

VALIDATION OF THE ATHLETIC IDENTITY MEASUREMENT SCALE  
WITH A HONG KONG SAMPLE

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## ABSTRACT

Within athletic domains, athletic identity is a cognitive structure guiding and organising how the person processes self-related information (Brewer, Van Raalte, & Linder, 1993). Being one of the domains of the self-concept, athletic identity is the “degree of importance, strength, and exclusivity attached to the athlete role that is maintained by the athletes and influenced by environment” (p. 39; Cieslak, 2005). Previous studies have shown that athletic identity is related to various psychological processes such as identity foreclosure and the emotional reactions of athletes to injuries (Grove, Lavalley, & Gordon, 1997). The Athletic Identity Measurement Scale (AIMS) is a 10-item quantitative inventory measuring the level of athletic identity (Brewer, Van Raalte, & Linder, 1993). Throughout the past decade, researchers have been examining the psychometric properties and factor structures of the AIMS with samples mainly from English-speaking societies (Brewer & Cornelius, 2001; Hale, James, & Stambulova, 1999).

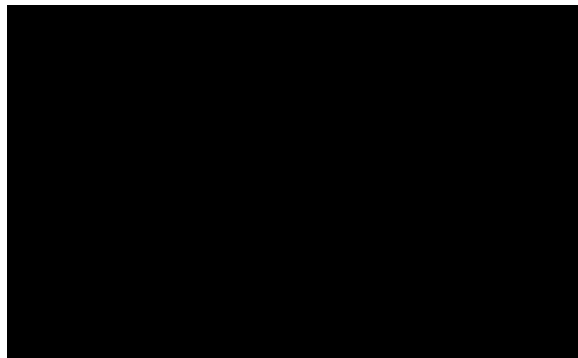
This thesis consisted of two studies. The first one investigated the internal consistency and factor structure of the AIMS within a Hong Kong Chinese sample by performing confirmatory factor analyses (CFAs) and Cronbach’s alphas. The author constructed a Chinese version of the AIMS and administered it to 186 Hong Kong athletes. The CFAs showed that multi-dimensional models were better fits than the original unidimensional model. The goodness-of-fit indices of three previously suggested models (and one simplified model) were either above or extremely close to acceptable levels. Considering the possible cultural influences and translation processes, the findings are substantial. In this study, the author also discusses the cultural differences in terms of each factor and overall athletic identity scores.

The second study followed up the results of the first study and further explored the construct of athletic identity through qualitative interviews. The author, who was also the interviewer, recruited 13 Hong Kong athletes for in-depth interviews exploring their life experiences of being athletes in Hong Kong. The results revealed that some contributing elements of the participants' athletic identities seemed well represented by the AIMS items and factors, such as recognition from others (i.e., social identity), sport-related goals, dysphoric emotions associated with injury (i.e., negative affectivity), and perceived importance of sport (i.e., exclusivity). Some themes from the interviews, however, were not represented in the items or factors of the AIMS. For some participants, appearance and accoutrements, such as clothing and equipment, formed part of their overall athletic identities. Also, the author found that the participants' fantasies about professional athletes were major features of the interviews. These results showed that various cultural characteristics in Hong Kong may influence the development of the participants' self-identities including athletic identities. The author employed the theory of self-construals (Markus & Kitayama, 1991) and features of Hong Kong culture to explain the results. In the general discussion, the author also discussed the AIMS items, the factor structure, and their connections with Hong Kong athletes' experiences, based on the qualitative findings. The author recommended some possible items for further development of the AIMS.

## DECLARATION

I, Hin Yue Li, declare that the Doctor of Applied Psychology (Sport Psychology) thesis entitled “Validation of the Athletic Identity Measurement Scale With a Hong Kong Sample” is no more than 40,000 words in length, exclusive of tables, figures, appendices, references, and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree of diploma. Except where otherwise indicated, this thesis is my own work.

Signat



Date:

## ACKNOWLEDGMENT

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## CHAPTER 1

### INTRODUCTION

Scholars who investigate the issues of self and identity, generally recognise William James as the first psychologist to develop the theory of self-concept (Ashmore & Jussim, 1997). James' chapter, *The Consciousness of Self*, from his book *The Principles of Psychology* (James, 1950/1890) has been marked as the introduction to the empirical investigation of the self in the discipline of psychology (Ashmore & Jussim, 1997; Perry & Marsh, 2000). Throughout the last century, self- and identity-related issues have been one of the most examined topics in various schools of psychology, from psychoanalysis (Freud, 1923/1960) to cognitive-behavioural therapy (Beck, 1976). Studies of self have also extended to other disciplines under the umbrella of social science in general and anthropology and sociology, in particular (Cooley, 1902). The growth of the self- and identity-related studies reflects human beings' self-curiosities, and researchers have investigated the possible pathways by which we process information and guide our behaviours to live healthy and meaningful lives (Lindwall, 2004). Oyserman (2001) proposed that the knowledge of *self* enables us to answer not only the question "Who am I?" but also questions such as "Where do I belong?" and "How do I fit in?"

The long list of *self-descriptive* terms reflects that the various approaches and the amount of self- and identity-related studies have been increasing substantially in the last few decades. The panoply of *self* phrases, however, has also led to the current situation where the terms self, self-concept, and self-identity (among others) have been used interchangeably. Ashmore and Jussim (1997) commented that the usage of terms is bewilderingly diverse. In Chapter 2, I further describe the development of self- and identity-related studies. I clarify the main confusions among various terms in order to

locate the focus of this research. In this thesis, I focused on the athletic domain of self-identity, referred to as *athletic identity*, which has been defined as “the degree of importance, strength, and exclusivity attached to the athlete role that is maintained by the athletes and influenced by environment” (Cieslak, 2005; p. 39).

Regardless of the frameworks used to describe the self (e.g., self-schema theory, self-categorisation theory, identity theory), human beings are social entities who interact with each other constantly. One’s self-concept or self-identity is, more or less, influenced by others and the society as a whole. Cross-cultural psychologists have attempted to explore the cultural influences on the development of self. Historically, people used to divide the world (grossly) into Western and Eastern cultures. This dichotomy, based on geographic divisions, was one of the starting points for psychologists to investigate cultures and the concepts of self. Some of major works in this area include Hofstede’s (1980), and Markus and Kitayama’s (1991) studies. At a societal level, various cultures have been placed along the dimension of individualism versus collectivism. In research on self, psychologists, sociologists, and anthropologists generally use the dimensions of independent and interdependent self-construals. For example, researchers have stated that Hong Kong is a relatively strong collectivistic culture, and Hong Kong Chinese have relatively strong interdependent self-construals, in comparison with North Americans (mainly referring to European Americans; Oyserman, Coon, & Kemmelmeier, 2002).

In the sport world, sport psychologists and sociologists have examined relationships between self (or identity) and sport involvement. In reference to the descriptive components of the self, Brewer, Van Raalte, and Linder (1993) developed the construct of *athletic identity* and its assessment, the Athletic Identity Measurement Scale (AIMS). In the past decade, the studies in this area have been creating a picture

about the development of athletic identities and their influences on various important events such as experiencing injuries, entering universities, and team selections. Based on quantitative investigations, researchers have suggested several multi-dimensional models for the AIMS (Brewer & Cornelius, 2001; Hale, James, & Stambulova, 1999). They suggested the construct of athletic identity should include three factors: (a) social identity, (b) exclusivity, and (c) negative affectivity. The development and evolution of the AIMS, and the construct of athletic identity, has received substantial attention in English-speaking cultures. There are, however, few studies investigating the generalisability of the AIMS in non-English speaking cultures. Considering the possible cultural differences in the development of self (as discussed above) it would be beneficial to explore the construct of athletic identity and the AIMS in non-English speaking cultures. In this thesis, I have chosen a Hong Kong Chinese sample (my people) to test the applicability and generalisability of the construct of athletic identity.

Hong Kong is a society in which the majority of population is ethnic Chinese. Although the Hong Kong public are exposed to many elements from English-speaking cultures such as the UK and the US, the society is rooted in its Chinese background, particularly after the return of sovereignty of Hong Kong to the People's Republic of China in 1997. The professional sports industry in Hong Kong is fairly limited. The development of elite sports in Hong Kong is jointly supported by Sport Federation and Olympic Committee of Hong Kong, China (SF&OC), Hong Kong Sports Institute Limited (HKSI), various National Sports Associations (NSAs), as well as the Hong Kong government through the Leisure and Cultural Services Department (LCSD). Currently, there is no published research investigating the identity issues of Hong Kong athletes.

Previous studies have established a psychometric foundation for athletic identity and the AIMS (Brewer & Cornelius, 2001; Hale et al., 1999; Martin, Mushett, & Eklund, 1994), but there is a relatively limited amount of research addressing the theoretical framework of the construct (Brewer et al., 1993). In this thesis, apart from the psychometric validation of the AIMS in a Hong Kong (HK) sample, I also conducted a qualitative exploration of HK athletes' experiences and their athletic identities. The participants' accounts have provided some further information to augment the quantitative findings and have shed more light on the theoretical development of athletic identity in general, and in the Hong Kong culture, specifically. In the following sections, I describe the significance and aims of this thesis, as well as outline this report.

### Context

I completed this research in partial fulfilment of my doctoral degree in applied psychology at Victoria University in Melbourne, Australia. This research project spanned three years, including proposal planning, literature review, two phases of data collection, data analysis, and the writing process. In reference to the data collection processes, I collected the questionnaire data (Study 1) in early 2004, when I was working as a practicum placement student at the HKSI. In early 2005, I went to Hong Kong and interviewed 13 Hong Kong elite athletes who were studying at a local university (Study 2).

### Significance of the Research

The AIMS is the most accepted and used tool for measuring athletic identity. Previous studies (e.g., Brewer & Cornelius, 2001; Hale et al., 1999) have examined the psychometric properties of the AIMS including internal consistency, validity, and factor structure. Although there is debate over the best-fit models for the AIMS, studies generally have shown that the AIMS, when used as a multi-dimensional assessment tool,



is a reliable and valid measurement in English-speaking cultures. Nevertheless, there is limited research investigating the generalisability of the items and factor structure of the AIMS in non-English speaking cultures. The notable exception is a study of Russian athletes (Hale et al., 1999). I intended to explore these issues in the Hong Kong Chinese culture through this research.

Previous studies concerning the construct of athletic identity have focused on quantitative examinations of the AIMS. There are few published studies looking into the construct of athletic identity via qualitative designs (Sparkes, 1998; Sparkes & Smith, 2002). In regard to developing more understanding of the construct of athletic identity as it applies to HK athletes, the qualitative investigation of athletes' life experiences and reflections on identity in Study 2, was a suitable means to find out more information about the athletic identities of HK athletes.

The Hong Kong government, various organisations in public sectors (e.g., SF&OC), and NSAs have been developing and promoting the sport industry for decades. In reference to service delivery, HKSI and NSAs are co-operating with each other to provide an environment in which sport talent can be identified, nurtured, and developed, whereas the former is specialising in providing support to the 13 "Elite Sports" that I will further discuss in later sections. Scholars in local universities have been supporting the development from an academic perspective. In the coming Olympics games in 2008, Hong Kong will be involved, as a co-organiser of Beijing Games, for a small number of events (e.g., equestrian competitions). Public recognition and interest in elite sports in Hong Kong are expected to increase. It seems a critical time for Hong Kong to try and develop its sport industry, and the core of any sport industry is the athletes.

Currently, the issue of athletic identity and the possible repercussions of such identities for the health and welfare of Hong Kong athletes have not been explored.

Considering the possible influence of strong athletic identity on performance, self-identity development, and coping with adversity such as injuries, it may be helpful for practitioners in Hong Kong to gain a clear picture of Hong Kong athletes' experiences in order to provide suitable services that will aid them in their sports and in their lives.

#### Aims of the Research

The first aim of this research was to explore the psychometric properties of a Chinese version of AIMS using a Hong Kong sample. I wanted to find out if the AIMS might be useful for Hong Kong athletes, and if so, what would be the best-fit model of the AIMS (Chinese version) to use for the practitioners who are working with Hong Kong athletes. Another aim of this research was to explore identity issues of Hong Kong athletes. Using in-depth interviews, I attempted to understand the Hong Kong athletes' experiences and the factors related to their embracing (or not) athletic identities. I also intended to explore the Hong Kong sports culture and its influence on athletes' experiences.

#### Overview of this Thesis

This research consisted of two studies. The first one was the psychometric validation of the AIMS (Chinese version) through analyses of internal consistencies and confirmatory factor analyses (CFA), along with comparisons to previous large sample studies in English and non-English speaking populations (Brewer & Cornelius, 2001; Hale et al., 1999). The second study was a qualitative exploration of Hong Kong athlete's athletic identities.

The next chapter is a literature review covering the theoretical background of these two studies. More precisely, I discuss the past studies exploring the construct of athletic identity and the development of the AIMS. I then review the studies investigating identity issues such as identity in sport and exercise areas. I also discuss

various theoretical frameworks concerning self and identity in sociology and mainstream psychology. In reference to the cultural elements of this thesis, I discuss some major cross-cultural studies examining self and identity and how they may be related to sport psychology. For example, the theory of self-construal (e.g., individualism or independent self, collectivism or interdependent self) is the main framework I use for understanding the cultural differences between Hong Kong Chinese and other societies. At the end of the chapter, I review the relevant literature addressing the Hong Kong sport culture.

The third chapter is the main content of Study 1 (psychometric validation of the AIMS). I recruited 186 participants for this quantitative study. The Method section describes how I collected and analysed the data. In the Results section, I describe the demographic information, the findings from the internal consistency analyses along with the model testing (confirmatory factor analyses). I compared all the models suggested by previous studies and suggested which one had relatively best fits with my sample. In the Discussion section, I suggest a few possible cultural influences that may partially explain the current findings. For example, the different usage of the words, *sport* and *exercise* in Chinese, and the relatively strong interdependent self-construals of Hong Kong athletes, may have affected the findings. Also, I suggest that the lack of demographic information of previous studies (Brewer & Cornelius, 2001; Hale et al., 1999) makes for difficulties in comparing current findings with earlier research, especially in interpreting some of the unexpected results.

Chapter 4 covers Study 2 (qualitative exploration of athletic identity). I interviewed 13 Hong Kong elite athletes. In the Method section, I describe the process of developing the interview guide, the pilot interviews, the actual interview processes, and the data analysis. I compared the themes of the interviews with the factors in the

AIMS and explored if there was anything not captured in the AIMS items. In the Results and Discussion section, I present the findings and my interpretations in six parts: (a) social identity, (b) exclusivity, (c) negative affectivity, (d) out of the boxes, (e) fantasies and projections, and (f) collectivism versus individualism.

Chapter 5 is the general discussion. Based on the findings of Studies 1 and 2, I give an overview of the participants' experiences and their athletic identities. I discuss how the findings from the two studies are related to each other. Based on the interview information, I suggested some possible directions for further development of the AIMS, or at least the Chinese version of the AIMS, so that the AIMS (Chinese version) would accurately and sufficiently capture the contributing elements of Hong Kong peoples' athletic identities. In this final chapter I also discuss the implications and limitations of this research.

## CHAPTER 2

### LITERATURE REVIEW

Researchers have examined the importance of the athletic role in the way people define themselves (Brewer, Van Raalte, & Linder, 1993). Athletic identity (AI) refers to the degree to which people identify with the athletic role (Brewer, Van Raalte, & Linder, 1993). Tasiemski, Kennedy, Gardner, and Blaikley (2004) have summarised the latest findings on the pros and cons of identifying with the athletic role. On the positive side, strong AI is related to health, self-esteem, social relationships, confidence, and sport participation. Strong AI, however, is also related to over-commitment to the athletic role, identity foreclosure, and delays in career maturity. In this chapter, I describe the development of the construct of AI, including concepts that have preceded AI, and the research examining the levels of AI across varied groups. A standardised, psychometrically sound measure of AI has been helpful in facilitating conceptual clarity and in the development of a theoretical foundation for the construct. Brewer, Van Raalte, and Linder's development of the Athletic Identity Measurement Scale (AIMS) was the cornerstone measuring the construct of athletic identity.

AI sits within the understanding of multidimensional self-concept, which has been studied extensively in mainstream of psychology (Brewer & Cornelius, 2001; Cieslak, 2005). In this chapter, I examine the current understandings of self-concept in the fields of sport, social, and personality psychology. I also discuss self-concept from a cross-cultural perspective, focusing on the comparison between Hong Kong Chinese and other cultures mainly referring to Western European and European American. Together with a brief description of the sport culture in Hong Kong and other relevant cross-cultural studies in sports, I provide a background for the cultural exploration of athletic identity and the AIMS. This chapter concludes with a discussion of statistical

and research concerns in the previous studies of athletic identity, identity in sports, and possible related issues within the culture of Hong Kong.

### Self and Athletic Identity

Self-identity has been generally defined as a combination of self-referent cognitions, emotions, and attitudes expressed within various aspects of life (Horton & Mack, 2000; Ryska, 2002). Stryker and Burke (2000) described identity as the “parts of the self-system composed of the meanings that persons attach to the multiple roles they typically play in highly differentiated societies” (p. 284). Duda (1999) defined identity as the assortment of roles, attributes, and behaviours that adequately describe individuals. Self-esteem and self-worth are terms that are also used in research and can be understood as other components of identity housed within the more global construct of self-concept.

An extensive body of research has suggested that self-concept, comprising the construct of identity, is multidimensional (Markus & Wurf, 1987; Marsh & Shavelson, 1985). Individuals tend to activate specific dimensions of self-identity in order to facilitate the processing of self-referent information at different times. The content of domains comprising self-concept has developed and changed over time. Brewer, Van Raalte, and Linder (1993) defined AI as the degree to which individuals identify with the athletic role. Derived from the framework of multidimensional self-concept (Shavelson, Hubner, & Stanton, 1976), these authors conceptualised AI as both a cognitive structure and a social role. As a cognitive structure, AI provides a framework to interpret information, to determine coping strategies for different career-related issues, and to influence behaviour coherent with the athletic role (Horton & Mack, 2000). In a broader sense, AI, as a social role, is influenced by significant others’ perceptions. This concept is similar to the early theory of “looking glass self” (Cooley, 1902) in that

significant others constitute a social mirror allowing people to interpret the feedback from others, so that they can construct and modify themselves.

Tasiemksi et al. (2004) stated that the difficulty in the research of AI is the definition of *athletic identity*. They suggested that AI is likely to be built over time; it should not be solely inferred by the current levels of participation, time spent, or achievements in sport. Different scholars have modified the definition of AI, even though most of the main components have been maintained. Good, Brewer, Van Raalte, and Mahar (1993) modified the original definition and described AI as “the strength and exclusivity of an individuals’ identification with the athletic role” (p. 3). Cieslak (2005) recently extended the definition to “the degree of importance, strength, and exclusivity attached to the athlete role that is maintained by the athletes and influenced by environment” (p. 39). I employed this latest definition in the current study.

#### *Development of the AIMS*

A standardised, psychometrically sound measure can facilitate the testing of AI. Brewer, Van Raalte, and Linder (1993) developed the AIMS, a measurement tool reflecting both the strength and the exclusivity of identification within the athletic role. Since the early development of the AIMS, researchers have been endeavouring to validate and improve the measurement and the conceptualisation of the construct in a parallel process (Brewer & Cornelius, 2001; Hale et al., 1999; Martin, Eklund, & Mushett, 1997) The AIMS initially consisted of 10 items encompassing social, cognitive, and affective elements of AI. Each item was rated by the participants on a 7-point scale (see Table 1). The items tapped into the thoughts and feelings from athletes’ daily experiences. The original conceptualisation of AI as a superordinate unidimensional construct meant that the 10 items were summed to create a global score.

Adequate internal consistency

(Cronbach's  $\alpha = .93$ ) and test-retest reliability ( $r = .89$ ) provided support for the scale's psychometric integrity (Brewer, Van Raalte, & Linder, 1993).

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Table 1

*Athletic Identity Measurement Scale*

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1. I consider myself an athlete.
  2. I have many goals related to sport.
  3. Most of my friends are athletes.
  4. Sport is the most important part of my life.
  5. I spend more time thinking about sport than anything else.
  6. I need to participate in sport to feel good about myself.
  7. Other people see me mainly as an athlete.
  8. I feel bad about myself when I do poorly in sport.
  9. Sport is the only important thing in my life.
  10. I would be very depressed if I were injured and could not compete in sport.
- 

Convergent validity was shown by moderate correlations with the Self-Role Scale (SRS; Curry & Weiss, 1989;  $r = .61$ ), and the three subscales of the Sport Orientation Questionnaire (SOQ; Gill & Deeter, 1988;  $r = .26$  to  $.53$ ). Brewer, Van Raalte, and Linder suggested that the correlation between the AIMS and Self-Role Scale was moderate, but not sufficiently strong to state that they are measuring the same construct. For discriminant validity evidence, the AIMS was found not to correlate with the Rosenberg Self-Esteem Scale (Rosenberg, 1965;  $r = -.01$ ) and all five subscales of the Physical Self-Perception Profile (PSPP; Fox & Corbin, 1989;  $r = -.03$  to  $.19$ ). Moreover, among the four subscales of the Perceived Importance Profile (PIP, Fox, 1987, as cited in Brewer, Van Raalte, & Linder, 1993) only the PIP-sport subscale ( $r = .42$ ), but not



the PIP-fitness ( $r = .06$ ), body ( $r = .22$ ), and strength subscales ( $r = .15$ ), was significantly correlated with the AIMS when Brewer, Van Raalte, and Linder controlled for the level of athletic involvement. The authors concluded that AI is different from physical self-esteem, perceived importance of fitness, body attractiveness, and strength.

Although Brewer, Van Raalte, and Linder (1993) initially conceptualised and developed the AIMS to be unidimensional, factor analyses in subsequent studies revealed other dimensions (Hale et al., 1999; Martin et al., 1997). Brewer, Boin, Petitpas, Van Raalte, and Mahar (1993) suggested a 3-factor model with one item out of the ten being deleted. The three factors were named: (a) *social identity*, representing the extent to which the individual views him/herself as occupying the athlete role; (b) *exclusivity*, representing the extent to which an individual's self-worth is determined only by performance in the corresponding athlete role; and (c) *negative affectivity*, representing the extent to which an individual experiences negative affect in response to undesirable outcomes in athletic domains (Brewer & Cornelius, 2001; Hale et al., 1999). Martin et al. (1997) examined the AIMS in samples of athletes with disabilities, including people with cerebral palsy, amputees, and athletes with spinal cord injuries. They identified a 4-factor model with nine items. On top of those original three factors, Martin et al. (1994, 1997) proposed an extra factor called *self-identity* that captures the construct of self-referenced cognitions. They suggested that the emergence of the self-identity factor was possibly due to the characteristics of this sample. The general public often do not see athletes with disabilities as “legitimate” athletes, even though those athletes highly identify with athletic roles (Sherrill, 1993). Such different experiences of athletes in this population may have led to the separation of social identity and self-identity factors in the AIMS for this sample (Martin et al., 1994).

Researchers started to re-examine the factor structure of the AIMS by first comparing all the previous models through confirmatory factor analysis (CFA; Brewer & Cornelius, 2001; Hale et al., 1999). For example, Hale and his colleagues conducted a cross-cultural study and recruited 1,160 participants from the UK, US, and Russia. They compared the psychometric properties of the original unidimensional model (Brewer, Van Raalte, & Linder, 1993), the 3-factor solution (Brewer, Boin et al., 1993), and the 4-factor solution proposed by Martin and his colleagues (1994, 1997). They found that the 3-factor solution was relatively better than the others, but a modified 3-factor model, allowing two items (items 6 & 9) to cross-load onto two factors dramatically improved the goodness-of-fit. That model was a particularly good fit in the UK and US samples. They suggested that this result might reflect evidence of translation problems, but they did not further suggest any further reasons as to why the Russian version was not as good as fit. Hale et al. have also addressed a few critical issues in the developmental process of the AIMS. In response to the limitations of previous studies that have used fairly small samples, including mainly intercollegiate student-athletes (Martin et al., 1994), this study was the first one with a large sample size ( $N = 1,160$ ), which may have improved the representativeness of the sample and supplied a better test of the factor structure (Hale et al., 1999). This study was also the first published research investigating the AIMS in a sample of athletes from a non-English speaking culture. The Russian version of the AIMS in this study was the first translated version published. Hale et al. did not discuss the translation process or any possible difficulties, but they have extended the use of the AIMS by investigating its generalisability in a non-English speaking culture.

Brewer and Cornelius (2001) conducted a study with a large sample ( $N = 2,856$ ), assembled over 10 years, in order to evaluate the fit of different models as well as

develop norms for males, females, athletes, and non-athletes. By performing CFAs, the researchers compared the fit of all four previously suggested models including the unidimensional model (Brewer, Van Raalte, & Linder, 1993), the 3-factor solution (Brewer, Boin et al., 1993), the modified 3-factor solution (Hale et al., 1999), and the 4-factor solution (Martin et al., 1994). The results supported the construction of a new higher-order model. This model contained seven items comprising three first order factors (social identity, exclusivity, and negative affectivity) without any cross-loading. Different from other models, these first order factors were posited to be directly related to one higher order factor called *athletic identity*. Brewer and Cornelius explained that due to this higher order AI factor, it is reasonable to sum the scores of seven items to obtain a total score. The total score of the 7-item version was found to be highly correlated with that of the 10-item version. These results indicated that the findings from previous studies concerning the AI did not have to be discarded. Similar to Hale et al., this study addressed the limitations of inadequate sample sizes of most previous studies. Hale et al. also criticised the inadequate representative level of many previous studies that only sampled intercollegiate student-athletes. Although their whole sample was from North America (English-speaking), Brewer and Cornelius addressed the issue of representativeness by recruiting a diverse sample including non-athletes, sport experts, and athletes of various skill levels.

Recently, in a study comparing athletes' reactions towards retirement, Alfermann, Stambulova, and Zemaityte (2004) made a 5-item version of the AIMS and translated it into German, Lithuanian, and Russian. Although psychometric investigation was not the focus of the study, and the 7-item version had not been published, they did not explain why they chose this shortened version. They did not mention any psychometric properties of this shortened version of the AIMS, except a

marginal, but adequate level of internal consistency ( $\alpha = .68$ ). As described in the following section, the researchers attributed the significant differences in AI across their three groups primarily to cultural influences. They emphasised the special sport culture that exists in the countries from the former Soviet Union such as Lithuania and Russia, but they did not mention any issues about translation. This study further extended translated versions of the AIMS in published research, but it also reflected that, even now, there is still no a single model of the AIMS widely adopted in research settings. Cross-cultural validation of the AIMS needs to be continued.

#### *Other Approaches Examining AI*

Apart from employing a standardised paper and pencil instrument to measure AI, researchers have tried to employ other methods. For example, Sparkes (1998) examined the AI of an athlete via an in-depth interview. Although it was Sparkes' intention to explore the AI of one particular athlete in detail, one may argue that in-depth interviews are not feasible when examining AI in a large sample. In another study, based on Ziller's (1990) pioneering auto-photographic study, Dollinger (1996) developed the auto-photographic method called *photographing the self* to measure five key identities including AI. Auto-photography can pave the way to view the self not only in the eyes of the researchers, but also "in the eyes of the beholders" (Dollinger & Clancy, 1993, p. 1064). Dollinger (1996) invited the participants to take 20 photos for answering the question "Who are you?" and write an accompanying statement to explain how the photos capture who they are. There were no specific guidelines of what sorts of photos the participants should take. For instance, Li (2002) found that the photos in his study of auto-photography captured a wide range of things including various objects and human beings. According to specific coding systems, trained research assistants assessed the photos and essays in Dollinger's study for the five identities: (a) self as drinker, (b) self

as athlete, (c) self as achiever, (d) religious self, and (e) working self. In reference to AI, photos and essays were coded for the depiction of athletic or exercise activity and related objects such as sport equipment (e.g., baseball bats). The inter-rater reliability was acceptable ( $\alpha = .77$ ). Regarding convergent validity, a significant correlation between the self as athlete subscale and the AIMS was found ( $r = .43$ ). Although there were no other follow-up studies specifically validating auto-photography in assessing AI, there is evidence supporting its ability to assess other domains of self-identity and self-concept in general (Dollinger & Dollinger, 2003; Li, 2002).

### *AI and Injury*

The overwhelming majority of studies exploring AI and its consequences have highlighted the potential risks for people having strong AIs (Alfermann et al., 2004; Brewer, Van Raalte, & Petitpas, 2000; Miller & Kerr, 2003). Brewer (1993) conducted a series of four studies looking into student-athletes' reactions to injuries. The first study ( $N = 109$ ) consisted of an imagery condition guiding the participants to experience imaginary injury. The results showed that depressed mood, as measured by the depression scale of the Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1971), was positively related to AI for the imagery group participants ( $r = .49$ ), but negatively related to AI for the control group participants ( $r = -.42$ ). The second study ( $N = 131$ ) was similar to the first one, but instead of the imagery condition, the researcher gave the participants in the experimental group written instructions to answer the questionnaire while thinking of a hypothetical injury experience. The pattern of the results was similar, but only at near-significant levels. The depressed mood scores were positively related to AI for the experimental participants ( $r = .12$ ), and negatively related to AI in the control group participants ( $r = -.21$ ). In the third study ( $N = 121$ ), the researcher recruited participants who were injured during the period of data collection.

He found that generally those with high levels of AI were more likely to experience depressed mood measured by either the POMS (McNair et al., 1971;  $r = .21$ ) or the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961;  $r = .23$ ). Brewer recruited both injured and un-injured participants in the final study ( $N = 90$ ). He found that there was a discrepancy between the results of BDI and POMS. Only the findings from the BDI showed a positive relationship between depressed mood and AI for injured participants ( $r = .35$ ) and a negative relationship for uninjured ones ( $r = -.19$ ). The results of the POMS did not show any significant associations. Brewer suggested that the participants in the final study were young and that those younger injured players with dysphoric affect might feel more comfortable in answering items with somatic symptoms of depression appearing in the BDI, but not the POMS.

Regarding the positive association between depressed mood and AI in injured athletes, Brewer (1993) proposed two potential mechanisms, which were cognitive appraisal processes and self-focused attention, to explain the findings. The former implied that the depressed mood was due to the athletes' appraisal of their injuries, which can be exacerbated by the commitment to being an athlete (Brewer, 1993; Lazarus & Folkman, 1984). The notion of self-focused attention suggested that the perceived discrepancy between a salient goal (e.g., athletic performance) and the current state (e.g., injured and unable to perform) may enhance self-focus that, in turn, produces negative affect (Pyszczynski & Greenberg, 1987). Looking into the effect sizes of the findings, based on Cohen's (1988) conventions for the behavioural sciences, some of the significant correlations in Brewer's studies (Studies 2 and 3 in particular) were quite small. For example, in Study 2, the correlation between depressed mood scores and AI in the experimental group was .12. In other words, only 1.4% of the variance was shared. In Study 3, a similar pattern of correlations (i.e., two depressed mood scales with AI)

were found .21 and .23. This meant that only approximately 4 to 5 % of the variance was shared. Brewer, in this series of studies, highlighted the potential negative influences of having a strong AI on the post-injury period, such as increased risk of depressed mood. The strength and meaningfulness of these findings, however, are questionable.

Green and Weinberg (2001) conducted a study ( $N = 30$ ) to examine the relationships among AI, coping skills, social support, and mood disturbance of recreational sport participants who were injured. The AIMS, Athletic Coping Skills Inventory-28 (ACSI-28; Smith, Schutz, Smoll, & Ptacek, 1995), POMS (McNair et al., 1971), and the PSPP (Fox & Corbin, 1989) were employed to test three hypotheses: (a) participants with stronger AI were expected to show more mood disturbance than those with lower AI; (b) participants with more coping skills and social support would have lower mood disturbance and higher physical self-esteem; and (c) participants with stronger AI, lower social support, and lower coping skills were expected to show the highest amount of mood disturbance and lowest levels of self-esteem. Results from correlation and multiple regression analyses did not fully support the hypotheses. The negative correlation between social network and mood disturbance following an injury ( $r = -.37$ ) and the positive correlation between AI and physical conditioning, which was a subscale of the PSPP ( $r = .40$ ) were the only two significant relationships. These results were probably due to the level of participation (mainly recreational), large age range (i.e., 19-70 years), and the small sample size affecting the power (see also Cieslak, 2005). Green and Weinberg only measured the participants' AIs once. At the time of collecting the data, some participants had injuries that were 6 months old. The participants' AIs might have changed after they became injured. In the discussions in

the following sections, I have further reviewed the debate about whether AI is a trait-like stable variable or a situational variable, which is malleable.

