Changes in Life Skills of Top College Athletes over Four Years and Its Relation to Career Outcomes

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This research examined the following 2 objectives: one, to clarify the relationship between university athletic activities and the acquisition of life skills (hereinafter called “LS”) through a longitudinal study over four years of the top level athletes’ university career, and second, to reveal the relationship between LS and career decision after graduation. Longitudinal research, over the course of four years with five survey periods (in April, 2011, 2012, 2013, 2014, in March, 2015) was conducted for 23 top level male wrestlers who enrolled in university in April, 2011 (average age was 18.1 ± 0.3 and years of experience in the sport 6.7 ± 4.0 years at the time of initial investigation). Participants completed the LS evaluation scale (Shimamoto et al., 2013) at all survey periods. Statistical analysis showed that the score of total LS and “thinking carefully,” which was considered an important LS from a previous study of male wrestlers increased gradually through top level university athletic activities. In addition, it was suggested that male wrestlers who had a high score of “setting goals” will be able to make career decision upon graduation. Lastly, the effective implementation of Career Development Program for top level male university athletes was discussed based on the results of this research.

Keywords: career development, life skills, top college athletes, wrestlers

1. The issue and objectives

At the 30th Olympic Games in London held in August 2012, out of the 293 athletes who represented Japan, 199 of them—roughly 70%—were either university graduates or university students. This shows that university athletic programs play a significant role in nurturing elite athletes to perform at the global stage, such as the Olympics.

In anticipation of the 2020 Summer Olympic & Paralympic Games in Tokyo, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) is implementing a project to enhance the level of performance in sports and improve the athletic environment in order for the athletes to perform at their best in international competitions. The project’s budget was 8,348,000,000 yen in 2014 and, in 2015, it has increased by 3.3 billion yen to 11,629,000,000 yen (MEXT, 2015). From this figure, it can be assumed that the performance enhancement initiatives for university athletes who are in the target age range for the 2020 Olympics will be accelerated.

When the government is funding the development and training of athletes, one major challenge and issue that must be considered in implementing such projects is how the athletes can give back to the society after their athletic career. However, it is unclear as yet: 1) what kind of experiences and skills they could acquire through the high level athletic activities, 2) how those are usable for making their social life better after graduation.

For university athletes aiming for high achievements, such as the Olympics, one type of skill that can be acquired through their competitive career are “life skills” (hereinafter “LS”). LS are learnable psycho-social abilities and have been defined by World Health Organization (1994) as “abilities for adaptive and positive behavior that enable individuals to deal effectively with demands and challenges of everyday life”.

WHO proposes 10 psychological skills, including
interpersonal relationship, problem solving, and decision making (Ueno, 2014). In physical education, sport psychology domain, Shimamoto et al. (2013) showed the required life skills for athletes including stress management, communication, setting goals, appreciating others, maintaining etiquette and manners, being humble, and maintaining physical health and well-being. Considering its specific aspects and its definition, LS can enhance a person’s physical, mental, and social health and at the same time foster positive growth as a human being.

One important attribute of acquiring LS is the person’s ability to learn. Top level university athletes have the likelihood of having acquired LS through their experiences of constantly perfecting their skills and pushing their limits every day in training. In a comparative study of people involved in university athletics and those who are not, people involved in athletics have shown higher acquisition levels of LS than others (Hirai et al., 2012; Shimamoto and Ishii, 2009). In a longitudinal study by Shimamoto and Ishii (2010), it has been presumed that the experiences of self-disclosure during the participation in university athletics lead to the acquisition of LS related to interpersonal skills for university athletes.

However, there are many ambiguous aspects in the correlation between sports and the acquisition of LS. Allen and Cronin (2015) points out the necessity of examining exactly how sports leads to the acquisition of LS in future studies. The aforementioned research results of university athletics (Hirai et al., 2012; Shimamoto and Ishii, 2009, 2010) are based on longitudinal studies over several months. Therefore, in order to show the relationship between participation in university sports and acquisition of LS, an examination must be conducted for a longer period which encompasses the whole university career of athletes. Thus, the first objective of this research is to clarify the relationship between university athletic activities and the acquisition of LS through a longitudinal study over 4 years of the athletes’ university career.

Top level university athletes who are studied in this research, have concerns and anxieties of their employment after university. Many of these athletes are recruited to play university athletics and spend most of their time training and preparing for international competitions. The limited time often causes problems with school academics and the job hunting process; often leading to difficulty in securing employment after graduating (Shimizu et al., 2010). In foreign studies, several researchers have hypothesized that the lack of time in university athletes has a detrimental effect on career building (Martens and Lee, 1998). Therefore, the time constraint for university athletes in Japan and abroad is a common factor that can have a negative impact on the athletes’ career after retirement from the sport.

