Division I university and college table tennis player's career planning

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Abstract: athletes often concentrate on their personal training, but typically lack information about career planning. After retiring, athletes usually do not know what job they want to do. The purpose of this research was to explore through questionnaires (285 valid questionnaires have been retrieved) division I university and college table tennis players' career planning, and the differences found in their career planning based on different background variances. The results were based on descriptive statistics and one-way MANOVA, which led to the following conclusions: I. Division I university and college table tennis players only realized better performances in their self-exploration. Since the athletes spent so much time in a closed training environment, they had fewer opportunities to expose themselves to outside experiences, and therefore the players realized a narrow living environment. This led to low performances in career exploration, along with career selection and career planning. II. Significant variances were found in players' career planning if they had different genders or grade levels, and whether or not they took educational courses or received corporate sponsorships also made a difference. Less significant variance was found if the players attended different schools or departments. The suggestions offered from this study are as follows: (1) to provide help for career planning; (2) to motivate athletes' career planning; (3) to increase opportunities for career exploration.

Keywords: career planning, division I, table tennis.

1. INTRODUCTION

1.1 General background information

Career planning has recently been an issue that is highly valued. Through the training of career planning, a person can help oneself find a goal to expect, improving one's competitive ability in society [7]. However, most athletes today never think about their future career plan carefully because they devote themselves in training for long periods of time. This type of learning environment causes the phenomenon in which athletes rarely participate in different fields of activities. Developing in this single-aspect environment results in lack of exploration and preparation for their careers [1-3, 8, 24]. From news reports, we can read about how many athletes were seriously concerned about their lives after retiring. For example, Wen-Yi Tsai, a bronze medalist in weightlifting during the 1984 Olympics Games, once complained that his life had been in a plight of unemployment after the games; Wei-Ling Chen, who also won a bronze medal in weightlifting in the Beijing Olympics, had the same concerns about her employment situation after the games were over [24]. Even though there are some athletes worrying about life after retirement, some other athletes have already prepared themselves for their futures after they retire. Su-Han Chang, the manager of Costco in Taiwan, was an excellent basketball player. While still playing basketball, Mr. Chang was already aware that players should plan their futures in advance so they could succeed in fields other than athletics [20]. The differences between good and bad retirements were discovered after a review of many athletes' lives. If one wants to reach another high peak after retreating, it's crucial that one has thorough career planning and preparation before retiring [21].

Career planning is a long-term plan of one's life and career. During this process, one must combine personal interests, professions, values, etc., and then plan on how to carry them out and reach their goals, based on observations of oneself and outside environment [21]. Lin [12] and Yang [18] both thought that although career planning is different from person to person, there are generally three elements involved: knowing yourself, knowing others, and making decisions. Knowing yourself is a thorough self-recognition and self-understanding, while knowing others means getting familiar with the surroundings and future careers. Making decisions is to make a right and effective decision after collecting, analyzing and comparing data. In other words, one must continuously accumulate their experience and learning, and then, through self-understanding and observation of life, plan for the future. Meanwhile, one also has to revise their plan regularly, even ask experienced seniors for advice, trying to learn how to guide oneself to find a goal in career planning.

Through literature review, we found that if athletes can make a career plan during training, it will be a great help in their career development after retiring. Thus, the discussion on what and how to make career planning successful is worthy of attention. And from the discoveries of career-related research, the participants with different variables, like gender, school year, major etc., will lead to different outcomes, showing that a change of research subjects will make a difference in career planning. In addition, the environment of an athletic career has changed a lot recently, including the outflow of athletes, the rapid decrease of teaching jobs, a great deal of corporate sponsorship withdrawal, etc., which all influence an athletes' career planning.

