriate to answer the specific research questions.

Table 2. Examples of Raw Data and Themes.

Level	Raw data	First-order themes	Second-order themes	Determinants/themes
Individual	In the next few years, I want to compete in the Enterprise Volleyball League in Taiwan. As for long term, I want to acquire a teaching qualification or to become a professional coach. (R3)	Clear athletic goal planned ahead	Plan aims of career	Career aims
Micro-level	My foreign coach was my influential figure. He was rather laid-back. If I did not feel like swimming, he would not push me to do so. However, the decision to join the national team was actually made by both of us. (R5)	Begin their careers through the encouragement of others such as coaches and parents	Encouragement from coaches	Coaches
Meso-level	An arrangement was made by the coach and other subject teachers of the school. They planned for us to study together for about an hour a day. (R3)	The positive interaction between coaches and other subject teachers	Interactions between stakeholders	Interaction of two or more stakeholders influence ESAs
Exo-level	Unlike other parent–teacher associations, meetings are held periodically for the development of students, particularly schools with a long tradition of sports development. The association arranges training and sponsors some sport equipment for ESAs. (R6)	The parent–teacher association gave them assistance and sport equipment	Support by parent–teacher association	Parent–teacher association
Macro-level	I find that X University respects my decisions. X University would expect athletes to perform well, and that is also my goal. X University shares my values, as they would want me to represent Hong Kong to take part in games like Universiade Games and do well there. That is also what I am aiming for. (R5)	Share values with university	Shared values	Values
Chrono-level	Normally, we follow what our coaches say. We seldom challenged our coaches when we were younger. After we entered university, however, we were more likely to retort. (R4)	Change attitude when enter university	Change attitudes across time	Transition

Note. ESAs = elite student athletes.

Barbour and Kitzinger (1999) stated that combining focus group research tools with other qualitative methods can be fruitful and that some respondents were more likely to answer questions through a researcher-convened group with consideration of the group context. The aim of the focus group interviews was to summarize the one-on-one interview data to participants so that they could reflect on them and make comparisons between themselves and their counterparts. The researchers conducted two focus group interviews in each region wherein each group comprised four ESAs.

Both the one-on-one and focus group interviews were audiotaped and transcribed by the researchers. Interview material was transcribed verbatim as soon as it was collected. With regard to the quality, consistency, and accuracy of data collection and analysis, the researchers were responsible for data collection, transcription, and interpretation. Examples of raw data and themes are shown in Table 2.

Data Analysis

Following grounded theory techniques and procedures outlined by Strauss and Corbin (1998), the transcribed interviews were analyzed by using coding procedures. Transcripts were fractured sentence by sentence in the opening coding stage. During the coding process, we frequently discussed the code list and added codes that emerged through the

process. The codes were then sorted to generate categories and subcategories. Analysis focused on the relationships between categories and their subcategories. Constant comparison analysis and categorization aimed to categorize codes into higher-order themes.

Protection of Human Rights and Establishing Trustworthiness

Written consent forms were signed by the respondents before the interviews. ESAs' participation was strictly voluntary. Confidentiality of information was affirmed. ESA participants were identified only by a pseudonym in all records. Credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985) were implemented through providing a summary of the participant's responses immediately after each interview to enable member check. Systematic record-keeping and continuing evaluation of theories and findings was an essential part of the process. Approval for use on human subjects was obtained from the University Survey and Behavioural Research Ethics Committee.