Sparkes (1998), mentioned briefly above, using a biographical method explored how a person who used to have a high level of AI experienced her post-injury life. Based on sociological perspectives, the athlete's story was interpreted through three frameworks: (a) Charmaz's (1987) model of identity hierarchies, (b) Athen's (1995) dramatic self-change model, and (c) Frank's (1995) model of narrative structures. Although Sparkes did not measure the AI of the participant through the AIMS, he regarded the participant as having strong AI, because of the extensive involvement in various sports since she was young. The serious injury, and its associated ramifications, threatened the integrity of the self. Being trapped at the stage of fragmentation, the participant lost the sense of primary immediacy, which refers to the predictability and control of the unity of body and self (Athen, 1995). In other words, the previous taken-for-granted well-functioning body and the accompanying physical sense of self were shattered.

The loss of public recognition or the *gloried self* was another part of the participant's experience. The gloried self she had from being an equestrian athlete was so attractive and reinforcing that she received less and less satisfaction from other available selves. She commented that she had distanced herself from other identities so she could focus on her identity as an equestrian athlete. The gloried self led to identity foreclosure and the loss of future orientation (Adler & Adler, 1989; Sparkes, 1998). The losses of a well-functioning body and her gloried self were major parts of her experience of being injured.

The participant also related her experiences in a way similar to restitution narrative, (Frank, 1995). Among the narrative types centering on the body's problems



with illness, the restitution narrative is the most common one, at least in Western cultures (i.e., European American). Frank described the basic storyline of the restitution narrative as “Yesterday I was healthy, today I’m sick, but tomorrow I’ll be healthy again” (p. 77). This narrative represents a mechanistic view that the body is fixable. The participant’s comments or narrative revealed a belief that the injury would be healed, her body would be fixed, and her sense of self would be restored (Sparkes, 1998). According to Frank’s framework, Sparkes stated that this mechanistic view did normalise the injury, but the participant became locked into this restitution narrative and her notions of self, and had difficulties recognising other aspects of life and her vulnerabilities. Sparkes concluded that because of the loss of primary immediacy, her gloried self, and the powerful hold of her restitution narrative, the participant was unable to use alternative identities or narratives to understand and conceptualise herself, even if they were available. This study illustrated potential risks for people having strong and exclusive AIs, particularly when faced with career threatening injuries. Phoenix, Faulkner, and Sparkes (2005) suggested that the study highlighted the close ties between the physical body and one’s identity.

Specifically looking into the interaction between AI and masculinity, Sparkes and Smith (2002) explored the post-injury life experiences of four male rugby players. Similar to previous studies, those participants, who had strong and exclusive AIs, experienced the loss of primary immediacy, and they manifested a strong desire for a restored self. The biographical material of the participants showed that their AIs were highly entwined with expressions of hegemonic masculinity. Sparkes and Smith explained that sports, rugby in particular, have come to be some of the leading definers of masculinity in society. When the participants experienced serious injuries, their performances could not be sustained. They lost both athletic and masculine identities,

but these identities might still remain salient in their identity hierarchies. Such a strong sense of a restorable self exacerbated the difficulty to restructure the core self. This study highlighted the power and limitations of contemporary masculinity, interacting with AI, on reconstructing the self in post-injury life. Researchers have assumed that males have stronger AIs than females, and there is evidence that people with stronger masculine identities have stronger AIs than those with weaker masculine self-appraisals, but there is no consistent statistical evidence showing any gender differences or gender-role differences in AI (Brewer et al., 2000; Good et al., 1993; Murphy, Petitpas, & Brewer, 1996; Wiechman & Williams, 1997).

The previous studies focused on life shortly after injury. The participants were still struggling with the difficulties of losing parts of their core selves. Tasiemski and his colleagues (2004) looked at the lives of people with disabilities ( $N = 985$ ). The participants in their study were living with spinal cord injuries (SCI). These participants were past the fragmentation or provisionality stage, and were able to accept their new selves (Athens, 1995). The researchers divided the participants into five different groups according to their weekly time commitments (i.e., more than six hours, three to six hours, one to three hours, less than an hour, and none) measured by Sport Participation Questionnaire (Tasiemski, Bergstrom, Savic, & Gardner, 2000). One-way ANOVA showed that there was a main effect for time commitment on AI measured by the 7-item versions of the AIMS. Post-hoc comparisons showed that the AIs of all the groups were significantly different from each other. These results were due to the large sample size and abundance of power. They also ranked in an ascending order of time commitment (i.e., higher time commitment = higher AI). Tasiemski et al. did not supply the effect sizes for these findings. Based on estimations from the descriptive statistics, the difference of AI between participants spending one to three hours and those spending

less than an hour was a relatively small effect size. The other comparisons were in the medium to large effect size ranges. From the analyses of gender and athletes' status (i.e., international, national, regional athletes, and non-athletes), a two-way ANOVA revealed a significant interaction effect between gender and athlete status ( $F = 3.29$ ,  $\eta^2 = .015$ ). Further analysis showed that the male participants who were international athletes had significantly stronger AIs than other participants; those who were national or regional athletes also had significantly stronger AIs than those non-athlete participants. Tasiemski et al., however, did not report the effect sizes nor supply the sufficient descriptive statistics for further estimations of the magnitude of differences. In regard to the psychological consequences of AI, the results did not show any significant relationships among AI, depression, anxiety, and life satisfaction. In the discussion section, Tasiemski et al. stated that the AIs of their participants were lower than the AIs of the participants in the Martin et al. (1994) study, (people with disabilities), and those in Brewer and Cornelius' (2001). Tasiemski and his colleagues suggested that because people, or even athletes, with SCIs have the experience of adjusting to the major loss of physical mobility and independence, they develop broader self-concepts that do not exclusively rely upon AI. Nevertheless, the researchers did not report the statistical results of these supplementary analyses.

#### *AI and Sport Career Retirement*

One of the reasons why sport injuries draw much attention among AI researchers is that they may lead to potential career termination. Several studies have examined the relationship between AI and adjustment to sport career termination (e.g., Brewer et al., 2000). Grove, Lavalley, and Gordon (1997) conducted a study examining the psychological adjustments and coping strategies of retired athletes ( $N = 48$ ) during the transitional period and the influences of AI. They found that regardless of the reasons

for retirement, there were positive relationships among AI and emotional adjustment ( $r = .67$ ), social adjustment ( $r = .70$ ), time for emotional adjustment ( $r = .36$ ), and time for social adjustment ( $r = .49$ ). The researchers then, using the upper and lower thirds of the AIMS distribution, classified the participants as either high or low in AI and performed a MANOVA. The results showed significant differences in terms of using coping strategies. For examples, those with strong AIs tended to use more emotional ventilation ( $F = 28.52, d = 1.89$ ), instrumental social support ( $F = 7.41, d = 1.63$ ), mental disengagement ( $F = 12.84, d = 1.26$ ) and behavioural disengagement ( $F = 10.31, d = 1.13$ ) than the participants with low AIs. The limitations of this study were the design features of asking the participants who had been retired, for 3.4 years on average, to rate their AIs during the careers and their coping strategies during their retirement process retrospectively. Grove et al. also did not define the length of the retirement process. Through the retrospective assessments of coping strategies, it appeared that the authors assumed the participants had completed the retirement process at the time of data collection. Such an assumption, in some cases, may have not been warranted. To understand the retirement process, longitudinal studies, rather than retrospective ones, may produce clearer results.

Webb, Nasco, Riley, and Headrick (1998) conducted a correlational study exploring the relationships among AI, psychological adjustments to retirement, personality characteristics, and the reasons for retirement ( $N = 93$ ). Instead of employing the AIMS, the researchers generated four items to assess the strength of one's identity as an athlete. Those items tapped into two factors: (a) public identity, which referred to the extent to which others know the individual as an athlete, and (b) private identity, which referred to the extent of internalising AI. They also generated five items to measure two dispositional variables, which were *control*, evaluating the

extent to which participants feel in control of their life, and *self-regard*, referring to positive attitudes towards oneself. To measure psychological adjustments, Webb et al. constructed six items to assess three areas, which were life satisfaction, perceived difficulty of retirement, and perceived uncertainty of the future. Along with analysing the full sample, they sub-divided the samples into three groups according to the reasons of retirement and analysed each group separately (i.e., retired due to injuries, retired due to being unable to compete at next level, and retired due to personal choices). The results of the full sample analyses showed that only private AI was significantly correlated with the feeling of uncertainty about the future ( $r = .25$ ), but not public AI ( $r = .07, p > .05$ ). For injury-related retirements specifically ( $n = 20$ ), the overall AI (i.e., the sum of private and public subscale scores) was strongly related to the sense of uncertainty about the future ( $r = .63$ ) and perceived difficulty of retirement ( $r = .79$ ). The researchers suggested that the unexpected nature of injuries may rule out opportunities for athletes to prepare for retirement by re-investing in other identities. Career retirement may not follow immediately after injuries, and AI may be enhanced during the rehabilitation period as a way of summoning commitment to the recovery process. Nevertheless, AI was not significantly related to life satisfaction ( $r = -.31, p > .05$ ). The researchers suggested that the small sub-sample size lowered the statistical power and influenced the results (Webb et al., 1998). Webb et al. found that the participants' self-esteem (i.e., *self-regard*) was negatively related to their public AIs ( $r = -.28$  for the full sample;  $r = -.56$  for the injured retirements sample), but not significantly related to private AIs. The researchers did not supply any explanation for these results. They concluded by stating the importance for sport psychologists to help the athletes disengage from the public expectations of athletic roles. One of the main limitations of this study lies in the measurements. The researchers generated all the

items of the questionnaires, and some subscales contained only one item. Webb et al. did not supply any information concerning the psychometric properties of their scales such as reliability and validity. These limitations should be addressed in future research.

As mentioned earlier, Alfermann et al. (2004) assessed athletes' reactions to sport career termination in three countries ( $N = 256$ ; i.e., Germany, Lithuania, Russia). Based on the dichotomous classification of career terminating causes (voluntary versus involuntary) suggested by Webb et al. (1998), Alfermann and her colleagues proposed the importance of previous planning. Based on some established measurements, such as the AIMS (Brewer, Van Raalte, & Linder, 1993) and the coping questionnaire called COPE (Carver, Scheier, & Weintraub, 1989), they generated most of the items on their questionnaire to measure the reasons for career termination, emotional reactions, athletic identity, adjustment to and satisfaction with life after retirement, and coping reactions. They found that retired athletes from the former Soviet Union (Lithuania and Russia) reported less positive emotions and satisfaction with time of retirement than those from Germany. In reference to coping reactions, a MANOVA showed that participants from different nations preferred significantly different strategies. Further analyses showed that the participants from Russia preferred using more distraction strategies such as making jokes and doing something different than those from Germany and Lithuania. The participants from Germany preferred "saying things to let feelings escape" less often than the rest. Alfermann et al. did not provide the statistical results for these further analyses. Estimations, based on the descriptive statistics, showed that the effect sizes of the significant differences among participants groups were fairly small (i.e.,  $d$ s were around .2) across most variables related to coping strategies and psychological reactions.

Alfermann et al. (2004) asked the participants to rank six reasons for their career terminations. The results showed that those from the former Soviet Union mainly retired due to sport-related reasons that were mostly unplanned. As previously discussed, the researchers used a 5-item version of AIMS to measure the participants' AIs during their careers. They found that those from Lithuania had significantly stronger AIs than others, but the estimation of the effect sizes showed that the differences were indeed small ( $d$ s were around .2). Alfermann et al. generated a separate one-item scale to assess the participants' AIs after retirement. They found that participants from Lithuania and Russia tended to keep stronger AIs after their sport careers had ended than those from Germany. The researchers suggested that in these countries, privileges for elite athletes still existed in society, so athletes would prefer to extend their sport or status and identities as elite athletes. Maintaining a strong AI even after retirement could be considered a defence mechanism used to maintain high self-esteem despite some obvious difficulties in post career adaptation. In most studies, researchers have used AI as the independent variable to look for differences in how the athletes with strong and weak AIs experienced their retirements differently. This study, however, used AI as the dependent variable and explored how it was associated with the retirement process (i.e., voluntary vs. involuntary) and country of origin. One of the limitations of this study was that the researchers did not report the effect sizes of the findings. Also, the researchers measured the participants' AIs during their careers retrospectively by a 5-items version of AIMS, and the AIs after retirement by a single item scale, without supplying any psychometric information of either measurement. Due to the retrospective self-rating and the lack of psychometric validation, the findings of this study might be questionable.

Grove, Fish, and Eklund (2004) examined the associations of self-protection and self-enhancement in team selection processes via a longitudinal study ( $N = 47$ ). They found that for the athletes who were dropped from the all-star team, their AIs were weakened at the day of selection in comparison with their AIs measured a week before the announcement ( $d = .47$ ), but for those who were selected, their AIs did not change. The authors suggested that self-protection mechanisms might be operating, but not self-enhancement. Nevertheless, it is difficult to judge if the decreased AI was due to public or private identity protection. Such a phenomenon could be explained by athletes' desires to reduce dissonance by cutting down the perceived commitment to the athlete role. On the other hand, the athletes might publicly attribute the de-selection to their lack of commitment, so that they did not have to attribute it to their personal sport abilities. I discuss this study further in the following section.

#### *AI and Identity Foreclosure*

For many student-athletes, especially in North America, sport career termination often coincides with graduation from university. Because only a small portion of student-athletes advance to professional sport, it is important for them to prepare for other careers (Murphy et al., 1996). Studies have shown that strong and exclusive AIs reduced students' examination of nonsport career possibilities, which led to career immaturity, particularly for those student-athletes who participated in revenue-producing sports such as baseball and basketball in the US (Miller & Kerr, 2003; Murphy et al., 1996). This problem has been related to the features of identity foreclosure (Good et al., 1993). Individuals who make commitments to roles without experiencing exploratory periods are often in a state of identity foreclosure (Marcia, Waterman, Matteson, Archer, & Orlofsky, 1993).



Good et al. (1993) conducted a study exploring the relationships among AI, sports participation, and identity foreclosure. College students ( $N = 502$ ), ranging from intercollegiate athletes, intramural athletes, and non-athletes, participated in the study. Good et al. used the 10-item version of the AIMS (Brewer, Van Raalte, & Linder, 1993) and the Objective Measure of Ego-Identity Status (OM-EIS; Adams, Shea, & Fitch, 1979) to measure the participants' AIs and identity foreclosure, respectively. The researchers also sub-divided the sample into two groups according to their academic standings (i.e., upperclass and underclass) along with a third independent variable of gender. The analyses of identity foreclosure showed a two-way interaction between class and the level of athletic involvement ( $F(2, 490) = 3.67, p < .05$ ). Although the researchers did not provide information about further analysis such as post-hoc comparisons among participants from each group of athletic involvement, the descriptive statistics showed a trend that identity foreclosure scores increased with the athletic involvement in upperclass, but not underclass participants. In reference to the AI, there was a three-way (gender by class by level of athletic involvement) interaction ( $F(2, 490) = 3.32, p < .05$ ). Good et al. also found that the AIMS scores increased with the athletic involvement in both classes. Good et al. highlighted that AI and level of identity foreclosure were significantly correlated for the full sample, but the correlation was fairly small ( $r = .21$ ). The lack of post-hoc comparisons for most of the analyses was one of the limitations of this study.

Murphy and his colleagues (1996) conducted a similar study to investigate the relationships among identity foreclosure, AI, and career maturity in a sample of intercollegiate athletes ( $N = 124$ ). They found that career maturity, assessed by the *attitude* scale of the Career Maturity Inventory (CMI; Crites, 1978), was negatively correlated with both AI measured by 10-item versions of the AIMS ( $r = -.31$ ) and

identity foreclosure measured by the OM-EIS (Adams et al., 1979;  $r = -.36$ ), but AI and identity foreclosure were not significantly correlated ( $r = .11, p > .05$ ). This nonsignificant small correlation contrasts with the results of Good et al.'s (1993) study. Murphy and his colleagues explained that these two constructs (AI, identity foreclosure) may have inhibiting effects on career decision making and exploration of alternative roles via different mechanisms. The ANOVA showed that participants playing in varsity level sports had a significantly higher level of identity foreclosure, but lower level of AI and career maturity than participants playing in non-varsity level sports. Participants in revenue-producing sports had significantly higher foreclosure scores and lower career maturity scores than their counterparts in non-revenue-producing sports. Based on estimations, the effect sizes of all these differences were in the medium to large range.

Miller and Kerr (2003) found that although student-athletes may experience strong and exclusive identification with athlete roles, they may not necessarily face the problem of identity foreclosure or career immaturity at the end of their college years. Through in-depth interviews involving eight Canadian student-athletes, the researchers revealed that over-identification normally occurred at the early stage of college years, but it was temporary and a period of *deferred role experimentation* followed. In their final years, these participants shifted their attention from athlete roles back to student roles. Their sample represented a cross-section of college athletes, and Miller and Kerr addressed the developmental processes of participants' AIs and identity foreclosure. Although the results of this study only reflected the Canadian sport culture, they suggested that practitioners should not over-generalise the consequences of strong AI and its relationship with identity foreclosure.

Phoenix et al. (2005) extended the understanding of AI and identity foreclosure relationships with student-athletes' attitude towards self-ageing. They conducted a study

to explore the relationships among AI, physical self-perception, quality of intergenerational relationships, and attitudes towards self-ageing in a sample of British student athletes ( $N = 179$ ). They hypothesised that young athletes would demonstrate a high level of physical self-perception and AI, but the strong AIs would be associated with negative perceptions towards self-ageing. Also, they expected that the participants who identified older adults as positive role models, and reported more fulfilling intergenerational relationships, would have more positive attitudes towards self-ageing. They used the 10-item version of the AIMS, the PSPP (Fox & Corbin 1989), the General Attitude to Ageing Scale (GAA; O'Hanlon & Coleman, 2000), and two items from the Reactions to Ageing Questionnaire (RAQ; Gething, 1994). Based on the 3-factor model, the researchers analysed the three subscale scores of the AIMS separately. They found that only *exclusivity* of the AIMS was correlated with the attitude towards self-ageing ( $r = .23, p < .005$ ), but not *social identity* ( $r = -.05$ ) or *negative affectivity* ( $r = .006$ ). They suggested that the strong commitment to the athlete role may not be problematic, unless student athletes exclusively put all their eggs into one identity basket. They interpreted the negative attitudes towards self-ageing as a consequence of identity foreclosure. They concluded that if student athletes exclusively identify themselves as athletes, and lack positive intergenerational contacts, then they are more vulnerable to experience identity foreclosure and negative attitudes towards the process of ageing. Nevertheless, with an  $r = .23$ , there is not a lot of shared variance between these variables. This small effect size diminished the strength of the researchers' arguments. Phoenix et al. conceptualised and analysed the AI as having three dimensions, but instead of the 7-item version of the AIMS, the researchers employed the 10-item version of the AIMS. There was no previous study validating this 10-item and 3-factor model. One of the strengths of this study was that the researchers

extended the original conceptualisation of AI and highlighted possible relationships between AI and attitudes about ageing.

### *AI and Performance*

Brewer, Selby, Linder, and Petitpas (1999) conducted two studies ( $Ns = 90$  &  $105$ ) to investigate the relationship between AI and athletes' satisfaction with their performances. The researchers measured the participants' AIs at the beginning and the end of the season using the 10-item version of the AIMS. These two studies were basically the same except that Brewer et al. used two different single-item scales to measure athletes' satisfaction with their performances. In the first study, the item asked the participants to rate how the season had gone for them. In the second study, the item asked the participants how satisfied they were with their performances. The researchers also gathered the ratings from assistant coaches to compare with the participants' self-ratings. Hierarchical regression analyses showed that the preseason AIs, at the first step, significantly predicted late season AIs ( $R^2 = .34$ ), whereas the season satisfaction, at the second step, significantly predicted the late season AIs (incremental  $R^2 = .05$ ) in the first study. The results of the second study showed a similar pattern in the regression analysis. The results of both studies also revealed that late AI was significantly correlated with the season satisfaction in terms of their overall impression of the seasons ( $r = .35$ ) and the satisfaction level of their own performance ( $r = .28$ ). The participants who had poor competitive seasons reported decrements in AI relative to their counterparts who had good seasons. This study illustrated the malleability of AI in response to athletic performance. Although there were consistent findings from the two studies, there were a number of limitations. First, the sample consisted of male participants only. Second, single-item scales measuring the

participants' satisfaction or perceptions of season may not sufficiently capture these constructs.

### *Relationship of AI with Other Variables*

Apart from the potential negative consequences, people having strong AIs have been found to have better fitness, higher commitment to sport participation, stronger global self-esteem, expanded social networks, and higher levels in openness to experience (Dollinger, 1996; Horton & Mack, 2000; Perna, Zaichkowsky, & Bocknek, 1996). Ryska (2002) recently conducted a study to explore the relationships among AI (*exclusivity*, *social identity*, and *negative affectivity*), motivational orientations, including task and ego (Duda, 1989), and self-perceptions of four domains including academic competence, social acceptance, vocational competence, and behavioural conduct (Harter, 1988). He employed the 9-item version of the AIMS, the Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda, 1989), and the Self-Perception Profile for Adolescents (SPPA; Harter, 1988). He found that the *exclusivity* of AI was associated with academic ( $r = .30$ ) and vocational competence ( $r = .28$ ). *Social identity* was positively associated ( $r = .24$ ) with behavioural conduct, referring to individuals' self-perceptions of social behaviour and adherence to social norms, but only for the athletes with high task-oriented and low ego-oriented motivational styles. For those with high ego- and low task-oriented styles, the *exclusivity* of AI was a negative predictor of academic competence ( $r = -.23$ ). *Social identity* was negatively related to social acceptance ( $r = -.29$ ), and *negative affectivity* had a negative association with social acceptance ( $r = -.30$ ) and behavioural conduct ( $r = -.25$ ). Based on these results, Ryska suggested that educators and coaches should cultivate high task- and low ego-oriented environments. The effect sizes of these analyses were relatively small. Practitioners are constantly debating how to balance task and ego motivational styles, and this study

pinpointed that AI might influence competence perceptions as a function of goal orientations.

### *Athletic Identity and Other Related Constructs*

*Sport identity.* The studies reviewed above showed an extensive use of the AIMS in sport-related identity research. In the past two decades, however, researchers have explored other identity theories in sports. Identity, as a part of self-concept, has been examined broadly in the sport sociology literature (Duda, 1999). Based on sociological perspectives of role-identity, Curry and Weaner (1987) developed a sport identity theory and a measurement tool called the Sport Identity Index (SII). Although they did not present a precise definition of sport identity, from the SII the construct refers to persons' self-definition as athletes (Curry, 1993; Curry & Weaner, 1987; Curry & Weiss, 1989). It is similar to the athletic identity construct captured in the AIMS, except that Brewer, Van Raalte, and Linder (1993) put emphasis on the exclusivity of the athletic identity. There are several versions of the SII. Curry and Weaner's original SII contained three subscales: (a) *involvement of self in sport roles* measured by a 9-item scale, (b) *commitment*, which refers to the number and importance of sport-involved interpersonal relationships and is measured by a 4-item scale, and (c) *identity salience*, which symbolises the probability for sport identity to be invoked, or refers to the perceived importance of sport identity compared with other identities. They used ranking and rating procedures to measure the identity salience. In the subscale of identity salience, the importance of sport identity was rated on a numerical scale from 0 to 100 and ranked together with peer, kinship, religious, academic, and romantic identities from the most to least important. There were significant correlations, in medium effect size ranges, among the ratings and ranking of sport identity, involvement of self, as well as commitment ( $r_s = .32 - .64$ ). Curry and Weaner divided this original

sample into four groups according to the types of involvement (i.e., varsity, competitive, fitness, and nonplayer). The ANOVA results showed that there were significant main effects for levels of sport on all the four subscales of sport identity ( $F_s = 7.63$  to  $48.11$ ;  $p < .001$ ). The researchers, however, did not perform post-hoc comparisons among the types of involvement within each subscale. The effect sizes of the differences for each sport identity subscales among the participants of different types of sport involvement could not be calculated from the data presented. Although most of the items in the SII were based on several established measurements, the researchers did not provide much information about validity testing. The psychometric properties of this measurement are questionable.

Curry and Weiss (1989) updated the SII to examine the relationship between sport identity and motivation. The updated version of SII consisted of two subscales: (a) *self-role* scale having ten 5-point Likert items that were modified from the *involvement* subscale of original version and (b) *reasons for participation in sport scale* (RP-Sport scale) measured by thirteen 5-point Likert items organised into *competition*, *fitness*, and *social motivation* subscales. In this cross-cultural study involving American and Austrian athletes, the results showed that findings from the *competition* and *fitness* subscales, but not the *social motivation* subscale, were positively associated with the level of self-role in both samples. The correlations between the competition-related reasons and sport role were in the medium to large effect size range ( $r = .41$  for American athletes,  $r = .46$  for Austrian athletes). The fitness-related reasons had a stronger correlation with the sport role among Austrian athletes ( $r = .25$ ) than American athletes ( $r = .09$ ). The authors interpreted the difference of those correlations as possibly due to the differences between the sport cultures of Austria, where sports serve the purpose of mass physical fitness, and that of America, where sport is more

focused on competition. Looking into the effect sizes, although there was a difference between these two correlations, both of them were relatively small. Similar to Curry and Weaner's (1987) study, Curry and Weiss did not perform any validity tests for this updated version of the SII. The psychometric properties of the SII are still questionable. This study is one of the few addressing identity issues in sports cross-culturally. Curry and Weiss intended to explore the cross-cultural differences of sport identity and motivation for sport participation, but they did not mention if there was any cross-cultural difference in the strength of sport identity. The researchers translated the updated version of SII into German, but they did not supply any information about cultural validation for the measurement. Together with the limited psychometric validation for the original English version, the assumption that the SII would be psychometrically sound in Austrian samples is indefensible.

Curry (1993) further modified the SII to examine the relationship of college *letters* and level of competition on the sport identities of college athletes. College *letters* are awards for successful performance and hard work, often presented in front of the public. Athletes with *letters* often gain higher status. This version of the SII consisted of five dimensions: (a) time in role, referring to the weekly amount of time spent in sports, (b) social relations, referring to the quality of interpersonal relationships established via sport participation, (c) sport importance, referring to the participants' perceived importance of sport, (d) self-role merger, referring to the extent to which the role of athlete is incorporated into one's self-concept, and (e) competition, which referred to the competition-related motivation for participation. The labels of the subscales were changed and modified, but those five dimensions had been discussed in previous studies (Curry & Parr, 1988; Curry & Weaner, 1987; Curry & Weiss, 1989). ANOVAs showed that the number of college *letters* were significantly associated with each variable of



sport identity. The descriptive statistics showed that the differences in various sport identity subscale scores between those participants who received no college *letter* and those who received one *letter* were larger than that between those receiving one and those getting two or more *letters*. Curry suggested that the succeeding *letters* might lead to a situation where successful performance becomes routine, and the excitement of making the lettered teams diminishes. He, unfortunately, did not perform the post-hoc comparisons to examine the differences of the participants' sport identity of receiving no letter, one letter, and two or more letters.

The SII is still being developed. These studies support the multidimensionality of athletic role identity, including factors such as involvement, commitment, and related motivation. Also, this line of research introduced different measurements of AI, such as rating and ranking procedures, through which athletic role identity can be compared and measured with other social identities. Cieslak (2005) recommended that the direction of research should focus on the psychometric development of SII, the ranking and rating scales in particular, and the relationships between the SII and the AIMS.

*Exercise identity.* Exploring the determinants of exercise adherence, Anderson and Cychosz (1994) developed the construct of exercise identity and the Exercise Identity Scale (EIS). Similar to the SII, Anderson and Cychosz proposed that the salience of exercise identity could be viewed as a motivator and predictor of participating in exercise. The EIS consists of nine items representing a single factor. The results of various studies showed that exercise identity was positively correlated with exercise participation (Anderson & Cychosz, 1994; Anderson, Cychosz, & Franke, 1998, 2001). The researchers used different behavioural indicators to assess the levels of exercise participation. Anderson and Cychosz (1994) found positive correlations among exercise identity and exercise participation measured by the numbers of weeks of

exercising ( $r = .68$ ), the frequency per week ( $r = .49$ ), minutes per session ( $r = .39$ ), and intensity ( $r = .29$ ). In addition to these measures, Anderson et al. (1998, 2001) generated another measure called *perceived exertion* that asked the participants to choose among six statements: (a) breathless, sweating, (b) breathing heavily, sweating, (c) energetic but able to talk, often sweat, (d) energetic but able to talk conversationally, rarely sweat, (e) rarely or never sweat, and (f) not much different from other parts of my daily routine. Anderson et al. (1998) also measured physiological indicators including muscle endurance, body fat, and  $VO_2$  max. Stepwise regression showed that minutes of exercise per week was positively associated with exercise identity ( $R^2 = .35$ ). The perceived exertion explained a further 9% of the exercise identity, whereas the rest of the variables including the weeks of exercise and all physiological indicators together explained less than 5% of the variance on exercise identity. In a similar study, Anderson et al. (2001), however, only showed the overall association between behavioural indicators and exercise identity instead of reporting the stepwise regression results. It was unclear which variables of the behavioural indicators were significant predictors of exercise identity. Anderson et al. (1994, 1998, 2001) concluded that the EIS could be employed to predict whether a person would stay in an exercise program. Similar to Curry and his colleagues (1987, 1989), Anderson et al. did not define *exercise identity* or *exerciser*. By using the word *exercise* rather than *sport* or *athletic*, the researchers intended to capture the role of identity from the perspective of health and exercise. Anderson et al. (2001), in the data analyses, classified those who indicated they had exercised vigorously enough to sweat at least three times a week for twenty minutes a session as *exercisers*. Nevertheless, the perceptions of physiological reactions such as sweating and breathing could vary among participants. This limitation may also appear in the measure of perceived exertion. The actual wording of most of the nine items in the EIS is close to

those in the AIMS. The EIS, however, lacks any psychometric validation, and only reliability measures were presented. Also, Brewer, Van Raalte, and Linder (1993) stated that the EIS does not address the exclusivity of the self-identity.

*Self-schemata of exercise behaviour.* Based on the self-schema theory (SST; Markus, 1977), Kendzierski (1988) examined the links between self-schemas and actions in the domain of exercise behaviour in a large sample ( $N = 220$ ). She established a 3-item scale to identify people of three different exercising schematic types: exerciser schematics, non-exerciser schematics, and aschematics. First, participants were asked to indicate how well each of the following three phrases: (a) someone who exercises regularly, (b) someone who keeps in shape, and (c) physically active describes them on an 11-point scale. Second, participants were asked to rate how important those descriptions were to their overall self-images on an 11-point scale. To be classified as exerciser schematics, participants must have rated at least two of the three statements as 8 to 11 points. Kendzierski found that those classified as exerciser schematics exercised the highest number of days per week, showed the highest levels of commitment and interest, each measured by a 10-point item directly asking the participants to rate their commitment or interest to exercise regular, and reported the highest number of plans to help them exercise regularly. Nevertheless, she did not provide the effect sizes of these findings and she did not psychometrically validate the 3-item scale. Although the main purpose of this 3-item scale was to categorise people among three exercising schematics, there is room for improvement in terms of psychometric investigation.

