

The Development of Rock Climbing in China: Challenge and Direction

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Abstract: This study maps the development of Rock Climbing in China to describe and provide a richer understanding of how the field has evolved. Utilizing systematic and longitudinal analysis, the researchers focused on the developments such as Rock Climbing tournaments, the training of talented professional Rock Climbers, intercollegiate Rock Climbing, researches on Rock Climbing, the facilities of Rock Climbing, and Rock Climbing clubs. A meta literature review was employed to study on the challenges of Rock Climbing evolution in China. The purpose of this study is to propose the new strategies in order to promote the development of Rock Climbing more efficient and guide the development professional Rock Climbing more scientific and sustainable.

1. Introduction

Rock climbing is a type of sport which combines intelligence and physical activity as a whole. Rock climbing has been introduced into China since 1987. Being featured with its unique attributes, such as educational, adventurous, extreme, fitness, recreational, it has been one of the most popular sports for the majority of young teenagers. Currently, rock climbing has been officially included into the Olympic Games, Youth Olympic Games and Asian Games, which indicates Rock climbing has entered a new era of its development. Chinese Rock Climbing plays a vital role in promoting the development of the World Rock Climbing. Since the first introduction of Rock Climbing into China, it has been three decades, started with nothing and not been recognized to a well-known sport. It is owing to the joint support and promotion from the top of the government to the society and universities. Although Chinese Rock Climbing has accomplished significant amount of achievements, there are still many challenges. The evidences come from, such as, the annual major tournament (majority of the tournaments rely on the funding from the government with low commercialized operation), limited literature available on Chinese Rock Climbing and the lagged behind and in systematic researches resources, few colleges and universities have Rock Climbing teams, limited Rock Climbing facilities have hampered the development and promotion of Rock Climbing.

This study will focus on three aspects: national government policies for the development of Rock Climbing, the development of collegiate Rock Climbing and community Rock Climbing. Along with each aspect, there will be a systematic review on the developments of Rock Climbing tournaments, elite professional Rock Climbers, Rock Climbing trainings and seminars, collegiate Rock Climbing, researches on Rock Climbing, Rock Climbing facilities and clubs. The goal is to identify the challenges and propose the strategies for the government policies and decision-makers.

2. National Policy for the Development of Rock Climbing

2.1 Major Events of Chinese Rock Climbing

As shown in Table 1, within the three decades after Rock Climbing was introduced into China, it was started from nothing, even no climbing facilities, to the commercialization of Rock Climbing tournament. It has been developed from recreational participants to National Professional Training team, from the initial 7 universities with Geology Colleges enlarged to university Rock Climbing Associations, from unknown to become a part of the National Games. All these footsteps revealed that Rock Climbing has become more and more popular with more attention among the youth population in China.

Table 1. Major Events of Chinese Rock Climbing

Year	Major Events
1987	Chinese Mountaineering Association sent 8 coaches and athletes to Nagano, Japan. Rock Climbing was officially introduced into China.
1990	The first mega Rock Climbing facility was established with the first Rock Climbing tournament hosted in Huairou, Beijing.
1993	Rock Climbing was officially announced as sport in China, which indicted the emerge of Rock Climbing in China.
1996	The first commercialized Rock Climbing facility, named Qi Da Gu Du, was open in Beijing.
1997	The first commercialized Rock Climbing National Invitation Tournament, “Langjiu Cup”, was hosted in Beijing.
1998	The first Rock Climbing Festival, organized by Chinese Mountaineering Association, was hosted at Miyun Baihe Valley in Beijing.
2000	The Chinese Mountaineering Association formed the first National youth Rock Climbing Team.
2001	The official National Rock Climbing team was founded.
2003	Chinese University Sports Association Rocking Climbing Association was founded.
2009	Chinese Mountaineering Association launched the first tryout of Youth Rock Climbing promotion event on the National Fitness Day.
2013	National Rock Climbing Social Sport Instructor Vocational Qualification Certificate was launched.
2017	Rock Climbing became the Mass events on the 13 th National Athletic Meet, which was the first time to be included in National Games.

