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A Study of Youth Volleyball Players' Participation Motivation and Relate Elements*

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ABSTRACT

The present study examined the essential factors that truly motivated youth athletes participated in Volleyball practices and competitions using the Adapted Questionnaire of Volleyball Athlete's Motivation-Chinese Version. Participants were 92 youth volleyball athletes (age 14-17) from 15 schools of Nanjing City, China. Data analysis was done by a 2 Gender (boy or girl) x 2 Education-levels (high-school or middle-school) x 2 School-types (sport-school or regular-school) multivariate analysis of variance (MANOVA). Findings included: the top five higher scores from the 19 RFs were: RF1 "Technical-content and unique-value" M ± SD = 4.30 ± .83; RF17 "For extraordinary-skills" M ± SD = 4.24 ± 1.04; R3 "For health" M ± SD = 4.11 ± 1.02; RF12 "Improve own-literacy" M ± SD = 4.00 ±1.26; RF9 "become healthier" M ± SD = 3.58 ±1.13. These RFs possess significant higher impact on the participants' motivations. The results of the MANOVA revealed that: two out of three independent variables reached meaningful significantly difference level ($p < .00$), wherein in 'Gender' aspect, $\Lambda = .37$, $F = 5.92$ with boys athletes' motivation score significantly higher ($p < .00$) than the girls athletes; (2) in 'School-types' aspect, $\Lambda = .24$, $F = 11.17$ with sport-school players' motivation score significantly higher ($p < .00$) than the regular-school players.

Indexing terms/Keywords

Youth athlete, volleyball, motivation, related-behaviors,

Academic Discipline And Sub-Disciplines

Sport pedagogy, Motivation and Psychology,

SUBJECT CLASSIFICATION

Youth athletes; Motivations, Behaviors

TYPE (METHOD/APPROACH)

Empirical analysis

INTRODUCTION

Since the second summer Youth Olympic Games (YOG) was held in Nanjing city, China (2014), youth volleyball have become one of the hottest sport for the young people who have an athletics dream and their sport star ambition has become an interest research topic in China: what reasons/factors that really motivated those youth athletes keep engaged in the sport they love and enable them reaching such high level? From this vision, this study was focus on the youth volleyball players' motivation in Nanjing city, because since the 2014 Nanjing YOG, youth volleyball has obtained much attention from the city and province. The purposes of this study, therefore, were: 1) to investigate what are the essential reasons/factors that actually motivated those youth volleyball athletes to continually engaged in their practices and competitions; 2) to provided meaningful information and data to their youth sport organization so that they can provide better teaching and coaching in youth volleyball programs; 3) to provide suggestions or advices helping those youth athletes who have the 'sport star' dream become true.

Generally speaking, according to the research literature in youth sports category, the goal and reasons of engaging in youth sports practices and competitions are: 'enjoyment', 'physical health', 'having fun', 'foster self-esteem', 'friendship', 'passion or love the game', and 'peer acceptance', whereas the first three reasons are somewhat similar to those participate motivations in the dominant sports events of Western societies (Cox, 2011; Devine & Lepisto, 2005; Smith, Balagurer & Duda, 2006; Zeng, Cynarski, Baatz & Shawn, 2015). Moreover, Miguel and Machar (2007) pointed out that participation motivation supports a successful sport performance; representing one of the most important psychological skills in the game that is playing. Based on the above indicators, we are wondering: whether or not youth volleyball athletes would be motivated to engage in their practices and competitions as what the literatures have defined? However, one vital problem is: literatures in the youth sports athletes' motivation category shown, research studies involved in participation motivations and relates behaviors for youth volleyball athletes are extremely limited.

1.1 Purpose and Hypotheses

Grounded on the above introduction and background, although some of the reasons and factors (as listed above) have been known in general; but so very little is known about what kinds of reasons or factors that actually motivated different types of youth players who have continually engaged in volleyball practices and competitions. The purpose of this study, therefore, is to explore what factors or reasons that truly motivated the youth volleyball athletes who are playing volleyball

in two different types of school [the Sport-School* and the Regular School has Volleyball as their Traditional Sport (simply call: VTS)]**, and have engaged in volleyball practices and competitions for years in Nanjing city, China.

The following specific hypotheses guided the current study: (1) no significant differences would be found on the motivation factors (MFs) between the athletes' *Gender* (boy or girl); (2) no significant differences would be found on the MFs between the athletes' School Types (who are in Sport school or VTS); 3) no significant differences would be found on the MFs between the athletes' *Education Levels* (Middle school or High school). Additionally, the eleven related elements on 'Free Times', 'Activities-Engagement', 'Practicing Frequency', 'Training Condition', 'Competition Frequency' and 'Financing situation" of the youth athletes were also investigated. The findings from this research would reveal and add a new set of data and first-hand information into the youth athletes study literatures, especially concerning to youth volleyball athletes' motivations and related elements in their volleyball practices and competitions.

1.2 Theoretical Framework

A comprehensive theoretical framework named 'self-determination theory' (SDT, Ryan & Deci, 2000) was employed as the theoretical frame of this study. The SDT is comprised of two major branches: the theory of intrinsic motivation and the theory of extrinsic motivation. Ryan and Deci (2000) indicated that: humans are motivated by three basic psychological needs: competence, relatedness, and autonomy. The competence needs in the SDT model is called effectiveness motivation; the relatedness needs refers to people's need to belong and to feel accepted by others; and the autonomy need, however, refers to people's need to feel self-determined, it is the source of their own action. Similarly, Harter (1981), Pintrich and Schunk (2002) described that organismic needs energize intrinsic and extrinsic motivations, but believe this concept is too general to explain the engagement in specific behaviors, such as engaging in sport competitions. Researchers, therefore, developed a few models that described how motivation triggered by need manifests in intrinsic and extrinsic motivation in specific fields and activities. These models also explained how factors in a specific environment might shape and affect the types of motivation that athletes manifest in different actions or behaviors (Harter, 1981; Pintrich & Schunk, 2002).

