Support Technology in Sport Psychology
Career Transition of Elite Athletes: Role of Mental Training

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Keywords: Elite Athletes, Mental Training, Career Transition, Case Study Approach, Biofeedback.

Abstract: Presently, various technologies are used more and more often in the field of sport psychology. This paper introduces two cases of how elite athletes use support technology in their mental training. One of the cases involves the use of Information Communication Technology (ICT), described in detail as qualitative research regarding elite athletes facing career transition. Becoming an Olympian dominates athletes' entire lives. Elite athletes' need for career transition support has recently become more recognized; therefore, international sports powerhouses tend to provide their own national support programs for elite athletes during their career transitions; for instance, the Japanese Olympic Committee began a career support program in 2004. In parallel with similar movements around the world, sport psychology consultants are often naturally called upon to address career transitions when working with elite athletes. The results show athletes' needs for career transition support and how sport psychology consultants can help these athletes as ultimate stage of their mental training. Possible interventions (approaches) are also presented.

1 INTRODUCTION

In recent years, sport psychology has become more recognized worldwide as one of the key aspects for performance enhancement among elite athletes (Gould and Maynard, 2009). In parallel with international tendency, the Japanese government started national support projects, including those in the sport psychology field for Olympians before the London Olympics (Japan Institute of Sport Sciences, 2012).

1.1 Introducing Case 1: Biofeedback in Sport Psychology

Mental training is one of the most well-known representative approaches in the field of sport psychology. A huge variety of approaches are used for mental training. In addition to one-on-one sessions (counseling), scientific approaches using technology such as biofeedback have become more recognized (Galloway, 2011); (Paul and Garg, 2012). Biofeedback helps athletes develop self-regulation skills for relaxation and concentration (Muench, 2008); (Hayden, 2008). StressEraser, a small real-time biofeedback device manufactured by Helicor Inc., played an active role in helping athletes acquire breathing techniques as one of their relaxation skills in preparation for the 2012 Olympics (Sasaba and Sakuma, 2014). The device helps visualize the transition of parasympathetic nerves' predominant points during relaxation training. Therefore, athletes could modify their breathing approaches, such as the rhythm or length, to acquire precise breathing for relaxation (Figure 1).

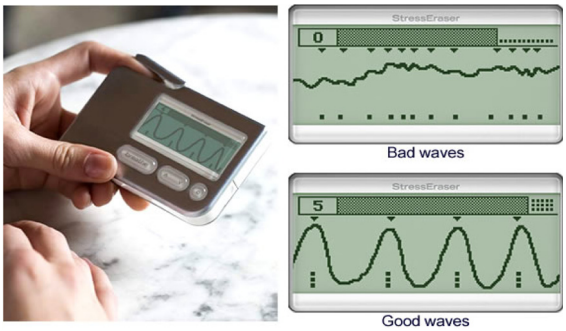

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Figure 1: Stress Eraser and the examples of bad waves and good waves.

Sasaba, I. and Sakuma, H..
Support Technology in Sport Psychology - Career Transition of Elite Athletes: Role of Mental Training.
In *Proceedings of the 3rd International Congress on Sport Sciences Research and Technology Support (icSPORTS 2015)*, pages 126-131
ISBN: 978-989-758-159-5

One big question exists in Mental Training. After elite athletes complete the relaxation training in a laboratory environment, "How do the mental skills actually affect performance in actual sports?" "Can they use the skills correctly even under high pressure just as they did in a laboratory?" Kinect (Microsoft Co., Ltd.), a noncontact motion-capture device, can help in these situations (Sasaba and Sakuma, 2015). Kinect measures heart rate, breathing rate, and respiratory curve. When athletes need relaxation for their sports, they can confirm their concentration state and relaxation state in actual sports situations, especially right before performing, just by sitting in front of the Kinect (Figures 2-4).

Figure 2: Kinect (Microsoft Co., Ltd.).

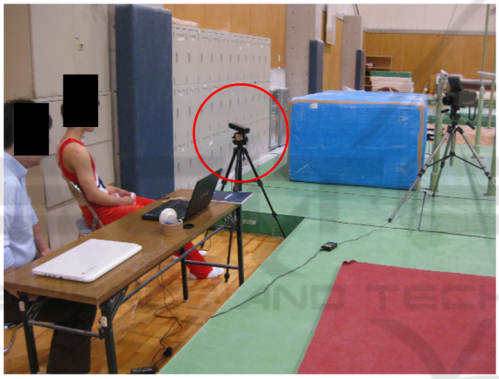

Figure 3: Right before his performance, using breathing techniques to concentrate.