3. Development of Rock Climbing Tournament

3.1 The History of Rock Climbing events

Sponsored by the Chinese Mountaineering Association, each province and local government hosted many the national level and even higher level mega events. There was only nine tournaments in 2013 while, in 2016, there was 26 tournament, which reached the highest number of mega events (see Figure 1). Even by the year of 2018, there were only 25 national level and higher level mega events, in the past few years, there were several provinces and autonomous regions hosted Rock Climbing Championships and variety of promotional events. Moreover, China has hosted many international tournaments, such as World Cup Rock Climbing Championship, Asian Rock Climbing Championship, World University Rock Climbing Championship, International Rock Climbing Master Tournament, International Rock Climbing Exchange Tournament, International Rock Climbing Invitational Tournament, International Rock Climbing Change Tournament,

International Rock Climbing Elite Tournament. Rock Climbing is greatly limited by the facilities of rock walls. At the early stage, only the economically developed cities or regions could be able to have Rock Climbing. In these couple years, with the popularity and development of Rock Climbing, it has been very popular and been expanded cross the whole country, such as Xinjiang, Tibet, Qinghai, Gansu and other remote areas.

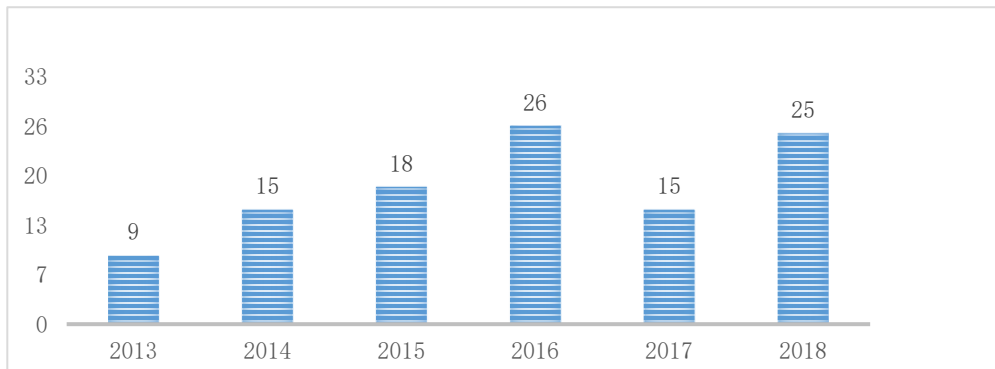


Figure 1. Statistics of Major Rock Climbing Events from 2013 to 2018

3.2 Amount of Tournament Prize

From 2008 to 2018, the amount of prize from National Rock Climbing Tournament has increased several times in the past 10 years (as shown in figure 2). The original first prize of 3,000 RMB was increased to 10,000 RMB in 2016, and 20,000 RMB in 2018. Although there is a big gap of the amount of tournament prize for the Champions between Rock Climbing and marathon, a big breakthrough has been made in Rock Climbing. At the current stage, the budget of hosting tournaments is still funded by the government. Although the commercialized sport tournaments were merged in 1999, there was not much significant achievement on the commercialized operation of Rock Climbing.