Kendzierski, Furr, and Schiavoni (1998), following on Kendzierski's (1988) work, developed a model of physical activity self-definition. In the first two studies of the series, Kendzierski et al. recruited participants who had weightlifting experience or played basketball. The researchers developed multi-item scales measuring the self-

definitions of weightlifters and basketball players specifically. The items of these scales were basically the same except they referred to the different sports. In the third study, Kendzierski et al. recruited participants who had been involved in exercise in general. Kendzierski et al. administered the similar self-definition scale with reference to *exercisers*. At the beginning of all three studies, the researchers also asked the participants a dichotomous question (yes/no) concerning whether they saw themselves as weightlifters in Study 1, basketball players in Study 2, or exercisers in Study 3. Kendzierski et al. reviewed various self-related studies (Bem, 1972; Markus & Wurf, 1987) and hypothesised that participants' self-definitions would be related to: (a) participants' perceptions about their behaviours, (b) motivation-related variables, and (c) social variables. In all three studies, Kendzierski et al. also administered a scale measuring the variables hypothesised to be correlated with the self-definitions. The researchers referred to these variables as *expected correlates* including: perceived effort, priority, perceived competence, perceived competence relative to others, perceived improvement, enjoyment, perceived social acknowledgment, and social activation. The researchers, furthermore, set up an open-ended item asking the participants to suggest criteria for defining themselves as weightlifters, basketball players, or exercisers. The results showed that all expected correlates significantly correlated with the scores of all three self-definition scales (i.e., weightlifter, basketball players, exercisers), except enjoyment, which was not correlated with weightlifter self-definition, and the effect sizes of these correlations were medium to large ( $r_s = .36 - .79$ ). The open-ended responses revealed that participants mentioned behavioural criteria more frequently than affective ones. Based on these results, Kendzierski et al. proposed a preliminary model in which criteria were construed as either perceived commitment-related or perceived ability-related. This series of study, however, had a few limitations. First, the model

appeared to focus on one's standing in the role or the appropriateness of that role, without exploring the components of the identity (Anderson, 2004). Second, the self-definition scales lacked psychometric validations. Kendzierski et al. found significant correlations between the dichotomous item and the multi-item weightlifters self-definition scale ( $r = .62$ ) as well as between the dichotomous item and the AIMS ( $r = .64$ ) as proof of convergent validity, but the researchers did not examine the relationship between the self-definition scale and the AIMS, and there was no divergent validity evidence.

### The Self: "Who am I?"

In research about the self, there is a long list of terms such as: self, self-concept, self-system, self-representation, and so forth. According to James (1890/1950), every human being has a sense of self, which is a construct describing the consciousness of oneself. It can be divided into the "I" self and the "Me" self. James described the concept of the "Me" self as the empirical or categorical self consisting of the material self, the social self, and the spiritual self. Burns (1984) and Harter (1999) further explained that the "Me" is not only dimensionalised into three constituents, but these constituents are also organised under a hierarchical structure. The material self, referring to the body, clothing, and material possessions, is at the bottom level. The social self, which consists of the characteristics recognised by others, is at the intermediate level. Everyone plays various roles in society, and individuals may have many social selves. People normally set up a priority order of those selves in terms of their perceived value or significance (Harter, 1999). The spiritual self, occupying the highest level, is the inner or subjective being. James elaborated that the spiritual self is the "entire stream of the personal consciousness" (1890/1950, pp. 296). It comprises thoughts, psychic

dispositions, and moral judgments, which contain the fundamental processes guiding our behaviour.

In contrast, the “I” self is the subjective knower containing the concepts of self-awareness, self-agency, self-continuity, and self-coherence. Burns (1984) conceptualised the “I” as the pure experience and the “Me” as the content of the experience. The “I” self is sometimes understood as constructing or forming the “Me” self, which further links up these two concepts (Harter, 1999; James, 1890/1950). The “I” self serves as the active agent constructing, interpreting, organising, and synthesising experience. James’ perspective on the self has had a strong influence on modern theoretical frameworks for most self-related research (see Hattie, 2000).

From infancy, a person develops the self-system through interacting with people. A symbolic interactionist, Cooley (1902), who suggested the theory of “looking glass self,” stated that significant others constitute a social mirror allowing people to subjectively interpret feedback from others, so that they can construct, modify, and regulate themselves. He proposed that individuals develop the self-system through internalising: (a) their imagination of their appearance to others, (b) the judgements of that appearance, and (c) the self-feelings, such as pride or mortification, according to such appraisals. Cooley (1902) and Mead (1934) drew attention to the characteristics and the development of the self in the context of social construction and emphasised the significance of others. Harter (1999) suggested that along the developmental life span, each individual is continually developing a hypothetico-deductive system based on which self-concepts are being constructed and evaluated. While growing up, people interact with different people, use different kinds of criteria for evaluating their self-concepts, and over time people will tend to understand and make more sense of themselves consciously.

Currently, many researchers usually view the self as a complex system (Lindwall, 2004). Instead of conceptualising the self in “I” and “Me” divisions (James, 1890/1950), or interpersonal and intrapersonal processes (Markus & Wurf, 1987), some theorists have suggested that those processes can be distinguished as either descriptive or evaluative elements (Lindwall, 2004; Waugh, 1999), and these two streams of processes play different roles in the self-system. It is not uncommon for researchers to refer to all the processes as self-concepts or even use various “self-” terms interchangeably. Nevertheless, they are investigating different kinds of processes along different paths.

Terminology, such as self-concept (Marsh & Shavelson, 1985; Shavelson et al., 1976), self-description (Marsh 1992a, 1992b, 1992c), and self-perception (Fox, 2002) have been employed in past research. Although some of these terms sound descriptive, they focus on the processes of self-evaluation that are related to a more commonly known concept: self-esteem. Self-esteem is one of the most popular psychological topics both in academic settings and in the general public (Tesser, 2001). In a recent review of the literature, Lindwall (2004) counted over 11,000 studies investigating self-esteem or related concepts published since 1990. Lindwall stated that the self-descriptive processes such as self-identity (e.g., athletic identity) are referring to the question “who am I?” whereas the self-evaluative processes, such as self-esteem and general self-worth, are answering the question “How am I?” or “How do I feel I am?” (see also Waugh, 1999).

#### *Evaluative Components of Self*

Educational psychologists Shavelson et al. (1976) defined self-concept as a person’s self-perceptions, based on experience and interpretations of one’s environment. They developed a theory that construed self-concept as a multidimensional and

hierarchical system (see Fox, 2002). The original Shavelson model, as it is often called, consisted of a higher order factor called *general self-concept* and four life domains or first-order factors, which are academic, social, emotional, and physical self-concepts. Marsh and Shavelson (1985) revised the model by sub-dividing the higher order academic factor into two (academic/math and academic/verbal). Among the four life domains, academic and physical self-concepts have received the most research attention; the latter has been examined in relation to sport participation (Fox, 2002; Marsh & Clark, 2005). The development of standardised measurements, which will be discussed in the following section, has facilitated the validating process of Shavelson's multi-dimensional model in various fields (Marsh, 1992a, 1992b, 1992c). Currently, it is generally accepted that self-concept is a multi-dimensional construct, but the hierarchical structure is still under debate (Bong & Skaalvik, 2005; Kowalski, Crocker, Kowalski, Chad, & Humbert, 2003; Marsh & Yeung, 1998).

Fox (2002) suggested that Shavelson's model was restricted in the sense that it mainly emphasised competencies, educationally-related areas in particular. Because of the performance-oriented culture in both education and sport, Shavelson's model, and its associated measurements, have been most researched in these two fields.

Based on the Shavelson model, Marsh (1992a, 1992b, 1992c) developed a series of Self-Description Questionnaires (SDQ). He intended to address the developmental changes in self-concept and designed the SDQ-I, II, and III for preadolescents, adolescents, and late-adolescents, respectively. Marsh, Richards, Johnson, Roche, and Tremayne (1994) developed the Physical Self-Description Questionnaire (PSDQ) to measure nine elements of the physical self: strength, body fat, activity, endurance fitness, sport competence, coordination, appearance, flexibility, and health. Further development suggested that physical self-perceptions can be assessed at different levels



of specificity organised within a hierarchical structure (see Fox, 2002). Marsh and colleagues extended the model and measurements to elite athletes with the introduction of the Elite Athlete Self-Description Questionnaire (EASDQ; Marsh, Hey, Johnson, & Perry, 1997) and the Elite Swimmer Self-Description Questionnaire (ESSDQ; Marsh & Clark, 2005). The EASDQ is a 28-item instrument designed to measure six factors of the evaluative components of self-concept among elite athletes: (a) skill, (b) body, (c) aerobic fitness, (d) anaerobic fitness, (e) mental competence, and (f) performance (Marsh et al., 1997). Jackson, Thomas, and Marsh (2001) showed that the evaluative components of self-concept were related to sport performance, sport involvement, mental well-being, and the experience of flow states (see also Fox, 2002). Fox outlined different possible relationships between physical self-concept and sport participation. Physical self-concept, mainly assessed as perceived physical competence, was positively associated with sport participation. Nevertheless, self-presentational motives, measured by variables such as social physique anxiety, were found to mediate, or even override, the expected relationship between physical self-concept and sport participation (e.g., Hall, Kerr, & Matthews, 1998). Fox also proposed some possible effects of self-deficiency motives, such as weight concerns and social affiliation, which may lead people with weak physical self-concepts to take part in sports. Combining the self, motives, participation, and performance within one single model is a task that has not yet been attempted (Fox, 2002; see also Lindwall, 2004).

### *Descriptive Components of Self*

In a review of the self-descriptive elements of self, Oyserman (2001) used the words *self-concept* and *identity* interchangeably. Neisser (1993) defined the self (i.e., descriptive components of self) as everything that comes to mind when people think of themselves, including both personal and social identities. I highlight the

development of self-concept and identity from social psychology frameworks in this section.

Historically, social psychological approaches to descriptive elements of self fall into two broad classes, with one being more sociologically oriented (sociological social psychology) and the other being more psychologically oriented (psychological social psychology). Currently, researchers in both traditions are still developing their models in this area of research separately, but more cross-over and integration of these approaches has occurred in recent years (Simon, 2004).

Sociologists and anthropologists have been studying the descriptive elements of self through exploring social structure and its effects of the development of social persons and social behaviour (Simon, 2004). They generally refer to this element as *self* (Cooley, 1902; Mead, 1934) or *identity* (Stryker & Burke, 2000). Based on the tradition of symbolic interactionism (Mead, 1934) and role theory (for a review see Simon, 2004), Stryker (1980) developed an identity theory that is a balanced framework for understanding the self-society reciprocity (see also Stryker & Burke, 2000). The central concepts of this identity theory include: (a) identity, defined as a set of internalised role expectations, (b) social roles, referring to social positions attached to those role expectations, (c) identity salience, defined as the probability that an identity will be invoked across a variety of situations, and (d) commitment, related to the social relationships associated with a particular identity and subdivided into interactional and affective components (Simon, 2004). The former refers to the number of relationships affected if a particular identity is given up, and the latter refers to the emotional cost involved in losing those relationships and identities (Cassidy & Trew, 2004). Stryker and Burke stated that commitment influences identity salience and further interacts with behaviour. Stryker and Burke also proposed other external influences, emphasising the

link between social structure and identity as well as internal mechanisms such as the process of self-verification, which links up one's identity with one's behaviour. They stated that people organise or choose their behaviours to change situations and bring the meanings of their behaviours into agreement with identity standards, which is a set of culturally prescribed meanings defining their identities in various situations. Simon stated that the theory offers the field five important insights: (a) identities are relational, (b) identities are socially constructed and have socially shared meanings, (c) identities reflect the structured social context, (d) people have multiple identities, and (e) identities have social consequences.

Within the psychological social psychology contributions in the area of self and identity, there are two fairly distinct traditions, one from North America and the other one from Europe. Psychologists from the former (e.g., Markus, 1977), prefer the term *self* and tend to conceptualise the descriptive elements of self in a more individualistic fashion, but their European counterparts, such as Turner, Hogg, Oakes, Reicher, and Wetherell (1987), typically prefer the term *identity* and stress the role of group membership (Simon, 2004).

In the North American tradition, under the big umbrella of self-concept, there are many specific beliefs or processes (called self-schemas or self-representations) by which people define themselves (Markus & Wurf, 1987; Myers, 2002). Self-schemas are derived from self-assessment, social interaction, comparison, and feedback from others, and one's cognitive ability to process information.

According to the self-schema theory (SST; Markus, 1977), self-schemas are stable or trait-like self-representations facilitating information-processing, so that individuals can quickly accept congruent information and reject incongruent information. Markus and Wurf (1987) suggested that some self-schemas are more

important and elaborated than others. The centrality or salience of self-schemas is one of the research foci in psychological social psychology (Oyserman, 2001). For example, if sport is a central part of a person's life, being an athlete would be regarded as one of the person's salient self-schemas. Markus and Wurf also introduced the concept of "working self-concept", which they defined as a continually active and shifting array of accessible self-knowledge. Onorato and Turner (2004) considered the working self-concept as a temporary structure containing one's currently active self-knowledge. In other words, the self-systems consist of core self-schemas, relatively trait-like and usually not modified in varying social circumstances, but there are also working self-concepts that are closely attached to the current circumstances (Markus & Wurf, 1987).

In contrast to the notion of the self-concept as a trait-like cognitive structure, psychologists from the European tradition have argued that individuals' group memberships and constant social comparisons are important for individuals' identities or self-concepts. The social identity theory (SIT; Tajfel, 1978) and self-categorisation theory (SCT; Turner et al., 1987) came from this European tradition. According to self-categorisation theory, Onorato and Turner (2004) stated that personal identity (or the personal self) refers to all attributes coming from the interpersonal comparisons between a person and his or her ingroup members, whereas social identity (or the collective self) refers to all the attributes coming from the inter-group comparisons between a person's ingroup and other outgroups. "Personal identity is made possible because of self-other differentiation in terms of some shared higher order identity that provides a context for social comparison" (Onorato & Turner, 2002, p. 151). To distinguish the personal identity from the personal self of the self-schema theory, Onorato and Turner explained that formation of all identities, including the *personal* one, is a matter of relative similarities and differences, and always involves various levels of social comparisons.

These theories suggest that self-concept should be viewed as a “contextual-dependent cognitive representation” (Onorato & Turner, 2004, p. 260).

Onorato and Turner (2002) stated that self-categories or identities are constructed through creative interactions between the perceivers’ motives, expectations, background, and particular social relationships. They further explained that identities exist within a hierarchical system of classification. Personal and social identities are viewed as two components within the whole hierarchy. In other words, self-categorisation theory does not propose the dichotomous division between personal and social identities in the manner that self-schema theory does. Various identities can also be distinguished and conceptualised as being at different levels of abstraction such that the more inclusive the identities, the higher the level of abstraction. The salience of a particular level varies according to the interaction between the perceiver’s readiness to use that particular level, reflecting personal motives and goals, and the fit between the stimulus input and categorisation specifications (Turner, Reynolds, Haslam, & Veenstra, *in press*). There are two kinds of fit: normative and comparative. The former refers to the extent to which the input stimulus makes sense to the perceiver in terms of the perceiver’s knowledge of world. The latter refers to the extent to which the stimulus has a high meta-contrast (Onorato & Turner, 2002; see also Turner et al. *in press*). Meta-contrast refers to a collection of stimuli that is categorised as an entity to the degree that the average differences perceived between those stimuli are less than the average differences perceived between them and the remaining stimuli from contrasting groups (Turner, Oakes, Haslam, & McGraty, 1994).

Onorato and Turner (2004) proposed that personal identity and social identity are equally important to one’s own self-concepts and recently conducted a series of studies to examine the fluidity of the self-concept. By manipulating the experimental

context to prompt intragroup or intergroup comparisons, they showed that the salience of social identity can inhibit that of personal identity and vice versa. Onorato and Turner argued that these results revealed the shifting of self-concepts among different forms and different levels of abstraction. Oyserman (2001) commented that the SIT, SCT, and their associated studies stimulated researchers to realise that the findings obtained from previous studies with white-middle class European-American participants may be highly culture-bound. These insights, applied to cross-cultural and cross-racial studies, can be new directions in self-concept research (Oyserman, 2001).

In the early 90s, Markus and Kitayama (1991) extended the SST to address the possible distinctions among multiple selves. Although the construct of self-schema and the framework of a memory structure containing various self-schemata have not been changed, they introduced the concepts of independent and interdependent selves. This theory was mainly aligned to cross-cultural studies of the self, and will be discussed in a later section (Markus & Kitayama, 1991, see also Prentice, 2001). Such a modification showed that theorists from both traditions of psychological and sociological social psychology at least agree with the conceptualisation of multiple selves. Sedikides and Brewer (2001) reviewed the development of the above theories of self and suggested a tripartite model of the self comprising the individual self, achieved by differentiating oneself from other people; the relational self, achieved by assimilating and sharing oneself with significant others; and the collective self, based on impersonal bonds to others identified with the same group. In this model, the individual self can be viewed as the personal identity of the SCT (Turner et al., 1987). The relational and collective selves can be understood as subdivisions of social identity within the SCT (Turner et al., 1987). Currently, the academic debate around the two theories focuses on finding out which one within the tripartite model is more primary in the system or how these selves

interact with each other in three areas: (a) how the selves are represented or organised in memory, (b) the nature of self-motives, and (c) the experience of the selves (Prentice, 2001).

In the sport-related areas, various perspectives of studying the self have gained support from research. Previous sections have shown how Kendzierski (1988) and others (Anderson, 2004; Kendzierski et al., 1998) employed the SST to examine the relationship between self-concepts (descriptive elements) and exercise behaviours. According to the SST, Anderson (2004) defined AI as a “relatively stable but potentially changeable identity describing an attribute that all people possess to varying degrees” (p. 40). Whether the researchers referred to the constructs as physical activity self-definition (Kendzierski et al., 1998) or athletic identity (Anderson, 2004), they all agreed that individuals organise their identities in hierarchical structures such that individuals will invest more effort and time on those more important identities.

In the early period of AIMS development, Brewer, Van Raalte, and Linder (1993) defined AI as a cognitive structure organising self-related knowledge (narrow sense) and a social role influenced by individuals’ surrounding circumstances (broad sense). The former definition was based on the SST, whereas the latter was more related to the SCT. In other words, researchers did not try to align with either side of the identity theories. Throughout later development of the AIMS, researchers have been building a strong empirical stand (Brewer, Van Raalte, & Linder, 1993; Hale et al., 1999), but a solid theoretical grounding in one comprehensive framework has not been achieved.

As previously discussed, Grove and his colleagues (2004) conducted a longitudinal study exploring the relationships between AI and team selection processes. They adopted the SCT to extend the understandings of self-presentational processes and to interpret the changes in AI following team selection. They emphasised the dynamic,

fluid, and context-dependent quality of self-definition. They further explained strategic self-categorisation as a way of responding to “reality negotiation.” In their research design, Grove et al. administered the AIMS on three occasions: (a) 1 week prior the team selection, (b) right after the announcement of team selection, and (c) 2 weeks after the team selection. Participants completed the AIMS together during the first two administrations. At the final occasion, those who achieved team membership completed the AIMS together after the training session, whereas those who did not make the team completed the AIMS separately on their own.

In contrast, Onorato and Turner (2004) manipulated the level of salience of gender identity (i.e., independent variable) to discover how the changes in salience of this higher-order identity would affect the participants’ definitions. Gender identity was compared with, or contrasted with, other personal or lower-order identities. Onorato and Turner suggested that the failure to specify the comparative context during the data collection was one of the limitations of their study. All the participants were female and present at the same time during the data collection process. Onorato and Turner suggested that such a procedure might invoke an implicit intragroup comparison.

In comparing these two studies (Grove et al., 2004; Onorato & Turner, 2004), Grove and his colleagues did not mention the possibility of any inter- or intra-group comparisons. At Grove et al.’s second stage of data collection, the researchers asked the participants to fill in the AIMS during training sessions. Such a fact might evoke an implicit intra-group comparison suggested by Onorato and Turner. Once the results of team selection were announced, the selected participants might regard the in-group as the all-star team, but their de-selected counterparts might regard the in-group as their original pre-selection teams. The difference in the reference for comparison might account for the differences in AI. In the last period of data collection, those participants



who were selected for the all-star team once again filled in the AIMS during training sessions, but those who were de-selected filled in the AIMS privately. The researchers could not tell with whom those participants were comparing themselves. Based on the rationale in the SCT, it was difficult to interpret and compare the findings.

Brewer and his colleagues (1999) conducted a study to investigate the changes in AI during a season. They found that those who had poor seasons tended to report decreased levels of AI. They concluded that external factors can influence the internal self in a sport context, a finding in contrast to Grove et al. (2004). Brewer et al. interpreted their findings as an illustration of the malleability of the self-structures captured in the SST (Markus & Wurf, 1989). As Simon (2004) explained, different people may describe themselves by saying “I am an athlete,” but what that self-description means may vary substantially. They may choose to use the role, or identity of athlete, as an attribute that distinguishes themselves from other non-athletes or as a collective status, sharing common characteristics with other athletes. Because the design of the previous studies investigating the AI measured only the changes in AI, instead of comparing the levels of AI with other contrasting identities, the findings from these studies should be used cautiously in reference to explaining changes in AI.

#### Cross-Cultural Studies of the Self

In this section, I review the cross-cultural studies concerning self in both mainstream and sport contexts. There is little agreement about what culture is. Miller-Loessi and Parker (2003) stated that culture is often defined very broadly, usually by sociologists and anthropologists. Adams and Markus (2004) suggested that psychologists usually do not examine culture per se directly and questioned the necessity of developing a definition for culture. Psychologists, instead, tend to investigate the variation of psychological processes across cultures. But a clear working

definition is useful to interpret the research findings and understand the possible interactions between culture and various psychological processes (Adam & Markus, 2004). Bond (2004) defined culture in largely behavioural terms as follows:

A shared system of beliefs (what is true), values (what is important), expectations, especially about scripted behaviour sequences, and behaviour meanings (what is implied by engaging in a given action) developed by a group over time to provide the requirements of communal life (food and water, protection against the elements, security, belonging, social appreciation, and the exercise of one's skills) in a particular geographical niche. This shared system enhances communication of meaning and coordination of actions among a culture's members by reducing uncertainty and anxiety through making its members' behaviour predictable, understandable, acceptable, and valuable (p. 62).

This definition encompasses the historically created “sharedness” among the culture's members. It addresses the fundamental functions of culture as maintaining the psychological and behavioural integrity of the culture's members (Bond, 2004).

Cross-cultural psychologists have been exploring the differences in psychological processes among people from different cultures for decades. Smith and Bond (1998) stated that in cross-cultural psychology, researchers typically use questionnaires and structured observations to test if theories developed in one culture apply in other cultures. They rely on quantitative comparisons of psychological variables to explore the differences and similarities of people from various cultures. Recently, Bond (2002) suggested that the directions of cross-cultural study should include: (a) identifying individual-level constructs, and strengths and connections with other constructs; (b) linking the strength of these individual constructs to socialisation

practices and institutional processes that vary across cultural groups; (c) examining the importance of extra-individual factors, such as norms, roles, and aspects of language in generating social cognitions and behaviour; and (d) searching out novel constructs, processes, and theories to explain social behaviour in non-Western cultural traditions. Miller (2002) suggested that cross-cultural psychology has entered a new era in recent years. Cultural features are no longer regarded as superficial or contextual influences that can be partialled out, but something that are omnipresent in psychological functioning.

In contrast to cross-cultural psychologists, cultural psychologists focus on the ethnocentric and culturally-bounded characteristics of psychological theories. They have argued that researchers should view each culture from its own frame of reference (Kim, 2000). Cultural psychologists, also referred to as indigenous psychologists, tend to employ qualitative approaches and conduct in-depth ethnographic-like studies within one specific culture (Smith & Bond, 1998; see also Hwang, 2005; Kim, 2000). In this thesis, I recruited only Hong Kong participants, but I employed both cross-cultural and cultural psychology approaches.

Hofstede (1980), an organisational sociologist, was among one of the first social scientists to conduct, on a massive scale, a cross-cultural study and identify major elements in various cultures. He recruited 117,000 participants, who were employees with 40 different national backgrounds from a large American-owned multinational firm. He originally intended to investigate only employees' working experiences. Such a massive data bank allowed him to make secondary comparisons among participants from different countries. Hofstede's study included 32 items relating to work goals or values. He computed a mean score for each of those 32 items for each nation-sample. He then produced a correlation matrix and performed factor analysis for those 32 mean

scores. He identified four factors to distinguish different nation-samples: (a) power distance, (b) uncertainty avoidance, (c) individualism-collectivism, and (d) masculinity-femininity. Hofstede's study has been criticised on a number of levels. For example, Smith and Bond (1998) stated that the sample was predominantly male and from one particular US based company, which may have had its own culture. Nevertheless, these dimensions, the individualism-collectivism (IND-COL) in particular, have been highly influential in the field of cross-cultural psychology (Miller-Loessi & Parker, 2003; Oyserman et al., 2002).

The general definitions of IND include peripheralising social relationships as well as centralising personal goals, uniqueness, and control (Markus & Kitayama, 1991; Oyserman et al., 2002). The core element of IND is the assumption that individuals are independent of one another. In cultures with strong COL, social units with common fates and goals are centralised; individuals view the personal entity as a component of the social entity, and the in-group membership is the core unit of analysis (Triandis, 1995). Triandis (2005) illustrated the contrast between IND and COL. By way of example, he suggested that the culture of Hollywood in America is extremely strong in IND and that the Taliban in Afghanistan is a prototype of a culture with strong COL.

Extending Hofstede's model, which focused primarily on societal levels, Markus and Kitayama (1991) proposed constructs describing the self at the individual level: independent and interdependent self-construals. Markus and Kitayama stated that people having a strong independent self-construal would be more likely to organise their behaviour by reference to their own internal repertoire of thoughts, feelings, and actions, rather than the thoughts, feelings, and actions of others. The essential aspects of this view involve a concept of the self as an autonomous, independent person. Although people having independent self-construals may be responsive or even active in social

environments, they are striving for the best way to express or assert the internal attributes of the self via social circumstances. In contrast, people having interdependent self-construals embrace world views that reflect a fundamental connectedness with people, in-group members particularly. They are motivated to find ways to fit in with relevant others, to fulfil obligations, and to become part of various interpersonal relationships (Markus & Kitayama, 1991). They certainly possess sets of individual attributes and abilities; those representations, however, are generally less important in regulating observable behaviour and less likely to be defining of the selves. Oysermann et al. (2002) stated that there is an assumption across the general public and academic world that people from societies, such as European Americans, have strong independent self-construals, whereas those from societies such as Chinese and Japanese have strong interdependent self-construals. Markus and Kitayama stated that self-construal is an intermediate construct that is influenced by culture and has a systemic effect on various aspects of cognition (e.g., attention), emotion (e.g., expression and experience of particular emotions), and motivation (e.g., affiliation). Researchers have used this dichotomy frequently to explain the differences observed between cultural groups (see also Oyserman et al., 2002).

Researchers have been developing instruments such as the Self-Construal Scales (SCS; Singelis, 1994) to assess and measure self-construals (see also Hardin, Leong, & Bhagwat, 2004). Sato and Cameron (1999) found that independent and interdependent self-construals were not correlated with each other in a variety of samples. Instead of viewing the self-construals as two ends along one continuum, independent and interdependent self-construals appear to be orthogonal dimensions. People from different societies may have features of both IND and COL in their self-concepts, but

the features of one self-construal may be more salient or dominant than those of the other.

The Twenty Statement Test (TST; Kuhn & McPartland, 1954) is a qualitative measure of the self that allows the researchers to explore how individuals interact with their surrounding environments and organise their self-related information. The TST requests that participants complete twenty sentences in response to the question “Who am I?” Researchers have frequently used the TST to examine cultural difference of self-concepts and self-construals (Grace & Cramer, 2003). Researchers normally code the twenty statements into categories along the independent and interdependent dimensions. Grace and Cramer recently suggested that the results of the TST may not be significantly related to the quantitative instruments of self-construals such as the SCS (Singelis, 1994; see also Bresnahan et al., 2005). Referring to cross-cultural study, Kimmelmeier and Cheng (2004) and Ross, Xun, and Wilson (2002) stated that due to the different grammatical structure between Chinese and English, the range of responses to complete the sentence is relatively limited for the Chinese sample. The language issues may be partially responsible for inconsistencies in the results. Oyserman et al. (2002) suggested that the measurements for self-construals need substantial improvement.

Oyserman and her associates (2002) conducted a meta-analysis to re-examine most of the studies published before 2000 that investigated either the constructs of IND-COL or self-construals. In the meta-analysis, Oyserman and her colleagues examined the effect sizes of the main effects and the influences of three possible psychometric and design moderators including scale reliabilities (i.e., internal consistencies), scale contents, and the sample compositions of the studies in IND and COL. They classified the scales with Cronbach’s  $\alpha \geq .70$  as high in reliability. For analysing scale contents,

they coded for the presence or absence of seven components of IND and eight components of COL within those scales, and contrasted the effect sizes of those studies employing different scales. Referring to sample composition, Oyserman et al. compared the effect sizes between those studies sampling students and non-students. The results indicated that despite the possible limitations of some measurements, people from societies including North America (mainly referring to European American), Australia, and Western Europe (e.g. French, Spanish), had stronger independent self-construals or IND than people from societies like Hong Kong, Peoples' Republic of China, and Japan, who, instead, had higher levels of interdependent self-construals or COL. Because the emphasis of the current study is AI in a Hong Kong Chinese sample, only those results from Oyserman et al. relating to Hong Kong Chinese and self-identity will be discussed further.

Regarding the comparison between Hong Kong Chinese and Americans (i.e. people from U.S.), the analysis of main effects showed that the latter were significantly stronger in IND ( $d = .66$ ). There was no meaningful difference between the effect sizes from the studies employing scales with low reliability ( $d = .65$ ) and those employing scales with high reliability ( $d = .69$ ). Referring to the analysis of scale content, results showed no significant difference in the effect sizes whether the researchers employed assessments focusing on personal independence, idiosyncratic qualities, personal and private thoughts, or direct communication ( $ds = .63 - .76$ ).

The results also suggested that Americans had significantly lower levels of COL than Hong Kong Chinese, although the mean weighted difference in effect size was smaller than that of IND ( $d = -.18$ ; Oyserman et al., 2002). The moderator analysis revealed that Americans were significantly lower in COL than Hong Kong Chinese, and the differences in effect sizes were significantly larger when reliable scales were used

( $d = -.49$  versus  $d = -.13$ ). The effect sizes were also significantly larger when the assessments consisted of the items relating to harmony, contextual self-changes, group belongingness, and status issues. Markus and Kitayama (1991) suggested that people with high levels of COL did not necessarily merge themselves with others, nor did they always need to be in the company of others to function effectively. These individuals also tended to take a higher degree of self-control and agency for adjusting themselves to various interpersonal contingencies.

In regard to describing themselves, Americans tended to use more personal trait descriptors than those participants with low IND (Markus & Kitayama, 1991). Hong Kong Chinese valued their ethnic background as more self-defining and used a greater number of social descriptors. Self and other descriptors from people high in COL were more concrete, relational, situationally specific, and behaviour-oriented than those with low COL. Markus and Kitayama suggested that such descriptors were not due to a lack of skill in abstracting concrete instances to form general propositions, but rather, from their points of view, global inferences about persons were generally regarded as not meaningful or sufficiently informative. Oyserman et al. (2002), however, found inconsistent findings from the qualitative review of the literature. Among those eight studies reviewed, the researchers asked the participants to describe themselves through the TST (Kuhn & McPartland, 1954; Ip & Bond, 1995; Triandis, McCusker, & Hui, 1990) and some other unspecific open-ended self-descriptive tasks. Oyserman et al. did not further supply any theoretical interpretation of these inconsistent findings, but the language issues, discussed above, may be one of the reasons. Moreover, Oyserman et al. (2002) have ignored the possible cultural difference within country in those international comparisons. For example, people with Mexican background could be



quite different from people with European background in the level for self-construals, even if they all reside in US. It is one of the limitations of this meta-analysis.

