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The Study on the Current Situation of the
Taekwondo Referees in China from
Sports Administration Perspective

중국 태권도 심판의 현황에 관한 연구:
스포츠 행정가의 관점을 중심으로

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Abstract

The Study on the Current Situation of the Taekwondo Referees in China from Sports Administration Perspective

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As taekwondo is getting popular in China, the spotlight on the taekwondo referee's role becomes sharper. Although research on taekwondo referee issues can be found within sports science or physical education context, there is limited literature on analyzing the present environment of referees from sports administration perspective. Therefore, the study on the current situation of national taekwondo referees is to gain a deeper understanding of taekwondo referees' environment in China, analyzing present issues from sports administration perspective, and find out the practical methods for governmental sports administrators. Our specific

attention is focused on the referee administration that influences referee team building and refereeing performance.

A qualitative research design is chosen to conduct our study. By means of survey questionnaire data were collected from 108 leading national taekwondo referees who involved in 2015 national taekwondo competitions. The questionnaire consists of 45 items measured referees' demographics, training system, competition system and refereeing performance. The data is analyzed using descriptive analysis. Interview is also adopted in order to make the data of the study more convincing.

This study provides an analysis of the importance of referee administration when evaluating rationality of the sports administration which might be useful for the future research. It reveals that referee administration standard is important to impact referee's team building and elite performance. Provide efficient administration of referees is critical because it designs the actual environment and contributes to the policies approaching as close as practicable to rationalities. Findings of the study suggest that the organizational environment is not static and there is no fixed solution which can address the issues of referees. In particular, the paper probes into the interactions of four interrelated causal feedback loops to better understand the nature of the quality and development of taekwondo

referees and attempts to account for the dynamics of resulting system behavior.

Keywords: Taekwondo Referees, Sports Administration, Referee Administration

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Chapter 1. Introduction

1.1. Study Background

Officiating is important to all sports. A taekwondo game is impossible without referees but they are often forgotten. Referees are essential components of taekwondo. They are judges in taekwondo matches and supervisors of athlete behaviors. They monitor athletes and coaches during competition, prevent behaviors and events unfavorable for the competition, and guarantee smooth, fair and justice competition environment. To perform their roles successfully and not make errors in judgment during competition, taekwondo referees execute multiple tasks under pressure. Taekwondo referees as one of the sports officials must evaluate and judge actions that take place during the match, make fast decisions, manage the game, pay attention to multiple aspects of the game, keep order, and solve disputes, all under socially evaluative conditions (Tuero, Tabernero, Guillén, & Márquez, 2002).

In recent years, taekwondo is getting popular and becomes one of the well-known sports in China. The most important reason is that China Taekwondo has achieved great success in the Olympic Games as elite sports under central sport government driven over 20 years history. However, the development of refereeing level has not attached enough importance from

the sport administration comparing with the athletes performance results. For instance, China Taekwondo Team has got 5 gold medals in the past 4 Olympic Games since taekwondo has officially included in the Sydney 2000 Olympics. Nevertheless, only two international referees from China have the experience refereeing in the Olympic Games and a few Chinese international referees who have the ability to take part in the international tournaments. And also, there are always different voices and unpleasant complains from coaches and athletes to the national referees' fairness and judgment whose performance can't satisfy the expectancy of the participating teams during national taekwondo games. In the American Publication "Referee Magazine", Referee Associate Editor Jim Arehart (2001) stated that there is a world crisis in officiating, and there are not enough officials to cover the ever increasing number of games played around the world.

Referees play a more important role in the competition, as they are not only one of the organizers of the competition and enforcers of the rules, but also acting as the educators and promoters of the sports. The decisions made by a referee can affect the ultimate outcome of a game. In some situations the direction of the game can be changed by a single decision. Price (2006) and Connelly (2003) noted it is not uncommon for the referee

to be identified as the cause of the failing of a player or team, and to be blamed for influencing the result of a game by either not enforcing the rules or being biased. Many players, Mascarenhas (2005) reports, however, do not understand the demands placed on referees for split-second decision making and “mastery of the rules”. The International Fair Play Committee (CIFP) reports that the referee is required to evaluate the important characteristic of an event or situation, and present the appropriate and correct decision in about one second (RR Leveaux, 2010). Mascarenhas (2005) highlighted that referees have to respond almost immediately to events in a game that unfold dynamically and which may have many nuances, ambiguities and uncertainties. In general, the referee is required to make rapid decisions while also considering numerous sources of information at any time (RR Leveaux, 2010).

Referees are often subject to criticism from various sources: the media, the clubs, coaches, and supporters, and it is not sure whether these criticisms are correct or not. Many rules of sport are complex and ambiguous, which leads to differences in interpretations. Furthermore, refereeing in naturalistic settings is not a robotic application of the letter of the law. The referee must take into account the entire game context, to “sell” decisions, and to balance flow and control issues (Mascarenhas, Collins,

Mortimer, & Morris, 2005; Mascarenhas, O'Hare, & Plessner, 2006). As referees are often interactors i.e., they are in interaction with the players on the pitch (MacMahon & Plessner, 2008), they must balance the need to make decisions and enforce the rules, with the need to move about the performance space, and manage the athletes and ensure their safety. In such a complex task, it is challenging for referee to determine the optimal methods to teach, measure, refine, and enhance performance.

Despite their importance in sports performance, referees received little scientific attention in the decades prior to the year 2000. Since then, research on sports officials has begun to proliferate, with investigations into stress, decision making and judgment, communication and physical performance. Sport refereeing is becoming a scientific field in its own right (Dosseville & Garnarczyk, 2007; Dosseville, Laborde & Garnarczyk, 2012). However, a citation analysis reveals very little connectivity between the different studies into sports officials (Hancock, Rix-Lièvre, & Côté, 2015).

Few researchers have studied the complexity of sport refereeing in naturalistic settings (Rix, 2005; Mascarenhas, Button, O'Hare, & Dicks 2009). One of the main interests in expertise research on sports judges and referees is to find out more about the factors influencing the quality of their judgments. For instance, a very recent study highlights different aspects that

play a determining role in expert performance of referees (Guill'en & Feltz, 2011). Research on sports referees has mainly focused on three areas: the demands of referees, the characteristics of decisions, and the different factors influencing decisions and training of elite performers (MacMahon & Plessner, 2008). More research is needed, therefore, to understand and to identify the characteristics of actual environment for elite refereeing performance. Several studies have already proposed and evaluated the interest and the impact of referee training programs (Mascarenhas, et al., 2005; MacMahon, Starkes, & Deakin, 2007). In order to continue and grow this area of work and the application to on-field performance and demands, additional study is required.

Existing research on refereeing in sports sector in China mainly focuses on football, basketball and table tennis which have a long history and a broad mass base. In Taekwondo sector, there have been some researches on provincial taekwondo refereeing investigation and development studies. However, there is little research on national level of taekwondo refereeing programs, especially analysis the current situation based on systemic survey from sports administration perspective.

1.2. Purpose of the Study

At present, taekwondo competition is becoming increasingly competitive. The continuous changes and update rules, the use of the electronic body protector of the athletes put forward the higher demands of the refereeing. The selecting and training of referees, strengthen the referee team's building, improvement of the national referee's skill level are not only adapting to the needs of current taekwondo competition, but also promoting to the development of taekwondo in China. Thus, it is very meaningful to understand the current situation of the national referees in China and analyze the situations which focus on the demographics of referees including referee's knowledge structure and growing pattern, the overall refereeing level, satisfaction of the training and competition system, interference of referee's officiating for fairness, identifies the advantages and problems existed, and through which conclude the findings and results of the analysis to find the relation between refereeing performance and referee administration, how and to what extent, and to put forward some suggestions and recommendations to their future development. The study gives some theoretic references to the referee administration and referring performance and also has a positive significance to the improvement and development of taekwondo referees in China as well as in the world.

Therefore, the purpose of this phenomenological study is to have a deeper understanding to the current situation of national taekwondo referees in China, to explore the key factors of referee issues from sports administration perspective, and to provide practical applications to improve referee's team building and elite refereeing performance.