Therefore, to help the development of future research and application, this research will subsume all the factors mentioned above into the variances of backgrounds for deeper discussion. There is a great number of trained table tennis players in Taiwan every year, and more than a thousand contestants in university and college table tennis games [1, 14]. Unfortunately, there is no professional table tennis association in Taiwan, which means most players are forced to seek other jobs after graduation. Table tennis is a sport in which players need a high skillset, so most athletes devote a lot of time to training and practice. As a result, they neglect other learning opportunities, causing contestants to have little to choose from in regards to their future careers. To solve this problem, the concerned organizations and people need to start paying more attention to players' career planning. Thus, this research will choose table tennis players in national universities and colleges as research subjects, and try to understand the situation about how players with different backgrounds plan for their future careers, hoping to provide reference materials for departments assisting players in career planning.

2. PURPOSE

According to the background information above, the main purposes are as follows:
(1) To understand the current situation of the career planning of players having attended and participated in division I university and college table tennis programs.
(2) To compare differences of career planning of division I university and college table tennis players with different variances of backgrounds.

3. METHOD

3.1 Sample

The participants were 373 players who participated in division I university and college table tennis in 2012.

3.2 Limitations

Due to the restrictions of finances, human resources, and objects, the subjects were table tennis players in division I who attended the 2012 National Intercollegiate Athletic Games, and the results only apply for those types of players involved.

3.3 Instruments

3.3.1 Scale framework

In order to understand the current state of how players in division I university and college table tennis do their career planning, the contents of the scales include "personal background" and the "career planning scale." Questionnaires were adopted from various sources [5, 9, 11, 13, 16, 17, 19]. The career planning scale was based on the research requirements. According to Lin [12],

there were three elements of career planning, "self-exploring," "environment-exploring" and "planning and decision." And those three elements were adopted as three aspects of the questionnaire. A five-point Likert scale was used as the rating scale, with five options: "strongly agree," "agree," "neither agree nor disagree," "disagree," "strongly disagree." And the scores given were from 5 points ("strongly agree") to 1 point ("strongly disagree"). Participants with higher scores represented a higher degree of career planning, while others with lower scores showed a lower degree.

3.3.2 The reliability analysis of scale
(1) The item analysis of the pretest
Homoscedasticity and internal consistency were used to analyze the pretest. It was used to find out the Pearson's correlation coefficient between every item and the total scores of the scale. To reach a significant result, the correlation coefficient required a value higher than 3.0. So the items which were higher than 3.0 were kept, and those lower than 3.0 were eliminated [22]. The analysis results of the pretest showed the CR were all higher than 3.0. Thus, the 18 items of the career planning scale were all kept.
(2) The factor analysis of the pretest
Wu and Tu [22] pointed out that factor analysis is to turn several variables, which are hard to explain yet correlated, into lower numbers of independent factors with conceptualized meanings. And it depends on Kaiser-Meyer-Olkin measures of sampling adequacy (KMO) to determine whether the scale can go through factor analysis. The KMO value is between 0 and 1. If the KMO value is close to 1, it means the correlation among variables is high, and the scale is suitable to do a factor analysis; on the contrary, when it is close to 0, the correlation is low, and unsuitable to do a factor analysis. The KMO values of scale over 0.80 are considered good, 0.70 means acceptable, but the scale cannot use factor analysis when the value is lower than 0.60. After the KMO value, a principle component analysis is needed to calculate the factor loading of the questionnaire, in order to understand the correlation between the original factor in factor structure and the component from factor analysis. Also, varimax was used to do the oblique rotations, and then to choose the factors with the egien value greater than 1, deleting the items that had a factor loading lower than 0.40. So the number of factors can be determined, and therefore we choose the lower factor aspects to get a better loading [22]. After the pretest underwent factor analysis four times, the career planning scale was divided into three aspects, and had 14 items. Its KMO value was 0.718, the significance of Bartlett sphericity was 0.000, which means the correlation of variances was high and suitable to do the factor analysis. At the same time, the cumulative explained variances of the scale rose from 63.920 to 69.378, which means the scale gained more discriminatory power after eliminating items.
(3) The reliability analysis of the pretest
Wu and Tu [22] mentioned that Cronbach's α coefficient is the most common testing method in

Likert's scale. The higher the value of Cronbach's α coefficient is, the more stable the scale is, which also means the internal consistency is high. Therefore, it is better that the Cronbach's α coefficient be higher than 0.07, but acceptable when it's 0.06. In addition, the α coefficient of the total scale should be over 0.80, if it's higher than 0.90, the reliability of the scale is better. Through reliability analysis, the α coefficient of internal consistency indicated that the reliability value of the career planning scale is 0.894, and the α coefficients of scales in different factors are as follows: self-exploration: 0.872, environment-exploration: 0.845, career planning and decisions: 0.852. As a result, the internal consistency of the career planning scale is good.