### Cross-Cultural Understandings in Sports

Not exploring cultural diversity in sport psychology studies has been an issue for decades (Duda & Allison, 1990; Hopkins & Wober, 1973; Ram, Starek, & Johnson, 2004). In early 70s, Hopkins and Wober raised the issue that the development of cross-cultural understanding in sport psychology was lagging behind other sport sciences such as sport sociology and sport anthropology. Duda and Allison (1990) conducted an analysis examining the frequency and quality of cross-cultural works in sport and exercise psychology. They analysed the content of 199 manuscripts published in the *Journal of Sport Psychology* (JSP, the former name of *Journal of Sport & Exercise Psychology*; JSEP) between 1979 and 1987. They found that only 1 out of 13 theoretical papers and 7 out of 186 empirical papers explored the influence of race or ethnicity. Among those 7 studies, only 1 of them included race/ethnicity as an independent variable. The rest simply reported the race/ethnicity composition of the samples. After more than a decade, Ram et al. replicated and extended Duda and Allison's study. They analysed 982 manuscripts published in the JSEP, *The Sport Psychologist* (TSP), and the *Journal of Applied Sport Psychology* (JASP) between 1987 and 2000. They found that, regardless of the types of manuscript, 195 out of 982 studies included references to race or ethnicity (or nationality), but only 15 out of those 195 studies included discussions of race/ethnicity as substantive empirical or theoretical constructs. Among those 645 empirical studies, 122 of them included references to race or ethnicity, but only 28 of them addressed race or ethnicity at a conceptual level or included it as a variable for analysis. Ram et al. concluded that there has been an increase in reporting multi-cultural or multi-ethnic composition in samples, but systematic analysis of race and ethnicity as

a meaningful variable is still lacking. The researchers made a strong call for more conceptual and empirical exploration concerning diversity within sport psychology research (Duda & Allison, 1990; Ram et al., 2004). The analysis of these two studies included only the manuscripts from the JSEP, TSP, and JASP, which are the major sport and exercise psychology journals from North American publishers. They represent a wide range of sport and exercise psychology studies and hold prominent positions in the field internationally, but there are at least three other non-North American journals focusing on publishing sport and exercise psychology studies: the *International Journal of Sport Psychology* (IJSP) and *Psychology of Sport and Exercise* (PSE), and the recent *Sport and Exercise Psychology Review* (SEPR). Further extension of the content analysis study including these three non-North American journals is recommended.

Up to now, researchers have investigated various sport and exercise psychology topics through cross-cultural studies including: (a) sport participation issues such as leisure activity patterns (e.g., Verma & Larson, 2003) and motives for participating among youth (e.g., Wang & Wiese-Bjornstal, 1997), recreational athletes (e.g., Alexandris & Carroll, 1997), and elite athletes with disabilities (Fung, 1992); (b) motivation and its related issues such as goal orientations (e.g., Elbe & Wenhold, 2005; Lee, 2000) and sport attribution (e.g., Isogai, Etnier, Brewer, Cornelius, & Tokunaga, 2001); (c) anxiety coping processes of athletes (e.g., Puente-Diaz & Anshel, 2005) and referees (e.g., Anshel & Weinberg, 1996) and general anxiety issues (e.g., Hanin, 1986); (d) team sports issues such as communication (Sullivan, 2005) and leadership (Chelladurai, Malloy, Imamura, & Yamaguchi, 1987); (e) coaching methodology (e.g., Golby & Hope, 1991); (f) self-concept (Hagger, Asci, & Lindwall, 2004) and athletic identity (Hale et al., 1999); (g) a range of other personal characteristics such as mental toughness (e.g., Golby, Sheard, & Lavalley, 2003) and aggressiveness

(e.g., Ferraro, 1999); and (h) psychometric validation of measurements (e.g., Hale et al., 1999). In reference to the emphasis of current study, only the cross cultural studies concerning AI and related measurements are reviewed in this section.

Regarding the extent of diversity within samples, Duda and Allison (1990), and Ram et al. (2004) highlighted the importance of including multi-racial or ethnic samples, which is more restrictive than including multi-cultural or multi-national samples, particularly for the multi-racial nations such as the US. Oyserman et al. (2002) addressed the issue by reviewing both the studies of cross-national samples and cross-racial samples (within the US) in two separate sections. Among the cross-cultural studies listed above, some researchers compared North American with Asian (e.g., Li, Harmer, Chi, & Vongjaturapat, 1996) or Western European with African participants (e.g., Biddle et al., 1996), but the samples of some studies only included people from various English-speaking cultures such as Canada, England, Scotland, and Wales (e.g., Anshel & Weinberg, 1996). The diversity in many of these studies is limited.

Cross-cultural studies specifically exploring self-concept or AI, and based on the theory of self-construals, are rare. Walker, Deng, and Dieser (2001) conducted a cross-cultural study to examine self-construals and motivations for outdoor recreation ( $N = 754$ ). More specifically, the researchers investigated how ethnicity and acculturation influence individuals' motivations for outdoor recreation. The participants were Chinese-Canadians and Euro-American-Canadians visiting a national park in Canada. Results showed that Euro-American participants were significantly stronger in independent self-construal than the Chinese-Canadians, whereas the Chinese-Canadians were significantly stronger in interdependent self-construal. ANOVAs showed a significant difference between ethnicity in terms of various outdoor recreation motivations. Chinese valued more the motives of seeking group memberships ( $d = .80$ )

and modesty ( $d = .94$ ), and less the motives of seeking tranquillity ( $d = -.56$ ) and independence ( $d = -.45$ ) than Euro-American. Although these results cannot be generalised as overall cultural differences between Chinese and Euro-American, they were consistent with the theory of self-construals (Markus & Kitayama, 1991).

Isogai and his colleagues (2001, 2003) conducted two studies to examine the cross-cultural differences in attributional styles and goal orientations between Japanese and American athletes. Although the researchers did not assess the level of self-construals in both studies, they applied the theory of self-construals throughout their discussions and assumed that Japanese participants had stronger interdependent and weaker independent self-construals than American participants. Based on the MANCOVA of the findings from the Sport Attributional Style Scale (SASS; Hanrahan, Grove, & Hattie, 1989), the researchers found a significant difference between Japanese and American student-athletes (Wilks'  $\lambda = .61$ ). The results showed that American student-athletes tended to make interpretations of their performances that were favourable to themselves (i.e., self-serving bias), whereas Japanese student-athletes had the opposite tendency (i.e., self-effacing bias). These results were consistent with other cross-cultural studies and Markus and Kitayama's (1991) suggestions about the theory of self-construal (see also Smith & Bond, 1998).

Fu (2000), employing the TST, quantified the qualitative data and compared the self-concepts of Chinese elite athletes participating in team sports with those participating in individual sports. Based on the approach of cultural psychology, he conducted the study by looking into one culture, without comparing to other cultures. He found that team sports athletes tended to have higher levels of COL in both descriptive and evaluative components than participants in individual sports. Unfortunately, the researchers did not report the effect sizes of the findings.

Hagger et al., (2004) conducted a cross-cultural examination of physical self-perception in samples from Great Britain, Sweden, and Turkey. The researchers' objectives were to: (a) examine the invariance of the PSPP (Fox & Corbin, 1989) based on its multidimensional and hierarchical models in multiple samples, and (b) investigate the cultural differences in the latent means of the PSPP items. Confirmatory factor analysis (CFA) was performed to test the first-order and second-order models of PSPP (Fox & Corbin, 1989) across these three cultures. The results showed that the factor patterns of both models satisfactorily described the data from all three samples, but the mean scores for PSPP factors were significantly different among the three samples. The researchers suggested that the "PSPP factor structure may be equivalent across cultural groups, but there may be some discrepancy in the meanings of some individual terms and some differences in the mean ratings of some subdomains" (p. 22). Based on the theory of self-construals (Markus & Kitayama, 1991), the researchers attributed the higher level of physical self-perception found in the British sample to the strong IND level in this culture (*ds* ranged from .52 to .66). Also, the researchers stated that the items in the PSPP are mainly measuring IND and have a bias towards individual attributes, so such a measure may overlook the self-evaluation processes derived from collective identity (see also Bond & Smith, 1996).

Up to now, only a few studies have examined the relationships among AI, cultures, and self-construals. As mentioned before, Hale and his colleagues (1999) conducted a cross-cultural validation for the AIMS in samples from the US, the UK, and Russia. The researchers' methodological approach was similar to the study investigating the PSPP (Hagger et al., 2004), but Hale et al. attributed the findings of cultural differences to the translation processes and the socio-demographic differences among the cultures. In the study concerning retirement, Alfermann et al. (2004) also found

cultural differences indicating that the participants from Lithuania and Russia had higher levels of AI than those from Germany. They attributed the results to the sociological features in those countries from the former Soviet Union such as the privileges of elite athletes and social mobility enhanced by sport achievements.

Matheson, Brewer, Van Raalte, and Andersen (1994) compared the level of AI between British and Malaysian athletes. Their study is the only one linking the theory of self-construals with AI. They hypothesised that Malaysians, supposed to have strong interdependent self-construals, would have weaker AI than British athletes who were assumed to have stronger independent self-construals. The results did not show any significant difference in the level of AI between these groups, but, the researchers did not report the effect size. The researchers suggested that such results could be due to the age differences between the groups. The British participants, who were older than their Malaysian counterparts, may have developed a stronger interdependent self-construal than younger athletes. Nevertheless, Dollinger and Dollinger (2003) have challenged that idea and suggested that the self would become more independent, individualistic, and complex with age (see also Takata, 2001). Matheson et al. also stated that because of the colonial influence from British culture, Malaysian athletes may develop high levels of independent self-construals. The small sample size ( $N = 31$ ) and the resulting low power may have influenced the results. Although this study did not draw much attention in the field, it did introduce some cultural issues to the investigation of AI. Matheson and her associates did not give any explanation supporting their assumption that the salience of self-construals may influence the level of AI. When the researchers in previous studies tried to explore differences in AI, or how AI may relate to other constructs differently among cultures, researchers have tended to assume that AI is a universal construct that can be captured by those seven to ten items in the AIMS.

From a cultural perspective of exploring AI, there are two questions. Based on the previous studies reviewed above, it appears that the construct of AI reflects the athletic domain of self identity in societies such as European America and UK, but does some form of AI also exist in other societies, such as those with high levels of COL? If the answer is yes, then are the characteristics of AI the same in other societies as they are in societies like US and UK? The AIMS is currently the most widely used instrument for measuring AI. Although the dimensionality of those seven to ten items are still under investigation, it provides a means for researchers to begin explore the above cultural questions.

### Sports in Hong Kong

Hong Kong is a densely populated city with a population around 7 million. From 1841 until June 30, 1997, it was a British colony. Before that time, Hong Kong was a small village in the Guangdong province of China, and it is now a Special Administrative Region (SAR) within China. It is a well-developed city with both Chinese and British cultural influences and is one of the most important financial centres in the world. Over 95% of population is ethnic Chinese (Census & Statistics Department, 2001). Generally speaking, many Hong Kong people have family backgrounds that can be traced back to mainland China. From a psychological perspective, studies have shown that in terms of COL and IND measures, Hong Kong Chinese people are similar to Chinese people in the People's Republic of China and Taiwan (Oyserman et al., 2002). The parents in this commercially-oriented society strongly focus on their children's academic achievements and commonly regard sports participation of youth as serving a recreational purpose that is placed at a low priority compared with other activities (Ho, 1998). A multi-year study showed that the overall adult participation rate in sport ranged between 44% and 54 % from 1996 to 2001, with

a declining trend after 1999 (HKSI, 2002). Researchers explained that continued economic difficulties have influenced people's sports spending and participation during the early years of the current decade. For instance, researchers have suggested that the declining rate of sport participation among professionals and elderly reflect the longer working hours and the delays in retirement due to economic instability (HKSI, 2002). Nevertheless, one of the main limitations of these findings lies in the calculation of participation rates, which is defined as participation in sport activity, at least once, during the year of surveying (hardly regular participation). The regularity of the participation is a better indicator than the simple participation rate used in this study. Researchers should take the frequency of participation into account in future studies.

There have been some new developments in the Hong Kong elite sport setting in recent years. Nowadays, the main parties providing support are: the Sport Federation and Olympic Committee of Hong Kong, China (SF&OC), Hong Kong Sports Institute Limited (HKSI), Leisure and Cultural Service Department (LSCD) of Hong Kong SAR Government, and various national sports associations (NSAs). The HKSI is the basic training centre for elite sport development in Hong Kong (Hong Kong Government, 2006). It works closely with various NSAs to support the elite athletes through the Elite Training Programme, which provides services including the high-performance training programme, coach training and education, provisions of performance-related information (e.g., sport psychology aspects), and applied research projects. Currently, this programme covers 13 "elite sports," which have reached a certain standard, namely: badminton, cycling, fencing, Chinese martial arts (wushu), rowing, squash, swimming, table tennis, tennis, tenpin-bowling, track and field, triathlon, and wind-surfing. HKSI also provides support, in a lesser extent, to athletes with mental or physical disabilities and to those in "development sports" (i.e., non-elite sports). Under various funding



programmes and scholarship schemes, educational support has also been delivered to young elite athletes. For example, Hong Kong Athletes Fund (HKAF) has been supporting retired and current elite athletes to develop alternative careers upon retirement through tertiary education. (Home Affairs Bureau, 2004). Specifically, the sport psychology services are therapeutic and educational, with individual and team-based interventions to maximise athletes' psychological preparation for performance and to facilitate long-term personal development (Leahy, 2006).

A recent study has shown that the Hong Kong public interest in, and recognition of, their local elite athletes has been increasing over the last several years (HKSI, 2003). A telephone survey was conducted two months after the Busan Asian Games in 2002 (HKSI, 2003). This survey was a follow-up phase of a sport participation survey started in 1999. The results showed that the overall awareness of Hong Kong athletes in 2002 was greater than in 1999. In 2002, more than 80% of the sample ( $N = 977$ ) believed that it was important for the Hong Kong athletes to perform well in international games, and more than 60% regarded elite athletes' performances as having significant importance to them personally. The growing appreciation of elite athletes is an important factor influencing the sport industry including both professionalised and commercialised sports in Hong Kong. Although Hong Kong athletes are living and participating in sports within a society in where traditionally sport involvement in daily life and professional sports have not been highly prioritised, they are gaining recognition from the Hong Kong public.

#### Current Study

Based on the evidence presented in this chapter, AI is the athletic domain of self-identity that can be understood as a descriptive component of the whole self-system or concept. The AIMS is an instrument that measures and, in part, defines AI, at least in

English-speaking societies. The aim of the current research is to examine the AIMS and AI in Hong Kong, both psychometrically and conceptually. Studies have demonstrated that AI plays an important role in sports performance, participation, and athletes' psychological well-being in various stages of their careers (Alfermann et al., 2004; Brewer, Van Raalte, & Linder, 1993; Brewer & Cornelius, 2001). Since the development of the AIMS in early 1990s, researchers have been investigating its psychometric properties including its dimensionality. There has, however, been little attention to the generalisability of the AIMS in other cultures (Brewer & Cornelius, 2001; Hale et al., 1999; Martin et al., 1994).

The aim of the first study was to explore the potential relevance of AI in a Chinese culture (Hong Kong). The investigative process involved developing a Chinese version of the AIMS (Brewer & Cornelius, 2001; Hale et al., 1999). As previously discussed, in most of the published studies on the AIMS, researchers have recruited the samples from English-speaking countries (Brewer & Cornelius, 2001). Among the limited number of cross-cultural studies on the AIMS to date, most of the samples were relatively small in size, and mainly were primarily intercollegiate athletic cohorts (see Hale et al., 1999).

Another aim of the first study in this thesis was to explore the factor structure of the AIMS (Chinese version) as a way of validity testing, provided that internal consistency would be satisfactory. Hale et al. compared three models. They suggested a modified model consisting of three factors and nine items was the best-fit, but it was somewhat short of support in the Russian sample, which was the only non-English speaking culture in that study. Although Brewer and Cornelius (2001) conducted an extensive study investigating the factor structure and proposed the best-fit model as three factors with 7-items, they only used a sample from the US. Until recently, in most

of the cross-cultural studies, the researchers have employed different versions of the AIMS (Alferman et al., 2004; Matheson et al., 1994). For example, Alfermann et al. used a 5-item version of the AIMS in their study involving three cultures, but they did not provide any psychometric and theoretical support for their choices. Their 5-item version of the AIMS has not been used in other published research. There is still no one single model or version of the AIMS widely accepted as the best-fit.

The AIMS, and the construct of AI, have not been tested in any Chinese sample. If the contributing elements of AI are similar across cultures, the Chinese version of the AIMS should be found to be reliable and valid in terms of internal consistency and factor structure. Because of the inconclusive findings from previous studies and possible cultural influences, it was difficult to predict which particular multidimensional model would be the best-fit one in this Hong Kong sample. To answer this question, confirmatory factor analysis (CFA) was performed to compare the goodness of fit of the AIMS in all models proposed in previous studies.

Although the AIMS is well-developed within English-speaking cultures, it includes only items specifically addressing the identity issues about the athletic role. It does not allow researchers to explore participants' AI in conjunction with other identity issues or other life domains. For Study 2, I invited a group of elite athletes to participate in-depth interviews in order to explore their identities and understandings of AI through a broad and holistic approach. The major purpose of Study 2 was to get a possibly deeper and culturally relevant picture of identity among Hong Kong athletes.

## CHAPTER 3

### STUDY 1: PSYCHOMETRIC VALIDATION OF THE AIMS

#### Introduction

In Study 1, I aimed to explore how the construct of AI fits into Hong Kong culture by examining the AIMS psychometrically (factor structure and internal consistency) within a Chinese population. Various studies have suggested different multi-dimensional models of the AIMS (Brewer, Boin et al., 1993; Brewer & Cornelius, 2001; Hale et al., 1999). Brewer and Cornelius compared different models in a large sample and proposed that the model with 7 items, 3 first-order factors, and 1 second-order factor was the best fit. They, however, did not validate the AIMS in other cultures. Also, researchers, in recent studies, have been using various versions of the AIMS (Alfermann et al., 2004; Phoenix et al., 2005). In this study, I compared all the past suggested models, using a group of Hong Kong athletes, using confirmatory factor analysis (CFA) on the Chinese version of the AIMS. I also calculated Cronbach's alphas for the whole scales and the various proposed subscales of each model. Finally, I compared the scores of my sample to Brewer and Cornelius' (2001) large North American study and the past major cross-cultural study of Hale et al. (1999) to determine the similarities and differences between Hong Kong athletes and those from North America, the UK, and Russia.

#### Method

##### *Participants*

Elite and sub-elite athletes ( $N = 186$ ), who regularly participated in training and competitions in Hong Kong during the data collection period, were invited to be involved in the current study. More than 50% of the participants were elite athletes who have represented Hong Kong for international events at either junior or senior level at

least once, whereas the rest were those who have not yet reached the elite level, but they have at least competed at the intervarsity level. The participants were aged from 12 to 36, with the mean age at 20.3. About 10 % of the participants were younger than 16 years of age. For those who were under 18, parental consent was collected. There were 98 males and 88 females. Most of the participants were studying in secondary schools or universities. Eighty-nine participants were scholarship athletes (full time scholarship = 52, part time scholarship = 37) supported by Hong Kong Sports Institute (HKSI). Forty-one participants were living in the HKSI hostel during these scholarships. In reference to the participants' competition experiences, 128 of the participants (70%) were Hong Kong representatives and 140 participants (75.7%) competed for Hong Kong in international level on at least one occasion. The participants had been participating in strongly committed training for an average of 6.3 years. The average length of weekly training was 15.2 hours. The participants took part in a variety of team/individual and contact/non-contact sports including badminton, basketball, cycling, fencing, finswimming, gymnastics, judo, rowing, snooker, squash, swimming, table tennis, taekwondo, tennis, tenpin bowling, track and field, triathlon, volleyball, windsurfing, and Chinese martial arts (i.e., wushu).

### *Materials*

The original 10-item AIMS (Brewer, Van Raalte, & Linder, 1993) was translated into Chinese and back translated (Brislin, 1970, 1973) by the researcher and an independent translator who are both Chinese and hold university degrees in psychology. All 10 items were on 7-point Likert scales anchored from 1 (*strongly agree*) to 7 (*strongly disagree*). Along with the AIMS, items referring to demographic information that included types of sports, age, gender, scholarship status, residential status (i.e., if they lived in the HKSI hostel), years of participating in serious training,

weekly training hours, national team membership, and competitive experience (i.e., if they have competed for Hong Kong) were included in the questionnaire package (see Appendices A to H for all the items of the package, including the AIMS).

### *Procedure*

The Chinese version of the AIMS was administered to all participants, following the collection of informed consent. After the data collection process, internal consistencies, kurtosis, skewness, and inter-item correlations of the items and scales were calculated. Computer Programme AMOS version 5.0 (Arbuckle, 2003) was used to perform CFAs and examine the AIMS models that were proposed and investigated in previous studies. Root mean square error of approximation (a badness-of-fit index), comparative fit index, normed fit index, and Tucker-Lewis index were used as measures of goodness of fit to evaluate the models.

## Results

### *Descriptive Statistics*

Tables 2 and 3 present the means, standard deviation, skewness, kurtosis, and the inter-item correlation coefficients for the items in the AIMS. The means of items ranged from 3.94 to 6.05. The skewness and kurtosis indices of the AIMS items ranged from -.93 to .06 and -.92 to .91 respectively. The values of skewness and kurtosis are within acceptable boundaries for performing CFA (skewness < 3.0 and kurtosis < 10; Kline, 1998).

Table 2

*Descriptive Statistics for the Items*

Items	Mean	Standard Deviation	Skewness	Kurtosis
1	6.05	1.05	-.84	-.22
2	5.42	1.31	-.60	-.40
3	4.90	1.57	-.48	-.32
4	5.44	1.34	-.77	.16
5	4.82	1.57	-.40	-.45
6	4.74	1.58	-.62	-.11
7	5.26	1.42	-.85	.55
8	5.42	1.30	-.93	.91
9	3.94	1.76	.06	-.92
10	4.94	1.59	-.66	-.01

Table 3

*Inter-item Correlations*

Items	01	02	03	04	05	06	07	08	09	10
1	-	.62	.42	.49	.45	.20	.53	.18	.22	.17
2		-	.41	.53	.55	.29	.52	.19	.30	.16
3			-	.47	.50	.31	.45	.35	.26	.33
4				-	.67	.40	.61	.26	.44	.36
5					-	.35	.47	.21	.50	.34
6						-	.46	.25	.49	.33
7							-	.22	.40	.30
8								-	.17	.44
9									-	.27
10										-

*Internal Consistencies*

Aron, Aron, and Coups (2006) recommended .60 as an acceptable level of Cronbach's alpha. Nunnally (1978), however, has recommended .70 as a cutoff. Because of the exploratory quality of this research, I chose to use the more liberal suggestion of Aron et al. The internal consistencies of the total scores of various models of the AIMS were acceptable with Cronbach's alphas ranging from .81 to .86 (Table 4). Table 4 also shows that the internal consistencies of all subscales under each model reached the acceptable level.



Table 4

*Cronbach's Alphas for Total Scales and All Subscales of Models A to F*

Models	Total Scale	Subscales
A (10 items – 1 factor)	.86	
B (9 items – 4 factors)	.85	
Self-identity		.76
Social identity		.62
Exclusivity		.78
Negative Affectivity		.61
C (9 items – 3 factors)	.83	
Social identity		.74
Exclusivity		.79
Negative Affectivity		.61
D (9 items – 3 factors with cross loading)	.83	
Social identity		.70
Exclusivity		.79
Negative Affectivity		.61
E (7 items – 3 first-order factors + 1 second-order factor)	.81	
Social identity		.74
Exclusivity		.80
Negative Affectivity		.61
F (7 items – 3 factors)	.81	
Social identity		.74
Exclusivity		.80
Negative Affectivity		.61

*Model Evaluations*

Table 5 shows the  $\chi^2$ , degrees of freedom (*df*), root mean square error of approximation (RMSEA), comparative fit index (CFI), normed fit index (NFI), and Tucker-Lewis index (TLI) for the six models. Hair, Tatham, Anderson, and Black (1998)

recommended that the acceptable values of CFI, TLI, and NFI are equal or larger than .90. The values of RMSEA ranging from .05 to .08 are acceptable (Hair et al., 1998), but Jodie (2001) recommended that the value be below .06. Browne and Cudeck (1993) suggested that when the RMSEA is less than .05 then the fit is a close one, but RMSEAs up to .08 could be considered reasonable errors of approximation. In this study, I have taken the more liberal standard and set the criterion at .08. The debate over acceptable values for fit indices is on-going. Hu and Bentler (1998) argued for even more stringent levels for indices such as the CFI, TLI, and NFI (i.e., .95 or larger). Marsh, Hau, and Wen (2004), however, have suggested that:

establishing cutoff values on the basis of GOF [goodness-of-fit] indexes achieved in current practice, there is some evidence to suggest that even the old cutoff values (e.g., RNI and TLI > .90) are overly demanding in relation to a normative criterion of appropriateness based on the best existing psychological instruments (p. 326)

Given the issues of translating an instrument into a foreign language (and a non Indo-European one) and testing within an East Asian culture, applying the most stringent criteria seemed to be too restrictive for this thesis.

Table 5

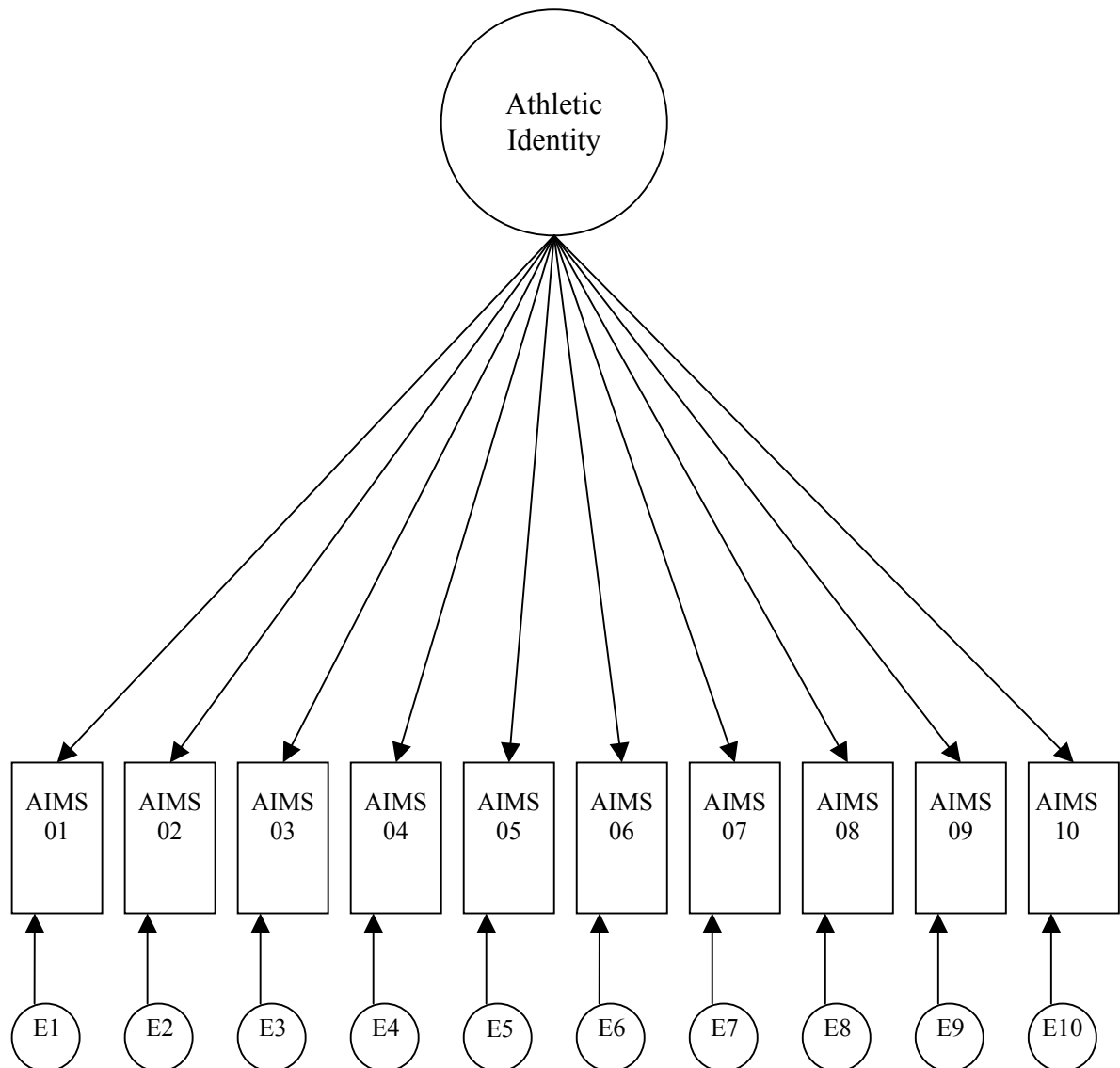
*Chi-Squares, Degrees of Freedom, and Goodness of Fit Indices for Models A to F*

Models	$\chi^2$	<i>df</i>	RMSEA	CFI	NFI	TLI
A (10 items – 1 factor)	131.24	35	.12	.86	.82	.82
B (9 items – 4 factors)	119.37	30	.13	.87	.83	.80
C (9 items – 3 factors)	66.20	24	.10	.92	.89	.89
D (9 items – 3 factors with cross loading)	53.60	22	.09	.94	.91	.91
E (7 items – 3 first-order factors + 1 second-order factor)	40.01	13	.11	.94	.91	.90
F (7 items – 3 factors)	31.3	11	.10	.95	.93	.91

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*Note.*  $\chi^2$  = Chi-square; *df* = Degree of freedom; RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index; NFI = Normed Fit Index; TLI = Tucker-Lewis Index

Model A was a unidimensional model with all 10 AIMS items as a single latent factor (see Figure 1; Brewer, Van Raalte, & Linder, 1993). I set the constraint in the loading for item 1 as 1.0 in order to establish an over-identified model in which the number of estimable parameters is less than the number of data points (Byrne, 2001). Such a constraint would result in the model having positive degrees of freedom and allow the AMOS to function properly. None of the fit indices reached acceptable levels, which indicated that this unidimensional model did not fit the data well.



*Figure 1.* Model A (10 items, unidimensional)

*Note.* E = Error terms

Martin et al. (1994, 1997) proposed model B, which was the 9-item (item 6 was deleted), 4-factor model (see Figure 2). The fit indices were not much different from those of model A; none of them reached acceptable levels.

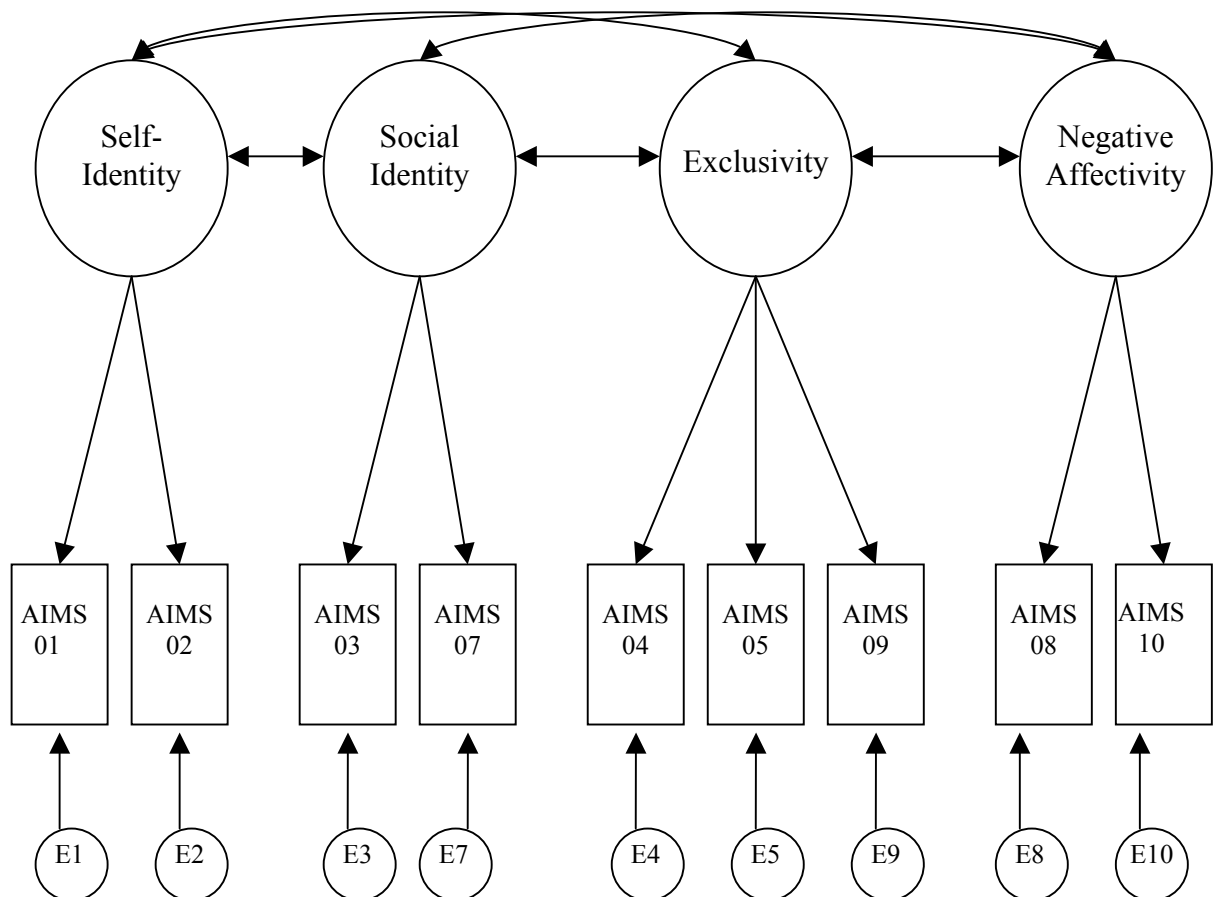


Figure 2. Model B (9 items, 4 factors)

Brewer, Boin et al. (1993) suggested model C, a 9-item (item 7 was deleted), 3-factor model (see Figure 3). The fit indices showed improvements over the previous models. The CFI reached .92, and NFI and TLI were close to acceptable levels.