1.3. Research Questions

As the evolution of taekwondo requires, improving the overall quality of taekwondo athletes, coaches and referees has become a critical task. While strengthening athletes' team building and management, we should also attach importance to team building of referees, so as to achieve two-way development, specifically athletic performance of taekwondo and cultivation and administration of referees. Owing to the reasons above, the General Administration of Sport of China (GASC) and Chinese Taekwondo Association (CTA) have both promulgated relevant provisions and rules for the education & training program and competition regulations of the national taekwondo referees. However, some problems still remain obviously: why taekwondo referees in China are not well trusted and satisfied by the athletes, coaches, and team officials? How to make referee's decision more fairness by training and judge independently without external interference? How to cleanse taekwondo industry

atmosphere? Due to the fact that these longstanding bottlenecks have not been tackled, which has already caused large losses in the past. For example, the former Secretary General of CTA who was three times Olympic taekwondo referee has been prosecuted by the local sport bureau official for his corruption of match-fixing in the national games of China. ^[1] Another big loss is that one of the best female referees suicided because of overpressure during the competition of national games in 2009. ^[2]

In pursuing the proximate cause of these problems, the following research questions need to be answered: What is the current situation of national taekwondo referees in China? In order to find this answer of the overall question, 4 sub questions should be discussed:

RQ 1. What are the characteristics of demographics of national referees?

RQ 2. What are the main problems and barriers of the referee's training & competition system?

RQ 3. What are the key factors that influence refereeing performance?

RQ 4. How administration is relevant to referee's team building and refereeing performance?

1.4. Significance of the Study

The significance of the present study is explained by the lack of

research on the topic we chosen. Therefore, the findings of the study provide some interesting and useful knowledge for further research of other sports referees. It is also a sort of platform for the theoretical implications as the study presents current situation of taekwondo referees in China which provides the actual environment for future referee policy-making design. Moreover, this study is attempt to strength the importance of referee administration to improve overall quality of referees.

1.5. Scope of the Study

Given the state of the research on taekwondo referees at present, the scope of study includes a broad range of work which contributes to a greater understanding of referee's administration and refereeing performance, and provides some directions for the development of this area. In addition, the author is the administrator of the CTA in charging of the organization, education, selection, training and supervision of all the national taekwondo referees in China for the past 10 years. And he is an international taekwondo referee, also has the refereeing experience in many international taekwondo tournaments such as London 2012 Olympic Games, Singapore 2010 Youth Olympics, and several times world championships and world cups etc. Therefore, this study of the current situation of the national taekwondo referees in China has a great impact to the summary of the author's

preliminary work and guidelines for the future work from sports administration perspective.

To achieve the objective, data is collected targeting 108 national referees who have involved in the most three important national taekwondo competitions in 2015. According to the issues found during the process of the survey, the research proposes the following studies: macro-control of the referees, perfection of the referee's knowledge and quality structure, exploration of new training format, perfection of referee's competition environment, developing of the referee self-efficacy scale, and perfection of the registration, selection, treatment and appraisal of the national referee's administration.

In fact, the development of a training program or competition system is a complex and dynamic process. This study takes a system dynamics approach to model the development of taekwondo referee in China. The premise of the study is that the development strategy model advanced here has the potential to improve more than our understanding of the taekwondo referees' issue, therefore, it might expect to see its application to future studies other than those related to sports referees.

Chapter 2. Literature Review

2.1. Background of Taekwondo Referee

2.1.1. Origin of Taekwondo

According to the World Taekwondo Federation (WTF), Taekwondo is defined as “one of the most systematic and scientific Korean traditional martial arts, that teaches more than physical fighting skills. It is a discipline that shows ways of enhancing our spirit and life through training our body and mind. Today, it has become a global sport that has gained an international reputation, and stands among the official games in the Olympics”. [3]

Taekwondo has been developing with the 2000-year long history of Korea, representing unique oriental martial arts. Taekwondo is characterized by the unity of body, mind, and life, and also the unity of the pose, confrontation, and cracking down. Taekwondo is normally regarded as a way of life as it pursues harmonious growth of life through its unique activities. By looking for the guiding principles of taekwondo, people would do well to ultimately enable themselves to lead more valuable lives and become a good person.

In the 1960s, Taekwondo began to spread worldwide. ^[4] In 1973, Korean government created a new international governing body called the World Taekwondo Federation, which coincided with the first World Taekwondo Championships held in Seoul, Korea with eighteen participating countries.^[5] It was officially established at the Kukkiwon (World Taekwondo Headquarters). The WTF is the only official organization recognized by the International Olympic Committee (IOC) as an international federation governing the sport of taekwondo which preserves taekwondo roots and development, control testing and testing requirements, and promotes the study of taekwondo all over the world.

The history of taekwondo becoming an Olympic Sport from a martial art drew a picture that “Taekwondo first appeared as a demonstration sport at the 1988 Seoul Olympic Games and later the 1992 Barcelona Olympic Games. On September 4, 1994 during the 103rd IOC Session in Paris, taekwondo was accepted as an official medal sports for the 2000 Sydney Olympic Games. Taekwondo was then included in the official program at the Athens 2004 Olympic Games and the Beijing 2008 Olympic Games.”

Combining characteristics of both Martial Art and Olympic sport, taekwondo has continued showing progress in technical and operational

aspects. It has been continuously evolving into an exciting, transparent and media-friendly sport with all the demands of IOC and expectations associated with any other Olympic sport. “During London 2012 Olympic Games, the taekwondo competition was staged successfully with the participation of 128 athletes from 63 countries – the largest number of participating countries in Taekwondo Olympic history.” With an ever-growing number of taekwondo practitioners worldwide, taekwondo is a highly popular Olympic sport at all levels of the game with 206 national association members affiliated with WTF located at all corners of the globe now (See Figure 1).



Figure 1. Taekwondo in the Olympics¹

¹ Source: <http://www.worldtaekwondofederation.net/olympic-history>, 2015

Taekwondo also made ceaseless effort to become a sport for all, irrespective gender, age, race, religion, culture, and with or without physical or mental disabilities in cooperation with various international sports organizations.

Taekwondo has also introduced a series of major changes in its competition rules to further ensure complete transparency, fairness, and justice and enhance its dynamism to make it more appealing to the general spectators and audiences by reinforcing the education of taekwondo referees.

2.1.2. Sports Referee

The Great Soviet Encyclopedia (1979) defines that Sports Referee is the supervision of sports competitions in accordance with established rule. The quality of sports referee depends on the referee's knowledge of the rules of the sport, on his ability to apply the rules while observing the requirements of sportsmanship, including unbiased judgment and accuracy, and on his experience as a referee. Sports Referee should have educational value for athletes and spectators alike. Sports Referee is not a profession.

Depending on different sport and the nature of its competition, sports referee fulfills various duties and functions. For example, the referee may officiate the competition on a court (basketball), on a field (soccer or rugby), on a rink (hockey), on a mat (taekwondo), in a ring (boxing), or from a tower (tennis). The referee may also act as a starter, course judge, or finish

judge in walking, running, and ski races. The referee may work in teams to evaluate athlete's performance by giving points to them in rhythmic modern gymnastics, figure skating, acrobatics, diving, trampolining, and ski jumping, as well as in boxing and taekwondo. Other sports referee includes time keeper, field judge, score announcer, and competition marshal. Sports referee in major competitions, such as international championships and mega events, is supervised by juries consisting of a chief judge and his deputies, a chief secretary, and other members. The title of International-class Referee of sports is conferred by International Sports Federations for skill at officiating world, continental, regional, and other level of sports competitions.

The concept of sports referee described by the IOC is “the person of authority in a variety of sports who is responsible for presiding over the game from a neutral point of view and making on-the-fly decisions that enforce the rules of the sport, including sportsmanship decisions such as ejection. The official tasked with this job may be known, in addition to referee, by a variety of other titles as well (often depending on the sport), including umpire, judge, arbiter, arbitrator, linesman, commissaire, timekeeper, touch judge or Technical Official.”