Furthermore, Breese (1998) illustrated that; athletics initial motivation should be defined as intrinsic motivation (participating in sport for enjoyment) or extrinsic motivation (participating in sport to gain rewards). Breese (1998) continued, athletics initial motivation usually predicts athletes' attendance and adherence to a particular sport. Such as in our study, a youth volleyball athlete who is intrinsically motivated would be those who go to play or practice his skills every other day for fun; whereas a youth volleyball athlete who is extrinsically motivated would be those who goes to play or practice his volleyball skills to become a better player at the competition so that he could win a medal at a competition. It is interesting to know that intrinsic and extrinsic motivation have different effects on an athlete, including whether or not he continue on the sport he had choose.

Similarly, Ryan and his colleagues (1997) explained that individuals who were mainly motivated by competence (engaging in exercise to expand skills) and enjoyment (desire to have fun) could be primarily defined as being motivated intrinsically. In contrast, extrinsically motivated individuals are those behaviors performed in intrinsic motivation aim at to obtain rewards or consequences that are separate f rom the behavior itself. Breese (1998) further illustrated that; when athletes begin participation in a particular sport, they are motivated not only by intrinsic factors but also by extrinsic factors. Some particular sports, however, may be more relying on *intrinsic motivation* than *extrinsic motivation* [as described in Ryan & his colleagues (1997)]. The reasons are: different types of sports need different types of motivation (Breese, 1998). In the current study, we were trying to find out those evidences or the factors that have actually motivated the participants who have engaged in and engaging in the sport of volleyball.

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*The **sports-school** is a type of educational institution for children in the Peoples of Republic of China (PRC). Sports school is one of the so-called "three levels of training networks" which including: Youth Sports-School, Province's Sports Institution and National Sports Institution. These networks are a powerful system of physical culture (fitness) and sports education in the PRC. The main features of this system are sports education. (Re-edited base on *https://en.wikipedia.org/wiki/Sports_school)*

** The Regular School has Volleyball as their Traditional Sport (simply call: VTS) refer to a regular school possess one or more sports teams, these teams have reached certain level in the regional school completions and able to maintaining their place; volleyball is their best sport team.

METHODS

2. 1. The sampling

Sampling for the participants in the present study were selected from 15 schools of Nanjing city, in which eight were regular schools have volleyball as their traditional sport and seven sport-schools based on the record of the division of Jiangsu province sports administration (2015) in the youth volleyball category (Resource: *http://www.thepacificinstitute.com/success/story/jiangsu-sports-administration*). According to Jiangsu.net (2015), Jiangsu province possesses the following unique features: a) Jiangsu is one of the most developed areas in economy, technology and culture in China; its industries total output is one of the largest in the nation. b) Jiangsu is a center of education and science, possessing the highest density of academic institutions and universities, colleges, and research institutes in China. c) Athletes of Jiangsu province have won more gold medals during the past 10 years than did athletes from any other provinces in China; remarkably, the city of Nanjing, the capital of provinces just held the second youth Olympics not

long ago. This is why we intentionally selected Nanjing City as the sample of our study. Moreover, Nanjing is the city where the place many famous Chinese national volleyball players become super starts. Such as: Zhang Changning (she represented China at the 2016 Summer Olympics and won the gold medal. She was voted as the Chinese Volleyball League's MVP and Most Popular Player in the 2015-2016 season). Zhang Xi (she won the beach volleyball bronze medal at the 2008 Summer Olympics; and won the gold medal at *2013 Beach Volleyball World Championships*). Zhao Ruirui (she represented China at the 2004 Athens Summer Olympics and won the gold medal; and she also represented China at the 2008 Beijing Summer Olympics and won silver medal). Zhou Xiaolan (she won three Gold Medals in three world competitions in the early nineteen eighties; included: The 1984 Los Angeles Summer Olympics, the '1982 FIVB Volleyball Women's World Championship', and the '1981 FIVB Volleyball Women's World Cup' (Resource: *https://en.wikipedia.org/wiki/Category:Volleyball_players_from_Jiangsu*).

2.2 The instrumentation

The Adopted Questionnaire of Volleyball Athlete's Motivation-Chinese Version (AQVAM-C.V Zeng & Xie, 2015) was employed for data collection. The reasons for using this questionnaire were: a) There is an existing questionnaire with similar purposes, b) to develop a new questionnaire, much more times and funding are needed, c) specialists in volleyball motivation and relate behaviors study are available for revising key words from the exist questionnaire to specify uses for youth volleyball athletes and d) research assistants or youth volleyball coaches are available for the questionnaire distribution and collection.

2.2.1 Reliability and validity of the instrument

According to Child (1990), in order to explore the possible underlying factor of the structure for a set of measured variables without imposing any preconceived structure on the outcome, the exploratory factor analysis (EFA) is the best solution; therefore, the EFA was executed for the AQVAM-C.V. (Zeng & Xie, 2015). The results revealed: the analysis extracted 6 factors with perfect correspondence to the 18 items with eigenvalues for the reasons or factors ranging from 2.65 to 8.58 and structure coefficients from .76 to .91 and the majority of the fitted residuals reached the pre set-up significant difference ($P < .05$) level.

Furthermore, the validation process was through a pilot study, reviewing to the content or items. These processes confirmed the following concerns: a) the readability and writing skills of the youth participants (14–17 years old); b) whether or not those youth athletes can truly understand and respond to the questions in the questionnaire correctly; c) it may result in re-wording on some questions or statements to improve the understanding for those youth athletes; d) it may result in cutting or adding numbers of the questions or statements in the questionnaire, and e) whether or not the questions or statements have asked all the possible motivation reasons or factors for the athletes participation in volleyball practices and competition.