3.3.3 Official questionnaire

In regards to the above analysis, the career planning scale is revised into the "division I university and college table tennis players' career planning scale" divided into two parts. The first part is "personal basic background", items are gender, grade level, school, major, enrollment in educational courses, sponsorship, etc. The second part is the "division I university and college table tennis players' career planning scale," which had 14 items, including 5 questions in "self-exploration," 5 in "environment-exploration," and 4 in "career decision and planning."

4. RESULTS AND DISCUSSION

4.1 State analysis of division I university and college table tennis players' career planning

There were 3 aspects and 14 items in the career planning scale. By using descriptive statistics, the recent states of how table tennis players plan their careers are exhibited in Table 1. Generally, the average score for career planning of players is 3.69, indicating that the current state is between "neither agree nor disagree" and "agree." As a result, so far the state of career planning among division I players is merely in phase 1: self-exploration. Since most players pay a lot of attention and time to one's training, giving them less chances for connecting and choosing other fields outside of sports, and it causes their methods and career planning to be limited after graduation [1-3, 8, 23].

4.2 Analysis of background variables in career planning

The purpose of this section is to discuss the differences among players with different background variables. The factors in the three aspects of the career planning scale: "self-exploration," "environment-exploration" and "career decision and planning" underwent a significant differences test with six variables, "gender," "grade level," "school," "major," "enrollment in educational courses," "sponsorship."

Table 1. Analysis of the career planning scale

Determinate Factors	M	SD
Self-exploration		
5. I know my profession	4.02	.81
1. I know my interests	3.94	.78
2. I understand my personality	3.94	.74
4. I know my competing defects	3.78	.71
3. I know my competing strengths	3.76	.78
Average	3.88	.58
Environment-exploration		
9. I will inquire about seniors' employment state	3.83	.78
10. I will explore the job ambience for part-time jobs	3.67	.90
8. I will ask teachers for employment information	3.66	.86
7. I will collect information about higher education	3.50	.81
6. I will collect information about jobs	3.50	.83
Average	3.63	.62
Career decision and planning		
13. I make plans based on self interest	3.69	.78
14. I make plans based on professions	3.64	.81
12. I am prepared for my future career	3.58	.85
14. I already knew what kind of job I want to do	3.37	.99
Average	3.56	.62
Total	3.69	.63

(1) Gender: from Table 2, the result of MANOVA infers that Hotelling trace is 0.013, and Λ = 0.963, showing significance ($p < 0.05$). And from the mean value, males should be superior to females, but through a post-hoc test, no significant differences were found in each aspects of career planning among players, which is similar to other studies [4, 5, 9-11, 19]. Lee et al. [10] assumed that during training, male athletes will have improved self-approval in future competitions after being encouraged by friends. It can be inferred that male athletes, compared to female athletes, can get more assistance, information and support from others in the field of sports. As for females, Lee [9] suspected that women in athletic environments are easily affected by cultural or media obstacles, which are disadvantageous for a female's career development. Moreover, athletics have been dominated by men for a long time, which makes female athletes limited by traditional stereotypes, and can affect their confidence. With these limitations, females may have more misgivings when planning for the future.