The Free Encyclopedia tells that “the term ‘referee’ originated in association football. Originally the team captains would consult with each other in order to resolve any dispute on the pitch. Eventually this role was delegated to an umpire. Each team would bring their own partisan umpire allowing the team captains to concentrate on the game. Later, the referee, a third "neutral" official was added, this referee would be ‘referred to’ if the umpires could not resolve a dispute. The referee did not take his place on the pitch until 1891, when the umpires became linesmen (now assistant referees). Today, in many amateur football matches, each side will still supply their own partisan assistant referees (still commonly called club linesmen) to assist the neutral referee appointed by the governing football association if one or both assistant referees are not provided. In this case, the role of the linesmen is limited to indicating out of play and cannot decide offside. ”^[8]

2.1.3. Taekwondo Referee System

Taekwondo referee system consists of two parts: international referee administrated by the WTF and the national referee governed by the national taekwondo association.

According to the *WTF Competition Rules & Interpretation* in force as of January 1, 2015, “the refereeing officials of Taekwondo worldwide are

only qualified as holders of International Referee certificate registered by the WTF. The duties of refereeing include controlling over the match as the referee, marking the valid points immediately as judges, and keeping monitoring scoreboard during the contest if the scoring, penalties and timing are correctly publicized as the technical assistant” (2015, p.45).

The WTF will grant qualification as the taekwondo international referee to those who passed the prescribed examination at the international referee seminar conducted by the WTF. Overall administration of the international referees shall be made by the WTF Secretariat (*The International Kyorugi Referees*, 2010, p.2). Those who passed the examination at the international referee seminar shall be automatically registered with the WTF as international referees and they shall not need to pay registration fee. They shall submit the Statement of Pledge to the WTF for activation. Within one month of receipt of the Statement of Pledge, the WTF shall dispatch IR certificates, membership cards, and information on IR uniform to international referees (*The International Kyorugi Referees*, 2010, p.7-8). International Referees are classified into five categories of S, 1st, 2nd, 3rd and P class. The WTF shall screen the eligible international referees to be promoted once a year in early January according to the requirements for promotion. The result shall be notified to each promoted

international referee in writing (*The International Kyorugi Referees*, 2010, p.8-9).

Qualification of any International Referee who has not paid the prescribed annual dues for 3 consecutive years is automatically suspended, and it is notified to the pertinent person and the National Association. The term of suspension shall not be considered as IR career. License of International Referee shall be revoked if suspended IR fails to participate at refresher course and fails to make all the past annual fees within 3 years from the date of suspension. (*The International Kyorugi Referees 2010*, p.13)

Selection and assignment of referees in the venue of international referees for the taekwondo competitions in multi-sport Games like Olympic Games and international competitions promoted by the WTF such as World Taekwondo Championships, World Junior Taekwondo Championships, World Cup Team Taekwondo Championships, World Para-Taekwondo Championships, etc. shall be done by the WTF. In case of continental championships and other international competitions approved by the WTF, pertinent continental union or hosting national association is entitled to select the required number of international referees provided that the union or the national association shall inform the WTF list of the selected

international referees for prior approval no later than one month before the competition. International Referees for all official competitions of the WTF should be the ones who attended and received the graduation diploma at the International Referee Refresher Course on the latest amendment of the competition rules and pay up the prescribed annual fee of the year of pertinent event.

The duties of WTF International Referee (IR) are as follows: The IR shall abide by all the rules with pride and dignity as the IR of the WTF. The IR shall be familiar with the Competition Rules and the guiding principles concerned. The IR shall officiate at any taekwondo events without partiality in consideration of the fact that decisions made by the IRs shall be conclusive. The IR shall wear the uniform designated by the WTF before officiating at the events. The IR shall do possible efforts not to bring about any unnecessary suspension of a match in officiating, and shall use prescribed hand signals. IR who has been selected to officiate at any official event of the WTF shall necessarily participate in the event unless there is a justifiable reason for absence and attend the Referees' meeting and training before the start of the competition (*The International Kyorugi Referees 2010*, p.18-19).

The Disciplinary measures of WTF IR are very strict. In case that any IR has committed following behaviors, the WTF takes disciplinary measures such as warning, rebuke, suspension or deprivation of qualification in accordance with the regulations on sanctions of the WTF.

Firstly, if turned out that intentional fabrication of judgment has been committed at any international taekwondo events promoted or approved by the WTF, the qualification of the pertinent IR shall be deprived. Even though it is proved that the misjudgment has been committed by mistake, not intentionally, any kind of disciplinary measures shall be taken to the pertinent IR.

Secondly, in case of committing any behaviors bringing disgrace of the WTF such as receiving money or other valuables in connection with a judgment, the pertinent IR shall be disciplined by deprivation of qualification or other form of disciplinary measures (*The International Kyorugi Referees*, 2010, p.20).

According to the regulations of the CTA, taekwondo referees can be divided into international level, national level, first category and second category according to technical grades (*CTA Competition Rules*, 2011). Candidate for international level referee is recommended and reviewed by the CTA, and the title is approved and conferred by the WTF; the title of

national level referee is approved and conferred by General Administration of Sport of China (GASC) and CTA; institutes of physical education directly under GASC and national associations authorized first class approval right by GASC can confer referee of or under the first category to staff within its unit or system; institutes of physical education subordinate to the province, district or city can confer referee of or under the second category. Referees approved and conferred by institutes of physical education should register at local physical administrative authorities and taekwondo associations for the record; physical administrative authorities of the People's Liberation Army can authorize the approval right for referees of or under the first category on its own.

To become a referee domestically, one must pass exams including taekwondo rules, referee law, professional skills and judgment in practice; to become a national level or international level referee, one must pass terminology exam including English and application ability test. Notice of exam content and other related matters are issued by competent departments of GASC and CTA; notice of exam-related matters of first category or below level referees are issued by physical authorities with relevant approval right.

CTA has established a Referee Committee, which under the leadership of CTA, aims at uniting and organizing nationwide taekwondo referees, practicing taekwondo judging domestically, internationally and intercontinentally and improving judging performance of China, so as to contribute to the progress of taekwondo in China.

Major tasks of the Referee Committee are: according to the general planning of taekwondo and work arrangement by CTA, the referee committee should strengthen the organization, ideological building and work style construction, improve taekwondo judgment and management, guide provincial and municipal associations to conduct judgment, organize trainings for referees at all levels and of all categories, and carry out studies on taekwondo theories and practices, so as to improve judging performance in our country, provide sufficient qualified taekwondo referees and promote the development of taekwondo in China.

2.2. International Studies about Taekwondo Referees

Based on careful, meticulous, and effective research, there are a number of articles and studies related to taekwondo referees. Among the existing volumes of literatures in foreign countries apart from China, most of them from Korea, and a few studies from North America and European countries. The content of the studies focused on taekwondo referee can be

grouped into five categories: referee's judgment & decision; referee's role in the competition with technology; referee's relationships perspective; referee's psychology analysis; referee's education system.

2.2.1. Referees' Judgement and Decision-making

Referee decision-making is an emblematic example of complex cognition occurring in real-world context (Kahneman & Klein, 2009; Orasanu & Connolly, 1993). Plessner et al. (2006) highlights that refereeing studies suppose embodied cognition perspective and focus on referee's ability to make decisions by assessing multiple features of the situation. They describe expert performance: "how people actually make decisions in real-world setting" (Klein, 2008, p456). In this way, there is a shift in the perspective to study refereeing: referees do not only apply the rules; their judgments are active decision making processing; they have to sell the resulting decision to the players; they account for the context of the game (Mascarenhas, et al., 2009; Mascarenhas, Collins, & Mortimer, 2002; Mascarenhas, et al., 2005; Mascarenhas, et al., 2006). Referee decision making processing is always evaluated according to judgment accuracy (Mascarenhas, et al., 2009).

The referee has to judge and then make a decision or make a choice when confronted with a situation or problem (Dosseville, Laborde, &

Garnarczyk, 2012). The terms judgement and decision have often been confused, thinking that a decision was a judgement or a choice from a number of alternatives (Drucker, 1966). However, we need to differentiate between them (Dosseville & Garnarczyk, 2007; Koehler & Harvey, 2004). Judgement is a collection of evaluative and inference procedures that individuals have at their disposal and which is involved in the decision-making process, while making a decision represents a process of choosing from a certain number of options (Johnson & Raab, 2003), and the consequences of this choice or decision are crucial. Specifically, the referee will perceive an action or a situation, make a judgement and then take a decision consistent most of the time with an observable behavior (Dosseville et al., 2012). There is a significant difference between judging and decision making. Ripoll (2009) says that judging or reasoning is the application of logical functions which make it possible to find a solution, while decision making is taking what seems to be the most suitable solution from a number of solutions. This distinction is essential in refereeing and judging complex and ambiguous sport situations.