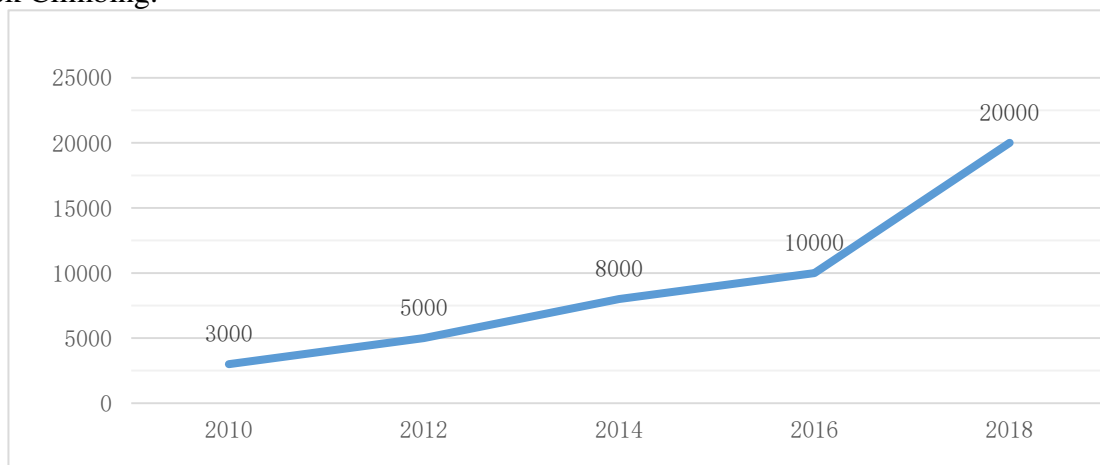


Figure 2. Amount of Tournament Prize

3.3 Training of Rock Climbers

It's only been 30 years since Rock Climbing was introduced to China. However, Chinese Rock Climbers have shown up in many international tournaments and have dominated the speed featured events. In 2004, the World Cup Rock Climbing (Shanghai) and Asian Rock Climbing Championship, Chen Xiaojie won the both Speed Rock Climbing Race Championships. Most importantly, he set up the record of Chinese Rock Climbing and became the first Chinese World Rock Climbing championship. Additionally, Zhong Qixin won the men's Speed Rock Climbing Race at the 9th World Rock Climbing Champion in September 2007 in Spain with a time of 8.76 seconds, setting a new World Speed Rock Climbing Race record, who joined the youth Rock Climbing club in 2005. Moreover, there were some excellent players, such as Liu Changzhong, Huang Liping, Cai Luyuan, Cao Rongwu who are retired and turn into a new role as Rock Climbing

teachers or coaches. They dedicate their lives to develop a new generation of elite climbers.

Before 2000, there was, hardly, no training for Rock Climbers, except some college Rock Climbing clubs. However, most of them were from small Rock Climbing clubs, owned by enthusiasts with a passion to provide certain practice places for other enthusiasts. There was no exactly professional and systematic training. After that, as with the first generation of Rock Climbers who graduated with a college bachelor and or master degree, most of them were employed in colleges to teach or turned to be the professional coaches. At the meanwhile, the Chinese Mountaineering Association established the National Youth Rock Climbing Training team, followed with the National Rock Climbing Training team, the Chinese University Rock Climbing Association, as well as the success of Chinese Mountaineering Association held the first youth Rock Climbing promotion event on the National Fitness Day. Since then, the Rock Climbing sports in China has been developed its route to train and cultivate the elite Rock Climbers. Since Rock Climbing has been considered to be included as part of the Asian Games, the Olympic Games, and the 13th National Athletics Meet in China, the government has carried out a number of policies, such as cross-boundary athlete recruitment, collaborations between national and local governments to found the elite professional National Rock Climbing team and, collaborations between universities to establish the university Rock Climbing teams, Rock Climbing into K-12 campus (focusing on elementary and middle schools). In addition, the government also published the new policy, named "2018 Elite Professional Rock Climbers Eligible for Colleges with an Exemption of College Entry Exams", which opened the door for more elite professional Rock Climbers to move to colleges.