Results and Discussion

This study on the social-ecological determinants of ESAs' dual career development revealed that the participants were

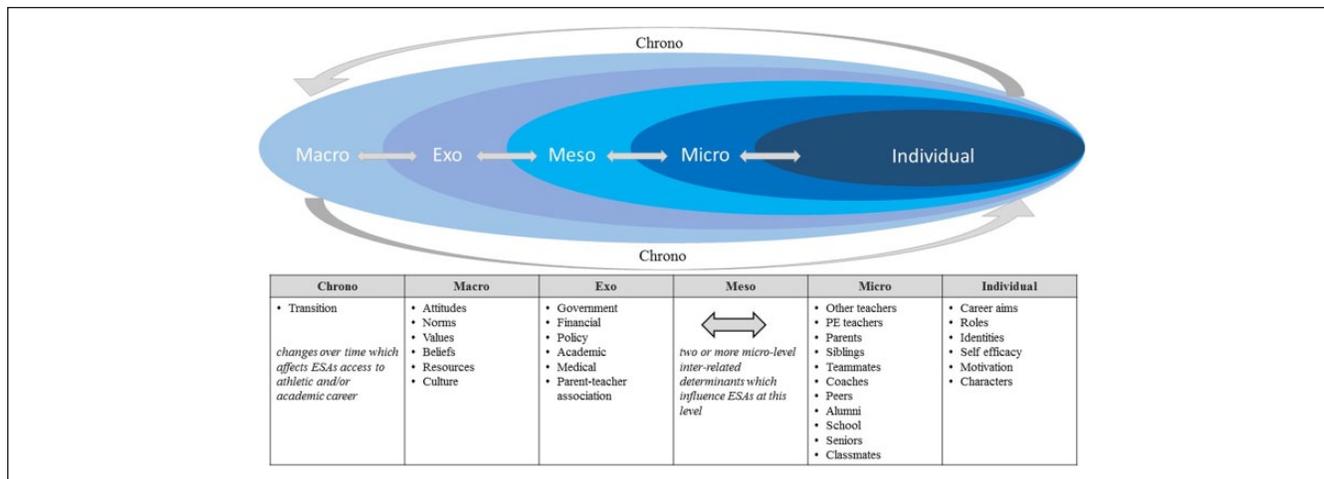


Figure 1. Different levels of social-ecological determinants.

situated in a complex social context where career development was not solely determined by ESAs individually, but was also affected by their social contexts, such as schools, families, training places, policies, and environment. Throughout their dual career development, ESAs experienced time-consuming athletic and academic lives and had to strike a balance between sports and studies. Frustration from both academic and athletic aspects was dealt with regardless of its source, and ESAs’ dual career development was prevailed over by several individual, micro-level, meso-level, exo-level, and macro-level determinants per se (see Figure 1). All the different levels of determinants are interrelated and together affect the ESAs’ dual career development (Table 2).

Individual Determinants

Individual determinants were comprised of ESAs’ career aims, identities, roles, characters, self-efficacy, and motivation. The career aims of ESAs varied from having a clear athletic goal to having a loss of direction in their future career development. Young (R3) had clear short- and long-term career plans:

In the next few years, I want to compete in the Enterprise Volleyball League in Taiwan. As for long term, I want to acquire a teaching qualification or to become a professional coach. (R3)

In comparison, Henri (R2) had shifted his focus to his studies:

When I became a university student, I began to realise the prospects of a korfbal player were relatively limited. As such, I thought of pursuing other alternatives, like studying. I want more time to do other things in university. (R2)

Salena (R4) demonstrated somewhat different career planning experiences in her dual career development:

I want to focus more on my studies. However, if I cannot excel in my academic results and get a good job, I don’t know what I can do in the future. I know I can’t earn a living playing tug-of-war, but I am presently training full-time and have no time to carefully plan my future. (R4)

In connection with ESAs’ career aims, their identities and roles shift according to their experience at different stages of their dual career development. Athletic identity was discussed by Brewer, Van Raalte, and Linder (1993). They stated that this related to the degree to which an individual identifies with their athletic role. In this regard, Bel (R6) expressed that her personal identity shifted more toward her student identity when she was in her first year of university:

Back then, I would try my best to maintain my role as a student. Despite the fact that I needed to spend a great deal of time on swimming, I still saw myself as a student. In fact, I still see myself as a student, as I tend to put even more effort in my studies. (R6)