The study on *A Study on Relationships between Taekwondo Athletes' Perception of Judges' Judging and Psychology and Performance* of (Park Dae-sung, 2007) revealed that difference in athletes' perception of judging

according to the type of the judge (regular judges, federation judges, and international judges) in the areas of fairness, speed, consistency and reliability was statistically significant at $p < .001$ level. The analysis of the results shows that there were differences in athlete's psychological status and performance in accordance with athletes' perception of type of the judge in demographical variables. Athletes perceived judges to be most fair, consistent and reliable in the order of international judges, regular judges and federation judges except for regular judges had speed priority. The findings tell us that the image of national judges of Korea Taekwondo Association is not high in athletes' perspective in which national level judges are not well trusted in the areas of fairness, consistency and reliability.

Another related study on *An Ethnographic on the Decision Determinants of Taekwondo Referees* was conducted by (Kook-hyun Jung, Won-jae Moon, 2005). This study described in-depth the decision determinants of taekwondo referees. To achieve this purpose, the surveyed referees who are the party concerned about their perception of the decisions made during the match, and attempted to draw a substantial plan for improving the overall system, which will also be helpful to establish a desirable culture in the competition field. The study yielded the following

findings: physiological factors, psychological factors, sociological factors were the most effective variables on the decision determinants of taekwondo referees. In our point of view, the physiological and psychological of taekwondo referees may most affected by the education and training program, and the sociological factors may influenced by the management and supervision of the referees' leading administration, which are not specifically analyzed by this paper yet.

In his study on *The Severity and Consistency of the Judge's Decision in Taekwondo* (Cho Eun-hyung, 2005) disclosed the following conclusions: large variation corresponding to the similar logic score was found in sum of raw scores, even though the correlation among scores was relatively high. This implied that the influence of judge's severity existed in the rating score. The rating consistency was estimated by the model-data fit statistic. It is recommended that logic score, in which judge's severity and the impact of other facets were taken into account, therefore, should be employed to assessment of taekwondo performance.

Another related study entitled *A Study on Referee Judgement Differences between International Referees of Taekwondo* was undertaken by (Jung Hyun-do, 2011). The purpose of this study is to enhance referee's quality, to secure referee judgment, and to seek improvement plan for this

and hope for establishing taekwondo as a permanent event of the Olympics. The following conclusions were obtained. First, as a result of examining about the recognition of referee judgement depending on membership, the foreign referees were indicated to be higher in awareness of fairness, of accuracy, and of the whole of recognizing referee judgment compared to Korean referees. Second, in case of a factor, which becomes the most obstacles to make the referee judgment, it was indicated to be high in the response as saying of distrust in judgment for Korean referees and as saying of referee's lack of quality for foreign referees. Third, as a result of examining about using electronic protector depending on membership, the recognition of foreign referees was indicated to be more positive than Korean referees in all factors such as the accuracy of scoring the trunk in electronic protector ($p < .01$), the satisfaction with using electronic protector ($p < .001$), the level that judgement came to be fair ($p < .001$), and the whole of using electronic protector ($p < .001$). Fourth, as a result of examining about desirable direction in referee judgement depending on membership, the Korean referees were indicated to be higher ($p < .05$) in recognition as saying of needing to change the current request system than foreign referees.

There is a another study entitled *Research on Taekwondo Competition Referees' Judgement Improvement* by (Kim Kyeong Ji & Park

Hyun Seom, 2004) which finds one of the efforts to secure the base of improving the judgement of taekwondo, to disentangle a complicated matter remained in taekwondo competition with a method from a survey of 65 referees and 65 coaches perspective. The conclusions tell us that there is a big difference between two groups on referees' judgement justice and accuracy. The referees' group deems reducing a trend of mutual distrust will make the referee's performance better. However, the coaches assist that the referees' competence and educational system should be in priority.

As we can see that referee's judgement & decision is the key factor for the fairness of the taekwondo competition, the above studies have approached to find the reasons disturbed referee's right judgement from different perspectives. However, there is no article which can find a more comprehensive way to solve the problem and give suggestions for referees to better understanding and handle it.

2.2.2. Referees' Role with Technology

Since the electronic Protector Scoring System (PSS) and Instant Video Reply (IVR) have been used in 2009 Copenhagen World Taekwondo Championships, WTF believe that using the technology can facilitate referee's decision making which creates a successful combination of sports and technology. Several articles have done the research of referee's role in

the judgement with technology that contributes to the evolution of taekwondo competition.

In his study on *Searching for the Referee's Role in the Usage of Electronic Protector Devices in Taekwondo Competition* (Yoon Bok-chae, 2011) disclosed the following conclusions.

First, scoring criteria mainly depends on the hitting sound when the traditional general protectors are used. However, there are some referees who consider the hitting sound as the strength of the hits being the scoring criteria, which is not correct in concept. Also, in using electronic protector devices, it is evaluated a bit lower regarding the role of referees compared when using traditional protectors, because only head attack is available to be scored by referees while body attack is scored by electronic system.

Second, comparing with the scoring of the general protectors, the appeals to the arbitration of referee's decision are less when using PSS, as most of the body hits are admitted by sensors, not by referees.

Third, it is proven that referees' roles have not been definitely reduced after PSS is used in the competition. The key reason is that the high point head kicks scored by referees can be repealed by IVR according to WTF competition rules. But this can lessen referees' psychological stress

for making mistakes comparing to the situation when traditional protector are used.

Fourth, referees' roles appeared to be more important in either traditional protectors or electronic protectors for the development of taekwondo matches. It is also suggested that referees' thorough education, supervision, and incentive system should be implemented, and referees' pensions should be improved. Moreover, it is pointed that referees' ethic is the most important factor since both traditional protectors and electronic protectors are made and implemented by human beings.

Another related study entitled *2012 Olympic Games Decision Making Technologies for Taekwondo Competition* was undertaken by (Rene Leveaux, 2012). This study showed that differing information technologies have been introduced into the sport with differing levels of success and is now reasonably well received as part of the game. In most instances, information technology promotes a more attractive sport for both the spectators and the players due to the contest being determined more transparently and on the athletic ability and performance of the participants, with minimal human (referee) intervention in the scoring process.

While the introduction and adoption of information technologies into the sport was cautiously and very skeptically received by refereeing officials

initially, it is now accepted at the elite level and has provided both an innovative and effective support mechanism to provide the platform for both increased transparency and correctness of referee's decision making in the game. Now most referees feel that the decision making technologies are for the betterment of the game.

It has been recognized, to some degree, the technologies have also acted as transformers of the sport, necessitating the dimensions and skill sets of elite level refereeing officials to have broadened and also now requiring adaptability to the varying technologies. The applications of the technologies can now be attributed to the success of taekwondo competition at the 2012 Olympic Games, and subsequently assist the sport in confirming its position as an Olympic sport.

2.2.3. Referees' Relationships Perspective

The study on *The Relationship among Organizational Justice Perceptions at Taekwondo Referee on Job Satisfaction, Organizational Commitment and Organizational Citizenship Behavior* (Choi Yong-bae, 2012) yielded the following findings: organizational justice perceived of taekwondo referee had significant influences on job satisfaction; organizational justice perceived of taekwondo referee had significant influences on organizational commitment; organizational justice perceived

of taekwondo referee had significant influences on organizational citizenship behavior; job satisfaction of taekwondo referee had significant influences on organizational commitment; job satisfaction of taekwondo referee had not significant influences on organizational citizenship behavior; influences organizational commitment of taekwondo referee had significant on organizational citizenship behavior.

As above, when organizational justice summing up the results of this research, the organizational justice perceived, which composed of distribution, procedures, and inter-relational activities, had enhanced referee's organizational citizenship behavior through job satisfaction and organizational commitment, and it was found that job satisfaction and organizational commitment were the important parameters that remained within the relationship of independent variables and dependent variables.