Table 2. Analysis of the variable "gender"

Items		M	SD	N	F
Self-exploration	(1) M	3.95	.62	167	4.64
	(2) F	3.80	.52	118	
Environment-exploration	(1) M	3.60	.67	167	1.27
	(2) F	3.68	.56	118	
Career decision and planning	(1) M	3.56	.79	167	.072
	(2) F	3.68	.56	118	
Wilk's $\Lambda = 0.963$	Hotelling trace $= 0.013^*$				
$^* p < 0.05$					

(2) Grade level: from Table 3, MANOVA ($\Lambda = 0.854$) indicates there were significant differences. In "self-exploration" and "career decision and planning," it indicates there were significant differences ($p < 0.017$), and the mean of highest grade is higher than the lowest, yet there are not any significant differences in "environment-exploration." Yang [19] thinks that there will not be any obvious differences among players' with similar backgrounds in the "environment-exploration" aspect, because of their similar education and learning surroundings. But career planning will differ from grade to grade or across age groups, leading to the differences in self-knowing and future goals. Therefore, the senior players are in the crossroads of serious decisions. Not only do mental pressures force them to plan for their future careers, but also accumulated life experience and sense help senior players to do better in career planning.

Table 3. Analysis of the variable "grade level"

Items	Grades	M	SD	N	F
Self-exploration	(1) Freshman	3.84	.64	79	5.93**
	(2) Sophomore	3.65	.53	61	
	(3) Junior	3.95	.58	59	
	(4) Senior	3.98	.50	63	
	(5) Graduate students	4.26	.54	23	
Environment-exploration	(1) Freshman	3.55	.71	79	1.41
	(2) Sophomore	3.54	.52	61	
	(3) Junior	3.66	.62	59	
	(4) Senior	3.74	.62	63	
	(5) Graduate students	3.73	.62	23	
Career decision and planning	(1) Freshman	3.50	.74	79	7.92**
	(2) Sophomore	3.34	.60	61	
	(3) Junior	3.44	.74	59	
	(4) Senior	3.81	.62	63	
	(5) Graduate students	4.09	.59	23	
Wilk's $\Lambda = 0.854^*$					
$^* p < 0.05$	$^{**}Pj < 0.017$ $(Pj = \alpha \div 3 = 0.017)$				

(3) School: from Table 4, the career planning scale of players in school exhibits significant differences ($\Lambda = 0.914$, $p < 0.05$). Among the factors, there is a significant difference in the "self-exploration", but after post-hoc testing the differences were insignificant. In addition, according to the results, there are not any significant differences in "environment-exploration" and "career decision and planning," indicating that the career planning of division I players would have obvious distinctions because of schools. The result is the same as Huang and Lee [4, 9]. The reason is that, even though players attend different schools, their similar majors lead to similar course arrangements and features of future development, making no differences in players' career planning and direction. Also, in the research, there are not any significant differences in the "environment-exploration" and "career decision and planning" factors. That is to say, no matter which schools players attended, their similar majors are very likely to result in comparable job opportunities, causing no distinctions in job environment exploration and career decision. But this is not true for "self-exploration". Since personal backgrounds vary from person to person, the results exhibit significant differences in the "self-exploration" factors, but the SD is so small that we cannot tell where the differences come from.

Table 4. Analysis of the variable "school"

Items	School	M	SD	N	F
Self-exploration	(1) National University	3.81	.54	76	3.14**
	(2) Private University	3.79	.65	71	
	(3) Normal University	4.12	.48	45	
	(4) University of Education	3.81	.64	35	
	(5) College of Physical Education	3.97	.56	58	
Environment-exploration	(1) National University	3.67	.69	76	2.39
	(2) Private University	3.56	.61	71	
	(3) Normal University	3.80	.57	45	
	(4) University of Education	3.75	.60	35	
	(5) College of Physical Education	3.47	.59	58	
Career decision and planning	(1) National University	3.56	.70	76	1.53
	(2) Private University	3.46	.78	71	
	(3) Normal University	3.78	.61	45	
	(4) University of Education	3.59	.72	35	
	(5) College of	3.54	.66	58	