The process of balancing academics and athletics, thinking about employment after their athletic career, job hunting, and deciding on a career path all under a limited time frame is considered a “life event” for athletes. In order to effectively cope with a life event, LS can play a vital role because LS is said to “life skills augment a person’s ability to cope with future life events” (Danish et al., 1995).

Shimizu et al. (2015) conducted a follow-up investigation of men’s wrestling athletes who did not have employment at the time of their university graduation and found that those wrestlers who possessed high levels of setting goals skills (one of the LS) at the time of graduation have been employed earlier after their graduation than those who did not possess high levels of setting goals skills. This outcome supports the views of Danish et al. (1995). Because the results found by Shimizu et al. (2015) is based on the level of LS acquisition at the time of graduation, when comparing those former athletes who successfully coped with the life event and those who did not, it does not examine how and when during their university career did the difference in the level of acquisition of setting goals skills came about. If the time at which such difference occurred between athletes can be identified, effective support scheme can be implemented for top level athletes who are under such time constraint.

Therefore, as the objective of this research, the difference in the LS acquisition level will be examined by looking at the changes in the level of LS acquisition over a period of time between 2 groups: the group of athletes who were able to decide on a career path (hereinafter “HA: high achievers”) and those who were unable to decide on a career path (hereinafter “LA: low achievers”).

This research will conduct a longitudinal study over a long period to examine the following 2 objectives: first, to identify the changes in the level of LS acquisition through university sports over a 4 year university period, and second, to identify the time...
period when significant changes in the level of LS acquisition between HA and LA happen during the 4 year university period.

Shimizu et al. (2010) recommend that a specific sport be chosen for studying the academic careers or employment of athletes as the environment surrounding the athletes will differ according to the type of sport and the level of competition. In this research, men's wrestling was chosen. The level of competition for men's wrestling in Japan is extremely high as it can be seen from the fact that it has won medals in 15 consecutive Olympics Games through the Helsinki Olympics (1952) to the London Olympics (2012) except the Moscow Olympics (1980) which Japan had boycotted.

At the London Olympics, Japanese men's wrestling has won 3 medals including a gold medal. In the last 3 Olympics from the Athens Olympics (2004) to the London Olympics (2012), all wrestlers on Japan's men's wrestling team were university graduates; implying that the strengthening of university athletic programs can lead to the enhancement of international competitiveness.

2. Method

2.1. Survey targets

The research was conducted on 30 male wrestling athletes who enrolled in university in April, 2011 (average age was 18.2 ± 0.4 and years of experience in the sport of 7.1 ± 4.1 years at the time of initial investigation). The survey participants have successful accomplishments in national tournaments during their high school careers and were all recruited in universities to wrestle. In order to standardize the best way possible in the daily training hours, life styles, and level of teammates, participants were chosen from universities that are under the East Japan College Wrestling Association (a total of 5 universities and 3–7 wrestlers from each university). Table 1 shows the profile of these university teams.

2.2. Survey period

The survey was conducted at the beginning of their freshmen year in April, 2011 (hereinafter “period 1”), beginning of their sophomore year in April, 2012 (hereinafter “period 2”), beginning of their junior year in April, 2013 (hereinafter “period 3”), beginning of their senior year in April, 2014 (hereinafter “period 4”), and at the time of their graduation in March, 2015 (hereinafter “period 5”). Research analysis was done on the 23 participants that completed all the surveys successfully.

2.3. Survey content

In evaluating the level of LS acquisition, the “life skill evaluation scale for university athletes”, developed by Shimamoto et al. (2013), was used. This evaluation scale was derived from actual experiences of top level sports coaches who have had national level success with their programs. The scale is capable of measuring 10 important LS for athletes using a scale out of 4 (1: strongly disagree to 4: strongly agree). The LS that were evaluated were: “stress management”, “setting goals”, “thinking carefully”, “appreciating others”, “communication”, “maintaining etiquette and manners”, “always making one’s best effort”, “taking responsibility for one’s own behavior”, “being humble” and “maintaining physical health and well-being”. The validity and accuracy of this evaluation scale has been confirmed by Shimamoto et al. (2013) in a study of university athletes in general.

2.4. Career decision after graduation

At period 5, athletes were asked about their career decision. The response choices were: “1: full-time employee”, “2: non-full-time employee”, “3: higher education”, and “4: undecided”.

2.5. Administrative procedure

Approval was received prior to the beginning of
the research from all head coaches and assistant coaches of each university wrestling team upon explanation of the research. The surveying staff visited every wrestling team and conducted the surveys after a thorough explanation to the participants.