Another related study on *The Relationship among Judging, Perceived Athletic Manage, and Team Performance of Taekwondo Players* was conducted by (Chae Kyoo-whan, 2012). The purpose of this study were to identify differences in sub-factors of judging, perceived athletic manage, and team performance according to personal traits and demographic variables of taekwondo players of adolescents and to analyze causal relationship between judging, perceived athletic manage, and team

performance. As a result, the following conclusion was obtained. There were differences in judging, perceived athletic manage, and team performance according to personal traits of adolescents. There were athletic manage, and team causal relationship between judging and perceived performance.

The study on *The Relationship between Taekwondo Referees' Job Stress and Job Satisfaction* (Kim Jong-un, 2014) yielded the following findings:

First, according to result compared by sociodemographic characteristics, there were significant differences about job stress in the characteristics of age, Dan and taekwondo referee's career. The physical burdens by age were represented more highly in 40's than under 30's, the physical burdens by Dan were represented more highly above 7 Dan than under 5 Dan and judgment protests with referee's career were represented more highly between 6-10 years and above 11 than under 3 years.

Second, according to result compared by sociodemographic characteristics, there were significant difference about job satisfaction in the characteristics of by age, taekwondo referee's rank. By age, the satisfaction about peer referees were represented more highly in 40's than above 50's, self-esteem were represented more highly in 40's than 30's and above

50's and surrounding relation were represented more highly in 40's than above 50's. Besides, the satisfaction about salaries in accordance with referee's rank was represented more highly to referees who are 3rd grade than 2nd grade.

Third, according to result whether job stress of taekwondo referee had an effect on job satisfaction, judgment protests, corrupt referees and physical burdens of job stress had significant influences on job satisfaction. Judgment protests had negative influences on peer referee satisfaction and self-esteem, corrupting referees had negative influences on professionalism, physical burdens had positive influences on peer referee satisfaction and professionalism.

2.2.4. Referees' Psychology Analysis

Just like the elite players in the competition, whether the competition is exciting also depends on referee's professional performance. Referee's development covering technical knowledge and ability, enhancing their physical condition and ensuring their mental approach to the competition is optimized. All of these require careful monitoring and development. Thus, it is quite necessary to analyze the psychology of referee to develop his/her mental skills and competition cognitive approaches.

Yun Deok-young (2008) who investigated the *A study on a Self-coping Way for the Stress in Taekwondo Referees* made the following conclusions:

First, the stress factors that affect active coping activities were determined in order of faithless of home life, situation of judgment errors, unreasonable assignment, and protest for judgments.

Second, the stress factors that affect passive coping activities were determined in order of unreasonable assignment, protest for judgments, situation of judgment errors, attempt to bribe referees, and faithless of home life.

Third, the stress factors that affect self-coping activities were determined in order of faithless of home life and situation of judgment errors as a positive manner, and of attempt to bribe referees, unreasonable assignment, and protest for judgments as a negative manner.

Fourth, the stress factors that affect avoidance activities were determined in order of unreasonable assignment, situation of judgement errors, and faithless of home life as a positive manner, and of protest for judgements and attempt to bribe referees as a negative manner.

Another related study entitled *The Effect to Stress, Burden on Organizational Immersion in Taekwondo Referee* was undertaken by (Jeong

Yeon-hak, 2010). This study made the following conclusions: there were partially differences in stress, burden and organization immersion through demographic characteristics of Taekwondo referees; stress had partially influenced burden and organization immersion of taekwondo referees; burden had partially influenced organization immersion of taekwondo referees.

2.2.5. Referees' Training and Performance

Training is defined as the initial teaching of the skills of officiating while providing the practical instruction and tutoring to refine the craft of officiating (FIBA, 2013).

In this study on *The Equity Examination of Taekwondo Referee & Referee Education System Improvement Plan* (Hang In-jae, 2007) disclosed the following conclusions: It is aimed to grope improvement plan of work-environment for the referees' equity. It was also groped that the training development plan and the revision of education course of referees are regarded as the improvement plan of taekwondo referees' training system.

For refereeing performance, a referee who has no commitment or cannot set goals will be limited in their capacity to make a positive change in any of the key areas. Hence, the Cornerstones Performance Model of Refereeing emerged (D. R. Mascarenhas, Collins, & Mortimer, 2005),

featuring four, base areas of performance, and overarched by the psychological characteristics of excellence (see Figure 2), and featuring four key areas; (a) knowledge and application of the law; (b) contextual judgment; (c) personality and management skills; and (d) fitness, positioning and mechanics (D. Mascarenhas, Collins, & Mortimer, 2002).

The Cornerstones Model of Refereeing Performance

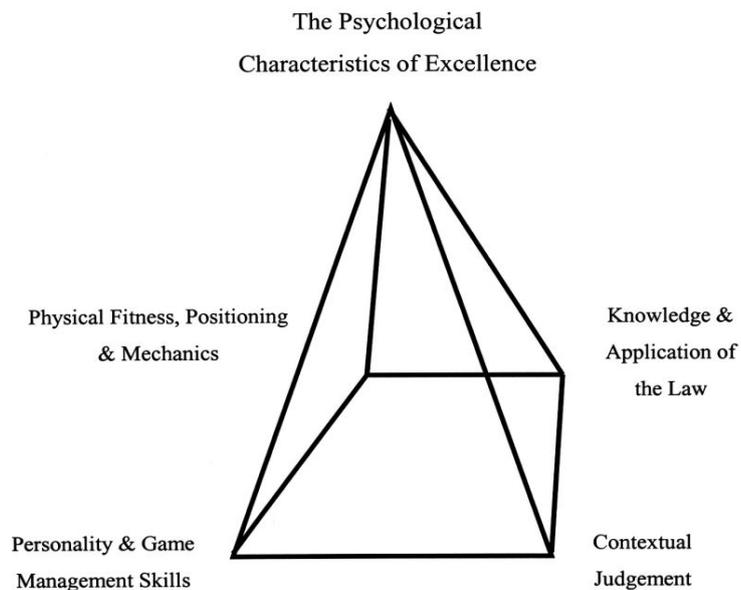


Figure 2. The Cornerstones Model of Refereeing Performance²

² Source: D. R. Mascarenhas et al., 2005

1. Knowledge and Application of the Law: The underpinning knowledge of the law that allows referees to accurately interpret dynamic situations and penalize accordingly.

2. Contextual Judgment: An appreciation of the tenor of the game and the referee's ability to alter his or her style of refereeing to suit the particular nuances of the game.

3. Personality and Game Management: The verbal and non-verbal interpersonal skills that allow referees to communicate appropriately with the players.

4. Fitness and Positioning: The physical attributes that allow referees to "stay up-with-play," see the game from an appropriate perspective, and use the appropriate signals. (2005, p. 364-379)

Psychological Characteristics of Excellence: The common elements of successful performance (McCaffrey & Orlick, 1989; Orlick & Partington, 1988), including commitment, goal setting, imagery, planning, distraction control, responses to pressure situations, and realistic performance evaluations (Watt, 2003).

Through the five aspects research of taekwondo referees from international literature & studies, it is clear to see that there is no article

which could systematically expound the actual environment of referees' development from sports administration perspective.

2.3. Chinese Studies about Taekwondo Referees

2.3.1. Studies of Sports Referees in China

There are plenty of theoretical studies on referees in China. Searching “titles” with the word “referee” on China National Knowledge Infrastructure (CNKI) which is the most famous search website in Chinese academic area, there are 911 among the Chinese articles written after the conclusion of the 2008 Olympic Games (August 24, 2008). The studies concentrate on football, basketball, volleyball, track and field, martial arts, table tennis and other well-received group events and traditional Chinese events, which contrasts a little number of literatures on taekwondo. As listed in Table 1, referee studies of the above mentioned seven events account for over 60% of all referee studies.

Table 1. Statistics of Referee Studies in China Sorted by Sport Events
(Incomplete data, up till January 30, 2015)³

Event	No. of Articles	Percentage (%)
Football	152	16.6

³ Source: CNKI

Basketball	337	36.9
Volleyball	38	4.1
Track & Field	35	3.8
Martial Arts	15	1.6
Table Tennis	16	1.7
Taekwondo	7	0.8
Other Events	311	34.1

Referee Studies are concentrated not only in terms of sport events, but also the content. About 57% centers on referees' "training", "psychology", "organization & management" and "performance", as summarized in Table 2.