Bel (R6) added that her roles had clashed when she was in secondary school:

The class might not be able to accommodate you, and some might even label you as “those who are falling behind.” In fact, my secondary school would sort students into different classes according to their abilities. Some classes were packed with top athletes, for example. So the sense of being labeled was quite strong. I did not face much difficulty with swimming in and of itself, but I did feel the clash between my two roles as student and as athlete. This included a clash in the social aspect. (R6)

Echoing Bel (R6), Yvonne (R1) shared that her athletic and academic roles conflicted:

I led a routine and repetitive life when I was training in the national team. I did not like their way of training. I preferred my

school life because I had more freedom. However, I needed to obey the routines of the national team. Otherwise, I would be kicked out from the national team. (R1)

In terms of character, self-efficacy, and motivation, Yvonne (R1) claimed that with her sports skills, she was able to demonstrate proper form during physical education (PE) lessons in front of her classmates:

Yes . . . I do a better job at PE lessons than others and I am able to learn new sports faster than others. This makes me confident of myself. (R1)

As one of the Hong Kong team members who broke the 4 × 100 m relay Asian record, Hardy (R7) affirmed his capabilities in his track training compared positively over his counterparts:

I think I am much stronger and have greatly improved my performance in exercises like dumbbell lifting in the gym. When I checked out some videos online, however, I found that some people in the West can effortlessly achieve what I strove very hard to do. I do think they enjoy some natural advantages over us. As a runner, however, I firmly believe that I can make a name for myself, at least in Asia, if I go for it. (R7)

The ESAs had a strong personal motivation to strive for perfection. This could be a prominent determinant in their dual career development (Aghdasi, 2014). The ESAs' character also included commitment, dedication, being hard-working and driven, versatility, and ability (Miller, Homan, & Miniutti, 2006). Moreover, to motivate ESAs to persevere in their dual career, ESAs' problem-solving abilities and achievement can motivate them to continue in their challenging dual career lives. Snow (R5) contended,

From being a nobody to getting into a national team and competing in five competitions a year, this then all went back to zero when I had to concentrate on my studies. I am the kind of athlete who needs to train a lot to gain progress. So I did think of quitting swimming after secondary school. I had repeated my F5 year and attempted the public examination twice. I had left the national team and then rejoined it. However, I still find it rewarding. The medals that I have earned are not just pieces of silverware, but they also give me a sense of accomplishment. (R5)

Despite the fact that diligent elite athletes were more likely to plan for their future career because they set higher goals and are more confident (Demulier, Le Scanff, & Stephan, 2013), Burlot, Richard, and Joncheray (2016, p. 14) stated that elite athletes prioritized different activities while striving to maintain a balance between themselves and the different social worlds in which they interact.

Micro-Level Determinants

Micro-level determinants include a multitude of professionals and stakeholders (Bronfenbrenner, 1994), such as ESAs'

coaches, teammates, parents, siblings, PE teachers, other teachers, alumni, seniors, and classmates that ESAs interact with.

Over the course of ESAs' dual career, coaches were not only the "significant others" who reinforced athletes' psychological and physical investment in the sports role (Stephan & Brewer, 2007), but they also influenced them at every stage of their career decision.

Young (R3) vividly remembered that

. . . my coach in junior high school taught me everything from the very beginning and helped me to lay the foundation for my future career. He not only taught me volleyball but also lessons about life. (R3)

In contrast, Bel (R6) had a different experience with her coaches:

As to time allocation for studies and sports, they [coaches] would not comment much. Back in secondary school, my then coach would not even care about my attendance at training. However, I did have a coach who was dictatorial and would tell me to swim more. (R6)

When Snow (R5) identified influential figures in her career development, she expressed that her coach was quite democratic:

My foreign coach was my influential figure. He was rather laid-back. If I did not feel like swimming, he would not push me to do so. However, the decision to join the national team was actually made by both of us. (R5)

This reflects findings from previous research, which claimed that ESAs began their careers during their adolescent years and through the encouragement of others, such as coaches and parents (Allison & Meyer, 1988).