As a result, the AQVAM-C.V. contained three parts: Part I asked 'General Information', containing seven questions that covered participant's general information. Part II asked, "What reasons/factors motivate you to take part in volleyball practices and competitions continually" with 19 motivation factors (MFs) provided. In each MF the participant responds in a 5-points *Likert type scale* (5-points represents "Strongly agree ", 4-points represents "Agree", 3-points represents "Somewhat-agree", 2-points represents "Little-agree", and 1-point represents "Disagree"). Part III asked 11 relate questions or elements that concern the youth athletes' 'Free Times', 'Activities-Engagement', 'Practicing Frequency', 'Training Condition' 'Competition Frequency', and 'Financing Situations'. To be clearer, the 11 relate questions or elements in the part III are belong to qualitative data, hence, the frequency and percentage were used for dealing with these data.

In summary, Part II of the questionnaire contains ten intrinsic motivation factors (items 1, 2, 6, 7, 8, 9, 13, 14, 15, & 18); and nine extrinsic motivation factors (items 3, 4, 5, 10, 11, 12, 16, 17, & 19). In the other words, it included the three basic psychological needs (competence, relatedness, and autonomy) described by Ryan and Deci (2000). The part III contains 11 relate elements or factors about the youth athletes' training and competition status, which is qualitative data. All questions and items in AQVAM-C.V. can be found in Table 1 and Table 2.

2.2.2 Data Collection

The questionnaires were distributed to the youth athletes during a planned practice day of their team by the researchers under the supervision of their coach and administrators. The youth athletes were given their rights to participate or not to participate and the 'confidentiality' of the survey was well informed. And then the 'directions' about how to respond to the questions and the items on the questionnaire were illustrated; consequently, 135 youth volleyball athletes accepted the questionnaires, amount of them 92 completed the questionnaire correctly and returned it (the return rate = 68.15%), at this point, the participants also signed the Informed Consent Form. Moreover, an envelope for preventing the participant's coach from viewing the answers in the questionnaires was offered. The coaches were informed that: After the study accomplishing, they would be provided the overall outcomes of the study.

2.2.3 Research Design and Data Analyze

The research design and the main goal for this study were to look at the effects of three independent variables on 19 dependent variables. That are: 2 x Gender (boy or girl) x 2 School-types (Sport school or VTS) x 2 Education-levels (High school or Middle school) at the same time. Therefore, a 2 x 2 x 2 multivariate analysis of variance (MANOVA), and a follow up MANOVA test after significant differences findings were operated. The descriptive statistics reflected the general status of how the youth athletes were motivated engaging in volleyball practices and competitions; the 2 x 2 x 2 MANOVA

examined whether or not there are significant differences exist among the three independent variables and the 19 dependent variables. The follow up MANOVA test reflected what differences exactly exist among the dependent variables. The statistical program used for the data analyses was IBM Statistical Package for the Social Sciences (SPSS) Version 22. Moreover, the 11 relate elements or factors about the youth athletes' training and competition status in the Part III of the questionnaire was to reflect the youth athletes' 'Free Times', 'Activities-Engagement', 'Practicing Frequency', 'Training Condition', 'Competition Frequency' and 'Financing Situations'.

RESULTS

3. 1 Participants' General Information

The following section presents the findings from the current study. It is structured to address the reasons / factors that the participants engaged in the sport of Volleyball. In total of the 135 questionnaires distributed, 92 were completed correctly and returned; this represents a response rate of 68.15%. Data in Table 1 reflected "General Information of the participants". For example, they were 14 to 17 years old, currently study in grades 7 to 12; in which 48 in middle school and 44 in high school; 49 were from Sport–School, and 43 were from 'TVS'. Moreover, there were 47 boys and 43 girls, and they have been officially engaged in Volleyball practicing and competitions for 3 to 5 years; their height range was from 162 CM to 196 CM, and weight range was from 49.80 to 75.50 KG.

It is worth to illustrate that: youth athletes from the Sport–School represent the highest skill and competitive capability in non-professional level in Chinese competitive sport system; athletes in sport school practice at least five half day per week, including a morning exercise and an afternoon practice. While the athletes from the 'VTS' represents the level of skill and competitive capability slightly below those athletes in the sport school; those athletes might have the talents to become volleyball starts but because their academic purchase (e.g., want to go to top university or college, etc.). Athletes in the 'VTS' have 3 - 4 after school practices per week.

Table 1. General Information of the Youth Volleyball Athletes

(*N* = 92, Boys = 47, Girls = 45, Age = 14-17)

# Questions	Answers / Frequency / Percentage
1) What is your gender?	Male = 47 / 51.08% Female = 45 / 48.02%
2) What are your Height and weight?	Height Range = 162 -196 CM, Weight Range = 49.8-75.5 KG.
3) What is your age rank?	14-17 (± 2.53) years.
4) How long have you in gage in official Volleyball training?	3-5 years = 92 / 100%
5) What type is your Volleyball school?	Sport–School = 49 / 53.26% VTS = 43 / 46.74%
6) What is your current education level?	Middle School (Grade 7-9) = 48 / 52.17% High School (Grade 10-12) = 44 / 47.83%
7) Where do you live during you have Volleyball training/practicing?	School = 35 / 38.04% Home = 57 / 61.96%

Note. VTS = Regular School has Volleyball as their Traditional Sport

The means score and the standard deviations can be seen in Table 2:

Table 2. Factors / Reasons that Motivated the Youth

Volleyball Athletes: Means Score and Standard Deviations (*N* = 92, Age = 14-17)