Table 2. Statistics of Referee Studies in China Sorted by Content
(Incomplete data, up till January 30, 2015)⁴

Content	No. of Articles	Percentage (%)
Training	248	27.2
Psychology	155	17.0
Organization	79	8.7
Performance	37	4.1
Others	392	43.0

Among them, the "cultivation of referee abilities" with the largest proportion mainly refers to primary training, which basically targets at college or university students, especially students of sports major, for instance, WU Jianxun (2008) issued *Developing Refereeing Abilities of*

⁴ Source: CNKI

College Students of Sports Major and QU Hui (2015) on *Developing Basketball Refereeing Abilities of College Students of Sports Major*.

Studies on referee psychology also account for some proportion, such as ZHANG Zhen (2008) *Analysis of Internal and External Factors that Affect the Psychology of Basketball Referees during Competition* and CHEN Hongtao (2013) *Refereeing Psychology and Adjustment of College Football Referees*.

In terms of referee organization and management, there are XING Shuangtao's (2009) *Position Switch of Three Referees in Basketball Competition* and ZHANG Hongmei's (2013) *A Brief Analysis of Problems of Management System Existing in Football Refereeing in China and its Solutions*.

In terms of refereeing performance, representative articles include RAO Guozhang's (2008) *A Brief Analysis of Factors that Affect Referee Performance in Football* and ZHAI Yifei's (2014) *Exploration on the Influence of Stress Response on Refereeing Performance of Competitive Sports*.

Based on literatures, interviews, mathematical statistics, and logic methods and so on, WANG Xuefeng (2002) analyzes current scale and training status of domestic sports referees, studies how the idea,

construction, implementation and improvement of the distant education and training model of referees and discusses the best practice of referee training in the electronic and information era. He concludes that establishing distant education and training center is the key to distant education and training of referees. There is information collection center, information collation center, information transfer center and assessment center under the training center, which respectively take charge of collection, collation, transfer and assessment of distant education information of referees. Multimedia network teaching is the irreversible trend of current education development. Online education through modern computer network and multimedia technology breaks through the space and time limit of traditional education, provides all-round education service for all kinds of social members and promotes the development of human resources. Multimedia network teaching will become the latest tool of modern education (王雪峰, 2002) .

YANG Qicai (2005) investigated the current situation of international level, national level and first category referees of 16 sports items in Shanghai, namely cycling, fencing, shooting, track and field, judo, handball, synchronized swimming, taekwondo, Chinese wrestling, international wrestling, boxing, sailing, windsurfing, gymnastics, gymnastics rhythmic. He argues colleges and universities have relatively

superior conditions to train referees and it is better to let them cultivate referees. He discusses from two aspects, qualities of referees and advantages of sports colleges in training referees, which provides reference for training referees. He expects that more high level, high quality referees with larger influence could be provided for the mega sport events hosted in China in the future (何志林, 郭蓓, 杨奇才, 许群伟, & 邹勇, 2005).

Except for *Judging Science for Sports Competition* by SHENG Qi (1989) from Tianjin University of Sport, there isn't any professional publication on referees.

2.3.2. Studies of Taekwondo Movement in China

Taekwondo is one of new official events of modern Olympic Games. Because of its rapid development, it has attracted a lot of attention from domestic and foreign experts and scholars. In previous studies, the author has searched the internet and journal database and consulted literatures and books on taekwondo, and found that currently, books and literatures in China focus on taekwondo history, skills, rules, popularization etc., journals mainly analyze training skills and tactics, physical quality, psychology factors, physical indexes etc., and some articles mentioned the relationship between taekwondo and martial arts, traditional culture, fashion, health etc.

On October 7, 1992, CTA preparatory group was established, which marked the official launch of taekwondo in China. In May, 1994, the first study class for nationwide taekwondo coaches and referees was opened in Zhengding, Hebei Province. In September, 1994, the first national taekwondo competition was held in Kunming, Yunnan Province. Over 150 athletes from 15 units attended the competition. In May, 1995, over 250 athletes from 22 units attended the first National Taekwondo Championships held in Beijing Sport University. Since then, taekwondo developed fast in China. In August, 1995, Chinese Taekwondo Association (CTA) was established and Mr. WEI Jizhong was elected as the first president. In November, CTA was admitted to WTF and became an official member. It was less than 20 years since the establishment of taekwondo as an official event when China has won 5 gold medals in 4 Olympic Games. It was a proud achievement. Taekwondo is gaining more and more attention in China, which in turn promotes fast development of it. During its development, many scholars has carried out studies on it and published some articles about it.

For instance, in *Enlightenment of Taekwondo Development in Korea on China's Taekwondo Development*, ZHANG Haibin (2002) believes that we lack systematic body training and standardization of specific skills.

When teams are initially built or organized, to score achievements as soon as possible, the tactic of making a sudden and violent attack was adopted. Therefore, athletes lack solid and standardized skill training, as well as complete body training system, which result in volatile scores. Many excellent athletes from domestic competitions do not demonstrate due skills or tactics in international games and thus do not get good achievements internationally. He argues that either amateur, semi-professional or professional teams should step by step receive physical and basic skill training, and lay solid foundation in both sides (张海滨, 2002).

CHEN Jian etc. (2005) argues in *Development of and Solutions for Taekwondo in China*, the national team features strong females and weak males, and females strong in middle and large class while weak in small class; there is few taekwondo competitions domestically, which is detrimental to team selection and updating; and selection system lack competition. He believes that we should take full advantage of China's system advantage, concentrate human, physical and financial resources to establish a national team with the young, the middle-aged and the experienced, adopt the strategy of "going out and bringing in" to improve coaching ability of out taekwondo coaches, open training classes for referees at all levels so that they can systematically learn the latest rules and

refereeing skills, create more opportunities for refereeing, reform the existing competition system and increase high level taekwondo competition domestically (陈健, 2005).

LIU Haibin (2005), in his *Kinematics Study on Kicking Techniques of Taekwondo*, he stated that there are a few literatures on taekwondo domestically and internationally: foreign studies are limited to sport injury and rehabilitation, while domestic studies focus on selection, physical and biochemical indexes of athletes, tactics and sport injury and rehabilitation, only in recent years occur studies on basic training and working features of muscle groups. Perhaps it is due to relatively late emerging of taekwondo worldwide (刘海斌, 2005).

2.3.3. Studies of Taekwondo Referees in China

Based on the abovementioned summary, China has made some achievement in this field. However, papers mainly study taekwondo skills and tactics, physical quality and indexes, psychological factors, sports injury etc. Few studies focus on taekwondo referees, especially on current situation of taekwondo referees and development.

In 2005, ZENG Guoqing's research on *Refereeing of Chief Umpire According to New Rules of Taekwondo*, he contrasts the new and the old

rules of taekwondo, proposes that referees should follow the principles of intentionally before unintentionally, sequence, primary before secondary, advantage before disadvantage and resolute decision when awarding fouls and deciding penalties, pay attention to using the word “stop” when deciding out-of- bounds, do their best to prevent disruptions of competitions, maintain continuity of competitions and prevent dangerous behaviors or foul. He also argues that refereeing ability of chief umpire has a larger influence on the healthy development of taekwondo, therefore, center referee must delve into spirits of new rules, explore objective laws of refereeing, improve own refereeing ability and judge fast and accurately during competitions, so as to promote and guarantee the development of taekwondo in China (曾庆国, 2005).

In GAO Zhihong (2005) study on *Problems of Taekwondo Techniques and Tactics in China and Refereeing Orientation*, through investigation and analysis of technique application, fouls, refereeing and so on, they suggest that competent authorities organize taekwondo experts to discuss on the definition of knock down and the leaning time on the opponent, so as to further standardize rules, improve details and contribute to the development of taekwondo in China (高志红, 崔志强, & 张立红, 2005).

In 2007, LI Yan's study of *An Analysis of Factors that Affect Refereeing Ability*, She states that taekwondo referee management model should be reformed and various institutions of referee management should be improved; management authorities of all levels should carry out training and exam according to the plan and enable referees to conduct more practices and academic researches, so as to enhance their ideological style and performance; physical education teachers in colleges and universities and professionals in the National Sports Commission are main reserves for high quality referees, training of taekwondo referees, especially young national level referees and female referees should be emphasized (李艳, 2007).