3.4 Rock Climbing Training

Since 2001, the China Mountaineering Association has organized various trainings and seminars, consisting of five categories: skill, occupation, competition, instruction and administration. As for the Rock Climbing training, it includes Rock Climbing Social Instructors, Examiners, Judges, Linesmen, Professional Qualified Instructors, College Instructors, and Youth Trainers (see Table 2). As seen that, the Rock Climbing Social Instructors training sessions were most frequently hosted with the highest number of participants. There is the major occupational needs in the employment market, followed with Rock Climbing judges, owing to the rapid development of Rock Climbing in China. Moreover, there are more and more domestic and international class Rock Climbing tournaments hosted. Furthermore, various local Rock Climbing tournaments have been smoothly and successful organized, which also indicates more professional Rock Climbing human capitals are needed.

Table 2. Statistics of Chinese Mountaineering Association Rock Climbing Trainings

Type	Training	Number of Sessions	Number of Participants
Occupation	Rock Climbing Social Instructors	164	3825
	Rock Climbing Examiners	4	125
Competition	Rock Climbing Judges	17	471
	Rock Climbing Linesmen	6	72
	Professional Qualified Instructors	4	92
Instruction	College Rock Climbing Instructors	4	58
	Youth Rock Climbing Instructors	2	54

From 2001 to 2017 (see Figure 3.), the number of Chinese Rock Climbing training participants has been increasing through years. Owing to limited data from 2001 to 2012 and only the total number of participants is available from the Chinese Mountaineering Association, the data was categorized as one group, with 1,053 participants. In 2013, Rock Climbing was clustered into the

high-risk Categories. Since then, the National Social Instructor Occupational Skills Identification System was formed. The Rock Climbing Training participants was 253 that year, and increased to 1182 in 2017. The significant growth of Rock Climbing led to the outcome of being officially declared and involved into 2016 Rio Olympic Games. According to the latest data from the Chinese Mountaineering Association for 2019, the total Rock Climbing Professionals were 5322, which consists of 14 sessions of Pre-advanced Rocking Climbing Instructor Training with about 280 certified participants, and 212 sessions of Beginning Rocking Climbing Instructor Training with 5042 certified participants, 9 sessions of National Linesmen Training with 120 certified participants, and 4 sessions of Rock Climbing Judges with 106 certified participants. Being supported by the government and the society, the development of Rock climbing is heading to a new era.

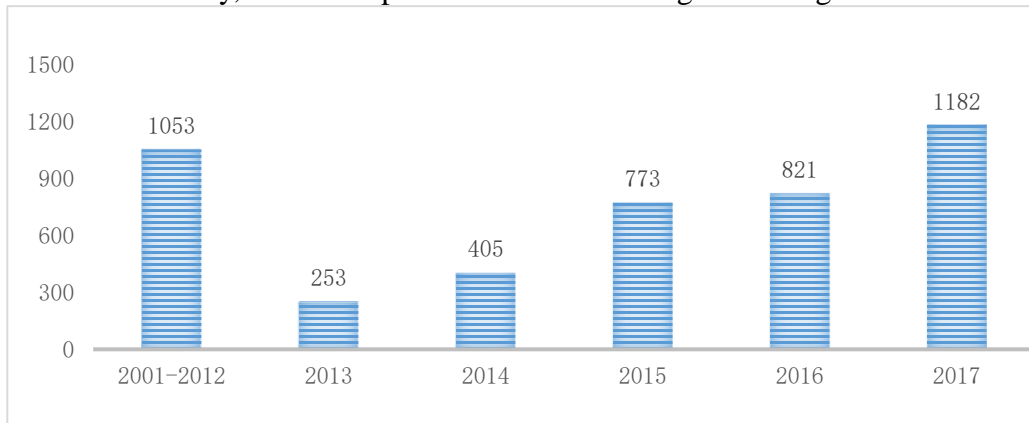


Figure 3. Statistics of Rock Climbing Training Participants from 2001-2017

4. Development of Rock Climbing in Colleges

By the time of May 31, 2017, there were totally 2,914 colleges and/or universities in China while there were few amount of universities and/or colleges with Rock Climbing teams, courses or majors. However, as seen in Figure 4, the overall trend is still increasing. The first National Collegiate Rock Climbing Championship was held in 2003. So far, there has been 16 National Collegiate Rock Climbing Championships by 2018. The number of total Rock Climbing participants increased from the original 87 to 500 and the corresponding number of teams increased from 27 to 50 (In 2016). In 2016, the number of teams reached the peak, which is a key factor leading the Rock Climbing to become one of the official Olympic Sports. With Rock Climbing being included into the National Games, Asian Games and Olympic Games, more and more colleges and/or universities have started to set up Rock Climbing courses. In addition, the policy of implementing Rock Climbing into the campus promotes the increasing number of elementary and middle schools to have Rock Climbing activities.