2.6. Statistics

Repeated measures analysis of variances (hereinafter “ANOVA’s”) were performed for the changes of the overall LS score over 4 years for the 5 periods. And, for examination of the difference in LS acquisition levels of HA and LA in coping with life events, the participants were divided into the two groups: HA (n = 18: 14 participants with a full-time job, 3 participants with a non-full-time job, and 1 participant for higher education) and LA (n = 5), based on the information gathered at the time of graduation pertaining to the athletes’ career decision. Then, two-way ANOVAs were performed by a mixed model on 3 LS scores: “setting goals”, “thinking carefully”, and “always making one’s best effort”. These LS were chosen specifically because they were confirmed to have a close correlation to achieving high accomplishments in national level tournaments and finding employment early after graduation (Shimizu and Shimamoto, 2012).

IBM SPSS Statistics 20.0 was used for all analysis.

3. Results

3.1. Changes over the 4 year period of the level of LS acquisition

Figure 1 shows the result of analysis for total LS using ANOVAs. Depending on the period, the main effect was significant, and through post hoc comparisons by Bonferroni, statistical significance was confirmed between period 1 to period 4 and period 5, period 2 to period 4 and period 5, period 3 to period 5, and period 4 to period 5, all with the latter scores being higher. In other words, this confirmed that through the process of daily athletic commitments, wrestlers of top level university programs have increased overall LS acquisition levels, every year.

Figure 1  Changes over time of the average of the total LS over the 4 year period
*p < .05, **p < .01, ***p < .001

3.2. Differences in the level of LS acquisition for HA and LA at each period

Table 2 and Figure 2-4 shows the results of the two-way ANOVAs performed on the three LS that were targeted. According to the findings, there was no interaction with “setting goals”, “thinking carefully” and “always making one’s best effort”. The main effect was confirmed according to periods in “thinking carefully” and “always making one’s best efforts”. Through post hoc comparisons by Bonferroni, a significant difference was confirmed for “thinking carefully” between period 1 and period 5 (p < .01), and a significant trend was observed between period 1 and period 5 for “always making one’s best efforts” (p < .10), as shown in figures 3 and 4. This finding shows that the skill of “thinking carefully” is required for athletes to be proactive and independent thinkers, and is developed through competing in high level competition.

Also, with the coping level of life events, main effect was observed with “setting goals”. “Setting goals” is a skill which has a close relationship to finding employment early after graduation (Shimizu et al., 2015), and the result of this research supports the former study.

Additionally, a large difference in the score range was not observed between HA and LA concerning the three main LS all over as shown in Table 2 between HA and LA. Although, the group size of LA is small, it is possible to regard LA to be not unique group in the top level student athletes. In addition, there was no noticeable difference in the achievements in university wrestling for HA and LA.
### Table 2  Results of descriptive statistics and the two-way ANOVAs for the 3 main LS at the 5 periods.

| Period   | HA Groups <br> (n = 18) | LA Groups <br> (n = 5) | Interaction <br> (F Value) | Main effect <br> (F Value) |
|----------|--------------------------|-------------------------|----------------------------|----------------------------|
|          | Mean Value <br> (Minimum Value–Maximum Value) | SD | Mean Value <br> (Minimum Value–Maximum Value) | SD | Groups | Period |
| setting goals | 04.2011 | 8.56 (5–16) | 2.68 | 8.00 (6–9) | 1.41 | 1.55 | 5.05* | 1.39 |
|          | 04.2012 | 10.44 (6–16) | 3.15 | 8.00 (6–10) | 1.41 | 04.2013 | 10.67 (5–15) | 2.57 | 9.00 (5–13) | 2.92 |
|          | 04.2014 | 10.94 (6–14) | 2.88 | 8.00 (5–10) | 2.00 | 03.2015 | 11.44 (9–16) | 2.68 | 7.60 (5–11) | 2.61 |
| thinking carefully | 04.2011 | 11.22 (7–14) | 1.90 | 11.00 (9–13) | 1.87 | 04.2012 | 12.22 (9–15) | 2.10 | 11.80 (9–14) | 1.79 |
|          | 04.2013 | 12.28 (9–16) | 2.24 | 12.00 (8–14) | 2.45 | 04.2014 | 13.06 (11–16) | 1.55 | 11.60 (9–14) | 1.95 |
|          | 03.2015 | 14.00 (11–16) | 1.64 | 12.00 (10–14) | 1.58 | 04.2011 | 11.17 (8–15) | 1.95 | 10.80 (8–16) | 3.11 |
| always making one’s best effort | 04.2012 | 12.06 (7–16) | 2.41 | 11.40 (8–13) | 1.95 | 04.2013 | 11.78 (5–16) | 2.71 | 11.60 (9–14) | 2.07 |
|          | 04.2014 | 13.28 (10–16) | 2.14 | 11.40 (9–12) | 1.34 | 03.2015 | 14.17 (11–16) | 1.92 | 11.60 (10–12) | 0.89 |