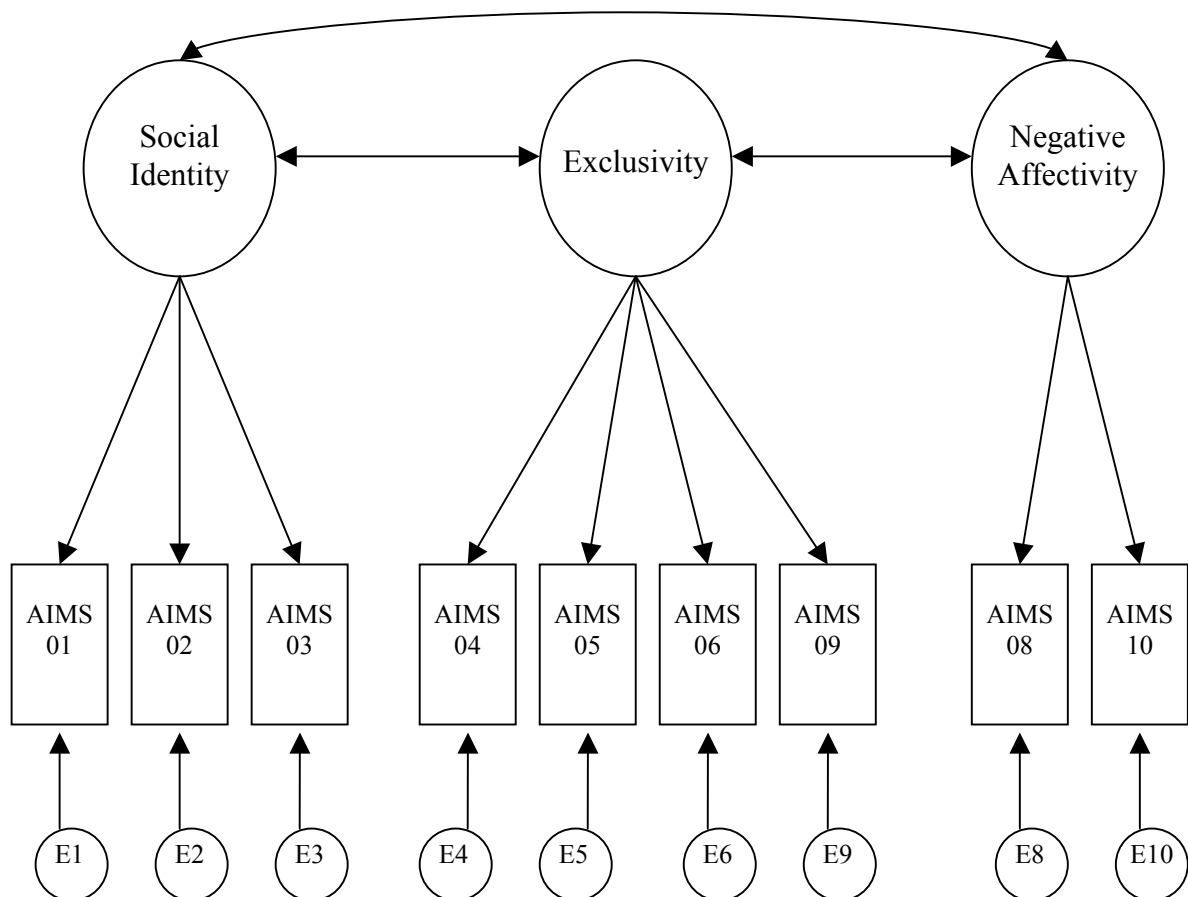


Figure 3. Model C (9 items, 3 factors)

Model D (Hale et al., 1999) is similar to model C. It consists of the same 9 items and 3 factors. The difference is that two items (items 6 and 9) cross-load on two factors (see Figure 4). There were further improvements over the fit indices compared with those of model C, and the indices were either above or very close to recommended levels.

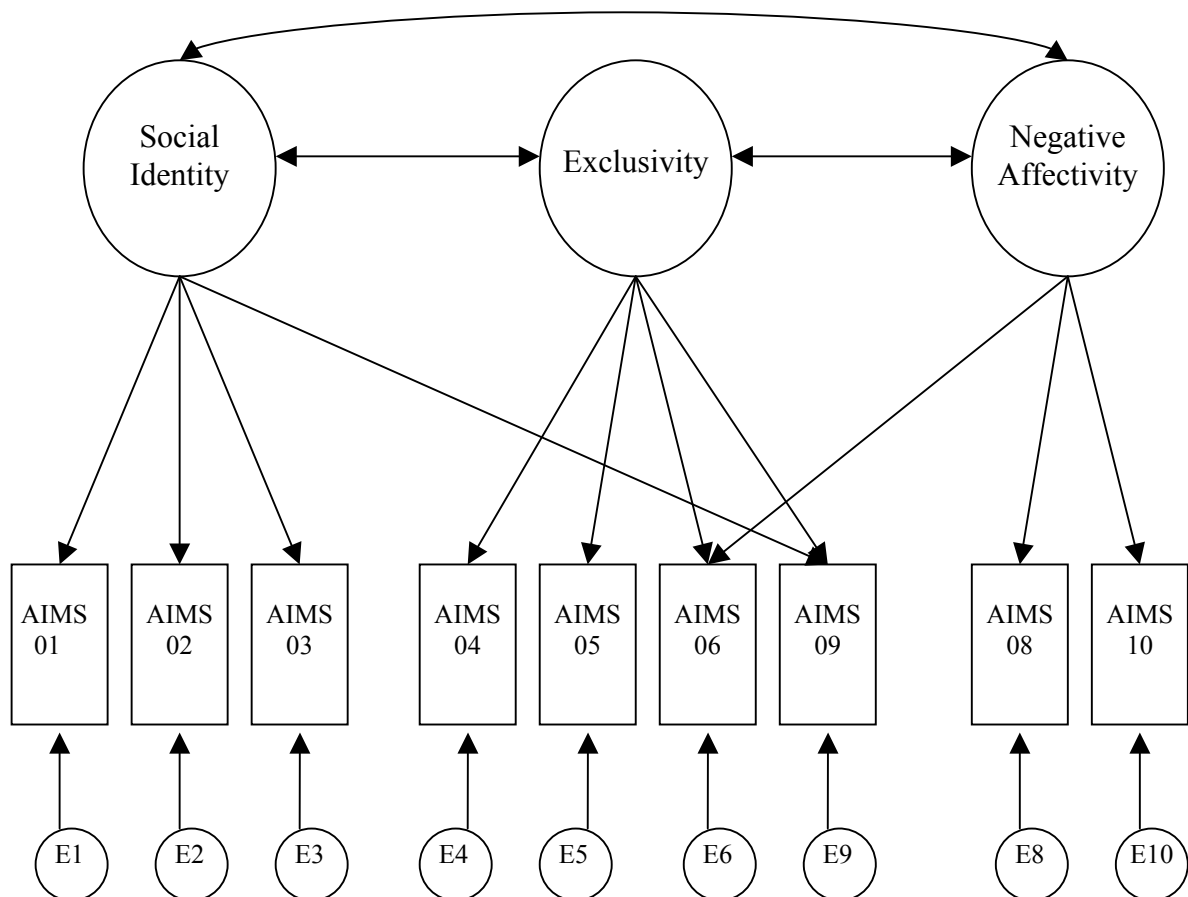


Figure 4. Model D (9 item, 3 factors with cross-loading)

Brewer and Cornelius (2001), more recently, proposed Model E, which contains 7 items (item 6, 7, and 9 were deleted) with 3 first-order factors, and one second-order factor (see Figure 5). This model was the only one consisting of two levels of factors. Byrne stated that there are extra issues of identification (i.e., difference between number

of estimable parameters and data points) for a model with three first-order factors and one second-order factor.

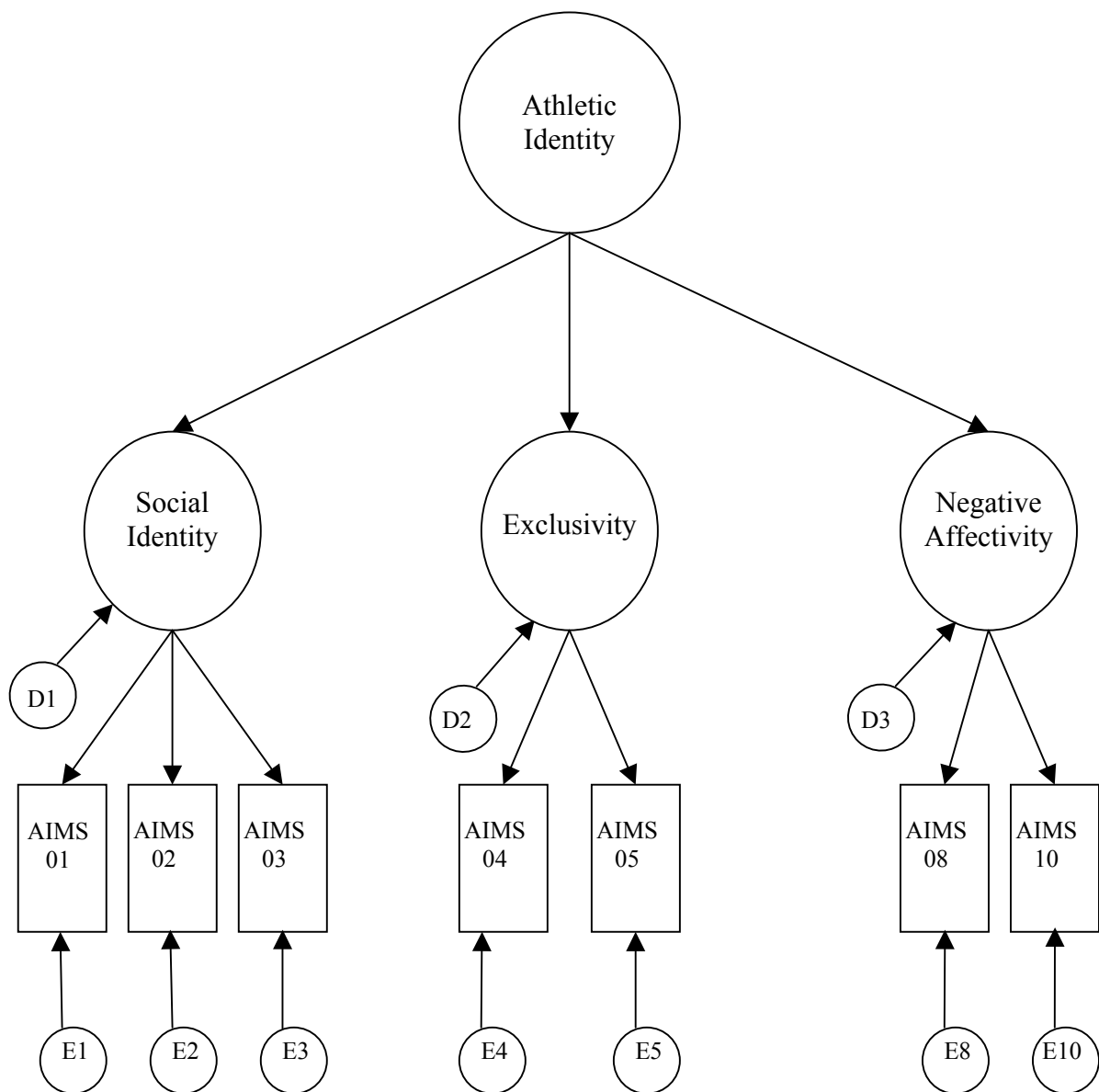


Figure 5. Model E (7 items, 3 first-order factors, 1 second-order factor)

Note. D = Residual parameters

To allow the AMOS to function properly, an over-identified model needed to be achieved in both the upper level and the whole of this hierarchical structure. Based on his suggestions, I have put two more constraints into the model. Such limits would lead



to positive degrees of freedom in both levels (see Byrne, 2001). First, I have pre-set the variance of the second-order factor as 1.0. Second, I have constrained the variances of the residual parameters of those three first-order factors to be equal. The results showed that the fit indices of model E were similar to models C and D. They were either close to or exceeded acceptable levels. Based on Model E, I have tried to further test a parsimonious model, Model F, containing the same 7 items and 3 factors, but not the second-order factor (see Figure 6). The fit indices of the Model F were close to or above acceptable levels. The CFI reached .95, which was well above the acceptable level. In other words, the results showed that this simpler model was as good as the more complex one (Model E), at least in this HK sample.

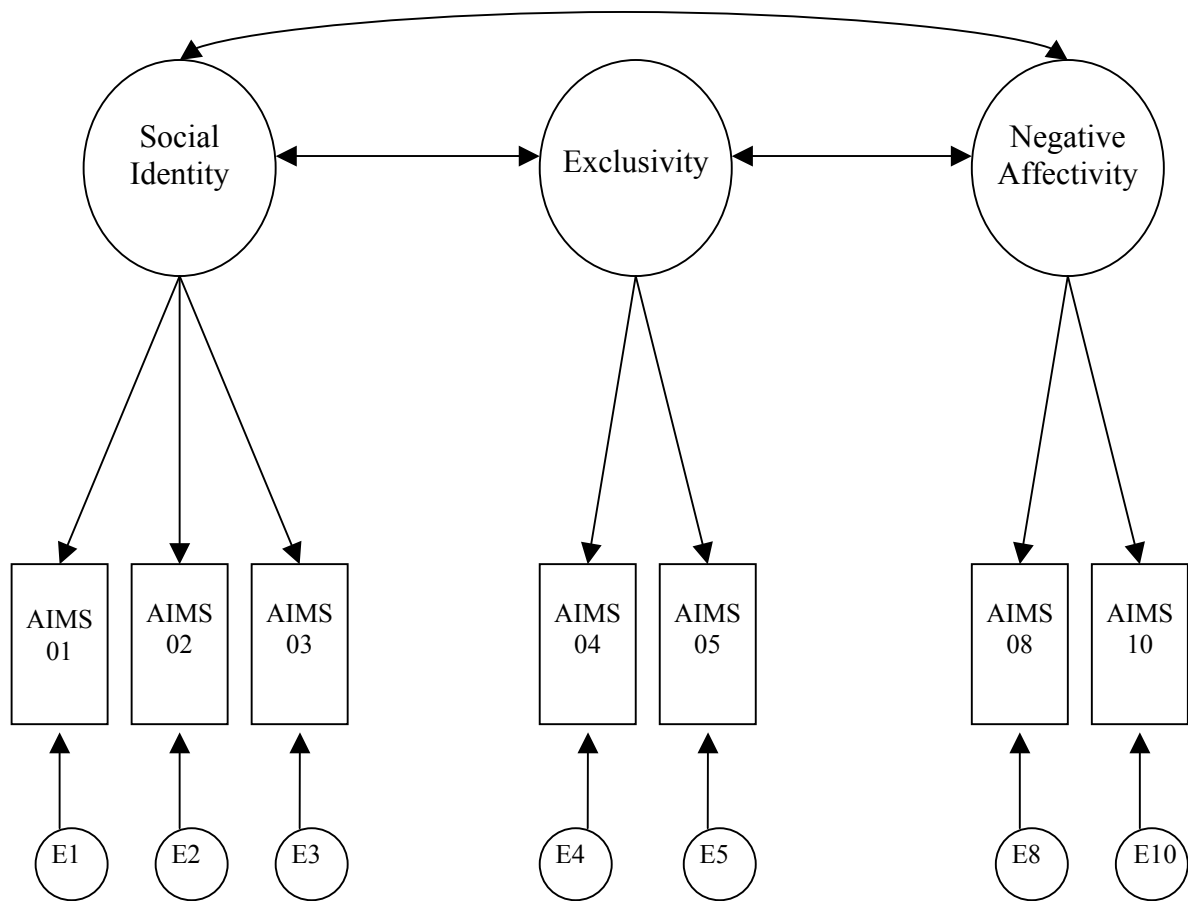


Figure 6. Model F (7-item, 3-factor)

Although none of the models was confirmed by having all fit indices reach acceptable levels, the fit indices of a few models were close, if not above, acceptable levels. The results showed that the multi-dimensional structures of the AIMS in the HK sample were quite similar to English speaking cultures.

#### *Comparisons of Hong Kong AIMS Scores with Past Studies*

In this section, I compare the total and subscales AIMS scores of Study 1 and two previous major studies (Brewer & Cornelius, 2001; Hale et al., 1999). Table 6 shows that the mean total AIMS score of the participants in Study 1 was similar to the weighted median of the athlete sub-sample of Brewer and Cornelius' study. Brewer and

Cornelius, however, did not supply the information of the mean subscale scores of their athlete sub-sample for further comparisons. Based on estimations from the given information in Hale et al., the comparisons among the subscale scores of the participants in Study 1, and those in various cultural samples of Hale et al., showed that the mean social identity score in the HK sample was similar to the Russian and US samples, but relatively larger than the UK sample. The exclusivity mean score in the HK sample was similar to the Russian sample, but substantially larger than both the US and UK samples. The negative affectivity mean score in the HK sample was similar to the Russian and US samples, but relatively smaller than the mean in the UK sample.

Table 6

*Mean Subscale Scores and Means for Total Scales*

Studies	Samples	Mean Scores						
		7 items-3 factors (Model E/F)				9 items- 3 factors (Model D)**		
		Soc-Id	Excl	Neg Aff	Total score	Soc-Id	Excl	Neg Aff
Study 1 Hong Kong	<i>N</i> = 186 (scholarship athletes, both full-time & part-time, various levels of competitive experience)	5.46	5.14	5.18	5.29	5.08	4.74	5.03
Brewer & Cornelius (2001)	Athletes sample; <i>n</i> = 1,585 ( <i>N</i> = 2,865)				5.54*			
Hale et al. (1999)	Russia sample; <i>n</i> = 152; (PE undergraduates)					5.28	4.78	5.20
	UK sample; <i>n</i> = 195; (National and varsity athletes)					4.41	3.67	5.41
	US sample; <i>n</i> = 713; (Varsity athletes)					5.12	3.53	5.10

Notes: Soc-Id = Social identity subscale; Excl = Exclusivity subscale; Neg Aff = Negative Affectivity subscale; \* = weighted median, instead of mean, is used, because Brewer and Cornelius (2001) only provided the median score for athlete sub-sample. \*\* No mean total score was calculated because the authors of the model suggested that the three subscales needed to be considered separately.

## Discussion

The main purpose of this study was to explore the internal consistency and factor structure of the Chinese version of the AIMS in a Hong Kong sample. The results reveal that the original 10-item unidimensional model demonstrated the poorest fit to

the data. These findings further support the previous studies showing that the unidimensional model is not the best fit in English-speaking cultures (Brewer, Boin et al., 1993; Brewer & Cornelius, 2001; Hale et al., 1999).

The results show that the goodness of fit indices of these five multi-dimensional models are better than those of the unidimensional model. Particularly, the indices of Model C, D, E, and F are close to or above acceptable levels, when a liberal standard is employed. The exception is the RMSEA. One reason that the RMSEAs might not have reached acceptable levels was the large age differences in the sample. These age differences may lead to increased heterogeneity, which affects RMSEA (badness-of fit) more than the other indices. The levels of fit for Model B are generally consistent with previous studies (Brewer & Cornelius, 2001; Hale et al., 1999). Brewer and Cornelius, and Hale et al. found that Models D and E reached acceptable goodness-of-fit levels in their English-speaking samples. Brewer and his colleagues further stated that Model E was preferable to Model D, based on the examination of the Akaike information criterion (AIC; Akaike, 1987).

One would not expect extremely high goodness of fit levels in this study. Hale et al. (1999) found that the Model D provided good fit indices in the English-speaking (UK & US) samples, but not in the Russian sample. Hale et al. interpreted their findings as possibly a result of translation. That interpretation may apply to the results of the current study. For example, there is only one word, in Chinese, referring to *sport* and *exercise*. When the items were translated from English to Chinese, some words such as *depressed*, or phrases such as *feel good/bad about myself* may not be commonly used in daily conversations and can be interpreted by Chinese people in more than one way.

Apart from the translation issues, the current findings may be related to the cultural differences in AIs between Hong Kong athletes and people from English-

speaking cultures. For example, the strong interdependent self-construals among Hong Kong people, and the sport culture in Hong Kong, may influence development of various domains of self-identity, including AI (Markus & Kitayama, 1991). Up to now, there has been no research investigating Hong Kong athletes' AIs and the influences of the Hong Kong society. The items of the original AIMS may not fully capture the elements of AI among Hong Kong athletes. Hale et al. (1999) suggested that further study is needed to generate more consistent items that capture various facets of the construct of AI. Although there are a few studies investigating the identity-related issues in Asian samples by using the AIMS (e.g., Matheson et al., 1994; Yeh & Lu, 2005), re-analysis of previous studies with Asian samples may shed more light on AI in these populations.

In reference to the cultural differences in subscales scores, it was unexpected to find that the mean exclusivity score of the HK sample was similar to a Russian sample, but lower than two English-speaking samples. Hale et al. (1999) explained that the high exclusivity score of the Russian sample might have been due to the higher prestige and respect given to athletes in Russia, in comparison to the UK or US. This interpretation is not applicable in Study 1, because there is no previous study, in sport sociology or psychology, showing that the athletic role is more prestigious or valued in Hong Kong than any other society. Miller and Kerr (2003), in their qualitative investigation, found that student athletes from the US would start to invest more effort on something other than sports, or participate in sports less exclusively, when they came to their senior years. They suggested that although the sport culture in the US university system may be well-developed, the level of AI, and the exclusivity subscale in particular, may depend on the year of university of the participants.

There is no previous study showing that HK athletes score high in social identity. It is possible that due to the strong collectivistic culture in HK, when HK athletes participate in team sports, they may tend to identify themselves as parts of their team (in-group) and be attached to their athletic roles in that manner. The cultural differences in the negative affectivity subscale were also unexpected. Further study is needed to explain these findings.

Considering the limited evidence of cross-cultural generalisability of the AIMS, the process of translation, and the possible cultural differences such as the strong collectivistic cultural elements in Hong Kong, the goodness of fit results of this study were substantial. These results basically showed that the items of AIMS were applicable in HK cultures. Before further development of the AIMS, researchers, investigating identity issues in Hong Kong, are recommended to use the AIMS under Models D to F with caution. The items and the three factors of the AIMS seem relevant and psychometrically sound in a Hong Kong sample, but it is possible that these factors do not cover other relevant contributing elements of athletic identity among HK athletes. In Study 2, in-depth interviews were used to explore the AIs of Hong Kong athletes via a holistic perspective. The information may provide a clearer picture for further interpreting the findings of Study 1.

## CHAPTER 4

### STUDY 2: QUALITATIVE EXPLORATION OF ATHLETIC IDENTITY WITH HONG KONG ATHLETES

#### Introduction

Study 1 showed that some models of the AIMS are relatively good fits in this sample. These results indicated that the items in the AIMS may be similarly relevant to the development of athletic identity in HK culture. Nevertheless, due to the cultural differences, such as the strong collectivism and the Hong Kong sport culture, the AIMS may not capture the contributing elements of athletic identity sufficiently. In Study 2, I explored AI with a group of Hong Kong athletes through in-depth interviews. The interview process allowed me to explore the participants' lives, including their athletic roles, how those roles interact with other life domains, and the possible cultural influences on those roles from a holistic perspective.

#### Method

##### *Participants*

Thirteen participants were involved in this study (11 males and 2 females). They were all university scholarship athletes and full time undergraduate students from a university in Hong Kong. Because of the limited professional and commercial sport, except semi-professional soccer players and horse racing jockeys, there are not many professional athletes in Hong Kong. Most of the top elite athletes are those supported by the Hong Kong Sports Institute (HKSI). Each year, HKSI offered scholarship to approximately 390-585 elite athletes who were mainly National team members in those 13 "elite sports" mentioned in Study 1 (Leahy, 2006). Elite athletes who meet the basic requirements for tertiary education and matriculation are eligible to apply for university sport scholarships. It is common for Hong Kong elite athletes, who are National team



members or National youth team members, to apply for these university scholarships to further pursue their sports careers during their tertiary education. All participants in Study 2 were recipients of these university scholarships. They were members of Hong Kong National teams during the time of the interviews or had just retired from the teams less than a year ago. During the time of the study all participants were members of a least one university sports team. They took part in various types of sports including badminton, cycling, handball, swimming, track and field, triathlon, volleyball, water polo, and wind-surfing. The participants were completing various degrees in arts, business, education, and social science.

### *Procedure*

After obtaining ethical approval from the Victoria University's Human Ethics in Research Committee, I approached a staff member from the physical education unit of the university, explained the study's purpose, risks, and safeguards, and invited him to assist in the recruitment process. I was once a student and a former member of one of the university sport teams. My established network and familiarity with staff and athletes allowed me to employ snowball sampling (Minichiello, Aroni, Timewell, & Alexander, 1999). Because the purpose of this study was to explore the identities and experiences of elite athletes, I chose to approach the participants who had been members of Hong Kong national teams and had represented Hong Kong at international events. Following the recruitment process, and before the start of data collection, I conducted three pilot interviews after the ethics application was approved. The pilot interviews are discussed below.

I, as the only interviewer, contacted all 13 participants by phone to explain briefly the purpose of the research and the interview process, and confirm the appointments. Prior to the actual interviews, I explained the interview process in detail

to the participants, including confidentiality and their rights to terminate at any time without any need to supply explanations. I then gave the plain language statement to the participants and invited them to sign the consent forms (see Appendices I to L). With the participants' permissions, all interviews were recorded on audio-tape. The length of the interviews ranged from 50 minutes to 3 hours. After conducting the first few interviews, I consulted with two psychologists to refine further the interview process. This developmental process, together with the pilot interviews will be discussed further in the following sections.

I transcribed the interviews verbatim. Because the interviews were conducted in Cantonese, which was the first language of all participants and myself, the transcripts were written in Chinese. The coding system and data analysis process were based on the Chinese transcripts. I translated the findings, including the themes and the analysis, into English at the final stage of report writing.

### *Interview Process*

To understand individuals' self-concepts and identities, I was mostly interested in how the individuals would actually describe themselves, or answer the question: "Who am I?" I hoped that this kind of qualitative information would supplement the findings from Study 1. In-depth interviews allowed me to: (a) spend a relatively long period of time with the participants, (b) directly encounter the participants, (c) focus on the participants' viewpoints without being bounded by a specific perspective, and (d) address the participants' understandings of their worlds through their words and stories (Minichiello et al., 1999). Minichiello et al. suggested that studies involving in-depth interviews do not necessarily (or even usually) involve hypothesis-testing. The purpose of this study was to explore the self-concepts and identities of Hong Kong athletes and

their life experiences. Although I expected the participants to discuss some cultural influences on the construction of self-concept, there were no specific hypotheses.

In order to assess reliability, or dependability, in the parallel perspective of qualitative inquiry (Sparkes, 1998), I documented most of my experiences and procedures in a reflective journal after interviewing and during the process of coding (Minichiello et al., 1999). Referring to validity, or credibility, the term used in the parallel perspective (Sparkes, 1998), I returned the interviews to 10 of the 13 participants and invited them to review their stories for clarity and accuracy. The other three participants had moved or were otherwise not contactable at the time I was through with the transcribing. This member checking process, together with the rapport and the good relationships established during the face-to-face interactions enhanced the level of trustworthiness of this research (Creswell, 1998; Minichiello et al., 1999).

Oakley (1988) stated that the background of the interviewers (or researchers) including gender, age, prestige, expertise, ethnic identity, or life experience in general may affect the interview process. Minichiello et al. (1999) addressed the considerations of the insider/outsider status of field workers, and how much the researchers and participants share in their backgrounds. For instance, if a psychologist is doing interviews with other psychologists as part of a research project, that psychologist-interviewer would usually be regarded as an insider. As previously mentioned, I am an alumnus of the university and a former member of one of the university sport teams (handball). I graduated from the university 4 years ago, majoring in psychology. I was in my early 20s during the time of this study. During the interaction with the participants, I introduced myself as a current postgraduate student enrolled in a doctoral program in sport psychology at Victoria University (see plain language statements in Appendices I and J). Both the participants and I shared some similar experiences in

terms of ethnic identity, undergraduate study, campus life, and university sport careers such as participating in intervarsity tournaments, so I might have been regarded as an insider by some participants. Minichiello et al. suggested that insider status may have advantages in gaining access to participants and showing empathy. In reflection on the interview processes, my insider status may have had a facilitative effect on the recruitment process and rapport building, particularly when the interviews were addressing life at university. Nevertheless, I had to continuously be aware of, and cross-check, some taken-for-granted assumptions. For example, because both the participants and I studied at the same university, I might have assumed the participants had experienced similar campus life situations as I did, but I still had to explore and specifically ask for their own interpretations of those experiences.

Because I have never been an elite athlete representing Hong Kong at international events, some of the participants might have viewed me as an outsider, particularly when their athletic careers were being discussed. It was, however, difficult to estimate how much I was in the outsider status in this study. Minichiello et al. (1999) stated that such insider/outsider status may not be absolute and fixed throughout the course of a study, but rather, it is a matter of degree. There may be shifts in status during the interview processes and over time in any one interview.

### *The Interviews*

This study involved semi-structured interviews. Based on a literature review, I developed an interview guide consisting of some broad topics related to the self-concepts of Hong Kong athletes (see Appendix M). The topics included: (a) personal backgrounds, (b) goals in participants' lives, (c) critical moment in sports careers, (d) participants' perceived cultural influences, (e) possible role conflicts, (f) social environments, and (g) bodily performance (Sparkes & Smith, 2002). Referring to the

critical moments in sport careers, the participants commonly discussed their injury experiences and, for few of them, their decisions about entering university and quitting their HK teams. Previous researchers have found a close relationship between athletic identity and turning points in sport careers, such as experiencing career terminating injuries (Brewer, 1993, Webb et al., 1998). For those participants who had not experienced any serious injuries, I asked them to imagine what their lives would be like if they had experienced career terminating injuries.

In reference to participants' perceived cultural influences, Hong Kong sport culture, and its influence on athletes, was another common topic throughout the interviews. All participants also had experiences of competing overseas. I invited the participants to compare HK athletes with athletes from other countries. The actual process of the interviews focused on the issues related to the self-concepts of the participants, but the wording and ordering of the questions depended on the flow of the interviews and were led by the interactions between each participant and me (Minichiello et al., 1999). Apart from the pre-set guiding questions, almost all participants brought up one common issue while discussing their identities. When we discussed the contributing elements of athletic identity (e.g., what makes them think they are, or are not, athletes?), the participants often brought up the question of levels of categorisation of athletes. By comparing these categories (i.e., professional athletes, amateur athletes, super-amateur athletes), participants revealed more information concerning HK sport culture and their perceptions of identities.