Teammates were also an important determinant for ESAs' decision to stay with the team. Henri (R2) and Salena (R4) confirmed this, stating,

My teammates gave me guidance on future career planning, the benefit of korfbal, and how to better perform in my studies. (R2)

My teammates—they make me stay in this team. (R4)

In addition, parental influence on competitive youth sports socialization has received considerable attention (Holt, Tamminen, Black, Sehn, & Wall, 2008; Wuerth, Lee, & Alfermann, 2004). ESAs' parents may be agents to assist or resist their dual career development. Based on the developmental model (Wylleman & Lavallee, 2004), parents may likely be the most influential group for ESAs. One typical experience was shared by Henri (R2):

At the start, they (my parents) did not support me in pursuing korfbal. They did not think that playing korfbal can be a career.

Later on, when I went to Holland, they began to realise that korfbal could be a springboard for better development. Now, they give me verbal encouragement, but I do feel that, in their heart, they do not really support my decision. (R2)

With the full support of parents, ESAs can extract their potential both in athletics and academics. Young (R3) stressed that his parents had done a lot to support him:

My biggest supporters are my parents . . . they are not athletes. They will always stand by me because volleyball is what I am interested in. My parents will come to watch every game I play. They take photos at my games to keep a record of my growth at every stage. When I suffer an injury, they take care of me. I share all the happenings in school with them. (R3)

Conversely, Kennard (R8) received no support from his parents:

I have often been frustrated. My parents did not like that I played basketball. They thought that basketball was a waste of time and that it affected my studies. Actually, I did not study well before I played basketball. Before I began to do well at basketball competitions, I often felt upset because I had to bear the pressure from both my studies and training. I was at a loss. (R8)

Parental involvement substantially contributes to ESAs' affective experience of sport participation both positively and negatively (Knight, Neely, & Holt, 2011). In particular, parents can affect their children's enjoyment or anxiety about their sport participation (Anderson, Funk, Elliott, & Smith, 2003).

Studies on siblings' influence on elite athletes' dual career development is lacking. This study revealed that siblings' support can be a determinant that affects ESAs' dual career development. Hardy (R7) demonstrated this claim:

I did not get much financial support from my parents. I was in great need of money from Form 2 to Form 6 for both my studies and training. It was my elder brother who sponsored me during that period. (R7)

Separately, Hardy (R7) had experienced negative feedback from other subject teachers. He disclosed,

A teacher at my school once told me that I should give up running and concentrate on my studies because I would never achieve remarkable results like one of my seniors did. I turned a deaf ear to the teacher and kept on practicing. We met again when I became a successful athlete a few years later. The teacher admitted that he was wrong. (R7)

Physical education teachers were significant in positively influencing ESAs' dual career development. Salena (R4) stated that

My teacher in junior high school made me realise that my abilities in tug-of-war can get me admitted into a good senior

high school. He was a PE teacher, not a coach for a specific sport. However, he was interested in tug-of-war as a sport, so he traveled around to learn about it and came back to teach us. (R4)

In addition, PE teachers can also play crucial roles in helping ESAs' dual career development in terms of counseling them to achieve excellence in their chosen sport and provide additional support, such as injury prevention and physical training and conditioning (Sum & Ma, 2014).