The Investigation into the *Survey of Taekwondo in the 10th National Games and its Development Countermeasures* by LU Xuejun and YANG Shuangyan adopted literature, questionnaire, interviews and statistics to study management and performance of referees. It argues that comprehensive qualities of referees should be cultivated, including ideology, professional abilities, foreign language and computer. It also argues that scientific management should be strengthened, including providing training, introducing competition mechanism, implementing incentives, coordinating

relations with the unit and establishing supervision system of referees (卢学军 & 杨双燕, 2006).

2.4. Sports Administration

When the physical education profession began the great discipline debate in the 1960s, triggered in part by James B. Conant's criticism (Conant, 1963), sports administration as a potential subdiscipline would have been ignored or eliminated by many scholars within physical education. We have witnessed a reemergence of sports administration during the late 1970s and 1980s (Paton, 1987).

Frenchman Henri Fayol, who was widely acknowledged as a founder of modern management method, looked at administration and came up with a strategic view of the organization. He argued that the administrative functions of any organization could be divided into: forecasting, planning, commanding, coordinating, controlling. He stressed the need for clear objectives, authorities, decisions and tasks, and the need for a unity of command from top to bottom. All personnel should be linked into a clear hierarchy and chain of command. The span of control of managers should be limited so that they supervise a limited number of subordinates to get things done (Watt, 2003).

Also, the Japanese sports researcher Norihiro Shimizu regarded that Sports administration is a specialized field of sports science as well as a part of the field of business administration classified by each industry. Sports administration means a cooperative system for managing sport business. Sports administration is a united whole of organization and management for sport business, and aims at making common benefit for all members contributing to sport business (Norihiro Shimizu, 1994).

Adlai (Ewing) Stevenson clarified that “Bad administration, to be sure, can destroy good policy; but good administration can never save bad policy” (Watt, 2003, p.149).

Prof. Packianathan Chelladurai defined that sports management is the coordination of limited human and material resources, relevant technologies, and situational contingencies for the efficient production and exchange of sport services. He particularly compared the differences of the characteristics between sports administration and sports management (See Table 3).

Table 3. Sports Administration VS Sports Management⁵

Administration	Management
----------------	------------

⁵ Source: Managing Organizations for Sport and Physical Activity, Packianathan Chelladurai, 2014

Art / Values	Science / Facts
Qualitative / Reflective	Quantitative / Active
Policy / Strategy	Execution / Tactics
Upper Echelons	Lower Echelons
Holistic	Focused / Specialized

In Simon's (1976) view of Sports Administration, "The need for an administrative theory resides in the fact that there are practical limits, and that these limits are not static, but depend upon the organizational environment in which the decision takes place. The task of administration is to design this environment so that the administrator will approach as close as practicable to rationality in the decisions" (1976, pp. 240-241).

2.5. Overview

Based on the above theoretical background from both China and international level, it can be concluded that taekwondo refereeing performance directly influences the development and competitiveness of taekwondo sport. National level referees, as an important part of taekwondo referees, have heavier responsibilities. Therefore, investigations into current situation of taekwondo referees and analysis of their components, law of growth, training & competition system, supervision mechanism, refereeing performance and other factors are necessary for identifying problems and shortages, which provides solid theoretical foundation for cultivation and

administration of referees and powerful data support for policy-making by CTA. Furthermore, it is favorable for training skillful taekwondo referees with superior comprehensive quality, providing reasonable measures and suggestions for sustainable development of taekwondo referees and promoting all-round development of taekwondo sports in China.

Besides, there are several definitions of Sports Administration, in which the Simon's view of sports administration will be used to analyze the current situation of national taekwondo referees in China.

Chapter 3. Method

Qualitative research is an inquiry process of understanding based on distinct methodological traditions of inquiry that explore social or human problem. The researcher builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting (Creswell, 1998). Phenomenological study is one of the traditional qualitative researches that describe the meaning of several of individuals of their lived experiences of a concept or phenomenon. Collects data from persons who have experienced the phenomenon, and develops a composite description of the essence of the experience for all of the individuals (Moustakas, 1994).

To achieve the purpose of this study, the design of a questionnaire for collecting data to answer the research questions of the present study were derived and modified based on the literature review from previous studies. Questionnaires allow more truthful responses by offering a sense of anonymity (Salkind, 2000).

Face-to-face interview is also adopted in order to make the data of this study more convincing. Depending on the type of research done, it may be appropriate to use both qualitative and quantitative data. A researcher following this approach would be seen as using a mixed-methods research design (Creswell, 2003).

In brief, this chapter presents the research participants, research design, research instruments, sources of data, procedure of data collection, questionnaire and data analysis used in this study.

3.1. Participants

Object of this study is targeting the leading 108 national level taekwondo referees registered at CTA by January, 2015. Questionnaire is used to the total 108 participants by three times separately from referees involving three 2015 national taekwondo competitions, to understand the current situation of China's national taekwondo referees. Probability sampling is implied in research study.

3.2. Procedure and Questionnaire

3.2.1. Questionnaire Design

Questionnaire is used to investigate knowledge and opinions of respondents. It is efficient tool to investigate population with questions and answers on it, and it is used in many nationwide or regional social surveys and projects. Before drawing up questionnaire, the author has read many books on social surveys and scientific methods and made full preparations. According to content and purpose of this study and based on requirement of questionnaire design for sports study, the author has designed Questionnaire for national taekwondo referees. After soliciting opinions of the draft from experts and senior international referees (refer to Table 4) through face-to-face meeting and by e-mail, the author has prepared the questionnaire by several times modification.

Table 4. List of Taekwondo Experts & Senior International Referees

No.	Name	Work Occupation	Taekwondo Experience
1	Mr. Liu Hongwei	Prof. of Shenyang Sport University	Referee Chair of 10 th National Games
2	Mr. Bao Jubing	Ass. prof. of Tianjin Sport University	Referee Chair of 10 th National Games
3	Mrs. Gao Zhihong	Professor of Hebei Sport University	Referee Chair of 12 th National Games
4	Mr. Wu Jiangzhong	Doctor of Beijing Sport University	IR of 2013 East Asian Games
5	Mr. Li Bing	Ass. prof. of Southwest University	IR of 2014 Youth Olympic Games

6	Mr. Li Tongxin	Ass. prof. of Chengdu Sport University	Head coach of 2015 Universiade
7	Mrs. Zhu Linfang	Lecture of Military Sport Academy	IR of 2010 Asian Games
8	Mr. Lin Lehai	Coach of University Taekwondo Team	IR of 2015 World Taekwondo Champ
8	Mr. Feng Jutao	Associate prof. of Hebei Sport University	IR of 2014 WTF Grand Prix
10	Mr. Jay Lee	Director of Sport Department of WTF	2008 & 2012 Olympic Games
11	Mr. Kim Kimsam	Chief of Referee Division of WTF	2012 London Olympic Games
12	Mr. Wang Qiang	Chief of Referee Division of CTA	2014 Youth Olympic Games

3.2.2. Distribution and Collection of Questionnaire

The instrument was translated from English into Chinese languages. Once the questionnaire was translated into Chinese, the back-translation into English was accomplished. The aim of the back-translation process is to identify any discrepancy to be emerged and influenced by the translation process as suggested by Bracken and Barona (1991).

Only one form is used to collect data: on-site distribution & collection. The author has attended 2015 National Taekwondo Championships on March to collect data. The author also asked the referee chairman of 2015 National Junior Taekwondo Championships on June and 2015 National Cup on October for on-site distribution & collection to get data on time (refer to Table 5).

Table 5. Distribution and Collection of Questionnaires

No.	Competition	Competition Date	Questionnaire Date	Place	Collected
1	National Champ.	Mar. 23-27, 2015	Mar. 21, 2015	Huangshan, Anhui	43
2	National Junior Champ.	Jun. 29-30, 2015	Jun. 27, 2015	Suizhong, Liaoning	32
3	National Cup	Oct. 14-16, 2015	Oct. 11, 2015	Hohhot, Inner Mongolia	33

During pre-competition training, the author issued questionnaires in papers on-site and answered questions raised by respondents. After their completion of questionnaires, the author collected all the papers on-site as well. Once errors or missed blanks were discovered, the author could ask the respondent to re-fill a questionnaire or fill in the blanks. 43 questionnaires were issued and collected on-site by the author during national championships. During the Junior Championships and national cup, the referee chairman Mr. Bao Jubin and Mr. Li Tongxin were asked to repeat the procedure as the same as the author, and then both of them handed over the papers with 32 & 33 questionnaires separately to the author.