Motivation Factors (MF)	*M* ± *SD*	*Sum*	*Place*
MF1. Because Volleyball with high technical content and unique value.	4.304 ± .835	395.968	1
MF2. For the fun and get rid of boredom.	3.076 ± 1.224	282.992	14
MF3. For getting healthier	4.108 ± 1.021	377.936	3
MF4. For the enjorment and have happiness	4.032 ± 1.053	397.992	4
MF5. In order to meet friends.	3.315 ± 1.147	304.980	9
MF6. In order to make new friends.	3.478 ± 1.133	319.976	7
MF7. In order to contest winners.	3.337 ± 1.277	307.004	8
MF8. In order to shape the body.	3.097 ± 1.158	284.924	13
MF9. In order to improve physical fitness.	3.576 ± 1.131	328.992	6
MF10. For the near future may become a professional player.	2.489 ± 1.471	228.988	17
MF11. In order to foster self-esteem.	3.272 ± 1.018	301.024	12
MF12. In order to improve my own-biography.	4.000 ± 1.266	368.000	5
MF13. In order to establish prestige among my classmates / friends.	2.739 ± 1.221	251.988	16
MF14. In order to get the recognition from my teacher / coach.	2.782 ± 1.175	255.944	15
MF15. In order to reduce pressure from academic learning.	3.282 ± 1.312	301.944	11
MF16. In order to reduce working pressure.	3.293 ± 1.279	302.956	10
MF17. In order to develop an extraordinary skills.	4.239 ± 1.041	389.988	2
MF18. Hope to become volleyball coach in the future.	2.467 ± 1.565	226.964	18
MF19. In order to satisfy the will of family.	2.011 ± .955	185.012	19

Note. *1) The motivation factor (MF) 1, 2, 6, 7, 8, 9, 13, 14, 15, and 18 are 'Intrinsic motivation factors'; and the MF 3, 4, 5, 10, 11, 12, 16, 17, and 19 are 'Extrinsic motivation factors'. 2) MF1, MF17, MF3, MF4, MF12 & MF9 scored on the top; 3) the MF6, MF7, MF5, MF16, MF15 & MF11 scored on the middle; 4) the MF8, MF2, M14, MF13, MF10, MF18, & MF19 scored on the bottom. 5) Grand sum = 5508,* M_{Grand} *= 290.*

Data in Table 2 reflected the "Factors that actually motivated these youth volleyball athletes to took part in, and continually engaged in volleyball practices and competitions". First, the top six factors were MF1 'Technical content & unique value' (*M* = 4.304 ± .835), MF17 'To develop a Extraordinary skills' (*M* = 4.239 ± 1.041), MF3 'For getting healthier' (*M* = 4.108 ± 1.021), MF4 'For enjorment and happiness' (*M* = 4.032 ± 1.053), MF12 'To improve my own-biography' (*M* = 4.000 ± 1.266), and MF9 'To improve physical fitness' (*M* = 3.576 ± 1.131), these six factors possessed the highest impact power on these youth volleyball player's motivation. Second, the middle six factors were MF6 'To make new friends' (*M* = 3.478 ± 1.133), MF7 'To contest winners' (*M* = 3.337 ± 1.277), MF5 'To meet friends' (*M* = 3.315 ± 1.147), MF16 'To reduce working pressure' (*M* = 3.293 ± 1.279), MF15 'To reduce pressure from academic learning' (*M* = 3.282 ± 1.312), and MF11 'To foster self-esteem' (*M* = 3.272 ± 1.018), these six factors possessed medium impact power on these youth volleyball player's motivation. Third, the other seven MFs' (they are the *MF8, MF2, M14, MF13, MF10, MF18, & MF19)* mean score were from *M* = 2.011 ± .955 to *M* = 3.097 ± 1.158, these seven factors possess lower or less impact power on these youth volleyball player's motivations.

The results of the 2 x 2 x 2 MANOVA for comparing the motivations factors / reasons from different kinds of youth volleyball athletes' were presented in Table 3:

Table 3. The 2 Gender (boy or girl) x 2 Athlete-Types (sport-school or VTS) x 2 Education -levels (high-school or middle-school) MANOVATests for Youth Volleyball Athletes' Motivation Factors [*N* = 92, 47 Boys, 45 Girls, Age = 14-17, or Middle School (Grade 7-9) = 44, High School (Grade 10-12) = 48, or Sport–School = 49, VTS = 43]

Source	Wilks' Lambda	*F*	Hypo *df*	Error *df*	*P*
1. Gender *(M or F)*	.373	5.922 [b]	19.000	67.000	.000
2. School Types	.240	11.172 [b]	19.000	67.000	.000
3. Education Levels	.588	2.472 [b]	19.000	67.000	.003 [-Note]

Note. [a] Design: Intercept + Gender + School-Levels + Athletes-Types; [b] Exact statistic. [-Note] With the Low *F* value of 2.472, the independent variable of Education Levels would not be selected for the follow up test.

The results of the 2 x Gender: (boy or girl) x 2 Education-levels (High school or Middle school) x 2 School-types (Sport school or TVS) MANOVA in Table 3 showed that: all three independent variables reached the significant different levels. Where in 'Gender' $\Lambda = .373$, $F = 5.922$, $p = .000$; in 'School Types' $\Lambda = .240$, $F = 11.172$, $p = .000$; and in 'Education Levels' $\Lambda = .588$, $F = 2.472$, $p = .003$. According to the research design, after significant differences effect was found, a following up MANOVA test would be conducted. This post hoc test determined where and what factors or reasons that truly motivated these participants engaged volleyball practicing and competing, Detail findings are presented in Table 4.

Table 4. Descriptive Statistics of the Youth athletes' Motivations for Practicing and Competing Volleyball by Gender (47 boys vs. 45 girls) and Athletes-Types (Sport–School = 49 vs. TVS = 43)