Meso-Level Determinants

Meso-level determinants refer to two or more micro-level interrelated determinants that influence ESAs at the meso-level (Bronfenbrenner, 1994; Figure 1). In most cases, there were two determinants that interacted together. Indeed, Yvonne (R1) stated,

In my high school, I was allowed to take a "make-up" exam with a consensus reached between my coach and my subject teachers . . . My teacher set another paper for me to have an exam . . . Other student athletes were also allowed to take "make-up" exams if they had to compete during the exam season. Teachers would give necessary assistance in our studies after training. We were free to join these after-class study sections. (R1)

Coaches and subject teachers can facilitate ESAs' dual career development. A typical case of this was expressed by Young (R3):

An arrangement was made by the coach and other subject teachers of the school. They planned for us to study together for about an hour a day. (R3)

This positive interaction between parents and coaches is crucial for ESAs' athletic and academic achievement. Hardy (R7) asserted that

My coach once advised me that I should assure my parents that I can work hard at both my studies and sports. I followed what he said and let my parents know my coach's expectations, sharing with them my progress in my studies and my sport. Later on, when I won prizes at competitions, my parents began to feel proud of me. They started to talk about my achievements in running. (R7)

Vella, Oades, and Crowe (2010) commented that a positive relationship and good communication between coach and parents can provide ESAs with a healthy environment to develop their dual career. In particular, parents' attitudes and behavior are associated with ESAs' perceptions of their ability, positive and negative effect, motivation orientation, attitudes toward and attraction to sport participation (Brustad et al., 2001; Fredricks & Eccles, 2004).

Because all the ESAs had studied in high schools and universities while simultaneously training as elite athletes, PE

teachers, alumni, seniors, and classmates play significant roles in assisting them in their career growth in the school environment. Henri (R2) stated,

My PE teacher led me into this field. My classmates also played a part and I was influenced by them. Seniors and alumni of the team were always very supportive of my studies and sport. They always meet together with a mission to improve the sports culture of the school. (R2)

Deliberately finding a workable balance among meso-level determinants such as coaches, subject teachers, parents, PE teachers, alumni, seniors, and classmates may lead ESAs to excel academically (such as graduating with a degree) as well as achieve highly in athletic performance (Simiyu, 2010).

Exo-Level Determinants

The exo-level comprises social structure, activities, and processes in two or more settings (Bronfenbrenner, 1994), such as government, financial, policy, academic, medical, and parent-teacher association (Figure 1), which affect ESAs in their immediate environment. Yvonne (R1) stressed how the government, policies, and financial support affected her dual career development:

The school waives the miscellaneous fee for student athletes, which means that we only have to pay the tuition fee. XXX is a private school and is much more expensive than the public ones. In addition, we can apply to the government for scholarships when we win titles in games. The government offers big incentives to native Taiwanese athletes like me. (R1)

Special academic admission schemes tailor-made for ESAs were evident in Yvonne's (R1) case:

There are also favorable offers in admission tests. After gaining some certificates, athletes can be admitted into high school or university with scores lower than the common standard. Some universities also have a specific track for athlete admission. Student athletes have to pass the Taiwan college entrance exam as well as an athletic performance exam such as a Taekwondo test. (R1)

In terms of medical determinants, Henri (R2) stated that

I would find the athletic trainers in the infirmary first. If it is a serious injury, they would send me to the hospital at once. There is a collaborating Orthopaedic Hospital right beside my school. (R2)

In Hong Kong, as a Special Administration Region (SAR) in China, there is a parent-teacher association in almost every secondary school. In the focus group interview, ESAs expressed that the parent-teacher association gave them a negative impression because they always appeared to push

students to study. However, Bel (R6) expressed a different view:

Unlike other parent-teacher associations, meetings are held periodically for the development of students, particularly schools with a long tradition of sports development. The association arranges training and sponsors some sport equipment for ESAs. (R6)

Snow (R5) echoed that

My school does not have enough budget to operate its parent-teacher association. The activities are low-cost ones, like book recycling and selling of second-hand school uniforms to ESAs in need of them. (R5)

There is no official parent-teacher association in Taiwan. Regarding full tuition waiver in private schools in Taiwan, Henri (R2) disclosed that

The parents of private schools are usually very wealthy and more generous with donations to the school. The principal finds sponsorship from parents. A Parent Fund is formed accordingly for ESAs who are not as wealthy to apply. (R2)

Consistent with the holistic athletic career model (Wylleman, Reints, & De Knop, 2013), ESAs experienced a combination of elite sports and higher education academic challenges, as well as financial development with family and government determinants in their dual career development, at the exo-level.