	Physical Education
Wilk's $\Lambda = 0.914^*$	

$^*\,p < 0.05$ $^{**}Pj < 0.017$ $(Pj = \alpha \div 3 = 0.017)$

(4) Major: from Table 5, the career planning scale of players' majors, didn't show a significant difference. The result is the same as for others [6, 10]. Lee et al. [10] thought that whether players' majors are athletics-related or not, they would discuss their career issues in training. The essential characters of athletes exist in every athletic-related major. Therefore, there would not be any significant differences in players' career planning in the "major" variable. The reason for this result might be because most athletes are trained as professionals when they are little. However, they probably have their own plan on future career, especially after entering college, which is a very crucial turning point. Thus, the variable "major" won't make any difference if the players already know their career goals and plan before choosing their college. They need to decide if they should keep going to be a professional athlete, or if they should find an alternative.

Table 5. Analysis of the variable "major"

Items	Major	M	SD	N	F
Self-exploration	(1) Sport Performance	3.96	.58	145	2.83
	(2) Physical Education related	3.87	.49	50	
	(3) Non Physical Education related	3.78	.64	90	
Environment-exploration	(1) Sport Performance	3.62	.60	145	.55
	(2) Physical Education related	3.58	.68	50	
	(3) Non Physical Education related	3.68	.64	90	
Career decision and planning	(1) Sport Performance	3.58	.67	145	.17
	(2) Physical Education related	3.60	.80	50	
	(3) Non Physical Education related	3.53	.71	90	
Wilk's $\Lambda = 0.963$					

(5) Enrollment in educational courses: in Table 6, there was a significant difference in "self-exploration" (p < 0.17), and the players who took educational courses were superior to those that did not. Yet no significant differences were found in "environment-exploration" and "career decision and planning." The outcome is the same as others [6, 13, 15, 19]. Liu [15] found out that those who took educational courses had lower obstacles in their careers than those who did not, indicating that players who did not take educational courses were not fully prepared for future exploration. Hung [6] showed that self-estimation and confidence in career planning is higher among players taking educational courses than in people who did not. This is because the courses provide the students with more job guarantees. Meanwhile, it helps them to understand themselves deeper during the courses, giving them more confidence when making their career plans. From the research, it is obvious that those who took educational courses had already set their own career goals earlier than those who did not. So, the former can get more help than the later. The results indicate that people who took educational courses knew their own future goals at an earlier time, and had strong ambitions; they also knew their own interests and characteristics very well. The reason why there were no significant differences in "environment-exploration" and "career decision and planning" might be because it is personal goals and personal decisions that determine the direction of exploring the surroundings and choosing jobs. So whether we take educational courses or not does not affect the search for jobs and decisions in careers.

Table 6. Analysis of the variable "educational course enrollment"

Items	Educational Course Enrollment	M	SD	N	F
Self-exploration	(1) Taking Educational Courses now	4.06	.51	68	8.00^{**}
	(2) No Educational Courses now	3.83	.60	217	
Environment-exploration	(1) Taking Educational Courses now	3.78	.59	68	5.04
	(2) No Educational Courses now	3.59	.63	217	
Career decision and planning	(1) Taking Educational Courses now	3.70	.66	68	3.19
	(2) No Educational Courses now	3.53	.72	217	
Wilk's $\Lambda = .968^*$	Hotelling Trace $= .026^*$				

$^*\,p < .005$ $^{**}Pj < 0.017$ $(Pj = \alpha \div 3 = 0.017)$

(6) The state of sponsorship: Table 7 shows significant difference (p < 0.05), and for "self-exploration" there are significant differences (p < 0.017) after post-hoc testing. The players being sponsored now are better off than those who are not; and those who were sponsored in the past are superior to those who were never sponsored. The reason is that the contestants have a broader view of life due to their sponsorship, and they are also treated better during training or games. They may have better trainers, better training environments, and even the participation in the games and their subsequent rankings can all improve a player's skill and strength, and expand their views and increase their experience. So the contestants can understand themselves, their own interests, and how to plan for their future careers. Hung [5] also pointed out that excellent players can expand their views and minds by attending games which can help them in their career development. Thus, the influence of corporate sponsorship in players' career planning provides nurtured backgrounds and improved personal experiences. Most contestants who get sponsored can understand their abilities and values and by connecting these skills with their experiences, they are able to better decide their future career paths.