*p < .05

### 4. Discussion

#### 4.1. Changes over time of the level of LS acquisition through 4 years of university athletics

In monitoring the participants’ changes in the level of LS acquisition over the 4 year time span, it has been shown that these top level wrestlers acquire LS in the process through aiming for perfection and pushing their limits every day. As mentioned earlier, university athletes play a major role in the strengthening of international competitiveness. Their level of the sport is extremely high considering that such students win national competitions and are selected as international competition members. Participants of the research included All Japan Wrestling Championship winners and others at a similarly high level. It is suggested that it is possible that the university athletic activities undertaken to succeed in such high level competition can lead to the overall acquisition of LS which are required for athletes according to Shimamoto et al. (2013). Concurring to this research result, Murakami et al. (2004) state that “national level” athletes’ level of LS acquisition is higher than the “general level” athletes.

On top of this, the only period which had a significant difference over a 1 year span was between period 4 and period 5. As Gould and Carson, (2008), states “the acquisition of LS happens with a course of time,” this finding indicates that a longitudinal study for over a year is needed to clearly determine the process of acquiring LS through university athletics.

No defining research or report is yet to be found which shows the changes in the levels of LS acquisition through the athletes’ university life and career. The finding that athletes acquire LS through the process of aiming to successfully perform at competitions such as the Olympics is a unique perspective, and the research result can be applied to future sports schemes in supporting top level university athletes in their career after retirement from the sport. Sasakawa Sports Foundation (2011), a research institution for sports schemes, points out the importance of athletes being aware of LS as assets of their skills. Therefore, it is suggested that this research finding on the acquisition process of LS through university athletics should be spread to athletes and their coaches.

On the other hand, because a control group was not established in this research, the development of the acquisition levels of LS cannot exclusively be determined to be the cause of athletes competing in high level university athletic activities. Therefore, further longitudinal research that involves university athletes at a lower competition levels as well as non-
athletes should be conducted.

4.2. Difference in the level of LS acquisition for HA and LA at each period in coping with life events

The period with noticeable differences in the acquisition level between HA and LA were examined based on the changes over time in the skills of “setting goals”, “thinking carefully”, and “always making one’s best efforts” for both groups for over 4 years. The focus was on these 3 LS as these LS are important for male wrestling athletes based former research (Shimizu and Shimamoto, 2012; Shimizu et al., 2015).

As a result, LA’ scores never surpassed HA’ scores in all 3 LS throughout their university career, and in the 4 years, the LS with the largest difference between the two groups was “setting goals”. It is possible that there could have been a clear difference in the acquisition level of “setting goals” for the two groups at the time of their university enrollment.

Furthermore, the very nature of goals is the source of motivation of human actions (Danish et al., 1993), and deciding on a career is a life event which requires taking actions proactively. Therefore, the result that the skills of setting goals have a clear relation between such life event is valid.

4.3. Developing and implementing a career development program for male wrestling athletes

Lastly, based on this research’s findings, the idea for a “Career Development Program” for male wrestling athletes for after their retirement or graduation will be examined.

The LS to be focused on in such a program should be “setting goals” as the difference in the scores between HA and LA was remarkable throughout the university career. This is similar to the SUPER Program which supports LS acquisition for among the youths by Danish (1996). The implementation period of such program should be at the early stages of the athletes’ university career because the based on the results of the ANOVAs shown in Figure 2, Figure 3, and Figure 4, the reason for the early implementation is the level of acquisition of “setting goals” does not increase as much as “thinking carefully” and “always making one’s best effort” during the later years of their university career, and it is difficult for athletes to improve “setting goals” skills proactively on their own through the sport. Also, the program can be implemented smoothly even for athletes in their early years as the skill of “setting goals” is relevant for athletes at this age as their biggest goal is to accomplish successful competition results and the skill is directly related to high performance at competitions.

Top level university athletes who have limited
time in deciding their future career after retirement or graduation are in need of an evidence-based Career Development Program which can be implemented in the given time constraint.

In the future, studies similar to this research must be conducted, with not just men’s wrestling, but other top level university sports as well in order to examine the possibility of standardizing the program to cater for all top level university athletes.

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