Macro-Level Determinants

The macro-level forms the social structure and activities in the micro-, meso-, and exo-levels (Bronfenbrenner, 1994). The macro-level determinants comprise the relationship between attitudes, norms, values, beliefs, resources, and culture (Figure 1). These determinants influence ESAs within the different levels to make decisions on their dual career development. We sought the ESAs' perspectives on how macro-level determinants influence their attitudes, norms, values, and beliefs. In this regard, Snow (R5) shared her experience:

I find that XXXX University respects my decisions. XXXX University would expect athletes to perform well, and that is also my goal. XXXX University shares my values, as they would want me to represent Hong Kong to take part in games like Universiade Games and do well there. That is also what I am aiming for. (R5)

Bel (R6) shared further,

My school places an all-rounded development as their core value. This is a great source of motivation to me. I therefore try

hard to do well in both sports and academics. My values are aligned with that of my school. (R6)

In contrast, Henri (R2) shared his experience in participating in a nonfocus sport identified by the university. He expressed that

The dean and the teachers of the faculty wanted to cut the number of recommended korfbal players in the university as korfbal was not a focus sport in the university. I felt a bit embarrassed when they talked with us about this. (R2)

Uneven funding allocated to focus and nonfocus sports seemed a normal practice that affects the support of ESAs' for training and competition. Young (R3) studied at the same university as Henri (R2). He had the following claims:

It is normal that a larger part of the subsidy is given to players of popular sports. It is the university's responsibility to help those less popular sports teams to raise funds using its social connections. (R3)

Regarding how institutions value ESAs in athletic and academic performance, and in return to benefit the institutions, Hardy (R7) expressed that

For me, I felt that I was protected and cared for. In return, I would like to contribute to the good of my school. For example, I would see if I can do anything to help with the school track and field team, and with other students. (R7)

Kennard (R8) echoed that

XXX College value my contribution. I am glad that the principal knows me, and I was given a chance when I failed in the public examination. I think they [the college] appreciate me. I can feel that they have high expectations of both my academic studies and my performance at competitions. I think they have a good impression of me. (R8)

Morgan (2001) affirmed that student athletes will be more content when there is congruence between an individual and their learning environment. As such, when student athletes perceived their learning environment to be more supportive of their academic and social needs, they tended to have an above-average academic performance compared with the normal student population (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; Umbach, Palmer, Kuh, & Hannah, 2006; Yusof, Chuan, & Shah, 2013).

In accordance with the above, ESAs enjoy sufficient resources both from their athletic and academic institutions. Hardy (R7) stressed that the government has increased its support a lot after some national level medals were won in some focus sports:

The support can only be given to athletes with existing achievements. An example can be found in the East Asian Games.

At the time, basketball and football enjoyed great support from the government because they won medals in the Games. Afterwards, they were given very good venues and other resources, which significantly helped progress their performance. (R7)

In academic institutions, Snow (R5) and Hardy (R7) contended that

XXXX University has a lot of decent resources to support athletes. But most of their scholarships take your family's financial situation into account. (R5)

XXX [school] did invest a lot in sports facilities. XXX is very well-equipped. It invested a lot in sports resources. (R7)

In terms of academic support, Salena (R4) expressed that

We had extra English tutoring sections after training in high school. Our school sent an experienced English teacher to help us improve our English. Our school also emphasised Maths education. In XXXX, we have foreign teachers to teach us English. (R4)

ESAs may be deeply influenced by the institutions where they are being socialized. Hardy (R7) remarked that

Self-confidence is part of the XXX [school] culture. A XXX student always knows what he wants. We dedicate ourselves to specific fields, academic studies or other areas, to manifest our value. In XXX, many students have been brought up for specific life goals from a very young age. Thanks to their goal-based trajectory, many of them succeed in realising their goals. This is possibly a justifiable reason behind the self-confidence of the XXX people. (R7)

As culture is generally shared distinctive attitudes, norms, beliefs, values, and resources of members among their group, Stambulova et al. (2009, p. 406) affirmed that "culture specific approaches should be encouraged to make career development and transition studies more socio-culturally informed."