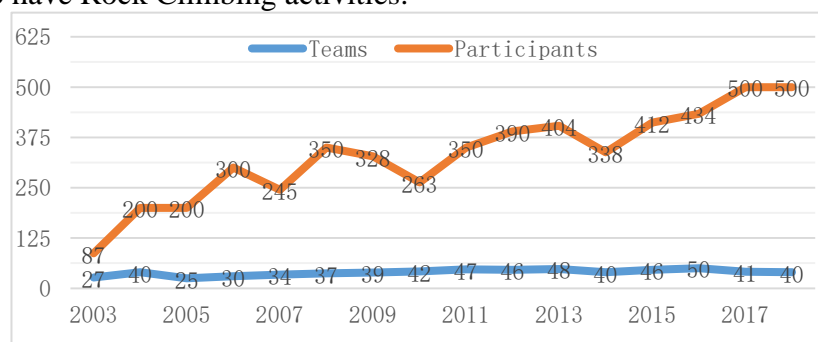


Figure 4. Numbers of Teams and Participants in National Collegiate Rock Climbing Championship from 2003 to 2018

5. Research on Rock Climbing

A systematic literature review approach was utilized to search “Rock Climbing” as keyword in Chinese National Knowledge Infrastructure (CNKI) database from January 1, 2000 to November 15, 2018, a total of 418 peer reviewed manuscripts were collected. Research on Rock Climbing training and competition accounted for 24.04%, researches on Rock Climbing curriculum design and course teaching accounted for 21.15%, current status and development accounted for 16.35%, those with "feasibility" accounted for 9.62%, safety of Rock Climbing accounted for 4.81%, Rock Climbing injuries and tournaments both accounted for 3.85%, research on Rock Climbing talent identification and development accounted for 3.37%, research related to Rock Climbing and mechanics accounted for 2.40%, Rock Climbing and Physical Fitness research accounted for 1.92%, research on Rock Climbing characteristics and functions accounted for 0.96%, research on Rock Climbing training and seminars accounted for 0.48%, and Other studies accounted for 7.21% (see Figure 5.)