Motivations	**Gender - *Mean (SD)***		**Athletes-Types- *Mean (SD)***	
Factors (MF)	Boys (47)	Girls (45)	Sport–School (49)	TVS (43)
MF 1	4.404 (.770)	4.200 (.894)	4.4.183 (.882)	4.442 (.765)
MF 2	3.212 (1.004)	2.933 (1.116)	3.081 (1.187)	3.069 (1.279)
MF 3	4.350 (.754)*	3.955 (1.127)	4.102 (1.065)	4.116 (.981)
MF 4	4.234 (1.413)*	3.822 (1.072)	4.000 (1.000)	4.069 (1.121)
MF 5	3.617 (1.054)*	3.000 (1.167)	3.933 (1.330)*	3.558 (1.030)
MF 6	3.744 (1.112)*	3.200 (1.099)	3.387 (1.114)	3.581 (1.159)
MF 7	3.595 (1.439)*	3.066 (1.031)	3.816 (1.054)*	2.790 (1.301)
MF 8	3.532 (1.080)**	2.644 (1.069)	3.020 (1.233)	3.186 (1.074)
MF 9	3.617 (1.207)	3.533 (1.057)	3.734 (1.113)*	3.395 (1.136)
MF 10	2.702 (1.640)	2.965 (1.017)	2.266 (1.250)	3.551 (1.100)
MF 11	3.872 (.991)**	2.644 (1.208)	4.166 (.791)	4.070 (1.287)
MF 12	4.383 (1.094)**	3.600 (1.321)	4.204 (1.172)*	3.767 (1.342)
MF 13	3.319 (1.287)**	2.133 (.786)	2.673 (1.231)	2.814 (1.271)
MF 14	3.383 (1.225)**	2.155 (.705)	2.734 (1.094)	2.837 (1.271)
MF 15	3.702 (1.140)**	2.844 (1.347)	3.122 (1.378)	3.465 (1.221)
MF 16	3.638 (1.168)*	2.933 (1.303)	3.265 (1.319)	3.325 (1.248)
MF 17	4.297 (1.101)	4.177 (.983)	4.591 (1.364)*	3.837 (1.252)
MF 18	2.787 (1.705)*	2.133 (1.341)	3.367 (1.191)**	1.441 (1.075)
MF 19	2.319 (.887)*	1.688 (.924)	2.367 (1.014)*	1.604 (.694)

Note. 1) TVS[#] = Traditional-Volleyball-School. 2) This is a follow up test to determine what and where really have significant differences. 3) Among the 38 items comparisons, 21 showed significant differences, * represents at $p < .05$ Level,

and ** represent at $p < .01$ Level. 4) MF1 to MF19 represent the19 different motivation factors **–** as shown in Table 2.

5) Source No. 3 – the 'Education Levels' was not been selected in this follow up test because of the *F* value (2.472) was not high enough.

As shown in Table 4, among the 38 comparisons, 21 reached significant differences at either $p = .01$ or $p = .05$ level. Specifically, in the 'Gender' aspect, there were 8 FMs showed significant differences at $p = .05$ level with boy athletes scored higher than girl athletes; and 6 FMs showed significant differences at $p = .01$ level with boy athletes scored higher than girl athletes as well. In the 'Athletes-Types' aspect'**,** there were also 7 FMs showed significant differences at $p = .05$ level with Sport–School athletes scored higher than those of the VTS athletes; only one FM reached significant differences at $p = .01$ level with Sport–School athletes scored higher than those of the VTS athletes also.

The findings from part III of the questionnaire, which was 11 elements related to the 'Free Times', 'Activities-Engagement', 'Practicing Frequency', 'Training Condition' and 'Competition Frequency' and 'Financing Situations' of the participants; all findings are presented in Table 5:

Table 5. Relate Elements / Factors on 'Free Times', 'Activities-Engagement', 'Practicing Frequency', 'Training Condition', 'Competition Frequency' and 'Financing support' of the Youth Volleyball Athletes (*N = 92,* Age = 14-17, *Gender* (47 Boys vs. 45 Girls) or *Athletes-Types* (Sport–School = 49 vs. VTS = 43) or *Education Levels* (Middle School = 44, High School = 48)

No. Questions	Answers / Frequency / Percentage
1) How many free times do you have from Monday to Friday? (Please select the one that most fit your situation)	
	a) No free time at all – 0 / 0%
	b) 2-3 hours -- 28 / 30.43
	c) 4-5 hours 36 / 39.13%
	d) more than 5 hours 28 / 30.43
2) How many free times do you have during weekend? (Select the one that most fit your situation)	
	a) 1-2 hour – 0 / 0%
	b) 3-4 hours 33 / 35.87%
	c) 5-6 hours 41 / 44.56%
	d) 7 hours and more 18 / 19.57%
3) What kind of activities do you do in your free time, besides Volleyball training /practices? (There are choices a to f; choose as many as it fit your situation)	
	a) Reading books/magazines 5 / 5.43%
	b) Watching TV 35 / 38.04%
	c) Play computer 28 / 30.43%
	d) Listening to music 8 / 8.69%
	e) Social meetings 11 / 11.96 %
	f) Other physical activity 5 /5.43%
4) Do you undertake physical activity willingly in your free time? (included play Volleyball and other kinds of activity)	
	a) Yes, 79 / 85.87%
	b) No, 13 / 14.13%
5) Besides Volleyball, what physical activity do you involve often?	
	a) Swimming 7 / 7.61 %
	b) Jogging 13 / 14.13%
	c) Body building 15 / 16.30%
	d) Fitness 12 / 13.04%
	e) Gymnastics 0 / 0%
	f) Other team sports 21 / 22.83%
	g) Ride bike 11 / 11.96%
	h) Walking 6 / 6.52 %
	i) Martial arts 7 / 7.61 %
6) What is your frequency to engage in sports/physical activities? (Including play Volleyball)	
	a) Every day 48 / 52.17%
	b) Four times per week 19 / 20.65%
	c) Three times per week 17 / 18.48%
	d) Two times per week 8 / 8.69%
7) Can you access to Volleyball or Sports-facilities easily or difficultly?	

a) Very easily -- 63 / 68.48% b) Easily -- 17 / 18.48%

c) It's depend -- 6 / 6.52% d) Difficultly -- 5 / 5.43% e) Very difficulty -- 0 / 0.00%

8) Does your financial situation allow you to participate in Volleyball practices and competitions?

a) Yes -- 35 / 38.04% b) No – 57 / 61.95% (-various reasons)

9) How often do you attend Volleyball competition during a semester?

a) Never -- 0 (0%) b) Once per semester – 33 / 35.86%

c) 2 or more times per semester -- 54 / 58.69% d) Others -- 5 / 5.43%

10) Do you attend Volleyball competition in winter / summer vacations?

a) Yes, always -- 53 / 57.61% b) Usually -- 35 / 38.04%

c) Once in winter or summer -- 4 / 4.34% d) No -- 0 / 0%

11) Who pay for the travel and registration fee for your Volleyball competitions?