Chrono-Level Determinants

Chrono-level denotes that ESAs' dual career development changes over time (Bronfenbrenner, 1994), which affects their access to athletic and/or academic careers. From the results of this study, some "significant others" at the micro-level played important roles at the beginning of ESAs' dual career development. However, as time goes by, they seemed to have less of an influence on ESAs' lives.

Bel (R6) recalled that her parents' roles were diminishing:

My parents' roles are less important nowadays. That could be caused by the fact that I am swimming less now that I am in university. We were closer when I was in secondary school, and

they have been respectful of my opinions since I was young. When it comes to decision making, I did successfully convince them to let me go my way on a few occasions. However, for most of the time, I would simply follow my parents' directions. I am after all quite an obedient child, and would respect their opinions, too. (R6)

Similar to this is the perception of coaches' roles. Salena (R4) reflected that

Normally, we follow what our coaches say. We seldom challenged our coaches when we were younger. After we entered university, however, we were more likely to retort. (R4)

Apart from the above, Wylleman and Lavallee (2004) stated that to remain at an elite level during a long career development period until termination, ESAs not only invest at different levels of physical, social, and financial determinants, but also in their close environment with parents, coaches, peers, and teachers. Student athletes are required to cope with changes within the social environment at the tertiary level, which strongly differ from those at the secondary level (Wylleman & Lavallee, 2004).

Conclusion

Findings concerning the social-ecological determinants of athletes' dual career development are revealed at different levels of the ecological system (Bronfenbrenner, 1977, 1994). Concerning the main research question—How do social-ecological determinants affect ESAs' lives and career development?—in spite of the fact that career aims, identities, roles, characters, self-efficacy, and motivation are individual determinants, ESAs' coaches and parents play a significant role (Sheridan, Coffee, & Lavallee, 2014) at micro- and meso-levels. Also, available resources, such as government support, financial assistance, academic, and medical care, can be found at an exo-level. However, how ESAs develop their dual career is highly dependent on their institutional culture at a macro-level. Finally, the chrono-level, encompassing the interrelationship of different levels of determinants including critical incidents that emerge in an ESA's life, emphasizes that career development of each transitional stage may be varied.

Through employing ecological systems theory (Bronfenbrenner, 1977, 1994) as a theoretical framework, this study has explored how social-ecological determinants affect ESAs' lives and career development. The explorations undertaken in this study have contributed to understanding of the culturally specific experiences of ESAs in the context of Taiwan and Hong Kong.

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Author Biographies

Raymond Kim Wai Sum is an assistant professor and programme coordinator of the Exercise Science and Health Education at the

Department of Sports Science and Physical Education of the Chinese University of Hong Kong, Hong Kong SAR.

Hsiu-Hua Tsai is an associate professor at the Department of Athletics of National Taiwan University, Taiwan R.O.C.

Amy Sau Ching Ha is the associate dean of the Faculty of Education and professor at the Department of Sports Science and Physical Education of the Chinese University of Hong Kong, Hong Kong SAR.

Chih-fu Cheng is the vice president of National Taiwan Normal University and professor of the College of Sports and Recreation, Taiwan R.O.C.

Fong-jia Wang is a research assistant at the Department of Sports Science and Physical Education of the Chinese University of Hong Kong, Hong Kong SAR.

Minghui Li is an MPhil student at the Department of Sports Science and Physical Education of the Chinese University of Hong Kong, Hong Kong SAR.