#### *Pilot Interviews*

One of the three pilot interviews was conducted in English, and the other two were conducted in Cantonese. The interviewees (2 males, 1 female) were either currently studying in psychology or had graduated with psychology majors. Their sports

backgrounds varied from national to university level. The pilot participants and I shared and discussed our experiences after the interviews. I made several amendments to the interview guide and some refinements to my interview style in light of our discussions. For example, I realised that there could be different ways to address athletic identity, without mentioning the word *athlete*. An athlete involved in track and field may describe himself as a *runner*, instead of an elite running athlete. If such terms were used in the interviews, I asked for clarification, such as the definition of *runner*. At the end of one pilot interview, the interviewee expressed puzzlement about the questions and their relationships with the study. I realised that I had to present the purpose of the interviews and study more clearly, so that the participants would understand why I was asking those identity-related questions, which they might not have considered before. One pilot interviewee also reminded me that not all people involved in training and competitions perceive themselves as athletes. It did not mean that those participants, who were less likely to identify themselves as athletes, were not eligible for this study, but I had to change my questions to explore what those participants perceived as differences between themselves and athletes.

Based on the analytical induction method (Minichiello et al., 1999), I collected the interview data using a reflective model. This model led me to conduct, reflect, and analyse the interview data in a parallel mode, such that the revising of the interview guide would be made throughout the whole data collection process. In order to capture the possible cultural influences in the interview process, I consulted two psychologists working in sport areas in Hong Kong. Their contributions enhanced my awareness of interview processes, my understanding of power differences, the quality of the interview questions, and particularly, the problem of defining the word *athlete*.

### *Data Analysis*

I developed the coding system in accordance with Minichiello et al.'s (1999) suggestions (see also Bogdan & Biklen, 1992). I aimed at extracting the essence of the participants' meanings verbalised intentionally and unintentionally (Minichiello et al., 1999). Words, concepts, sentences, and themes were considered as the basic elements of analysis. Similar to Sparkes's (1998) study, I first read through the transcripts several times to familiarise myself with, and understand, the participants' information. The reflective journal, which captured my personal reflections of the interviews, was helpful for re-immersing myself in the interviews during data analysis. Second, I tried to identify specific ideas and themes. I wrote analytical memos (Minichiello et al., 1999) consisting of the preliminary ideas about how those themes, extracted from the interviews, connected to findings from previous studies. In other words, I tried to identify and link the themes with the three subscales (*social identity*, *exclusivity*, and *negative affectivity*) of the AIMS. By comparing the themes with the definitions of those three factors, I could find out how much identity-related information from the HK athletes matched with the contributing elements of AI captured by the AIMS, or suggested by previous researchers. The raw data themes and elements that emerged, which did not fit the three factors of the AIMS, were then analysed for possible factors and items that might be included in future versions of the AIMS for Chinese athletes.

### Results and Discussion

In this section I will first present the results that seemed to fit with the three subscales of the AIMS. Later, I will explore how the stories the athletes told might represent other aspects of athletic identity in Hong Kong not captured by the AIMS.

### *Social Identity*

Brewer, Boin et al. (1993) originally defined the social identity factor of the AIMS as “the extent to which the individual views him/herself as occupying the role of the ‘athlete’” (p. 3). Ryska (2002) modified the definition to “the extent to which an individual perceives him/herself as an athlete from a social standpoint” (p. 113). Both definitions are similar except Brewer, Boin, and their colleagues referred to *the role of athlete*, whereas Ryska referred to *athlete from a social standpoint*. Based on self-categorisation theory, social identity refers to *us* versus *them*. It includes the attributes that emerge when individuals compare their in-groups with other groups (or psychologically out-group; Onorato & Turner, 2004). By using the words *the role of athlete*, One could interpret that Brewer, Boin and his colleagues referred to the common elements associated with the occupation or role or identity of being athletes perceived by the general public. In terms of the interviews, when participants identified themselves as athletes, they were putting themselves within the group of so called *athletes* (in-group) and distinguishing themselves from other people whom the participants would not regard as athletes (out-group). Five items from the AIMS have been recommended for inclusion in the subscale of social identity in different combinations (Brewer & Cornelius, 2001; Hale et al., 1999; Martin et al. 1994). These five items are: “I consider myself an athlete” (item 1); “I have many goals related to sport” (item 2); “Most of my friends are athletes” (item 3); “Sport is the only important thing in my life” (item 9); and “Other people see me mainly as an athlete” (item 7). The participants’ stories revealed a fair amount of connection to this aspect. I have borrowed the ideas from these related items to interpret the participants’ narratives. Also, I have put substantial focus on the social context surrounding the participants’ information.



Although one participant expressed that he did not feel like he was an athlete, most of the participants indicated that, at least at some points of their lives, they considered themselves athletes. There are various influences on the level of athletic identity, and one of the major influences, which came up in the interviews frequently, was participating in training of a high standard, competition, and team selection. Some participants shared that their athletic identities had increased since they had been selected and had begun training with Hong Kong national teams. One participant, commenting on the boost to his athletic identity, said:

I started to train with someone from other schools (in Hong Kong youth team).

We were called the “Hong Kong youth team.” There was a sense of mission, that that was what an athlete is about. . . . I devoted more to sport. . . . The training involved a coach who provided a very systematic training system, fitness training, which I had not done before . . . I thought the training was very high in quality.

This participant’s comment indicated that the high quality of the training, the sense of mission, and others’ influences made him feel more like an athlete. In reference to the training content, some participants focused on the better resources, such as facilities and equipment, whereas others were impressed by the systematic organisation of the training. Both elements created a sense of professionalism. One participant, along the same line, said that “The university provides lots of resources to us. It makes me feel like an athlete.” The sense of professionalism may instil a sense of seriousness in the athletes. The atmosphere was telling the athletes that they were respected and treated seriously by the organisations, such as the HKSI and the universities. That atmosphere of seriousness, respect, and professionalism were quite a change, for young athletes particularly. In other words, these external provisions and resources of the universities

and the HKSI might increase the participants' perceptions of others' recognitions (an element of social identity). Training with other athletes also seemed increased the participants' athletic identities. More than one participant discussed the social influence of training. These participants thought that when they trained with other athletes on the national teams, or lived with other elite athletes at the HKSI, they felt like they were treated as athletes, and their own athletic identities were confirmed. This information matched with the item "Other people see me mainly as an athlete." I will discuss the sense of mission and the further influence of others' recognition in following sections.

The next factor, other than team selection and professional training, that boosted the participants' athletic identities was the participation in important competitions, representing Hong Kong in particular. One participant said:

When I represented Hong Kong at overseas competitions . . . particularly when the national song was played, I had a strong feeling. I not only felt Chinese, I also knew that I was representing Hong Kong or China as an athlete. It's very touching and memorable.

Clearly, the experience of representing his home country raised his athletic identity. When he was competing overseas, he could compare himself with athletes from other countries. It appeared that competing overseas also boosted his ethnic identity (an element of social identity and collectivism). One participant indicated that there was a strong sense of achievement when he won competitions for Hong Kong, particularly if the games were close and tough. The participants mentioned the results of competitions and the effects on their athletic identities frequently throughout interviews. This information also suggests that the participants' self-worth depends, in part, on their performances. In later sections, I will further discuss how these issues were related to exclusivity and negative affectivity. In connection with social identity, some

participants expressed that regardless of the status of the competitions, the sense of achievement coming from winning was strong when they won in front of people they valued. One participant said: “It’s happier when I performed well in front of my friends and those I valued”. He also expressed:

When my team won the National Championship, I was happy and excited. I didn’t feel that when I represent Hong Kong (overseas), because not many people know about overseas competitions. The press doesn’t take notice of them. When I compete locally, there are always many people cheering for you. People know me well, so I am happier.

This comment indicated that the participant valued the local competitions more, because he got more attention from the public in these competitions, and particularly from those he valued. It showed that the encouragement and recognition from others might increase the participants’ social aspects of athletic identities.

Similar to training on national teams, some participants developed a sense of mission while competing for Hong Kong. One participant, based on his experience of competing overseas, said:

When I travel overseas and compete for Hong Kong, I have to behave better. Many people may look at me. I don’t want to be like the “oriental sickie” (an insulting term for Chinese). For instance, because I was representing Hong Kong, I would wait along the queue (politely) in the canteen. You can’t be like those from . . . (other countries); others will look down on you.

This participant did not comment on the actual competitions, but the experiences he had while travelling overseas as a Hong Kong athlete. His story showed that he was extremely aware of his identity as a Hong Kong athlete, and he thought he was representing Hong Kong in front of other people. He wanted to give others a good

impression of Hong Kong athletes, such as being polite and civilised. His story represents an element of social and athletic identity with collectivistic feature.

Along with the information related to team selection, elite training, and competition, discussions of participants' goals and motivations were common in the interviews. The participants seemed to have lots of sport-related goals, and some participants indicated that a goal-oriented personality was an important part of their athletic identities. Instead of focusing on the number of goals or motivating factors, I looked into the content of the goals and related them, where possible, to the three different factors of the AIMS (i.e., social identity, exclusivity, negative affectivity). Similar to the above section, some participants stated that their goal was participating in certain important competitions such as the Olympic Games, the Asian Games, and World Championships. These kinds of goals might be primarily for personal achievements, but they might also be related to social identity, because participating in major competitions could raise their popularity and increase their recognition from others, which, in turn, could strengthen their athletic identities. These kinds of goals might also lead to high levels of exclusivity in participants' athletic identities. Because it was not uncommon for athletes to see these major tournaments as essential rites of passage, it was possible that the participants might sacrifice other aspects of their lives in order to achieve the goals of entering these tournaments. I will further discuss this issue in next section.

Instead of having outcome goals, such as being selected for national teams or winning tournaments, some participants discussed process goals related to their performances. A strong learning motive was common among this group of participants. One participant said that he always aimed at improving his performance and upgrading the standard of his team. Being a captain of a team, this participant put much emphasis

on the performance of the whole team and his role in the team. This information showed that he might have a strong sense of belongingness towards the team. He could feel his own responsibility for improving the team standard (an element of social identity and collectivism). As I discuss in a later section, this participant revealed that he spent a significant amount of time thinking about performance improvement for his team and himself. In reference to motivating factors, the same participant commented that:

Team sport is not about the individual. It's about the performance of the whole team. . . . When there is someone chasing the same goals with you, it's very motivating. We train together. Loads of fun and laughter. We are all aiming at the same goals through which our friendship is built up.

The elements of team sports, including common goals and friendship with teammates, were the main sources of motivation and enjoyment for this participant. Through chasing the same goals and having camaraderie with teammates, the sense of in-group membership might increase. The in-group settings might lead the participant to distinguish himself from people who are not on the same team or who are not even athletes. In other words, the in-group members in the team could encourage and confirm the athletic identities of each other. Social bonding, as a motivating factor or enjoyment, was a common issue throughout the interviews. Many participants, from both team and individual sports, shared this social bonding theme. A few participants indicated the friendship with senior athletes and coaches was equally important as that with teammates. Although the participants might not directly link those friendships with their athletic identities, one can imagine the influence of these relationships acting on the development of their sport careers and sense of self. One participant said that “the feedback from the coach, his concerns, and caring . . . sometimes we dined out together . . . our relationship built up. I enjoyed and felt fulfilled.” Another one said:

I had a good relationship with those senior players. They were very nice to me. I observed them a lot. . . . I was amazed by their high standard of technique and performance. I felt really motivated by that time. I encouraged myself to play better.

These two participants stated that friendship with senior figures in their sports motivated them to stay in the sports or even play better. These senior figures seemed like role models for the participants, and these “elders” may have been internalised and become part of their athletic identities. This theme matched the AIMS item “most of my friends are athletes” and further extended the meaning of social identity by illustrating how friendships might influence the participants’ sport careers and athletic identities.

The above sections covered the influences of training with other athletes, as well as the social bonding with athletes and coaches. In the interviews, participants frequently discussed the influence of others’ recognition on their athletic identities through various paths. A number of participants shared their feelings of being identified as athletes. One participant said:

I played in a lot of competitions that year. . . . People from the school started to call me an athlete. They commented that “You athletes play volleyball all the time.” I then started to realise (my) sense of athletic identity. . . . Later on, I started to play in the top league. I have built up some fame . . . I realised again I was an athlete. But it wasn’t too strong. When I was back at school, I was back to being a student.

This story showed that the participant’s athletic identity was increased when people started to call him an *athlete*. Others’ recognition, along with fame and reputation, further confirmed this participant’s athletic identity. This theme of others’ recognition matched with the AIMS item: “Other people mainly see me as athlete.” Quite a few

participants related similar experiences. From a social identity perspective, because others categorised the participants as athletes, they might start to compare themselves with other people they considered athletes. They would then start to find the similarities between themselves and other athletes and the differences between them and non-athletes. This process probably helped confirm and consolidate their athletic identities. This participant also mentioned that he felt like a student, when he went back to school. Apparently, for this participant, the social and institutional context surrounding him is influential on his identity. When the participant was playing in the top league, he was surrounded by other elite athletes, and this circumstance seemed to raise his athletic identity. When he was back at school, he was surrounded by students. The school setting then reminded him of his student identity, unless someone specifically called him an athlete at school. This participant identified with the social groups closest to him for the time being, and he was satisfied with those groups including both students and athletes. This identification with the current group might also be a feature of collectivism. Individuals with strong collectivistic features or interdependent self-construals would tend to merge themselves with the group, rather than try to stand out (Markus & Kitayama, 1991). Another participant said that:

I felt like as an athlete, because I wore the uniform. I wore the uniform having HKG printed on (it). . . . It started to happen when I trained at the HKSI. They (people from the HKSI) have recognised you. They told you that you were a scholarship athlete. . . . Indeed, I think most my athletic identity was based on others' recognition.

This participant plainly revealed that people from the organisation (i.e., HKSI) recognised him as an athlete once he started his elite training. This process, along with the environment in the HKSI, led the participant to categorise himself as a “scholarship

athlete.” All scholarship athletes, who trained in the HKSI, would become this participant’s in-group. One participant, commenting on his student and athletic identities, said that:

When I was in secondary school, I had to wear the school uniform most of the time. It gave me a sense that I was still a student. . . . Even I didn’t treat sport as an interest . . . people such as classmates, teachers, and family would think that I was playing sports as an extra-curricular activity . . . and I was still a student.

This participant revealed that during his time in secondary school the social context and others’ expectations, which identified him as a student, were so strong that he did not have the choice to identify himself as athlete. This information, together with the previous quote, revealed that the social context and others’ expectations might be connected with appearance, such as wearing a school uniform. From the outfit, the participants knew what to expect about others’ recognition. For instance, when they wore the team uniform, they would expect people treat them as athletes. Appearance and its relationship with athletic identity might work in two ways. Some participants had the freedom to choose what to wear, and those who enjoyed being regarded as athletes or liked to associate themselves with a group of athletes, as their in-group, chose to wear sport wears. In a sense, they wore the sport wears to show their athletic identities, consciously or unconsciously. Some participants, however, might not have had the freedom to choose what to wear, Hong Kong team uniforms in particular. When these participants were given the opportunity to wear the Hong Kong team uniforms, they often perceived it as a confirmation or enhancer of their athletic identities. Some participants shared that wearing national team uniforms was a sense of glory, achievement, and responsibility. In other words, the participants’ athletic identities could be strengthened in both situations, through different processes. These



interpretations suggested that *appearance* could have facilitative effects on participants' athletic identities, notwithstanding the level of freedom to choose. The comparison between student and athletic identities was a topic that often surfaced in the interviews. Some participants were exclusively committed to their athletic identities, and their self-worth relied on their sport performance, but many participants embraced both student and athlete identities relatively equally.

Apart from various kinds of others' recognition, participants shared a number of personal qualities that led them to identify themselves in the role of athletes. These qualities contained both individualistic and collectivistic features, and revealed elements leading the participants to acknowledge themselves as members of a social group, in this case, *athletes*.

One participant shared that his sense of heroism was a major contributing element of his athletic identity. He defined heroism as "the extent to which an athlete influences the performance of the whole team, particularly in the critical moment". He commented that it was the feature of an influential athlete. He experienced this status before, and he was aiming to fill that hero role as much as he could. This sense of heroism, or influential power, seemed to be more related to team sport athletes. One can imagine that although this participant would like to see the whole team perform well, he wanted to distinguish himself from other athletes by focusing on his own influence on the teams. With a strong influential power, this participant would not only have a strong athletic identity, he might go a step further and identify himself as an *influential athlete* and a hero, as seen by others. It was an individualistic feature in the social identity of the athlete. In this section, I have presented the elements affecting the participants' identifications as *athletes*, primarily as they relate to social contexts, needs, and affiliations.

### *Exclusivity*

Brewer, Boin et al. (1993) defined the exclusivity factor as the extent to which an individual's self-worth is determined solely by performance in the athlete role (see also Ryska, 2002). There is no specific definition indicating what *the performance in the athlete role* means. Researchers have not described if *performance* is referring to results of athletic events, such as winning in competitions, or individuals' perceptions of how well they fulfil their athletic roles on the whole. Apart from the meaning of performance, the focus of the exclusivity factor lies in the words *exclusive* and *solely*. Previous studies have found that this factor should include four items from the original AIMS in different combinations (Brewer & Cornelius, 2001; Hale et al., 1999). These four items include: "Sport is the most important part of my life" (item 4); "I spend more time thinking about sport than anything else" (item 5); "I need to participate in sport to feel good about myself" (item 6); and "Sport is the only important thing in my life" (item 9). Some information in the interviews is related to the elements captured in these items, whereas other information, which appears related to exclusivity, is not captured in the AIMS items. Item 6, and its converse (if I don't participate, I feel bad) also seems related to negative affectivity.

Exclusivity is associated with the perceived importance of sport in comparison to other aspects of individuals' lives. All participants were university students during the time of interviews, so they were both athletes and students. All interviews contained discussions of the comparison between the participants' studies (or student identity) and sports (or athletic identity) from various perspectives. Some participants shared that they normally put more emphasis on their studies rather than on sports. Some participants explained that they considered study and sport as equally important. One of them said:

When I was studying at Form 6 and 7 (matriculation level), I missed classes because of competing overseas. It was very harsh, particularly when the school assignments were getting more difficult. . . . I remembered when I was competing overseas, I would still study during the spare time. It was because I did think study was important. I used to think that sport and study were equally important. I always wanted to achieve in both areas and found a good balance.

Two participants explained that they accepted the co-existence of their student and athletic identities. One participant, explaining her thoughts after entering the university and quitting the formal training in HKSI, said:

I don't think there is much difference (before and after quitting the training at the HKSI). During my secondary school years, I trained at HKSI (as an elite athlete). Now, I am training by myself. I don't think there is much change in the strength of my athletic identity. Although the actual settings of training are different, my attitude is not going to change. I very much accept myself to be a university student and an athlete at the same time.

Another participant, who was on a National team and majoring in sport sciences and physical education, shared that his student and athletic identities were not clearly distinguished in his life. He said:

Being a student, I receive training in various sports such as basketball and soccer, because I am majoring in sport science and physical education. I was taught how to teach sport, so I get involved in sport (or exercise) all the time. There is not much difference compared with my own training in volleyball (his primary sport), so I think these two roles (student and athlete) are not so separate for me.

Most participants explained that they had to focus seriously on study, because of parental and social pressures. The society and education system in Hong Kong are

keenly competitive. Some participants found it hard to commit fully to their sports. Another participant explained some different problems concerning the relationship between his study and sports. He said, “I have to put my effort in study first. If I can’t study well, it will be very difficult me to keep playing sport in Hong Kong.” This participant was trying to explain that most of the sports in Hong Kong are associated with schools or universities. Staying in the school system provides him opportunities to keep playing various kinds of sports. One of the goals in university for this participant is playing as much sports as he can. In the following sections, I will further discuss the Hong Kong culture and its impact on HK athletes’ identity development.

Although none of the participants indicated that sport was the most important part of their lives, one participant said that sport was extremely important for him. He said “I am not exaggerating. Without badminton and my coach, I won’t be who I am at the moment.” He highly valued what he had learned and gained from sport participation, including a serious work ethic, interpersonal skills, strong learning and achievement motives, and his university place.

A few of the participants shared that they were more committed and more willing to sacrifice their studies for sport at some point in their lives. They shared that when they prepared for important competitions, such as Olympics trials or the Asian Games, they chose to give up study for a period of time. Such decisions allowed them to concentrate fully on their preparations for competition. One participant said:

In the China National Games last year, I missed classes for 2 months. . . .

Afterwards, I think it was worth it. I can study later if I want to, but the opportunity of playing in these important tournaments is limited. I was willing to sacrifice my study for 2 months, so that I could concentrate on training.

The stories above suggest that some participants treated sports as more important than study. The levels of exclusivity, however, varied among participants in the study. The consideration of perceived importance seemed to be a valid indicator of exclusivity and athletic identity, at least in this group of HK athletes.

The exclusivity factor of the AIMS has a major focus on perceived importance (two of the four items relate to this issue). More precisely, this aspect not only puts emphasis on the relative perceived importance (i.e., sport is more important than any other thing), but also stresses the possible exclusivity of importance (i.e., sport is the *only* important thing). From the participants' stories, none of them expressed the idea that sport is the only important thing in their lives. One participant, however, shared that sport was important in his life, and sport might even take up most of his time, but he was clear that sport was not the only important thing. He stated that many things including family, study, financial considerations, and other extra-curricular activities were also important to him.

Our discussions revealed that time spent (a part of the exclusivity factor in the AIMS) might not reflect the levels of exclusivity accurately. Combining the information from several interviews, the perceived commitment, as one participant called it, or perceived importance of sport, depends on not only the actual time spent, but also how much the individuals have been thinking about the sport. One participant said:

I have put a lot of mental effort into sport. . . . When I have spare time, I never think about study, but I always think about how I can perform better or what I can do to help the whole team improve.

He used the term *mental effort*, instead of perceived commitment or perceived importance. All these terms are connected to how much time he spent on thinking about sport in addition to the actual time spent participating in sport. He did not only think

about how to arrange his time so that he could train and play as much as he could; he also spent lots of time thinking about how he and his team could improve. His story matches well with the time element of exclusivity. This participant also shared that his thinking about his sport all the time helped him realise how strong his commitment to sport, and his substantial athletic identity, were. Another participant indicated how happy he was whenever he thought about his sport.

I love cycling so much. It's just like a romantic relationship. I sometimes smile while thinking about it. I am really happy. . . . Sometimes, after going down the street and riding for a short while, all my pressures would be gone. I do treat it (his bike) as my friend.

He did not say how much time he spent thinking about his sport (i.e., cycling), but the friendship with his bike and the simile of a romantic relationship showed that he must perceive himself as closely, and possibly exclusively, attached to his sport.

Another aspect of exclusivity is the dependency on sport participation for an individual's self-worth. A participant revealed that his academic performance was not good, and he wished to develop his self-worth based on his achievements in sports. Another participant indicated that he valued the success from his sport more than that from study. He felt more distinguished and outstanding from his achievements in sport, because he thought only a small amount of people would achieve in his sport, whereas many people could get good academic results.

Being student athletes, some participants felt good about themselves not only because of their sport achievements, but more so because of the good balance between both sport and academic commitment. One participant said that "I am not just an ordinary student, but an extraordinary athlete who is able to study well." Later in this interview, this participant also shared how much his family was proud of him as a

successful student and athlete. His tale showed that he was proud of himself being able to achieve in both these aspects of his life. His achievement in sport and his pride would be expected to play a contributing part in the development of his self-worth. Another participant indicated that he was proud of his athletic identity and wanted to keep this identity forever, even though he quit his HK team and ceased to compete at the highest level. The desire to hold on to an athletic identity showed the high level of perceived value of that identity, which is similar to the gloried self (Adler & Adler, 1989; Sparkes, 1998). Adler and Adler stated that the glory associated with sport involvement is exciting and rewarding for athletes. One can imagine that the glory might boost the participant's sense of self-worth. This participant, in another part of the interview, also shared that he enjoyed the attention paid to him due to his athletic accomplishments and identity. Particularly when he was wearing the national team suit having *HKG* printed on it, he would expect and enjoy being looked at by others. This information showed that this participant was experiencing the pride and the gloried self attached to his sports career. These glories, as a form of public recognition, also seem to be elements of social identity.

Participants also shared some information that might be related to exclusivity but does not appear to be captured by the items of the AIMS. One participant shared that after devoting a long time to sport he would like to broaden his exposure to something other than his sport. When he got older, he started to realise that his sport career would not last forever. He commented:

I think athletes should not be too narrow minded. We should learn and expose ourselves to more things. Life as an athlete is limited. When I get older, I won't be able to keep training and compete. Then I would have nothing to do, so I

should explore different kinds of interests. At the moment, sometimes I think I am too focused on volleyball.

This admission indicated that he thought his commitment to sport might be too restricting, and he would like to start doing something to prevent identity foreclosure (not his words, of course). This extract above echoes with Miller and Kerr's (2003) suggestions that when student athletes make progress in their university studies, their athletic identities, the exclusivity aspect in particular, will start to decrease. They will start to devote more time to things other than sports. The interview data in this section suggest that the issue of exclusivity is relevant for to HK athletes' experiences, but this aspect is connected to individuals' considerations of their levels of athletic involvement. On the whole, the athletes I interviewed seemed balanced. This finding is somewhat in conflict with the relatively high level of reported exclusivity in Study 1. It may be that the results of Study 1 reflect strong commitment, but if there had been a scale measuring a similar construct related to student identity, then they would have also scored high on that factor.

### *Negative Affectivity*

Ryska (2002) defined the negative affectivity factor as representing "the extent to which an individual experiences adverse emotional reactions to undesirable outcomes related to sport" (p. 113; see also Brewer, Boin et al., 1993; Hale et al., 1999). This factor refers to the relationship between individuals' negative emotions and their athletic identities. As discussed before, researchers have been investigating this relationship, in the realm of injury experiences in particular, extensively (Alfermann et al., 2004; Brewer, 1993; Manuel et al., 2002). Athletic injuries, and related depressed mood, were the main research questions when Brewer first developed the AIMS. As discussed in Chapter 2, recent studies have replicated and further extended the findings that



individuals with strong athletic identities are more likely to experience depressed mood after injuries or career terminations. Results from previous studies (Brewer & Cornelius, 2001; Hale et al., 1999) suggested that the negative affectivity factor includes two or three areas represented by the items: “I need to participate in sport to feel good about myself” (item 6); “I feel bad about myself when I do poorly in sport” (item 8); and “I would be very depressed if I were injured and could not compete in sport” (item 10). Similar to previous sections, participants shared stories that reflected the various facets of this factor.

Based on their CFA results and item analysis, Hale et al. (1999) suggested that negative affectivity, similar to exclusivity, should include the dependency of self-worth on sport performance. The interviews showed that some athletes do rely on their sport achievements to develop their self-worth. One participant shared that he felt upset, and his self-esteem was damaged, when he performed poorly in training or competition. There seems to be a strong relationship between poor performance in sport, negative self-evaluation, and negative emotions.

It was common for the participants to share the negative emotions associated with their athletic identities. The AIMS specifically refers to dysphoric emotions stemming from injuries and the absence of competition. The interviews revealed that it was not unusual for participants to experience dysphoria when injured. One participant shared that he was exceedingly depressed when he knew that his injury was really serious, and he was recommended not to play in the upcoming tournament. He said:

There was only a month before the grand final. I was very worried and upset. We'd been waiting for this final for a long time. . . . It was a slump in my sport career. . . . I was so depressed even when I was at school during that period. I saw others go to training. I wanted (to), but I couldn't do it. . . . After consulting

the physiotherapist, I knew it was serious. We (his teammates and him) were very upset and my eyes were wet.

He and his teammates had prepared for that tournament for a long time. In the end, he played for short period of time, and his team won the championship, but he was still upset because he had not contributed much. He also commented:

I was upset, also because I didn't know how to tell my parents. My mum was extremely worried. She used to be like this. . . . That was the first time I felt sorry for her, because I hurt myself like this.

This series of comments seems to show that the dysphoria behind the whole injury experience was reflecting: (a) his disappointment in missing the important competition, (b) the disappointment of not being able to contribute as much as he wanted, and (c) his guilt over causing his mother's anxiety. The thought that his body or health was responsible for his parents' happiness may have collectivistic features. This concern is also related to the Confucian concept of *fidel piety* that is highly valued in Chinese culture. Chinese people are taught that one's body was given by his or her parents. Hurting the body is disrespectful to the parents. Although one may argue that people do not treat this moral value seriously anymore in a modern culture like Hong Kong, this story revealed that an extreme situation, such as severe injury, may still be able to trigger this type of guilt and remorse in some Chinese people.

I asked some participants to imagine their reactions if they were to experience career terminating injuries. Two participants indicated that they would be seriously depressed in the first month at least. One of them said that it would be difficult for him to accept the situation, because he has not reached his personal peak yet. Apart from experiencing depressed mood, one participant said "I thought about it (experiencing a career terminating injury) before, but it is too horrible. I really don't want to imagine it.

It's meaningless to talk about it now." Although he did not mention that he would feel depressed, his avoidance of thinking about injury experience showed that he probably had a strong or even exclusive athletic identity. He found it horrible, because he might have nothing other than sport in his life. This conversation brought up fearful emotions from him. Some participants also indicated that they felt worried about their sport careers while experiencing injuries. The anxiety was mainly due to uncertainty about the future. One can imagine that anxiety levels would be increased if one were exclusively attached to one's athletic identity. The level of anxiety seemed to be positively associated with exclusivity.

None of the participants had experienced career terminating injuries. During their careers, none were absent from training for more than a year due to injury. The interviews revealed that the participants' experiences were different from the Sparkes' (1998) participant, Rachel, whose career terminating injury led her to experience a dramatic change in her body-self relationship, as well as the loss of primary immediacy and her gloried self. The HK athletes in this study generally indicated that they experienced various negative emotions, including depressed mood and anxiety, for a period of time, but their identities were not damaged by the injuries. They expected to recover and get back to sports eventually. Discussing the injury experiences, the associated emotions, and the relationship with athletic identity, one participant shared that after getting injured he stopped training and competing for a period of time. During the rehabilitation process, he sorely missed his sport. He said:

It (injury experience) changed my life a lot. Suddenly, I felt empty with so much time (due to the absence of training) . . . I didn't feel like resting. I felt worry and strong urgings (to run). I thought of a lot of stuff, such as when I would recover and how other teammates were training. . . . I don't think it damaged my athletic

identity. I guess it may indeed have boosted up my athletic identity, because I realised I really wanted to run. I love it. I felt like I couldn't live without it.

This comment showed his feelings of emptiness and worry. The exclusivity in the subtext, "if I don't have sport, then I am nothing," is apparent. Also, because his sport was extremely important to him, his level of athletic identity actually got stronger. Webb et al. (1998) stated that athletic identity might be enhanced during the rehabilitation period as a way of summoning commitment to the recovery process. The injury experience probably boosted both the exclusivity and negative affectivity aspects of this participant's athletic identity.

The interviews revealed that the participants experienced negative emotions not only due to injuries, but also because of their performances in their sports. One participant indicated that she would cry whenever she lost in games. She commented:

Once I lost in games, I cried heavily automatically. I didn't know why. Even though I knew the opponents were way better than me, I couldn't help myself. I guess I just wanted to win so much. I wanted to win every single match, since I was young.

This statement showed that her emotions depended on the actual outcome of the competitions (i.e., winning or losing). Another participant said that he could be exceptionally emotional about his performance, but those emotions might not be related to the actual result. It was possible that he got upset by his own performance, even though he had won the contest. His reflections seem related to his internal and process-oriented attribution style. Another participant shared that he was responsible only for his own performance, which depended on his effort. The actual outcome or result of the competition was another issue. He would not be too upset when he lost a game, because

he could not control how his opponent performed. The attribution as external and unstable helped him cope with poor results.