(You can choose multiples answers according to your situation)

a) My parents -- 29 / 31.52% b) My school -- 31 / 33.69%

c) My team / club 32 / 34.78% d) Myself -- 0 / 0%

Although the elements in Table 5 are not in the motivation factors list but they have essential relationship with the participants' motivation; because those elements are really matter to whether or not the youth volleyball athletes want to engage in volleyball practicing and competitions. Remarkably, the participants self-reported that: 1) from Monday to Friday, 39.13% percent claimed they have 4 to 5 hours free time, and 30.43% said they have more than 5 hours free time, and 30.43% said they have 2 to 3 hours free time. 2) During weekend, 44.56 percent declared they have 5 to 6 hours free time, 35.87% reported them have 3 to 4 hours free time, and 19.57 percent said they have more than 7 hours free time. 3) In their 'free time', except play badminton, the two activities play by highest number's of athletes were watching TV (38.04%) and played computer (30.43%). 4) 85.87% of them reported they were willingly attended physical activities, only 14.13% of them said that they were not willingly to with multiples reasons, 5) Besides Volleyball, among the 9 physical activity listed, more athletes reported they involved following activities often: body building (16.30%), other team sports (22.83%), jogging (14.13%), ride bike (11.96%), swimming (7.61 %), and martial arts (7.61 %). 6) For the question of what is your frequency to engage in sports/physical activities (including play volleyball)? 52.17% reported them every day, 20.65% said they engaged in four times per week, 18.48% claimed they played three times per week, and 8.69% of them said they engaged two times per week. 7) For the "Can you access to Volleyball or Sports-facilities easily or difficultly?" 68.48% reported them "Very easily", 18.48% reported them "Easily", 6.52% said "It's depend" and only 5.43% of them claimed "Difficultly". 8) When came to the question of "Does your financial situation allow you to engagede in volleyball practices and competitions? There were only 38.04% of them declared a "Yes" but 61.95% of them reported a "No" with various reasons. 9) To the question of "How often do you attend volleyball competition during a semester?" 35.86% of them declared once per semester, and 58.69% reported them attended "two or more times per semester" 10) When came to the question of "Who pay for the travel and registration fee for your volleyball competitions?" 34.78% of them reported paid by "My team / club", 33.69% of them reported were paid by "My school", and 31.52% of them reported "Paid by "My parents".

DISCUSSION

The current study was designed for 1) exploring the current status of youth volleyball athletes' participation motivations and relate elements (age 14-17) in Nanjing, China, and 2) examining if differences exist on the motivation factors / reasons among the 'Gender', 'School types', 'Education levels' aspects of the participants. As the data presented in Table 2, the MFs mean scores places should be divided into the following three groups: 1) High impact group, it comprises of MF1 MF17, MF3, MF4, MF12 and MF9. These six MFs possessed the highest impact power on this sample youth volleyball athletes' motivation. Curiously, among this group's MFs, MF1 and MF9 are in the 'Intrinsic motivation factors' categoty; the other four MFs (17, 3, 4, & 12) belong to 'Extrinsic motivation factors' categoty. 2) Medium impact group, it encloses of MF6, MF7, MF5, MF16, MF15 and MF11. These MFs possessed the medium impact power with intermediary scores within this samples' motivation. Amazingly, among this group's MFs, MF6, MF7, MF15, and MF16 are in the 'Intrinsic motivation factors' categoty; the other two MFs (5 & 11) belong to 'Extrinsic motivation factors' categoty. 3) Lower impact group, it contains of the rest seven FMs with lower scores. These MFs possessed significant less impact power on this samples' motivation. Incredibly, among this group's MFs, MF2, MF8, MF13, MF14, and MF18 are in the 'Intrinsic motivation factors' categoty; the other two MFs (10 & 19) belong to 'Extrinsic motivation factors' categoty (see Table 2 also).

In summary, to this sample's youth volleyball athletes the following four points can be concluded: 1) both 'Intrinsic factors' and 'Extrinsic factors' possess comparable impact power on their motivations, 2) the ten 'Intrinsic factors' in the AQVAM-$^{c.v.}$ (Zeng & Xie, 2015) were the core motivation factors for these youth volleyball players, 3) some factors or reasons possessed higher impact power than the other factors, and 4) there are also some factors or reasons held less impact power than the others factors. Based on these findings, youth volleyball coaches, trainers and administers should

diagnosis and analysis the athletes' particular situation and implement these findings accordingly. The motivation features of this sample can be summarized as Fig. 1.