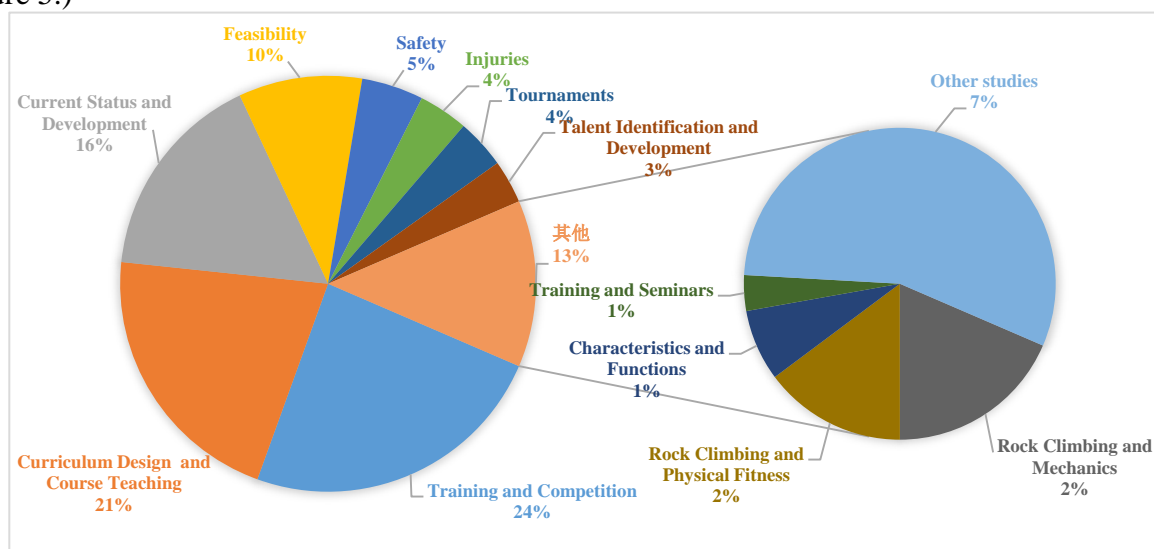


Figure 5. Manuscripts on Rock Climbing Literature Topics from 2000 to 2018

According to the results of systematic literature review, most research are about the Rock Climbing training and competition, followed by the curriculum design and course teaching, as well as the Rock Climbing training and seminars, which line up well with the needs of Rock Climbing development in China. Since the establishment of the National Rock Climbing team in 2001, Rock Climbing training and competition turn to be the main hot research topics. As Rock Climbing being included into National Games, Asian Games, and Olympic Games, training and competition are weighted more and more important in the research studies. College elite Rock Climbers play an vital role in the Rock Climbing tournaments in China. After 2000, many colleges and universities successively set up Rock Climbing as General Education courses, electives or core courses in their major curriculum design. Thus, the research on the college curriculum design and courses teaching are also of great importance and interest. As shown in Figure 3, the number of Rock Climbing training sessions significant increased after 2013. Even through, there were only 1,182 Rock Climbing training and seminar participants, which indicated that more research would be needed about the development and organization of Rack Climbing training and seminars.

6. Rock Climbing Development in Society

According to the survey statistics and map search, there are 307 public Rock Climbing facilities distributed in 32 provinces and autonomous regions in China, mainly centered in Guangdong, Beijing, Jiangsu and Zhejiang (see Figure 6.). Based on the number of Rock Climbing facility distribution, the more developed regions have more facilities than the developing regions. As

estimated, there are about 1000 public Rock Climbing facilities which includes the ones from colleges and universities. Before 2010, the number of Rock Climbing facilities in China was less than 30. With the support of government policies, Rock Climbing has been widely promoted in various approaches. And the number of Rock Climbing facilities in China has significantly increased, especially after Rock Climbing was included as one of the official Olympic sports in 2016. By the time of 2019, the commercialized Rock Climbing facilities were 382 (see Figure 7.), where there were 59 increase from 2017 to 2018, with 17.5% increase rate. From 2018 to 2019, there were 44 new Rock Climbing facilities, with 11.5% increase rate.