Table 7. Analysis of the variable "sponsorship"

Items	Sponsor	M	SD	N	F
Self-exploration	(1)Sponsored now	4.13	.57	32	7.09**
	(2) Sponsored in the past	4.00	.52	87	
	(3) Never sponsored before	3.89	.60	166	
Environment-exploration	(1) Sponsored now	3.46	.49	32	1.54
	(2) Sponsored in the past	3.69	.64	87	
	(3) Never sponsored before	3.63	.64	166	
Career decision and planning	(1)Sponsored now	3.66	.62	32	.33
	(2) Sponsored in the past	3.54	.71	87	
	(3) Never sponsored before	3.57	.72	166	
Wilk's Λ = 0.910*					
* p < 0.05	**Pj < 0.017 (Pj = α ÷ 3 = 0.017)				

5. CONCLUSION AND SUGGESTIONS

5.1 Conclusion

(1) The state of division I university and college table tennis players' career planning stays in the self-exploration phase. It is at an average level. The reason might be that when it comes to career planning, players only do self-discovery, but not environment-exploring of future jobs since they do not have a clear idea where to go. Contestants have been in closed training surroundings for a long time, so they have fewer chances to go outside of their own field. This leads them do better in self-exploration but rather worse in environment-exploration and career decisions and planning.

(2) A closed training circumstance is the main element affecting the career planning of division I table tennis players. In arranging a career plan, there are obstacles stopping players from deciding on an exact career goal and discovering their future: being female, younger in school, neither educational courses nor sponsors greatly affect them in career planning. Moreover, most players have been trained in a closed situation for a long time, which means they have not had many chances to see the world outside, so they are unable to expand their vision, which becomes a barrier to career exploration. Thus, promoting the ability to discover other jobs is the key to promoting players' ability in career planning for the future.

5.2 Suggestions

(1) Suggestions for corporations: from the results, it is obvious that contestants with sponsors can have better career arrangements. It is because they are provided chances to broaden their views during the process of training and competitions. It also provides variable sources for players, leading them to do better in environment exploration and promotes better self-performance. Unfortunately, the number of enterprises that train table tennis players has seen dramatic reduction recently, and most of them tend to sponsor individual players, which is a warning to Taiwanese table tennis teams. It is suggested that enterprises should help train potential athletes by giving sponsors to a team, allowing more players to have opportunities to look towards the outside world. Meanwhile, more companies are expected to participate in providing sponsorships. If coaches are assisted in providing career information and educational training, such as school works counseling, team-manager training, related career-training courses etc. This will allow athletes to have a better career plan after retiring, and have actual feedback from society.

(2) Suggestions for division I table tennis players: the results show that athletes have little chance of contacting the outside world, which narrows their life scope, and leads them to perform better in self-exploration, but causes them to perform rather badly in the areas of environment-exploration and career decisions and planning. Moreover, they often lose the opportunities for independent thinking and determination. Therefore,

players are suggested to make good time management, learn how to be responsible for their life arrangements, and strengthen the ability of independent thinking and determining. During their training, athletes should break the limits of comfort and actively broaden their views and expand their interpersonal relationships in different fields. Also, in order to expand the aspects of their careers, seeking second professions and internships aggressively are necessary. In addition, athletes should set their career goals as early as possible. They should not rely on others to do career planning for them. An individual athlete knows best what his future holds for him.

(3) Suggestions for future research: due to the large amount of participants, quantitative data were used in this research. As a result, general information is adopted to describe players' thoughts or mental aspects of their career planning. Qualitative interviews are suggested for athletes feel about corporate sponsorships, among other things. Furthermore, this research is aimed towards players themselves and there are other factors which may affect their decisions, such as their significant others (e.g. parents, seniors, sponsoring companies). Thus, it is suggested that future research may choose significant others that affect athletes' career planning as research subjects in order to discover more problems, assisting concerned organizations to have a better plan for career counseling and management.

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