Figure 4: Right after the concentration, he performs as in competition (simulated actual competition situations).

1.2 Case 2: The Use of ICT in Sport Psychology

There are two examples in recent Olympics, where mental training was typically perceived and utilized as preparation for athletes. Blumenstein and Lidors' (2007, 2008) studies introduced unique and long-term programs provided to Israeli elite athletes before the Beijing Olympics. They customized their program each year based on characteristics of the sport, experience of the athletes, and individual needs from the athletes. Another example, also described as a long-term psychological intervention, and crucial for success as a mental preparation, was developed for the US team at the Olympics. They explained that athletes' needs changed in stages. Even right before their events during their stay in the Olympic Village, athletes required psychological support (McCann, 2008).

As shown in these examples, elite athletes require long-term support, not a one-shot approach, and consultants are often required to provide professional guidance from long distances because elite athletes travel worldwide for competitions and long-stay training camps abroad. Moreover, specifically World Championships or Olympics, consultants have limitations when it comes to meeting in person with athletes for many reasons. To meet the needs of elite athletes, ICT is the key. Zizzi and Perna (2002) described that Internet-based interventions have increased within the last decade. Although athletes can easily find many sport psychology consultants' websites offering Internet-based interventions, surprisingly, very little research about this exists.

These days, many ICT tools such as e-mail, Skype, or FaceTime are used in sport psychology sessions. E-mail helps not only with conversations but with collecting data from athletes continuously, for example, conditioning diaries (athletes can send conditioning checksheets via e-mail). Even though their next appointment may be far in the future, consultants can understand and grasp athletes' mental conditions. Thus, consultants can be well-prepared for their next sessions even after a long-term hiatus.

Regarding long-term support for elite athletes, Skype or Face Time are essential for maintaining contact and relationships with them or to provide international service. In addition, when working with elite athletes who have been committed to their sport for almost their entire lives, sport psychology consultants often naturally deal with the situation of career transition. Numerous research exists regarding assessment or the process of career transition for elite athletes around the world (Wylleman and Reints,

2010). Particularly, Zhang et al., (2013) demonstrated Chinese elite athletes' career transitions and social mobility was associated with the alteration of the Chinese government support system. Furthermore, research concerning various countries' career support programs is also presented (Yoshida et al., 2006, 2007). Importantly, Japan Olympic Committee (JOC) started a support program for elite athletes in 2004 as a Second Career Project, distributing enlightening pamphlets, starting up an information website, and holding seminars. Furthermore, along with establishing a National Training Center in 2008, the Career Academy Project began. In this project, national members receive guidance, seminars, exchange meetings with former and current Olympians, and individual counseling. Currently, JOC has expanded employment support in the project (Japan Sport Council, 2014).

From the understanding of various countries' movements as mentioned above, career transition is a realistic, serious concern for elite athletes. Thus, the process of career transition very often emerges as a main theme in sport psychology sessions.

This study introduces how support technology is related to the field of sport psychology. One of the cases regarding the use of Information Communication Technology (ICT) is described in detail as qualitative research concerning elite athletes facing career transition.

2 METHODS

A case-study approach was used for analysing the data.

There are many different types of qualitative approaches in research fields (Merriam, 2009). The case study approach is one of them, and is utilized in many different fields such as psychology, sociology, political science, anthropology, social work, business, education, and nursing, et cetera (Yin, 2014). When a researcher decides which research methods to use for a study, types of research questions are the key factors. Yin argues that when research questions center on the "how" and "why" of single individual(s) or group(s), an occurrence of an event(s), or a program(s), it is appropriate to use case study. Simply, the case-study approach is a qualitative in-depth study of a particular situation compared with a quantitative, sweeping statistical survey.

2.1 Two Single Cases: Career Transition

Both participants performed individual scoring sports. Each athlete's final goal was the Olympics, though Case A had already moved on to his second career after 18 years of trying. Case B once left from competing after the second Olympics then came back to compete in nearly 2 years (More details in Table 1).

Table 1: Demographic Information.