One participant shared that his performance fluctuated greatly and he could not understand the progress of his performance. He felt upset and helpless whenever his performance started to drop unexpectedly. One participant, discussing a similar issue, stated that he felt frustrated when his performance was fluctuating, but he kept on pushing himself. He trained harder than normal. During these slumps, he felt like his athletic identity was stronger. Brewer et al. (1999) found that athletes would choose to distance themselves from poor performance by lowering their levels of athletic identity. The stories of these participants revealed other patterns. Those negative emotions coming from sport might not necessarily be linked to damages to athletic identity. They depended on the actual situations and the participants' coping reactions. Nevertheless, the participants' athletic identities in the Brewer et al. study were evaluated at the end of the season. The difference in the timing of assessment may be one of the reasons that explain the different patterns of findings.

Two participants shared that when their performances improved, and they started to play at high level of competitions, they felt pressure and worry. One of them said that once he started to train at the HKSI as an elite athlete, he was worried about himself and puzzled about whether he was able to learn and improve as much as other athletes did. Another one said that when he competed in local competitions, he felt extra pressure because of his national team title. He did not realise the amount of pressure until competing in local tournaments after he quit the HK team. These athletes had higher expectation on themselves, when they reached a higher standard in their sport careers. Their perceived pressures and worries might come from their expectations associated with national teams or the HKSI and from other sources such as the general public or

other athletes. Once they were selected to national teams, they were going to represent their country. It is understandable that they might feel the pressure from the general public. The pressures and worries associated with national team selection and HKSI training might be related to the social context surrounding the participants, and reflects elements of social identity.

The information in this section basically shows that negative emotions and self-evaluation related to poor performance, and various negative experiences in sport careers, were not uncommon in this group of participants. The stories also provide some new ideas about various negative emotions that accompany those negative experiences and their potential facilitative effects on athletic identity, at least temporarily.

#### *Out of the Boxes*

The above discussion shows that some participants' tales matched well with the AIMS factors and items, whereas some information was not captured in the items, but seemed to fit into the definitions of the factors. From the review in the previous chapters, it is evident that the AIMS and its subscales were empirically, rather than theoretically, derived. The empirical, rather than theoretically-based process of developing those subscales may have increased the likelihood of missing some meaningful aspects of athletic identity. For example, the consideration of appearance and the participation in elite training were not included in AIMS, but they appeared related to the social identity theme. A number of participants shared that they would rarely introduce themselves as athletes in front of others, even though they had no qualms identifying themselves as athletes during the interview processes. One participant said: "I would not introduce myself as athlete in front of others, except within the HKSI. . . . I should be more humble." Another one said that "I would normally say that I am studying, studying psychology. If there is someone really asking me, I would say I participate in elite

competitive sport. . . . Feel like it's more normal." Although these two participants chose not to introduce themselves as athletes in front of others generally, it did not necessarily mean that their athletic identities were low. Their stories seemed to indicate that introducing oneself as an athlete was something different from the norm or even somehow morally wrong. One participant suggested that even though athletes are supposed to have high standards of performance in their sports, the identification of themselves as athletes might be interpreted as showing off. For some participants, this public identification as an athlete would sound too arrogant. Modesty, as a moral character, is highly valued in Chinese culture. Some participants treated this modesty seriously and suggested not introducing themselves as athletes as a way to show their modesty. Also, participating in sport is not a novel idea for the Hong Kong public, but the social group, or even the occupation of athlete, which implies substantial commitment to sport, is relatively small in Hong Kong society. Because the public does not know much about the sport industry and athletes' overall experiences, there may be an over-simplified association between the role of athlete and being extremely good at sport. Saying that one is an elite athlete would seem like bragging, and in Hong Kong culture such boasting would be frowned upon. I further discuss modesty as a personal characteristic in later section.

Some participants might think that by self-identifying as athletes in conversations with the general public, there was a high possibility for them to be singled-out. Considering the collectivistic perspective, some participants might rather choose to associate themselves with more common and highly valued identities, such as student, in order to prevent being distinguished from the group. Alternatively, one can also interpret that the decision to self-identify as other than athlete was because the

participants did not view their athletic identities as the most important aspect of their lives.

Along with information related to social identity, some participants' tales were related to their personal aspects of athletic identity. Some participants stated that they constantly wanted to learn new things in their sports. One of them said:

I am constantly learning. . . . Athletes must be learning constantly. There is no perfect (athlete). You have to keep looking for your weaknesses and improve them. To chase for the perfect standard, even though you know that it's unreachable. . . . You just keep chasing.

This participant showed that the motivation of constant learning and pursuing perfection strengthened his identification as an athlete. Some participants shared that their love and passion for their sports are contributing elements of their athletic identities. A few of them expressed that they realised their passion for sport and developed their athletic identities when they were experiencing the negative emotions coming from serious injuries. These tales showed that some contributing elements of participants' athletic identities were related to their own internal attributes, such as personal interest, passion, and perfectionistic motives.

### *Fantasies and Projections*

When the interview questions specifically addressed athletic identity, most participants commonly brought up the issue of further categorisation among various sport-related titles including: professional or elite athletes, amateur athletes, super-amateur athletes, and sport lovers. By comparing different types of athletes, it seemed that participants wanted to show where they fit in and in which category they were. One participant said:



Being professional athletes, sport is everything they've got. They are devoted to sport everyday. Very specialised. . . . They are very much aware of their lifestyle. Their lives are different from others' (lives). . . . They may even sacrifice their study.

Another participant said that "professional athletes are supposed to depend on their sports for their livelihood." One participant similarly commented that "full-time athletes (elite athletes) depend totally on their bodies and health. They can do nothing if they experience terminating injuries." In these participants' minds, professional or elite athletes were supposed to be fully committed and financially dependent on their sports. They shared that professional athletes are supposed to be willing to sacrifice time for socialising and family in order to commit to their sport careers. These projections showed that participants seemed to believe professional athletes would choose to commit to sports exclusively. By contrasting the characteristics of various athlete categories, some participants were illustrating how much they were different from the *professional athletes* in their minds. These participants were indicating what elements would lead them to consider whether they were athletes or not. In other words, if they had fulfilled those requirements (e.g., fully committed to sport career, willing to sacrifice everything for sport, financially dependent on sport careers) then they might have identified themselves as professional athletes, which they equated with the highest level of athletes and strongest level of athletic identity. Alternatively, this sharing might be the participants' fantasies or projections about what it is to be a professional or top level of athlete.

Other participants indicated that professional, full-time, or elite athletes (different participants used different terms) were extremely high in their standards of performance. One participant at the beginning of the interview said "I haven't felt like

an athlete. . . . I haven't achieved. I can't. . . . My physical build-up isn't good. I couldn't go to the Asian Games or the Olympics." This participant linked the level of performance to his (non)athletic identity. He compared himself with the most top level of athletes, such as Olympians, and thought he was not as good as they were. Later on, he divided athletes into professional, amateur, and super-amateur athletes. He said:

Professional athletes are those who depend on sports for their living. . . .

Amateur athletes are those who are not earning money from sports, but supported by the HKSI, even he or she may have an Olympic gold medal. . . .

They are fully committed. For me, I am purely in it for interest, but somehow (I'm) good enough to get into the team.

He categorised himself as super-amateur athlete in another part of conversation. For this participant, both professional and amateur athletes seem to be extremely high in their standards of performance, at least much higher than he was. He assumed these types of athletes were fully committed and financially dependent on sport careers. Nevertheless, because he was not up to that standard, his perceptions about professional athletes may be more like stereotypes than what professional athletes are really like. It also seems that this participant might have a sense of inferiority when comparing himself to professional athletes. This sense of inferiority could be one of the reasons why some participants were reluctant to call themselves athletes. For example, if they did identify as athletes, they would make sure I was not thinking of professional or elite ones, even though I had not specifically asked for clarification during the interviews. A cultural feature of these comparisons may be related to the high value placed on modesty in Hong Kong culture. This sense of inferiority was also apparent when some participants discussed the comparison between Hong Kong athletes and athletes from other countries. I discuss this issue in next section.

In reference to the stereotypical quality of the participants' fantasies or projections about elite athletes, one participant said: "athletes are supposed to be willing to sacrifice everything for competition, even their health." He explained that he was not that kind of athlete, but he believed that there were such athletes. There might be some athletes who choose to risk their health to improve their performances, but this participant did not have any personal experience of such dedication and its influences on athletic identity. One participant said

I don't feel I am really a Hong Kong team member (he has been in the national team for a number of years). . . . Hong Kong teams are supposed to be very professional, super-high standard in performance . . . like those from overseas. . . . I am not up to that standard yet.

Although this participant did not use the word *professional athletes*, he believed national team members were supposed to be professional. He also defined professionalism as having a hard-working attitude, high self-awareness, and high self-discipline, as well as a strong learning motivation. Later on, this participant suggested that the media, cartoons (Japanese manga and anime such as *Captain Tsubasa* in particular), highly influenced his conceptions of athletic identity and professionalism. Sport-related Japanese manga has been extremely popular in Hong Kong culture since early 80s. This story shows how pop culture might have influenced athletes' experiences. Because none of the participants had been professional full-time athletes, their projections and fantasies describing professional athletes might be more stereotypic than accurate. I did not interview professional athletes in Hong Kong, such as jockeys, but it seem unlikely that such athletes could live up to the fantasy standards of the participants I did interview.

*Hong Kong Culture and Its Influences on Athletes' Experiences*

Hong Kong sport culture is one of the major foci of this study. There have been a limited number of studies investigating the Hong Kong sport culture (e.g., Chow, 2001; 2002). Chow (2001, 2002) examined Hong Kong athletes' experiences, particularly during the retirement process. She described the athletes' concerns about their career development and future prospects after retirement. She also outlined an intervention program, including education support, career support, and retirement support to meet the diverse needs of the athletes. The participants' stories provided some insights into how the cultural features in Hong Kong might affect the development of their athletic identities. Although there is a support program provided by the HKSI (Chow, 2001, 2002), more than one participant in my study commented that the Hong Kong education system does not support the development of athletes, so Hong Kong athletes cannot fully devote themselves to sports, even for a relatively short period of time. One participant said:

Compared to athletes from other countries . . . Hong Kong athletes have too many considerations, including family, life, study, social pressure. . . . The competition in the society is too keen. Universities won't offer you a place, when you get older, unless you have been at the Asian Games or the Olympic Games. Athletes from other countries may not have this concern. They are freer. . . . It is difficult for Hong Kong athletes to get back to society (after retirement). . . . There is no (future, financial) security support for Hong Kong athletes

These comments reflected this participant's dissatisfactions with the current education and athlete development system in Hong Kong. His comments could explain why the participants, or Hong Kong athletes in general, were part-time athletes and experienced

the pressure of focusing on their studies during their adolescence to young-adult periods. They might feel insecure if they devoted all their time to sports, even if they had international potential. Family support was another issue. The same participant said:

Families in Hong Kong may support their kids' participation in sports, purely because they can and want to put *sport* down on the application forms of schools. It serves a purpose. The kids won't be able to play genuinely due to interest alone.

He revealed that the level of family support was related to the education system and the keen competition in the society in general.

Another participant expressed his view of Hong Kong culture through a different perspective. He said:

In Hong Kong, athletes have to love their sports very much if you want to succeed. . . . You have to be able to refrain from the attractions of other things and social pressure. Hong Kong is a society that values fast money, but sport is something you can't get the profit or results from in a short period of time. . . . You at least have to spend a few years before you can see progress. Other people may think you are stupid and wasting time. Athletes from some other countries such as Kazakhstan have nothing else to do if they don't want to be athletes. . . . In economic theory, no choice, no cost. We have too many choices, so our costs are relatively large.

This participant believed that the culture of making fast money or chasing after immediate gratification did not encourage the development of athletes. It is popular for the general public to invest money in stock and housing markets, and Hong Kong is a strong, commercially-oriented society. It may be because Hong Kong people generally evaluate careers in terms of their earning power, being professional athletes may be less

attractive than other careers in the current economic situation where the professional sport industry is still developing.

When comparing Hong Kong athletes with athletes from other countries, most of the participants suggested that Hong Kong athletes were generally weaker than athletes from other countries or played at a lower than international standard. They, however, had various ways of interpreting the current situation. Some of them thought that it was because athletes from other countries generally have better morphology and more systematic and professional training, which lead to higher standards than Hong Kong athletes. Similar to the discussion about professional athletes, some participants expressed a sense of inferiority while discussing the athletes from other countries. One participant said that “Because the overall standard of Hong Kong sports is low . . . Hong Kong athletes may feel athletes from other countries are superior. Hong Kong athletes may have low levels of self-confidence.” For other participants, they accepted that the standard of Hong Kong athletes was not as high as other countries’ athletes, but they had other interpretations. One participant commented:

There is, of course, someone better than you in the world. The physical training, the amount of resources, and time spent are different. As a major in economics, if we can maximise our profit from performance, based on the limited resources, it won’t be necessary to compare with others who have different level of resources, physical quality, and time.

This participant did not see the differences in standard as internal or stable elements. He interpreted the differences as the result of different resources. He also encouraged focusing on self-improvement rather than comparing with other countries’ athletes.

Other participants also related that they had never thought about winning at international competitions. Most of the time, their goals were to learn from the

experience rather than winning. Some participants commented that because of the different expectations, they found the athletes from other countries often experienced higher pressures than they did. This perspective also could explain why some participants valued the results of local tournaments more than international competitions, as I discussed in the previous sections.

One participant, based on his experience of Hong Kong culture, specifically suggested a list of the duties for Hong Kong athletes. He proposed that Hong Kong athletes: (a) should focus on promoting sports to the general public, (b) should aim at informing the Hong Kong public that Hong Kong athletes are capable of competing overseas, and (c) can help the Hong Kong public be more knowledgeable about and interested in sports and exercise. For the first duty, he explained:

Eventually, the role of Hong Kong athletes is not really like supporting the values (national and ethnic) of the whole country. The athletes from Mainland China are those who aim at winning for the pride of the country, but not those from Hong Kong. The role of Hong Kong athletes is promoting sport and exercise to the public.

This participant thought that the standard of Hong Kong athletes might not be up to a world-class level at this moment. He suggested putting more emphasis on promoting exercise and educating the public, before using competitive sport as a mean to promote national pride. This participant also expressed that he was willing to share his experiences about being an athlete and eager to set up a fitness club to teach people about strength and conditioning. Although this story was not directly related to his athletic identity, it seemed that this participant was passionate about sport and exercise, and their development in Hong Kong. His ultimate goals might not necessarily be about winning competitions or being selected to the national squad. Instead, his goals would

be fulfilling those duties that were deeply rooted in Hong Kong society and its sport development (collectivistic feature). His willingness to share his experiences, and teaching about fitness, further showed that he might be proud of his identity as a *Hong Kong athlete*.

*Individualism versus Collectivism (Independent Self versus Interdependent Self)*

The theory of self-construals (Markus & Kitayama, 1991) is one of the major frameworks for understanding the cultural influences on personal experience and identity development. Markus and Kitayama stated that the analysis of self-construals focuses on what individuals believe about the relationship between self and others, particularly the extent to which they see themselves as separate from, or connected with, others. Individuals with either strong independent self-construals (or individualistic features) or interdependent self-construals (or collectivistic features) all contain personal (internal) attributes in their self-systems as well as their responses to their social environments. They, however, may have different priorities and interpretations of their personal and social (other-related) commitments. Individuals with strong independent self-construals may view their inner qualities such as abilities, opinions, and personality characteristics as the most significant aspects regulating their behaviours and defining their selves. These people would also be responsive to their social environments, but they may generally treat the social environments as means to express and assert their internal attributes. Individuals with strong interdependent self-construals may focus more on their relationships to other people and becoming integrated into their groups. They may also have many internal or personal attributes, but these individuals would treat the internal attributes as less important in regulating behaviours and less definitive of their selves, in comparison to the primary task of interdependence (i.e., fitting in with relevant others). Some of the participants' stories showed strong collectivistic cultural



features. As mentioned in the previous sections, some participants expressed strong national identities, along with their athletic identities, when representing Hong Kong in competitions overseas. One of them saw his role as promoting a good image of Hong Kong athletes, if not Hong Kong people in general, to the world. This participant probably thought that people in Hong Kong would expect national squad members to promote the image of Hong Kong overseas. He probably perceived Hong Kong people as his in-group, and he was willing to fulfil the goals or needs of this group. Markus and Kitayama stated that people with strong collectivistic features tend to be sensitive to in-group members' needs and use those needs as criteria for regulating behaviour. One participant said that: "university gave me this scholarship. Morally, I should help it to compete (represent this university in intervarsity games). It's loyalty and moral obligation." One of the motives of this participant to keep competing was to "help" the university, because he received a scholarship. The main purpose of establishing athletic scholarships in universities is to support and encourage Hong Kong athletes to develop their sports careers during the secondary and university years. This participant might think that the university expects him to compete as a return for offering him a scholarship. These perceived loyalty and moral obligation towards others (in this case, the university) could be related to one's needs to maintain harmony with others and the assumption of the reciprocal nature of relationships.

In reference to expression of emotions, one participant said:

You are representing the whole team, not individual (when competing for Hong Kong). . . . You can't let your issues affect the team spirit. . . . If you are not performing well and feeling crap, you can't show your bad temper or act it out. You may affect others' performance.

This participant showed a strong sense of belongingness to the national team. She put the team concerns at a higher priority than her individual issues. Similar to Markus and Kitayama's (1991) suggestions, individuals with strong collectivistic selves may tend to de-emphasise personal emotions, and regulate their behaviours and expressions of emotions for the primary task of fulfilling the in-group's goals.

More than one participant thought humility was an important aspect of their athletic identities. Being humble or modest was, somewhat paradoxically, also a reason why some of them did not like to introduce themselves as athletes in front of other people. Humility, as a personal characteristic, emphasises the realisation of one's weaknesses and the need to not distinguish oneself from the group. Humility is not only a collectivistic feature, but also a highly valued personal characteristic in Confucian and Chinese culture (Hwang, 1982; Wang, Ye, & Tao, 2002). Due to the high moral value placed on modesty, it could be difficult for individuals to "humbly" identify themselves as athletes. As discussed in previous section, it seemed that this cultural feature might have led to a situation where the participants might prefer introducing themselves as doing certain sports (e.g., "I am involved in track and field"; "I am playing handball") rather than direct self-identification (e.g., "I am a runner"; "I am a handball player").

Along with collectivistic features, the participants also shared some individualistic elements of their athletic experiences. As mentioned in the above section, one participant highly valued heroism as a contributing factor of his athletic identity. He valued his personal achievements and aimed at significantly influencing his team. This example showed that some team-sport athletes in Hong Kong might not necessarily be strong in interdependent self-construals. According to Markus and Kitayama's (1991) explanations, individuals with strong individualistic features would be socially responsive, but they would treat the social environment as a medium to express their

internal needs and desires. This participant was highly aware of his performance. He compared himself with his teammates frequently and wanted to be outstanding among his teammates, but this feature would not necessarily come into conflict with his effectiveness as a team player. Another participant, who was also involved in team sport, shared that his goals were winning the championship for his coach and the team, as well as the personal award of Most Valuable Player. This example showed that this participant had various goals containing both individualistic and collectivistic features.

Overall, there were both individualistic and collectivistic features in the participants' experiences and their athletic identities in this study. Such findings were not unexpected. Although researchers have generally classified cultures or individuals as either collectivistic (interdependent self) or individualistic (independent self), the theory of self-construals (Markus & Kitayama, 1991) and Hofstede's study (1980) have suggested that different cultures put different emphases on both collectivism and individualism. These two sets of concepts are not two end points along one dimension. Sato and Cameron (1999) stated that collectivism and individualism are two orthogonal dimensions, so every culture or individual may well have both collectivistic and individualistic features. It is a matter of degree and priority or perceived importance. The participants' stories in this study showed that they have both kinds of features. A rough estimation shows that there seems to be more collectivistic features, but quantification of these features or experiences was not the focus of this qualitative exploration. Instead, this study revealed that the participants, or Hong Kong athletes, might value several specific types of collectivistic features including humility, team goals, and team performance, as well as several types of individualistic features including heroism and personal achievement goals.

## CHAPTER 5

### GENERAL DISCUSSION

#### Applicability of the AIMS in Hong Kong

One of the purposes of this thesis was to extend the investigation of the AIMS in Hong Kong culture through examining the psychometric properties of the Chinese version of AIMS. The results of Study 1 show that the internal consistency of the AIMS (Chinese version) is above satisfactory level, and several multi-dimensional models reach reasonably acceptable levels. Mirroring previous studies, the results of Study 1 suggest that the AIMS (Chinese version) seems to fit better using multi-dimensional models rather than unidimensional models (Brewer, Boin et al., 1993; Brewer & Cornelius, 2001; Hale et al., 1999). In an applied setting, Smith, Hale, and Collins (1998) showed the practical advantages of using a multi-dimensional model and found that the three different factors of the AIMS could serve different functions in discriminating levels of exercise dependency in weight lifters. In regard to the various multi-dimensional models used, Brewer and Cornelius have compared those models and developed a new model (Model E) in a large-sample study. Other researchers (e.g., Alfermann et al., 2004; Phoenix et al., 2005) have been using various other models of the AIMS. This diversity of model use shows that the discussion of finding the best-fit model is still on-going. My recommendation of using Models C, D, E, or F of the Chinese version of the AIMS with caution reflects a similar situation.

Confirmatory factor analysis (CFA) allows researchers to test hypothesised factor structures and provides information for further modifications of those hypothesised structures if necessary (Russell, 2002). Previous studies and Study 1 provide a strong psychometric foundation for the on-going development of the AIMS and the construct of athletic identity. In a parallel process, the theoretical framework and

support of the construct and measurement is equally important, if not more so. One of the purposes of Study 2 was to explore the construct of the athletic identity behind, and beyond, the factors and items of the AIMS. The participants' stories present opportunities to reconsider the theoretical background of the items and the meaning of the factor structures suggested by the psychometric evidence.

Portions of the participants' experiences match with the meanings of the 10 items in the original AIMS, including sport-related goals (item 2), athlete friends (item 3), exclusive and relative perceived importance of sports (items 4 and 9), time spent thinking about sports (item 5), sport-related elements of self-evaluations (items 6 and 8) and dysphoric mood associated with injuries (item 10). As expected, most of the participants, in various ways, identify themselves as athletes, albeit to different degrees (item 1). Nevertheless, the coding process, based on the three proposed factors or themes (i.e., social identity, exclusivity, negative affectivity), produce some questions including: (a) how to define these factors or even athletic identity as a whole, (b) how much or what information these factors should cover, and (c) what are some athletic identity features that are not covered by these factors? For example, a few participants shared how they felt good or bad about themselves due to their sport performance. When looking into the context, I could interpret these stories as relating to both exclusivity and negative affectivity themes. The factors of athletic identity in the AIMS do not seem to be independent. It is not necessarily a problem to take the same piece of information and fit it into more than one theme. Tracing back to the factor structure and items organisation of the AIMS, Brewer and Cornelius (2001), however, suggested deleting item 6 and putting item 8 solely in the negative affectivity factor. Hale et al. (1999) suggested that only item 6, but not item 8, should be allowed to cross-load on these two factors. These researchers recommended this cross-loading pattern based on

the psychometric evidence, but they did not supply any theoretical justification for why certain items should or should not be allowed to cross-load. I am not challenging the understandings or interpretations of the psychometric findings in previous studies, but a more solid theoretical and empirical foundation should be developed to justify such changes in the AIMS. Study 2 of this thesis suggests that the three factors of the AIMS are contributing elements of athletes' (or at least Hong Kong athletes') athletic identities and further raise the issue of overlapping areas among the factors.

A large amount of the participants' stories relate to the social identity aspect of their athletic identities. Study 2 also raises some questions concerning the definition of social identity. As mentioned in the Chapter 4, researchers defined the social identity factor as the extent to which individuals view themselves as occupying the role of "athlete" from a social standpoint (Brewer, Boen et al., 1993; Ryska, 2002). It is not clear what "social standpoint" or "the role of athlete" actually encompasses. One cannot tell whether the individuals are considering themselves from a "social standpoint" when they are rating the items "I consider myself as an athlete" (item 1) or "I have many goals related to sport" (item 2). The one-sentence definitions of social identity made interpreting, and "fitting," the interview information difficult. In Study 2, I decided to interpret the participants' stories in accordance with the relationship to social context. For instance, if the participants considered themselves athletes for reasons relatively free of social context or other people, I would have not coded them as related to the social identity aspect. Social context, however, was hard to escape. In social psychology, there is an on-going discussion concerning the definitions of "social identity" and its related concepts. For James (1890/1950), the social self is a component of the "me" self. Cooley (1902) and Mead (1934) viewed the experience of self as constantly related to others, and the collective aspect of one's social life can be internalised as one's self-

representation. The social cognitive approach (Markus, 1977) does not specify the construct of social identity. Markus suggested that one's "working self" regulates a subset of self-representations to interact with the social conditions from time to time. Onorato and Turner (2001) stated that social identity refers to the identification of "us" against "them." Based on self-categorisation theory, they suggested that social identity is the "shared social categorical self based on intergroup comparisons" (p. 156). Sedikides and Brewer (2001) proposed a tripartite model of the self comprising individual, relational, and collective selves with social identity being a combination of relational and collective selves. The above discussion generally suggests that the involvement of others, or the social context in defining oneself, is one of the manifestations of social identity. This understanding is the basis for my interpretations of the social identity aspects in Study 2. Referring back to the discussion of items and the social identity factor of the AIMS, although items concerning self-identification as athletes (i.e., item 1) and sport-related goals (i.e., item 2) could be related to the participants' social identity aspects of their athletic identities, the reasons driving the participants to consider themselves as athletes, and the actual content of their goals (in the case of item 2) are equally valuable, if not more so, to identify how the participants' experiences connect to the theme.

According to self-categorisation theory, the type or level of comparison (interpersonal versus intergroup) is another element of social identity. During the interview process, my questions sometimes implicitly led the participants to make certain kinds of comparisons. For example, when discussing the differences between Hong Kong athletes and athletes from other countries, my questions might have prompted the participants to submerge themselves within the group of Hong Kong athletes and compare the whole group (in-group) to athletes from other countries (out-

group). Nevertheless, some participants seem to have separated themselves from the group called *Hong Kong athletes* when comparing themselves with athletes from other countries. This example illustrates that, in the interview and its subsequent coding processes, it was difficult for me, the interviewer and researcher, to know which level of comparison the participants were making.

Along with the consideration of the 10 original AIMS items and three factors, participants' stories also reveal the cultural elements contributing to their athletic identities. The theory of self-construals (Markus & Kitayama, 1991) is one of the major frameworks to interpret cultural features in relation to identity. Although Oyserman et al. (2002) reviewed previous studies and concluded that Hong Kong culture generally shows more collectivistic features (or interdependent selves) than individualistic features (or independent selves), it was not the aim of Study 2, a qualitative exploration, to count and compare the number of themes that emerged. The participants' sharing in Study 2 show both individualistic and collectivistic features. Such results were not unexpected, because it is normal for individuals from any society to reflect both types of cultural features in their identities (Oyserman et al., 2002). For the quantitative investigation (Study 1), one might expect that the collectivistic culture in Hong Kong would lead to high social identity scores for the participants (see also Gouveia, Albuquerque, Clemente, & Espinosa, 2002). The results of the Study 1, however, show that the participants' social identity scores are similar to athletes from other more individualistic countries (e.g., UK, US, Russia) found in previous studies (Hale et al., 1999). These similarities may be the result of item wording and possibly translation issues. As discussed above, some of the social identity items were not directly related to the social context. It is possible for people with strong individualistic orientations to rate themselves high on these items. For example, if an individual has many sport-related



goals, which are related to himself, but not so much the social context, he would still score high on item 2. In other words, the social identity subscale scores of participants with strong individualistic orientations might be inflated in previous studies (Brewer & Cornelius, 2001; Hale et al., 1999). Nevertheless, even if all the items of the social factor do address the social context, individuals with strong collectivistic orientations may not necessarily score higher than those with strong individualistic orientations. Theoretically, individuals' self-identities could be strongly related to their social contexts, regardless of their self-construals or cultural orientations. If individuals with strong individualistic orientations use the social environment to express their uniqueness, intentionally or unintentionally, their identities are then strongly related to the social context. For example, individuals from strong individualistic culture could have many athlete-friends (item 3), but these friendships may serve as platforms allowing the individuals to express their internal attributes and needs. The relationship between the theory of self-construals (or cultural orientation) and social identity, as measured by psychometric instruments such as the AIMS, might be more complicated than expected.

#### Suggestions for Possible New Items for the AIMS

Based on the participants' stories, I would like to suggest a few items, some item modifications, and some possible new factors for the future development of the AIMS. First, considering self-identification as athletes, it may be worthwhile to extend item 1 to something like "I consider myself an athlete because I am passionate on my sport" (possibly part of a new *personal identity* factor) and "I consider myself an athlete, because I train as much or more than most athletes" (social comparison). These items may help researchers and practitioners determine if individuals' athletic identities are related more to their social or personal identities. For example, the former suggested item, involving personal interest, seems related to the personal identity aspect, whereas

the latter one, containing a comparison with others, appears related to social identity aspect. Second, recognition from others is one of the most important elements in the participants' stories. It may be useful to add some items such as: "I am always surrounded by athletes"; "My family treats me mainly as athlete"; "Others' recognition of my sport accomplishment is important to me"; or "I enjoy wearing sport gear to show that I am an athlete" (possibly part of an *appearance* factor). Third, participants show both positive and negative emotions related to their sport involvement. It may be helpful to add some items such as: "I feel good when my performance improves"; "I feel good when I make a contribution to the team"; or "I would feel very anxious if my sport career was forced to end suddenly." Also, instead of having a factor called *negative affectivity*, it may be worthwhile to change it to an *affective* dimension, so that this factor can address the overall emotional aspects related to individuals' athletic identities. Based on both psychological and sociological frameworks, Cieslak (2005) recently developed the AIMS-plus containing two sections. The first section is a 22-item scale incorporating his suggested items, the items from the original version of the AIMS, and the Sport Identity Index (SII; Curry & Weaner 1987). Cieslak suggested a 5-factor model consisting of: (a) self-identity, (b) social identity, (c) exclusivity, (d) negative affectivity, and (e) positive affectivity. The second section, adapted from previous studies of SII, contains ranking and rating procedures to examine the relationship between athletic identity and other identities (i.e., family, friends, academic, religious, romantic). Although the development of the AIMS-plus is at an early stage, Cieslak has taken the first steps to address the suggestions from the field by expanding the construct of athletic identity and its measurement scale. Similar to Cieslak's approach, advances in the development of athletic identity and its measurement should be guided by a framework or theory. It may be worthy to employ a relatively general theory of identity

and develop a brand new instrument that can be further tailored to the sport domain. This suggestion would minimise the possible influences or assumptions based on the existing instruments and allow flexibility in future research.

### Limitations

There are a number of limitations in these two studies. First, in both studies a large amount of the participants were scholarship athletes. For Study 2, all of the 13 participants were student athletes from one local university. Scholarship athletes represent one of the major groups of elite athletes in Hong Kong, and the professional sport industry in Hong Kong is still developing. One could, however, argue that the participants' stories in Study 2 might only represent the experiences of student athletes in Hong Kong. It would be risky for researchers to extend the overall findings of these two studies and generalise them to the experiences of professional athletes in Hong Kong such as jockeys (professional) and soccer players (semi-professional). Second, the large age range (heterogeneity) of the participants might have affected misspecifications of the models in the CFAs in Study 1. Third, there are a few shortcomings stemming from the interview process in Study 2. For example, unless they specifically identified themselves as parts of a team (e.g., "As a team member, we . . ."), it was difficult for me to interpret which type or level of comparison (interpersonal or intergroup) the participants were referring to when they spoke about their athletic experiences during the interviews. Also, according to Markus and Kitayama (1991), when individuals with strong collectivistic orientations take part in interviews as interviewees, they may tend to be concerned about their relationships with the interviewers. They may ask internal questions such as "what kind of answer am I supposed to give so that it will meet the interviewer's expectation?" This issue might have affected the dynamic between the participants and myself. The variation of the participants' stories might show that the

participants in Study 2 did manage to express themselves freely during the interviews, but one cannot discount the possible contaminating effects of this wanting-to-please issue.