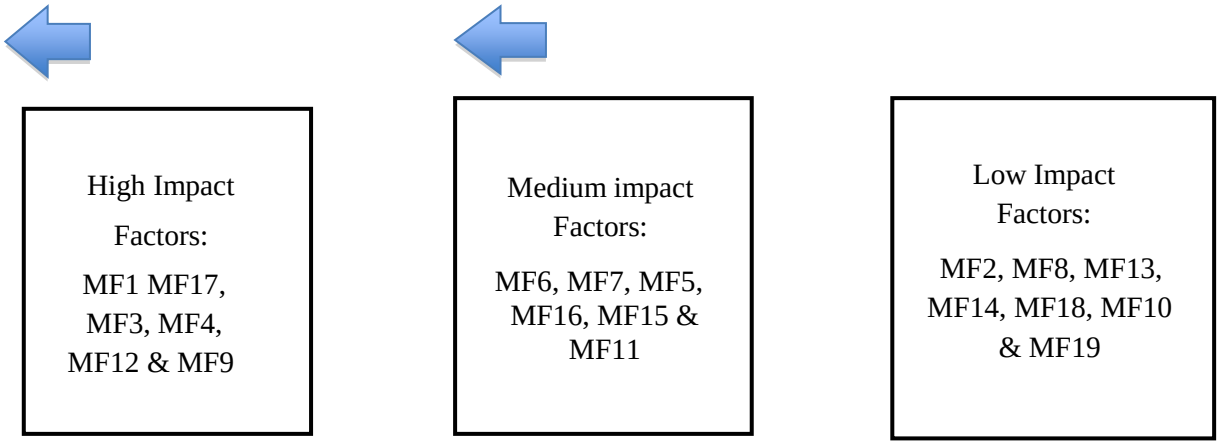

Figure 1. Three Layers / Groups of Youth Volleyball Athletes' Motivation Factors

Note. 1) The motivation factor (MF) 1, 2, 6, 7, 8, 9, 13, 14, 15, and 18 are 'Intrinsic motivation factors'; and the MF 3, 4, 5, 10, 11, 12, 16, 17, and 19 are 'Extrinsic motivation factors'; and 2) These19 MFs reflected the 'Competence Needs', the 'Relatedness Needs' and the 'Autonomy Need' in the 'Self-Determination Theory' model interpreted by Ryan and Deci (2000).

In terms of the current status of this sample's participation motivations, it was quite clear: the Grand mean score for the 92 youth volleyball anthlets is 2.9; with a 5-points *Likert type* scale this mean score is in the middle position of the scale, hence, the current status of this sample's participation motivations is at the medium level, means in the aera of motivation coaches and administrators have a lots works need to be done in order for improving athletes' participation motivation to a higher level.

The following discussion are about the 21 significant differences among the 38 comparisons results summarize in Table 4: there are 8 FMs showed significant differences at p = .05 level and 6 MF at p = .01 level, all these significant differences were boy athletes scored higher than girl athletes, these MFs are: MF3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 18 and 19. The reasons behind of these differences might have something to do with what the traditional Chinese culture influencing: it said that "Boys should be strong in body, smart in mind, while girls should be quiet and know the book ceremony". More and less we feel some surprise on this phenomenon, but we could not find any other references from the literature that evolved youth volleyball athletes' participation motivation study. Fortunately, one study in determining gender differences in physical activity and motivation levels for boys and girls by Vašíčková, Groffik, Frömel, Chmelík and Wasowicz (2013). Their study showed: After a four-week physical activity (PA) intervention program (by using pedometers, motivational recording brochures and an Internet program for maintaining PA levels), the participants were 220 boys (15.8±0.8 years) and 275 girls (15.8±0.9 years), with all the elements included in their study, girls accomplished significantly higher in PA amount and significant higher motivation levels than those boys in the end of study testing. That was totally opposite from the findings of our study.

As to the comparisons in the 'Athlete Types' aspect, seven motivation factors (MFs) were found reached significant difference (at $p < .05$ or $p < .01$) levels with the athletes from Sport-school scored significantly higher than the athletes from the Traditional Volleyball School. These MFs are: MF5, 7, 9, 12, 17, 18 and19 (as showed in Table 4). The reasons behind this finding relate to: 1). When a youth volleyball athlete who was accepted into a sport-school, he or she has had much more serious mind to be a 'professional player' 2). He or she had good or very good conditions (e.g., body height and shape) to be a 'professional player'. It is a common accepted reason in the competitive sport system of China, athletes who playing a sport-school are defined as the 'semi professional players'; these players have a lots more chances to become 'professional players'. Therefore, during practices and competitions, these players will try their best with high or very high motivations. Moreover, if they achieve their goal, means a few years later, they become 'professional volleyball players' that will not only achieve their goal as well as satisfy their family's wish. This is why the youth volleyball athletes from the sport-school scored much higher than those who from the traditional volleyball school.

On the other hand, to the youth volleyball athletes who came from the traditional volleyball school, when they facing those motivation questions / factors (such as: meet friends, contest winners, get the recognition, establish prestige, and become a professional player), their reaction or responds were not as warmly as those from sport-school. Their common responds are: showed less excitement to those factors or elements; because they have gone through different situation in their practices, trainings, and attending competitions, more importantly, this type of athletes usually have higher academic ambition, they may have plan to play in a college or an university team, but to 'make new friends', 'contest winners', 'become a professional', 'establish prestige' in volleyball, and 'become a volleyball coach' and so on that might not in the list of their most import things to be accomplished. Similarly, a situation like in the USA, (the America National Collegiate Athletics Association - NCAA), China has a National Collegiate Athletics Association as well. In another word, for those youth volleyball athletes who love to player volleyball, they still able to pursue their volleyball star dream by playing in either division team in their future college / university; therefore the findings of this survey with 12 out of 19 comparisons between the 'Athlete Types' with Sport–School vs. TVS were extremely similar and reasonable.

Moreover, regarding the motivation factors comparisons in the 'Goal-setting', some interesting and unique features are: 1) the youth athletes from the sport-school were significantly more appreciate the motivation factors of 'meet friends', 'make new friends', 'contest winners', 'become a professional player', 'to establish prestige'; 'become a coach' than those who were from the 'Traditional Volleyball School'. Again, what would be the reasons behind of these? As introduced before, athletes in sport schools represent the highest skill and competitive capability in non-professional level in Chinese competitive sport system; they practice five half day per week, and attend 2-3 major youth competitions every semester (Spring and Autumn), plus every four years there is a National Secondary School Games. Those promising teenagers are eagerly hope they will able to be sent to sports schools to receive specialized training, so that they can make their sport-star dream come true; therefore, the expectations on their winnings from all aspects are pretty high. May be that was their top external motivation resources.

On the other hand, although the youth athletes at the traditional sports school have less times for practicing and competing, plus the reality tell them that: there is much less opportunity to become a volleyball-star; but they are still in the category of 'promising youth volleyball player' and have the possibility to play in the college / university level. Over the years, many youth athletes who graduate from the traditional volleyball school have been playing and competing in the Chinese National Collegiate Games. Where these motivations come from? Probably these can be attributed to the 'Intrinsic motivation'.