Case A	Case B
Age 29	Age 28
Male	Female
Representing country USA	Representing country Japan
18 years of training	22 years of training
14 years as national member	13 years as national member
Highest achievement 2007 World Championships	Highest achievement 2008 Olympics Final 2012 Olympics
Mental training 1 1/2 years: 57 sessions (Follow up sessions)	Mental training 1 year: 18 sessions (Follow up sessions)

2.2 Data Collection

ICT tools were used to collect data. Evidence came from multiple sources. The data were collected from structured and open-ended interviews conducted through Skype (both athletes were abroad during this research). In parallel, documents from mental training sessions (including both in-person and Internet-based interventions) were absolutely essential. In addition, direct observations from sessions, interviews, and competitions were utilized (Figure 5).

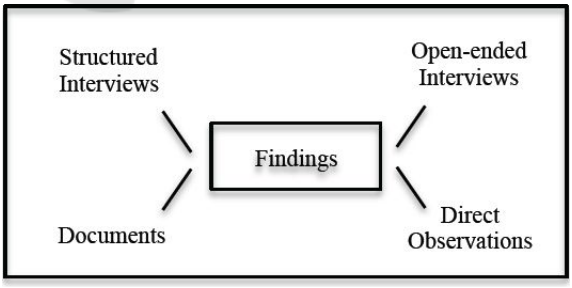

Figure 5: Convergence of multiple sources of evidence.

2.3 Data Analysis

Logic Models (Wholey, 1979) was utilized for data analysis to specify and operationalize a composite chain of the events. The events continue cause and effect patterns towards different stages. Therefore,

the use of logic models consists of fitting empiric observation of events to theoretically predicted events (Yin, 2014). After the data analysis was complete, the findings were explained both in writing and tabulated as figures. In this study, various data from two single cases was analyzed by multiple units, so that research design was called embedded, multiple-case design.

3 RESULTS

[Case A]

- Two open-ended interviews were conducted in 2008
- A structured interview was conducted in 2015

When he couldn't make the Olympics in 2008, he strongly held an emotion of distrust of judges right after the selection. He also had negative feelings about new revised rules towards Olympic selection. His primal needs were to face and accept his emotions then handle the reality of results. Surely, he needed time to release his chagrin and frustration thorough talking to the consultant. At the same time, surprisingly, he expressed determinate motivation and a mind of revenge for the next Olympics. Regarding the selection procedure, he positively perceived that there was a big chance of rule revision. He had already started mentioning specific long and short-term goals to fight for four more years, even searching for the next training base after graduating from university within a year. He seemed to have various options.

Most importantly, he had solid, social support from significant people around him. First of all, advice from his father (his coach) influenced and guided him profoundly. He had opportunity to listen to Olympic medalists' experiences as role models and mentors. From another perspective, he had attended a worldwide, well-known, prestigious university. Therefore, he saw his seniors and teammates become very successful as professionals in their second career. In that kind of environment, he had often heard that sport is not everything and an athletic career is just a part of your life. In addition, as part of the US educational system, he received an internship opportunity as a member of society during his school life. He explained the experience as a time and opportunity to see himself as "new me". Through the life event, he started developing dual identities at the time of still being an elite athlete. Figure 6 shows his transition of personal identity.

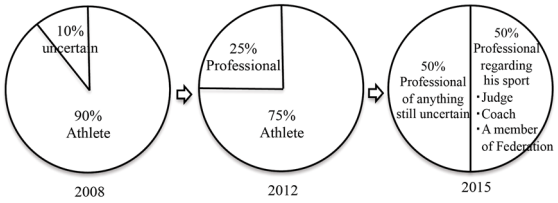

Figure 6: Case A's transition of personal identity.

[Case B]

- Three open-ended interviews were conducted in 2012
- A structured interview was conducted in 2015

After the second Olympics in 2012, Case B once left her sport. Soon after the Olympics, she felt lonesome and empty for long period of time. Her emotional state was unstable in and outside of the sessions. Behind the situation, she carried too much concern and seemed to be struggling with burnout. The major issue was to find a training base and personal coach. Due to the limited places for her sport throughout the country, it was very hard to find a secure training base or personal coach. Another issue was the physical burden of her particular discipline. Therefore, she dithered in transferring to a different discipline. She was searching the possibility of remaining as a top athlete in her sport. Financial insecurity further worsened the situation. Last but not least, she was stressed out by coping with being both an elite athlete and student.

She explained that she never had the time and opportunity to think about a second career. She even felt a sense of sin in focusing on something else other than her sport only. Not surprisingly, she was not able to imagine or desire becoming "a different person" after her athletic career. The time of absence from her sport became the origin of the development of her new identity. Figure 7 shows her transition of personal identity.