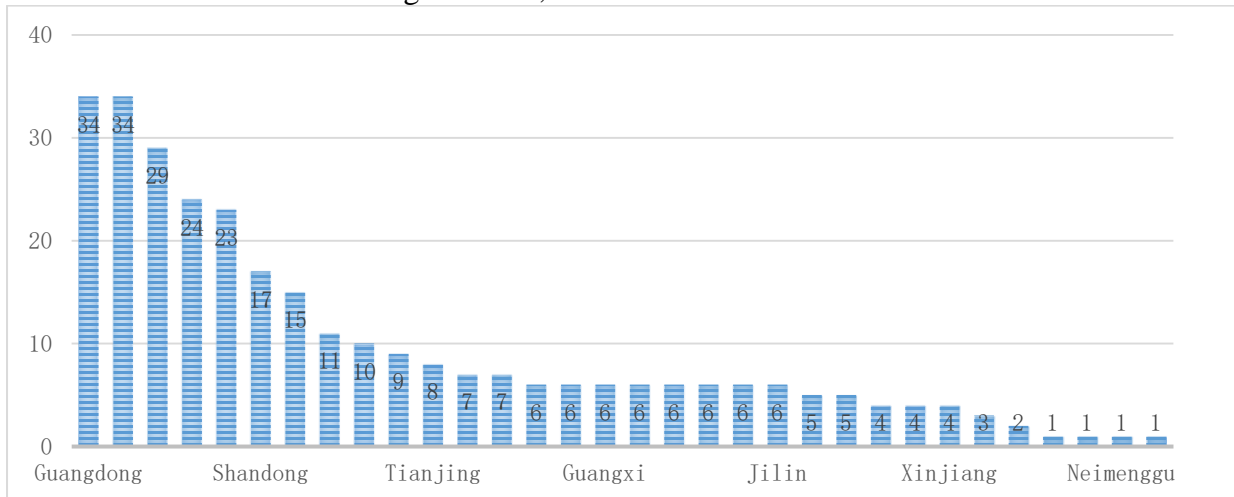


Figure 6. Number of Public Rock Climbing Facilities



Figure 7. Prediction of Commercialized Rock Climbing clubs from 2012 to 2025

6.1 Outdoor Rock Climbing Clubs

By November 2017, there were 306 outdoor Rock Climbing clubs got registered with the China Mountaineering Association. There were 48 in Zhejiang province, which is the highest number of registered outdoor Rock Climbing clubs, followed by 25 in Guangdong and 20 in hubei (see Figure 8.). According to the survey, there are still a certain amount of outdoor clubs in China, but have not got registered with the Chinese Mountaineering Association. Based on the information of registered outdoor Rock Climbing clubs from the China Mountaineering Association, the local economic status and natural resources are important factors affecting the development of outdoor Rock Climbing clubs.

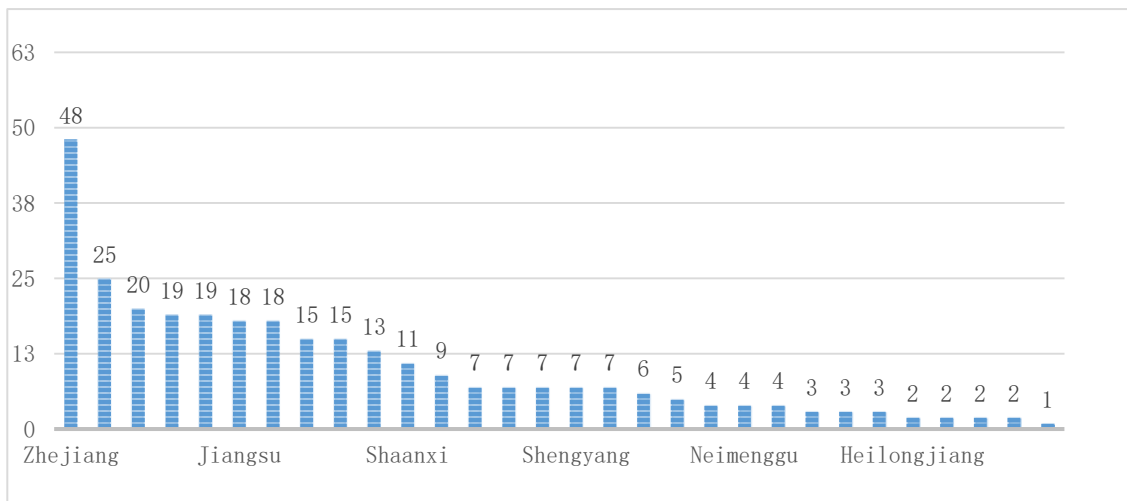


Figure 8. Number of Registered Outdoor Rock Climbing Clubs in 2017

7. Challenges Rock Climbing Development in China

7.1 Limited Research on Rock Climbing

The healthy and sustainable development of rock climbing is inseparable from the support of science and research studies. However, there is limited research literature has been conducted by the Chinese scholars and experts on Rock Climbing, with less than 1000 manuscripts available on the topic of "Rock Climbing" searched from Chinese National Knowledge Infrastructure (CNKI). In terms of manuscripts quality, it is difficult to support the development needs of Rock Climbing. Excluding rare dissertations and a few manuscripts from core journals, majority of the research studies are not suitable to guide the climbing practicum. Thereby, the research study would serve as the guide, the "officer", in the development of Rock Climbing in China. Therefore, more research being conducted on Rock Climbing would be highly encouraged.