As been indicated at the beginning, "research studies involved motivations of taking part in youth volleyball athletes are extremely limited", however, one article titled "How to motivate your young athlete to get better" (Cohn, P., & Cohn, L., 2016) has suggested that: In order to motivate your youth athletes**,** coaches need to know what factors get your athletes motivated. The following factors was in their suggestion list: 1) Love to practice and compete; 2) Like to work on weaknesses so they can improve; 3) Get excited about competition; 4) Want to win and hate to lose; 5) Have high expectations for their performance; 6) Are dedicated to their sport; 7) Stay committed even when challenged; and 8) Go after their goals with intensity.

Then, what further discussions can we make? Besides some similarities exist between the current study and those previous studies, there are some differences exist as well. For example, using the previous studies findings for the other sports (Note. since the lacking of resources in youth volleyball athletes' participation motivations, we would like to use the research findings from the other youth sports). Miguel and Machar (2007) in their review of literature "Motivation in Tennis" summarized: 1) 'Enjoyment', 'Having fun', and 'Passion on the sport' were rated as top three important motivation factors for the success of youth tennis players, 2) 'Improving performance', 'Keeping fit' and 'Socializing' were rated as their basic reasons for the youth tennis players' involvement in the sport, 3) 'Feeling important and popular', and 'Earning rewards' were ranked as less important motivations, 4) School / club / team atmosphere and having a good relationship with the coach were also regarded as an impacted factors on players' participation motivation. Interestingly, although our study and their studies were conducted in two different sports but findings from the two studies were more similarities than the differences. Whereas, their top important and basic reasons for the youth players engaged in sport practices and competitions that have many similarities (See table 2 for details).

In particular, with regard to the differences, when contract to the factors of 'feeling important and popular', 'earning rewards', 'team atmosphere' and 'good relationship with coach' from the previous study with the factors of 'technical content and unique value', 'unique skills', 'for fun', 'for biography', 'for establish prestige', 'for professional', 'for establish self-esteem', and 'contest winners' from the current study; it is not hard to find out there are a lots of differences between the two studies (as presented in Table 4).

CONCLUSSION

The current status of participation motivations for this samples' youth athletes is at medium level; means need to be improved to a higher level. From a practical point of view, the following suggestions ay helpful: a) Boys and Girls play competitive volleyball are involved for the social aspects of being part of a team sport. They are not interested in giving as hard as they could at all times because it is too difficulty for them to do so; b) coaches need to help the youth athletes to find a way to take how they feel about successful team work personally. Doing everything they possibly can to achieve their goals that must be connected to their sense of pride; and c) coaches must get their youth athletes to realize that it is not easy to be successful, it takes times, efforts, sweats, focus, and sacrifices; that is why not every athlete able to succeed! If someone did successful, by the definition of "volleyball players" that is what they can be proud for (Refer source: *http://www.volleyball advisors.com/html).*

With regard to the hypotheses, all independent variables shows significant differences: 1) in 'Gender' (boys / girls) aspect, boys' posses higher motivation scores than girls; 2) in 'Athletes Types' (Sport-school / TVS) aspect, athletes from Sport-school possess higher motivation scores than those of the athletes from traditional volleyball school.

Additionally, for the qualitative data (as displayed in Table 5), the meaningful findings are summarized as below: 1) the participants had enough time for their practices during weekdays and weekend; 2) the youth volleyball player were willingly attended physical activities or volleyball practices; 3) the frequencies of their participation were 4-5 times per week; 4) other than volleyball, the two most favorite activity for the youth athletes playing is watching TV and Play computer, 5) beside volleyball, the top favor activity for these youth athletes are Other Team Sports (23%), Body Building (16%) and Jogging (14.13%); 6) the participants can easily to access the volleyball facilities whenever they are schedules practices; 7) about 38 percent of the participants had no financial problem to participate in Volleyball practices and competitions, but 62 percent of them claimed they have financial problems; 8) about 32 percent of the participants' parents paid for the cost of their children's practices and competitions; and about 66 percent of the participants' teams or

schools paid for the cost of these athletes' practices and competitions. Furthermore, to this sample's youth athletes the 'Extrinsic factors' possess higher influence power than those of the 'Intrinsic factors'. Specifically, the following six motivation factors (MFs) such as: MF1 'Technical content & unique value', MF17 'To develop a Extraordinary skills', MF3 'For getting healthier', MF4 'For enjorment and happiness', MF12 'To improve my own-biography' and MF9 'To improve physical fitness' possess extraordinary impact power on these youth volleyball athletes' participation motivations; which means: the other MFs might had less influence power. Youth volleyball educators need to base on profounder diagnosis and analysis on their athletes' situations and utilize these research findings correspondingly.

5.1 Limitations

We do realize there were several limitations in the current study. First, the size of sampling was relatively small. Second, the data collection scope only covered a City although it is the capital of the Jiangsu province. Third, volleyball coaches might have some kinds impacts on their athletes' participation motivations, but that had not included in the objects of the current study. Last, the participants in the current study were selected on purpose. Future study can be improved on the above limitations by including the coaches from those participants' teams (e.g., creating some open-ended questions for coaches to answer); extend data collection to more provinces or districts; and select participants more thoroughly.

5.2 Recommendations

The present study explored the youth volleyball athletes' participation motivations and related elements from Nanjing City, China. The 'Technical content & unique value', 'To develop a Extraordinary skills', 'For getting healthier', 'For enjorment and happiness', 'To improve my own-biography', 'To improve physical fitness', 'To make new friends', 'To contest winners', 'To meet friends', and 'To reduce working pressure' have been identified as the top ten reasons or factors for these youth volleyball athletes engaged in the sport of volleyball. From other perspective, team atmosphere and having a good relationship with coaches also influenced youth athletes' participation motivations. Moreover, although the values of youth athletes' participation motivations have been recognized by many youth sports researchers (e.g., Miguel & Machar, 2007; Smith, Balagurer & Duda, 2006), however, future studies are needed, especially in the area of youth volleyball, to further examine what reasons or factors that truly motivated the young athletes take part in the sport they love, that will enable the sport educators to better cultivate and educate their youth athletes' motivations.

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