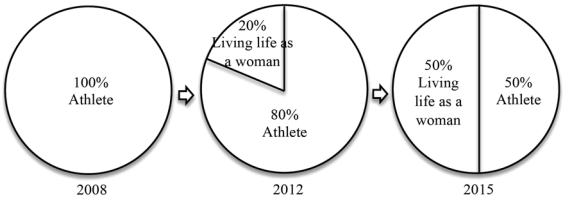

Figure 7: Case B's transition of personal identity.

Two things made her situation change for the better. One is that she was chosen as a target athlete in a national support project. The project made it possible for her to move overseas training bases. With financial support, she was able to train with foreign

national teams and coaches. Currently, she looks forward to the next Olympics.

4 DISCUSSION

Blumenstein and Lidor (2007, 2008) argued the importance of psychological support in the Olympic year that is the final stage of the 4-year program for both athletes who had already met the Olympic criteria and those athletes who failed to meet the Olympic criteria. In this study, there were also obvious needs from an athlete (case A), who couldn't make the Olympics, concerning his career transition. In this case, consultants can help with the process of sorting out athletes' feelings on this subject.

The next step could be helping the decision-making process. Whether the athletes continue their sport or retire from their sport, this decision will be crucially important in the events which mark the stages of their life.

As case B results showed, having no identity other than an elite athlete affected her emotional state negatively, even though she still has the physical potential to compete at the next Olympics. She was stacked with confusion, frustration, and depression, and she took a long period of time to recover. Therefore, most importantly, consultants need to help with the process of developing a new identity at the final stage of mental training in elite athletes' career transitions because athletic careers do end eventually.

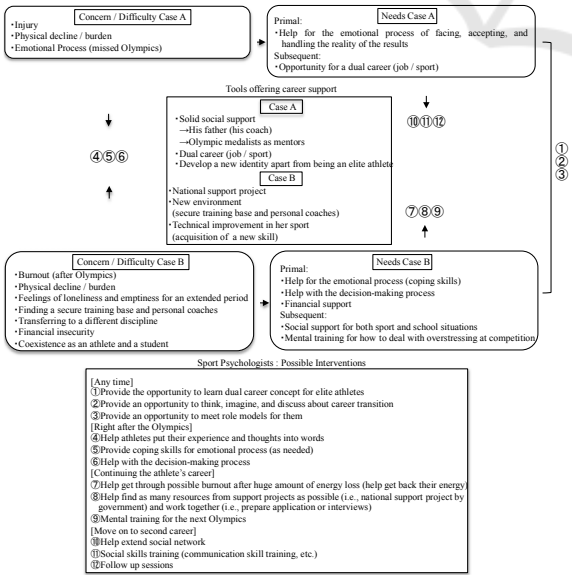

Figure 8: Consultants' possible interventions as the final stage of mental training in elite athletes' career transition.

During the career transitions of elite athletes, some other important aspects come to the forefront. Solid social support (social skills training), role models and mentors (family members, coaches, former Olympians, et al.), and dual career experiences will lead to a successful career transition. Additionally, introducing national support projects such as career support programs might be a helpful tool for them.

Stages of career transition and possible interventions are presented in figure 8.

5 CONCLUSIONS

From the results of this study, the role of a sport-psychology consultant, in the ultimate stage of mental training, is essential for the smooth career transition of elite athletes.

At first, for both the athletes who make the Olympics and those that don't, sport psychology consultants can help (need to help) their emotional process. Although, when an athlete's dream of making the Olympics comes true, the time after this first Olympics might be the time when consultants need to pay special attention to whether the athlete moves towards the next Olympics (possible burnout) or moves on to a second career.

Moreover, the needs of athletes for career transition support come from different angles. Thus, sport psychology consultants are required to have a wide range of flexibility, knowledge, and experience skills. When working with elite athletes, winning or losing is one of the most important aspects, especially regarding the Olympics. However, they have unique needs because of their long athletic careers. Consultants definitely need to remember that their career transitions are equally important. The role of mental training certainly comes into play here.

This information might be useful for both sport psychology consultants and coaches when their athletes are struggling with career transition, especially at the elite level. In the case of not having a sport psychology consultant on their team, coaches need to fill the role of advisor or counselor for their athletes.

Lastly, the good use of ICT permits worldwide long-term interventions at any location for elite athletes. It also improves various aspects of data accumulation.

ACKNOWLEDGEMENTS

This work was supported by Grant-in-Aid for Japan Society for the Promotion of Science Fellows.

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