7.2 Imperfect Talent Rock Climber Cultivation System

At current stage, the elite Rock Climbing teams still highly rely on the support of national teams, and national youth teams. Even there has been couple policies came out to support the collaboration between province level universities to form their elite Rock Climbing teams, cross-boundary athlete recruitment strategy, the Rock Climbing population is still small and the available talent Rock Climbers are insufficient. The current situation revealed that there is short of younger elite Rock Climbers. Having the support from all the aspects of the society, in the past two years, a small number of elementary and middle schools have launched Rock Climbing courses. Many of the public Rock Climbing facilities have set up their own Youth Rock Climbing training teams. From the achievements of the national youth Rock Climbing championships, the athletic performance of youth Rock Climbers has significantly improved.

However, as time goes by, there is a conflict between academic study and athletic training among the young climbers. Thus, many excellent young Rock Climbers gave up and discontinued to practice Rock Climbing. Losing a large number of excellent young Rock Climbers, it has been seriously shaking the overall improvement of competitive Rock Climbing in China. The traditional talent cultivation path of Rock Climbing competition can no longer meet the needs of the new era and the new youth Rock Climbers. Thus, there is of great needs to be armed with scientific knowledge and research support to serve the training system of Rock Climbing. Therefore, that requires more support from the government policy to make this process more smoothly, the training path of the elite youth Rock Climbers from elementary school, middle school, high school, professional teams, to National Rock Climbing team. Arming with professional and scientific background knowledge and academic degrees, it would support these elite Rock Climbers to be outstanding of the training and competition, and also prepare them for the occupational market,

which would solve the concerns of what these elite Rock Climbers to do after their retirement.

7.3 Unbalanced Development of Economics leads to unbalanced Rock Climbing Development

Unbalanced economic development status among each region of China, which indirectly leads to the unbalanced development of Rock Climbing in China. According to the amount of Rock Climbing available facilities and population, more developed regions, such as Beijing, Shanghai, Guangzhou, Jiangsu and Zhejiang, are share with more capital investment and more potential Rock Climbing participants and customers. While in rural areas or countryside, not many people know about Rock Climbing. Most importantly, the only access they have is to watch Rock Climbing on television or online. Moreover, development of Rock Climbing in colleges and universities is not balanced either. The colleges and/or universities with more policy support would have developed much better, which can be evidenced by the Climbing wall, climbing equipment, the training and seminar resources to the instructors. While the colleges and/or universities with less support would have limited resources to satisfy their development needs.

7.4 Misunderstanding and Unscientific Operation Limit the Development of Rock Climbing

Rock climbing has been listed as one of the most high-risk sports in China. It is also owing to its high risk feature that many teenagers, parents and schools decide to stay far away of this sport. In fact, the well-trained professionals in Rock Climbing are able to keep the risks of Rock Climbing in control through the selection of proper equipment and scientific operation procedures. Even through in recent years, there have been many accidents occurred in outdoor activity clubs, which is related to Rock Climbing. However, accounting to the real reason, it should be those operators who did not receive any formal training or are not certified or qualified to operate, which resulted in these accidents. So the mid understanding of the risks from Rock Climbing blocked its participation and development. Thus, reorganizing the outdoor activity market and standardize the climbing operation would be of great importance to improve people's understanding of Rock Climbing. Important, it should be an urgent challenge to be solved.

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