### Implications

This study has shown that the AIMS (Chinese version) is basically applicable in the Hong Kong athletic community. Practitioners can employ the AIMS as part of the assessment in their consultations. AIMS allows the practitioners to assess how strong athletes identify themselves with the athletic role. Such information can be helpful in various occasions. For example, practitioners may find such information useful to understand athletes' participation rates and motivations. Also, practitioners could use such information to help retiring athletes plan their transitions.

Based on the findings of Study 2, there may be some meaningful aspects related to athletes' identities, but not included in the AIMS, such as information about self-identification, appearance, and the positive affects of the athletic role. Practitioners are recommended to address these aspects and further explore these issues with athletes through other therapeutic means during consultation.

### Recommendations for Further Study

The first suggestion for further study would be adding more items and factors to the AIMS and examining the psychometric properties of the revised instrument with large sample sizes. It would also be worthwhile to extend CFA to include various procedures of cross-validation especially in any newly modified model (see Lindwall, 2005). Lindwall suggested that cross-validation procedures include: (a) testing the fit of the models in independent samples, (b) testing the equivalence of factor structures and covariance matrices across samples, (c) testing the equivalence of item loadings and factor covariance, and (d) testing the equivalence of all parameters.

The participants of this thesis research were mainly HKSI scholarship athletes or student athletes. It would be useful to extend both studies into other groups of Hong Kong athletes such as professional jockeys and soccer players. Also, currently some Hong Kong athletes come from Mainland China. Most of them have been elite athletes in Mainland China before immigrating to Hong Kong. After immigration, some have been selected to Hong Kong national squads and have represented Hong Kong at international events. Chow (2001) stated that this group of “imported athletes” might have different experiences in their sport careers in comparison to the “homegrown athletes.” Because of the large differences in sport, and the general culture, between Mainland China and Hong Kong, one can imagine that these imported athletes might have other considerations and experiences connected to their athletic identities. Due to the growing relationship between Hong Kong and Mainland China, there may be more imported athletes coming to Hong Kong in the near future. It may be useful to explore how these athletes might identify themselves in Hong Kong and how their self-identification processes might change after immigration. Similarly, it is risky to generalise the findings from this series of study to Chinese athletes from other parts of world (e.g., Taiwan). To understand the development of athletic identity and the usefulness of the Chinese version of the AIMS among Chinese athletes in general, I would suggest extending the study into other groups of Chinese people including the Chinese from Mainland China, Taiwan, and Macau, along with ethnic Chinese who are substantial parts of other Asian countries’ populations (e.g., Malaysia).

Finally, Hong Kong culture has been rapidly changing, politically, economically, and socially in the last 20 years. Our relationship with Mainland China has been growing dramatically since 1997. Hong Kong culture, however, is still highly influenced by both traditional Chinese and British cultures. Sussman (2005) revealed

that many Hong Kong people had immigrated to Western countries like Australia, Canada, and US in mid to late 80s due to the fear of the sovereignty of China and the possible political turmoil. The situation in Hong Kong, however, seems to be relatively positive since 1997. Many of these immigrants, after spending a few years in foreign countries, then re-immigrated back to Hong Kong for various reasons, financial ones in particular. Together with the increasing number of Hong Kong people who received their education overseas, there is a large group of Hong Kong people continually bringing cultural features, such as individualism, into Hong Kong (Sussman, 2005). One can view the cultural influences brought from this group of people as a replacement for the British influences during colonial years. In other words, the handover may have had a facilitative effect on Hong Kong people's collectivistic orientations, but it is oversimplified to assume that Hong Kong people nowadays would have higher levels of collectivism and lower levels of individualism, in comparison with the past. Sussman, looking into the process of repatriation in Hong Kong, illustrated that there is currently a large flow of culturally mixed "human capital" in Hong Kong, and the conditions are changing rapidly. Hong Kong athletes certainly would not be immune to from the overall social development. There have always been interactions between Western and Eastern cultures in the Hong Kong sport industry. For example, there are coaches in the HKSI who come from European countries, former Soviet block nations, and Mainland China. To understand the cultural influences on Hong Kong athletes' identities, future researchers may want to include a psychometrically sound measurement of self-construals (e.g., the Self-Construal Scale; Gudykunst, Matsumoto, Ting-Toomey et al., 1996; see also Moneta, 2004) in future studies. Such an approach will allow researchers to obtain current information on cultural orientations (e.g., individualism, collectivism) and related constructs (e.g., independent and interdependent self-construals) of Hong

Kong athletes. This tack, along with further development of a Chinese version of the AIMS, with possible additions of new factors and items, may help us gain a much more comprehensive picture of Chinese athletic identity than we currently have. Refinements in assessment of athletic identity, and the exploration of AI's positive and negative sequelae in a Chinese athletic population, may help sport psychologists better serve the people in their care.

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## APPENDIX A

## Plain Language Statement for Study 1 (English version)

**PLAIN LANGUAGE STATEMENT****Validation of Athletic Identity Measurement Scale (AIMS):  
a Chinese Sample**

Athletic identity, which is the extent to which people label themselves as athletes, influences the way people perceive themselves and sport-related events. Studies have reported that the level of athletic identity influences performance and participation; and leads to both positive and negative psychological consequences. AIMS, is widely used and has been established for more than a decade, as well as high levels of reliability and validity have been shown. However, there are limited numbers of studies using the AIMS in cultures other than U.S. or any non-English speaking countries. A study in the U.S. and Malaysia, which was one of the few cross-cultural studies using AIMS, was conducted, but the sample pool only consisted of 31 athletes. Some researchers have translated the AIMS into Russian and undertook a psychometric analysis for comparing among Russian, American and British athletes. In order to understand the construct and the global application of AIMS, translating AIMS into different languages, together with extensive psychometric analysis, is an important step. Along with the translation process, some studies have proposed a number of multi-dimensional models conceptualizing the construct of athletic identity. The current study intends to validate the Athletic Identity Measurement Scale (AIMS), which is a quantitative inventory measuring the level of athletic identity, in a Chinese, non-English speaking, sample.

The current study focuses on the psychometric validation and model comparison of the AIMS. If the Chinese version of AIMS is statistically supported, further exploration of cultural difference in athletic identity will be made. It is believed that the current study will contribute to the global development of AIMS, and the Chinese version of AIMS would be beneficial to the research and practical settings in Chinese sports.

I would like to invite you to participate in the study, which involves a questionnaire consisting of 10 items. The information you provide will be invaluable in assisting us to develop a valid and reliable questionnaire that can be widely employed in the sport psychology field in Chinese.

Please note that participation is entirely voluntary and you are free to discontinue at any time, without the need for reason or explanation. No information gained will enable you or your organisation to be identified to anyone other than the research team and data will only be reported as group information. Participants will be assigned a code which will be kept separately. All of the codes will be kept confidential and stored securely in the office of Associate Prof. Mark B. Andersen at Victoria University.

I thank you in advance for assisting us in our research. Should you have any concerns or queries about the research project, please do not hesitate to contact at the address below. If at any stage you have concerns about the conduct the research project, please contact the University Human Research Ethics Committee, Victoria University, P.O. Box 14428 MCMC, Melbourne, 8001 (Ph 9688 4710).

## APPENDIX B

## Plain Language Statement for Study 1 (Chinese version)

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**驗證「運動員角色測量表」：華人樣本**

「運動員角色」(Athletic Identity) 意旨個人標記自己為運動員這角色的程度。它會影響個人對自己及與運動有關事物的理解。研究指出運動員角色的高低會影響個人在運動上的表現和參與，同時也帶出正、反兩方面的心理影響。過去十年「運動員角色測量表」(Athletic Identity Measurement Scale - AIMS)已在北美被研究及廣泛應用。它的原版（即英文版）已被證明有高度的信度 (reliability) 及效度 (validity)，不過它在北美以外或非英語國家的研究卻處於起步階段。「運動員角色測量表」曾被翻譯成俄羅斯文再跟美國及英國作文化差異的研究。此外它亦被翻譯成為馬來西亞文作文化差異的研究，可惜該研究只得三十一位參與者。故此「運動員角色測量表」的翻譯工作及全面的心理測量研究對了解「運動員角色」的概念及其測量表的應用尤其重要。此外過去的翻譯研究曾提出數個多向量模式 (multidimensional model) 來進一步剖釋「運動員角色」的概念。是次研究之目的在驗證「運動員角色測量表」於華人，一個非英語文化的應用。

是次研究集中「運動員角色測量表」的效度研究及模式比較。如果中文版得到統計上的支持，深入的文化研究將會進行。是次研究將會對「運動員角色測量表」的整體發展，以及「運動員角色測量表」在華人運動界有著幫助。

我希望邀請你參與是次研究。是次研究有十條問卷題目。你的參與將對「運動員角色測量表」的全面性發展以及運動心理學在華人文化的發展有著重要的幫助

是次研究的參與是自願性的，你有自由在任何時間終止，而無需給予任何解釋或理由。你的個人身份將不會被研究員以外的人得悉或確認，而所有資料將會以組合形式被發表。所有資料均會被保密及完全地存放。

我們再次向各下的參與表示謝意。如對研究有任何問題，歡迎聯絡研究員討論。首席研究員：Mark B. Andersen (澳洲維多利亞大學副教授)，學生研究員：李軒宇 (電話：92122826)。

- University Human Research Ethics Committee, Victoria University, P.O. Box 14428 MCMC, Melbourne, 8001 (Ph: 96884710)

## APPENDIX C:

## Consent Form for Study 1 (English version)

**Victoria University of Technology****Consent Form for Participants Involved in Research****INFORMATION TO PARTICIPANTS:**

We would like to invite you to be a part of a study exploring how and to what extent the athletes in Hong Kong (a Chinese culture) view themselves in terms of the role of athletes. Your participation will also facilitate the establishment of the Athletic Identity Measurement Scale (AIMS): Chinese version.

**CERTIFICATION BY PARTICIPANT**

I, \_\_\_\_\_ of \_\_\_\_\_

certify that I am at least 18 years old\* and that I am voluntarily giving my consent to participate in the research entitled: **Validation of Athletic Identity Measurement Scale (AIMS): with a Chinese Sample**

being conducted at Victoria University of Technology by: Associate Prof. Mark B. Andersen (Victoria University) and Mr. Hin Yue Li (Victoria University)

I certify that the objectives of the research, together with any risks to me associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by: Mr. Hin Yue Li (Victoria University)

and that I freely consent to participation involving the use on me of these procedures.

**Procedures:**

All the participants will be asked to fill a questionnaire consisting of 10 items relating to their experience in sports. Demographic information (age, gender, type & level of sports, year of participation in sports, and weekly length of training) will be collected and kept separately. Information that you provide during the interview will be treated as confidential and no identifying information about you or your organisation will be made available to anyone outside of the research team.

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this research at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed: ..... }

Witness other than the experimenter: \_\_\_\_\_ } **Date:** .....

Any queries about your participation in this project may be directed to the researcher (Name: Associate Professor Mark, B. Andersen, ph.99195413). If you have any queries or complaints about the way you have been treated, you may contact the Secretary, University Human Research Ethics Committee, Victoria University of Technology, PO Box 14428 MC, Melbourne, 8001 (telephone no: 03-9688 4710).



## APPENDIX D

## Consent Form for Study 1 (Chinese version)

## 參與研究同意書

致參與者的資料：

我們誠意邀請各下參與一個目的為了解香港運動員對個人作為運動員這角色的理解及標記之程度的研究，其名為：「驗證「運動員角色測量表」：華人樣本」。各下之參與更有助「運動員角色測驗表」中譯版的發展。

本人\_\_\_\_\_

保證年齡在十八歲或以上，自願同意參與是次由維多利亞科技大學：副教授 *Mark B. Andersen* 及學生 *李軒宇 (Hin Yue Li)* 負責的研究計劃：驗證「運動員角色測量表」：華人樣本

本人明白由 *李軒宇*（學生研究員）就研究目的及任何有關風險之解釋，亦同意參與。

程序：

是次研究有十條問卷題目。我們會收集基本的人口統計資料（年齡、性別、參與運動之項目及程度、已參與時間、每周訓練長度）及將其妥善安放。是次研究的參與是自願性的，你有自由在任何時間終止，而無需給予任何解釋或理由。你的個人身份將不會被研究員以外的人得悉或確認，而所有資料將會以組合形式被發表。所有資料均會被保密及完全地存放

本人明白在任何時間有就研究提出疑問的機會及得到解答，也有權在任何時間終止參與，而不受任何影響。

- 本人已獲悉所提供的資料將會被保密。

簽署：\_\_\_\_\_

日期：\_\_\_\_\_

我們再次向各下的參與表示謝意。如對研究有任何問題，歡迎聯絡研究員討論。首席研究員：Mark B. Andersen (澳洲維多利亞大學副教授)，學生研究員：李軒宇 (電話：92122826)。

- University Human Research Ethics Committee, Victoria University, P.O. Box 14428 MCMC, Melbourne, 8001 (Ph: 96884710)
- 是次研究由香港體育學院，技術發展科支持

## APPENDIX E

Consent Form for Minors in Study 1 (English version)

**Victoria University of Technology****CONSENT ON BEHALF OF A MINOR****CERTIFICATION BY PARENT / GUARDIAN OF A MINOR**I, \_\_\_\_\_  
\_\_\_\_\_of \_\_\_\_\_  
\_\_\_\_\_**hereby give my consent for my son / daughter / dependent** \_\_\_\_\_  
\_\_\_\_\_

***to participate in a research project titled 'Validation of Athletic Identity Measurement Scale (AIMS): with a Chinese Sample' being conducted at Victoria University by Associate Prof. Mark B. Andersen and Mr. Hin Yue Li. I have read the plain language statement that outlines the research and understand that the purpose of the research is to gain a better understanding of the athletes in Hong Kong in terms of the extent they identify themselves as athletes.***

**Procedures:**

Participants will be requested to complete a questionnaire that asks them about their experience as athletes. In addition, demographic information will be collected and kept separately. The whole procedure should take about 10 minutes to complete. Please note that participation is entirely voluntary and your child / dependent will be free to discontinue at any time, without the need for reason or explanation. If you have questions about the research please contact investigator: Hin Yue, Li (Master of Applied Psychology), and ph: 92122826.

I voluntarily and freely give my consent to my child's / dependent's participation in this research. I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw my consent at any time during the study, in which event my child's / dependent's participation in the study will immediately cease and any information collected will not be used.

I have been informed that the information will be kept confidential. I understand that only summary results will be reported and the individual responses will not be released to any person or organisation.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Parent / Guardian signature

Any queries about your participation in this project may be directed to the researcher Associate Professor Mark, B. Andersen, ph: 99195413. If you have any queries or complaints about the way you have been treated, you may contact the Secretary, University Human Research Ethics Committee, Victoria University of Technology, PO Box 14428 MC, Melbourne, 8001 (telephone no: 03- 9688 4710)

## APPENDIX F

## Consent Form for Minors in Study 1 (Chinese version)

## 維多利亞科技大學

參與研究同意書（代表未成年人士）  
由未成年人士之家長／監護人證明

本人\_\_\_\_\_

—

在此授予同意兒子／女兒／受監護人\_\_\_\_\_

—

參與是次由維多利亞科技大學：副教授 *Mark B. Andersen* 及學生 *李軒宇* 負責的研究計劃：驗證「運動員角色測量表」：華人樣本。本人已閱讀及明白是次研究之目的在於「運動員角色測量表」的全面性發展以及明白解香港運動員如何理解個人的「運動員角色」。

## 程序：

參與者將會被邀請完成一份有十條問題的問卷。我們會收集基本的人口統計資料（年齡、性別、參與運動之項目及程度、已參與時間、每周訓練長度）及將其妥善安放。整個過程約需十五分鐘。各下所提供的資料將會被保密，而且不會被研究員以外的人士接觸。請留意參與是自願性，而各下之兒女／受監護人可自由在任何時間無需要給予理由或解釋下終止參與。如有任何疑問，歡迎聯絡研究員：*李軒宇* (維多利亞科技大學: *Master of Applied Psychology*) 電話：9 2 1 2 2 8 2 6

本人乃自願志地為兒子／女兒／受監護人同意參與是次研究。本人明白在任何時間有就研究提出疑問的機會及得到解答，也有權在任何時間終止參與，而不受任何影響與及兒子／女兒／受監護人的資料將不會再被使用。

本人已獲悉所提供的資料將會被保密。本人明白所有資料將會以組合形式被發表，個人資料將不會提供給任何人士或機構。

簽署：\_\_\_\_\_

家長／監護人

日期：\_\_\_\_\_

我們再次向各下的參與表示謝意。如對研究有任何問題，歡迎聯絡研究員討論。首席研究員：*Mark B. Andersen* (澳洲維多利亞大學副教授)，學生研究員：*李軒宇* (電話：92122826)。

- University Human Research Ethics Committee, Victoria University, P.O. Box 14428 MCMC, Melbourne, 8001 (Ph: 96884710)

## APPENDIX G

## Questionnaire Pack (English version)

**Validation of Athletic Identity Measurement Scale: With a Hong Kong Sample**

Thank you for participation.

This questionnaire pack consists of three pages. The first page contains items of demographic information. The second and third pages contain 10 items. It is expected to spend you 10 mins to finish them.

Your identity will not be identified by anyone other than the researchers of this research. All findings will be presented as group. All findings will be stored safely.

1. Your focused sports: Track & field/ Badminton/ Cycling/ Fencing/ Rowing/  
Squash/ Swimming/ Table tennis/ Tennis/ Tenpin bowling/  
Triathlon/ Wind-surfing/ Martial arts/  
Others (please indicate): \_\_\_\_\_
2. Age: \_\_\_\_\_
3. Gender: \_\_\_\_\_
4. Are you a scholarship athlete supported by Hong Kong Sports Institute (HKSI)?  
Yes: \_\_\_\_\_ No ☐  
Full time/part time  
(go to item 5) (go to item 6)
5. Have you ever lived in the hostel of the HKSI Yes ☐ No ☐
6. How long have you been participating in formal training? \_\_\_\_\_ Months/  
years
7. How many hours do you train each week? \_\_\_\_\_ hours
8. Have you ever been selected in national squad? Yes ☐ No ☐

9. Have you ever competed for Hong Kong?      Yes ☐      No ☐

*What follows are 10 items concerning yourself. Please circle the number that best reflects the extent to which you agree or disagree with each statement regarding your sport participation.*

Strongly disagree    1       2       3       4       5       6       7       Strongly agree

1. I consider myself an athlete.	1	2	3	4	5	6	7
2. I have many goals related to sport.	1	2	3	4	5	6	7
3. Most of my friends are athletes.	1	2	3	4	5	6	7
4. Sport is the most important part of my life.	1	2	3	4	5	6	7
5. I spend more time thinking about sport than anything else.	1	2	3	4	5	6	7
6. I need to participate in sport to feel good about myself.	1	2	3	4	5	6	7
7. Other people see me mainly as an athlete	1	2	3	4	5	6	7
8. I feel bad about myself when I do poorly in sport.	1	2	3	4	5	6	7
9. Sport is the only important thing in my life.	1	2	3	4	5	6	7
10. I would be very depressed if I were injured and could not compete in sport.	1	2	3	4	5	6	7



以下是一份共有十題有關自我了解的問卷題目，請以數分鐘衡量下列各項所能反映閣下意見的程度再圈出相應的數字，順次序按程度由‘1’為非常不同意至‘7’為非常同意。

	非常不同意						非常同意
1. 我認為自己是個運動員。	1	2	3	4	5	6	7
2. 我有許多有關運動的目標。	1	2	3	4	5	6	7
3. 我大多數朋友都是運動員。	1	2	3	4	5	6	7
4. 運動是我生活中最重要的部分。	1	2	3	4	5	6	7
5. 我思考運動所花的時間多於其他任何事情。	1	2	3	4	5	6	7
6. 我需要參加運動才會覺得自己好。	1	2	3	4	5	6	7
7. 別人主要把我視作運動員。	1	2	3	4	5	6	7
8. 當我在運動中發揮較差時，我會覺得自己不好。	1	2	3	4	5	6	7
9. 運動是我生命中唯一重要的事情。	1	2	3	4	5	6	7
10. 如果我受傷及不能參加比賽，我就會感到很意志消沈。	1	2	3	4	5	6	7



## APPENDIX I

## Plain Language Statement for Study 2 (English version)

**PLAIN LANGUAGE STATEMENT****Validation of Athletic Identity Measurement Scale (AIMS):  
Chinese Sample (Part 2)**

Athletic identity, which is the extent to which people label themselves as athletes, influences the way people perceive themselves and sport-related events (Brewer, Van Raalte, & Linder, 1993). It further influences performance and participation, and leads to both positive and negative psychological consequences. The Athletic Identity Measurement Scale (AIMS) is widely used and has been established for more than a decade. However, there are limited numbers of studies using the AIMS in cultures other than U.S. or any non-English speaking countries. In order to understand athletic identity and the global application of AIMS, translating AIMS into different languages, together with extensive psychometric analysis are important steps.

The current study consists of two sections. The first section intends to look at the Athletic Identity Measurement Scale (AIMS), which is a measure the level of athletic identity, in a Chinese, non-English speaking, sample. The current study focuses on the psychometric validation and model comparison of the AIMS. With the Chinese version of AIMS further exploration of cultural difference in athletic identity will be made.

The second section intends to get an in-depth understanding of the perception of HK Chinese athletes towards themselves as athletes. Cultural settings (e.g., collectivism vs individualism) have been shown to affect individual behaviour in general psychology studies. The content and the way of developing the self-concept, including the athletic domains, may be different Hong Kong or Chinese people. As a result, it is an important step of looking into a collectivistic culture to show the extent of generalisation of AIMS and its underlying construct (AI). It is suggested that AIMS may not fully capture the whole scope of the concept. In other words, athletic identity in Chinese culture may consist of concepts more than social identity, exclusivity and negative affectivity as proposed. Via in-depth interviews, the way HK Chinese athletes view themselves with respect to their athletic role will be explored.

I would like to invite you to participate in the study, which involves a semi-structured interview addressing your experiences and perceptions of being an athlete. The information you provide will be invaluable in assisting us to develop a valid and reliable questionnaire, as well as further understand the concept of athletic identity in Chinese culture.

Please note that participation is entirely voluntary and you are free to discontinue at any time, without the need for reason or explanation. No information gained will enable you or your organisation to be identified to anyone other than the research team and data will only be reported as group information. Participants will be asked to recall their experiences during their athletic lives. Although it is not expected that participants will become distressed or concerned by any of the questions posed, or in responding to those questions, an independent psychologist will be available for participants if they experience any anxiety or discomfort (Sau Yau Chow, ph: 852-29480397). The psychologist is aware of the research, and informed that participants can contact her should they wish to discuss any issues raised in the interview. If you become distressed, the interview process will be stopped until you indicate you are willing to continue or you indicate that the interview must not continue. Participants will be assigned a code, which will be kept separately. All of the codes will be kept confidential and stored securely in the office of Associate Prof. Mark B. Andersen at Victoria University.

I thank you in advance for assisting us in our research. Should you have any concerns or queries about the research project, please do not hesitate to contact at the address below. If at any stage you have concerns about the conduct the research project, please contact the University Human Research Ethics Committee, Victoria University, P.O. Box 14428 MCMC, Melbourne, 8001 (Ph 9919 4710).

Hin Yue, Li  
Candidate, Doctor of Applied Psychology  
Victoria University  
Email: hinyue.li@research.edu.au

## APPENDIX J

## Plain Language Statement for Study 2 (Chinese version)

## 驗證「運動員角色測量表」：華人樣本（第二部分）

「運動員角色」(Athletic Identity) 意旨個人標記自己為運動員這角色的程度。它會影響個人對自己及與運動有關事物的理解。研究指出運動員角色的高低會影響個人在運動上的表現和參與，同時也帶出正、反兩方面的心理影響。過去十年「運動員角色測量表」(Athletic Identity Measurement Scale - AIMS)已在北美被研究及廣泛應用。它的原版（即英文版）已被證明有高度的信度 (reliability) 及效度 (validity)，不過它在北美以外或非英語國家的研究卻處於起步階段。「運動員角色測量表」曾被翻譯成俄羅斯文再跟美國及英國作文化差異的研究。此外它亦被翻譯成為馬來西亞文作文化差異的研究，可惜該研究只得三十一位參與者。故此「運動員角色測量表」的翻譯工作及全面的心理測量研究對了解「運動員角色」的概念及其測量表的應用尤其重要。此外過去的翻譯研究曾提出數個多向量模式 (multidimensional model) 來進一步剖釋「運動員角色」的概念。是次研究之目的在驗證「運動員角色測量表」於華人，一個非英語文化的應用。

是次研究包括兩部分。首部分之重點在於心理測量學上的研究、驗證及模式比較。如果測量表的中譯本在統計學上得到支持，研究將嘗試進一步拓展至文化差異的比較。

第二部分集中深入探討香港運動員對運動員角色的了解。研究已提出文化環境 (collectivism vs individualism) 對個人行為的影響。中國人或香港人自我形象，包括運動範疇，的內容和發展過程可能有異於西方人。首部分的初步結果讓我們懷疑「運動員角色測量表」是否已完全函概運動員角色的內容。透過深入個人訪問，香港中國運動員的自我形象及其運動員角色將得到探討。

我們誠意邀請閣下參與是次研究。希望你能接受有關閣下作運動員之經驗的訪問。你的參與將對「運動員角色測量表」的全面性發展以及運動心理學在華人文化的發展有著重要的幫助。

是次研究的參與是自願性的，你有自由在任何時間終止，而無需給予任何解釋或理由。你的個人身份將不會被研究員以外的人得悉或確認，而所有資料將會以組合形式被發表。所有資料均會被保密及完全地存放。雖然我們沒有預料是次訪問會引起你任何程度的不快，但我們已聯絡及安排了的一位獨立心理學家（周秀茵-29480397）。若你發覺在研究過程中，有任何不快或焦慮，你可以要求終止訪問，而心理學家亦樂意跟你討論一切有關問題。

我們再次向各下的參與表示謝意。如對研究有任何問題，歡迎聯絡研究員討論。首席研究員：Mark B. Andersen (澳洲維多利亞大學副教授)，學生研究員：李軒宇 (電話：92122826)。

- University Human Research Ethics Committee, Victoria University, P.O. Box 14428 MCMC, Melbourne, 8001 (Ph: 96884710)

## APPENDIX K

## Consent Form for Study 2 (English version)

## Victoria University of Technology

## Consent Form for Participants Involved in Research

## INFORMATION TO PARTICIPANTS:

We would like to invite you to be a part of a study exploring how and to what extent the athletes in Hong Kong (a Chinese culture) view themselves in terms of the role of athletes. Your participation will also facilitate the establishment of the Athletic Identity Measurement Scale (AIMS): Chinese version.

## CERTIFICATION BY PARTICIPANT

I, \_\_\_\_\_ of \_\_\_\_\_

certify that I am at least 18 years old\* and that I am voluntarily giving my consent to participate in the research entitled: **Validation of Athletic Identity Measurement Scale (AIMS): Chinese Sample (Part 2)**

being conducted at Victoria University of Technology by: Associate Prof. Mark B. Andersen (Victoria University) and Mr. Hin Yue Li (Victoria University)

I certify that the objectives of the research, together with any risks to me associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by: Mr. Hin Yue Li (Victoria University) and that I freely consent to participation involving the use on me of these procedures.

## Procedures:

All the participants will be invited to take part in semi-structured interview concerning their perception and experience as being athletes. Demographic information (age, gender, type & level of sports, year of participation in sports, and weekly length of training) will be collected and kept separately. Information that you provide during the interview will be treated as confidential and no identifying information about you or your organisation will be made available to anyone outside of the research team.

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this research at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed: ..... }

Witness other than the experimenter: ..... } **Date:** .....

.....}

Any queries about your participation in this project may be directed to the researcher (Name: Associate Professor Mark, B. Andersen, ph.99195413). If you have any queries or complaints about the way you have been treated, you may contact the Secretary, University Human Research Ethics Committee, Victoria University of Technology, PO Box 14428 MC, Melbourne, 8001 (telephone no: 03-9919 4710).

## APPENDIX L

## Consent Form for Study 2 (Chinese version)

## 維多利亞科技大學

## 參與研究同意書

致參與者的資料：

我們誠意邀請各下參與一個目的為了解香港運動員對個人作為運動員這角色的理解及標記之程度。各下之參與更有助「運動員角色測驗表」中譯版的發展。

本人\_\_\_\_\_

保證年齡在十八歲或以上，自願同意參與是次由維多利亞科技大學：副教授 *Mark B. Andersen* 及學生 *李軒宇 (Hin Yue Li)* 負責的研究計劃：驗證「運動員角色測量表」：華人樣本 (第二部分)

本人明白由 *李軒宇* (學生研究員) 就研究目的及任何有關風險之解釋，亦同意參與。

程序：

參與者將會被邀請接受有關作為運動員之經驗的訪問。我們會收集基本的人口統計資料 (年齡、性別、參與運動之項目及程度、已參與時間、每周訓練長度) 及將其妥善安放。各下所提供的資料將會被保密，而且不會被研究員以外的人士接觸。

本人明白在任何時間有就研究提出疑問的機會及得到解答，也有權在任何時間終止參與，而不受任何影響。

本人已獲悉所提供的資料將會被保密。

簽署：

日期：

目擊者 (研究員以外之人士)：

我們再次向各下的參與表示謝意。如對研究有任何問題，歡迎聯絡研究員討論。首席研究員：Mark B. Andersen (澳洲維多利亞大學副教授)，學生研究員：李軒宇 (電話：92122826)。

University Human Research Ethics Committee, Victoria University, P.O. Box 14428 MCMC, Melbourne, 8001 (Ph: 96884710)

## APPENDIX M

## Interview Guide

1. Demographic information (this section will be used for describing the sample)
  - a. Name
  - b. Age
  - c. Gender
  - d. Martial status (information about partner)
  - e. Contact address
  - f. Contact telephone
2. General sport-related information
  - a. Sport
  - b. Current level
  - c. Weekly training length (maybe further asking to describe a normal training day)
3. Background information
  - a. Family background (only those related to sport life)
  - b. Brief personal history (birth place, place where they grew up)
  - c. History of sport life
    - i. Can you tell me when and how you started playing X?
    - ii. When and how did you start playing seriously?
    - iii. Can you describe the experience you have gone through from getting started playing at your current level?
    - iv. Do you remember if you had any dreams about your sport when you started to play seriously?
4. Current information
  - a. Goals
    - i. Sport-related goals
    - ii. Other life goals
    - iii. How would you compare/prioritise all the goals you have described?
  - b. How would you describe yourself as a person? If someone asked you 'Who are you?' what is the first statement coming up in your mind?
  - c. We all play different roles in our lives, for instance, I am an interviewer, and you are an interviewee at this moment, I am a researcher and student, and I am the son of my parents. How would you describe yourself? (*Either b / c will be asked.*)
    - i. You describe yourself as XX (athlete/others), because.....?
    - ii. How would you compare/prioritise all these roles you are playing?
5. Athletic Identity

- a. Do you remember if there was any moment when you started to realise or describe yourself as athlete?
  - b. Can you tell me about any critical moments in your sport career so far? (such as: injury/being selected/winning a tournament)
  - c. How did that incident affect you? (Or how did that incident affect the way you view yourself?)
  - d. If you imagine yourself getting seriously injured because of an accident and can't compete anymore, what do you think life would be like? (*For those who haven't had any critical moments to share.*)
  - e. From your international experience, how would you compare HK athletes to your Westerner counterparts? Any similarities and differences? (*For international representatives*)
6. Social Identity
  - a. As far as you know, how do others surrounding you (such as: family, partner, coach, friends, & media) describe you? How do you feel about it?
  - b. Can you tell me more about your best friends or closest group of friends?
  - c. What do you and your friends normally do? What sort of things do you and your friends normally talk about?
7. Physical Identity
  - a. Being an athlete, your body is obviously very important. Can you tell me how you think about your body or your health condition?
  - b. How do you normally take care of your body?
8. Comments
  - a. Do you wish to share any other experience concerning your athletic life?