3.2.3. Validity and Reliability Test of Questionnaire

Validity refers to what extent is the question valid, or whether materials you need can be collected through the questionnaire. According to content and purpose of this study and based on requirement of questionnaire

design for sports study, the questionnaire adopted five-grade assessment method to assess the validity of this questionnaire, so as to guarantee scientific design, full coverage of content and accurate description. To be specific, 12 people were recruited, including officials of WTF and CTA of this major, national and foreign taekwondo experts and international referees, to assess the validity of the structure, the content and the whole questionnaire using five-grade assessment method. For the results (refer to Table 6).

Table 6. Assessment of Questionnaire Validity by Experts

Title	Number	Very appropriate	Appropriate	Basically Appropriate	Inappropriate	Very inappropriate
CTA Officials	1	1	0	0	0	0
WTF Officials	2	1	1	0	0	0
Senior Referees	9	4	4	1	0	0
Total	12	6	5	1	0	0
Percentage	100	50	42	8	0	0

According to the assessment result, experts have given credit for the questionnaire. Questions on it reflect subject of investigation, which means the questionnaire is valid. To test the reliability of the questionnaire, reliability test is conducted twice with an interval of 30 days. 11% of the

108 respondents in the first round investigation were re-tested via email. Concordance rate of two rounds statistics was calculated as below (see Table 7)

Table 7. Concordance Rate of Two Rounds of Investigations

Question No.	1	2	3	4	5	6	7	8	9	10	11
Consistent	12	12	12	12	12	11	12	12	11	12	12
Inconsistent	0	0	0	0	0	1	0	0	1	0	0
Concordance rate	100	100	100	100	100	91.6	100	100	91.6	100	100
Question No.	12	13	14	15	16	17	18	19	20	21	22
Consistent	12	11	12	9	12	12	10	12	12	11	11
Inconsistent	0	1	0	3	0	0	2	0	0	1	1
Concordance rate	100	91.6	100	75	100	100	83.3	100	100	91.6	91.6
Question No.	23	24	25	26	27	28	29	30	31	32	33
Consistent	12	11	12	9	12	12	10	12	12	12	11
Inconsistent	0	1	0	3	0	0	2	0	0	0	1
Concordance rate	100	91.6	100	75	100	100	83.3	100	100	100	91.6
Question No.	34	35	36	37	38	39	40	41	42	43	44
Consistent	12	12	11	12	12	12	11	12	9	12	12
Inconsistent	0	0	1	0	0	0	1	0	3	0	0
Concordance rate	100	100	91.6	100	100	100	91.6	100	75	100	100

Through analysis of results of two rounds investigations, correlation coefficient R was around 0.9, P is smaller than 0.01, which means the questionnaire has relatively high reliability.

3.2.4. Contents and Instrument

The questionnaire comprised a total of 45 items designed to measure China national referee's perceptions of demographics, training system, competition system, refereeing performance, and suggestions.

Questions on demographic information included as follows: gender, age, education degree, representing institution and its administrative region, current job, referee history, taekwondo background, English level and academic research.

Five items were employed to measure national taekwondo education & training system (e.g. how many exams for national level referees have you attended before gaining the qualification). Five items were used to measure satisfaction of the training system, which consisted of the training suits current need of project development; the Referee Committee is well-established and performs its duty; the training program is scientific and fully implemented; the faculty; scientific course design and teaching method.

Regarding to the competition administration of referees, ten items were distributed to evaluate (e.g. what do you think of the implementation of referee assessment and supervision mechanism).

The following ten factors were assessed the refereeing performance in the competition (e.g. to what extent do you think the overall refereeing performance of national level referees matches their “national level” title).

At last, five items were provided to referees to clarify the current problems and give suggestions to the overall level of development of taekwondo referees in China (e.g. what do you think are main problems of current national level referees).

Participants were informed about the purpose of the study and provided informed consent, and they were also asked to select the most appropriate option and rate the level of agreement or disagreement with the statement on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.3. Data Analysis

By using logical analysis methods such as conclusion, deduction, comparison and summary, the author has studied various materials, made conclusions and offered suggestions.

The data collected from the athletes were analyzed using SPSS 20.0 (Statistical Package for Social Science) as SPSS is a commonly used analysis software program.

As it is a descriptive statistics research, based on statistical principles and methods, frequency analyses were used to process effective data collected from participants, consulting and investigations.

3.4. Interview

3.4.1. Interview Procedure

During WTF World Taekwondo Grand Prix 2015 held on October 16-18, 2015 in Manchester, UK, we conducted two 30-minute interviews with WTF Referee Chairman Mr. Chakir Chelbat and WTF Sport Department Director Mr. Jay Lee separately. We briefly introduced the background and purpose of this study, and then we asked the topics of most concern.

3.4.2. Measurement

(A) Interview questions to WTF Referee Chairman

Q1: Please introduce the WTF international referee training system, and

how the system can improve the level of international referees' skills?

Q2: In your opinion, what are the key factors that frequently affect the

refereeing performance in the competition?

Q3: What's your impression about Chinese taekwondo national referees?

(B) Interview questions to WTF Sport Department Director

- Q1: Please introduce the WTF international referee's daily and competition administration system, and how the system can enhance the level of international referees?
- Q2: Do you think whether it is important to strengthen the referee administration which can influence refereeing elite performance in the competition? Please give an example to reveal relationships between referee administration and refereeing performance.
- Q3: What's your impression about Chinese Taekwondo Association focusing on referee issues? Especially the disadvantages and problems, and please give suggestions and proposals to improve their team building and refereeing level.

Chapter 4. Findings

To understand current situation of national taekwondo referees in China, the author conducted questionnaire survey of 108 national level referees while attending three major taekwondo games of 2015, namely National Championships, National Junior Championships and National Cup. In terms of either quantity or quality of respondents, the survey objectively presents current situation of national taekwondo referees in China.

4.1. Demographics of National Taekwondo Referees

4.1.1. Quantity, Geographical Distribution and Gender Structure

China exercises jurisdiction over 22 provinces, 4 municipalities directly under the central government, 5 autonomous regions and 2 special administrative regions. Except for Hong Kong and Macau, national referees registered at CTA have covered all 31 national administrative regions. China is a country vast in territory. For easier statistics and more visual data demonstration, we divided China into seven regions based on Level I geographical distribution: eastern China, southern China, central China, northern China, northwestern China, southwestern China and northeastern China.

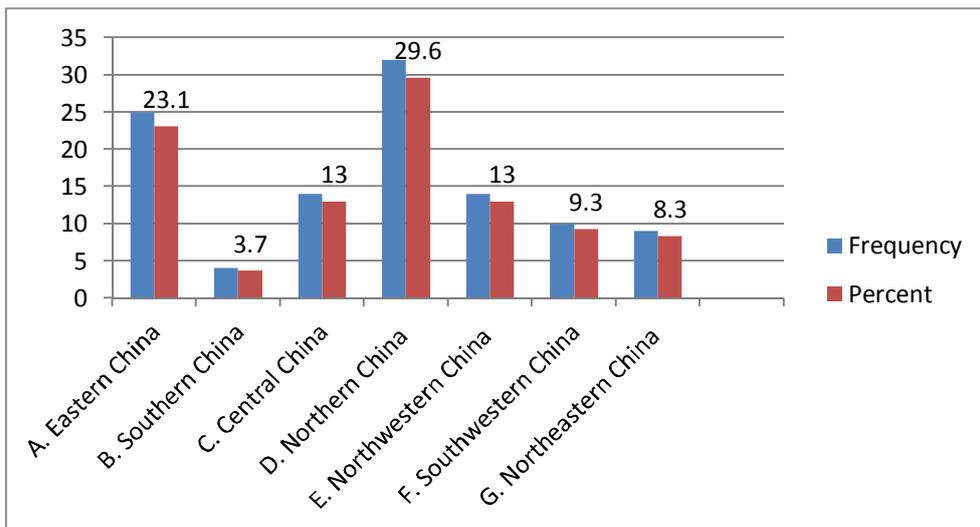
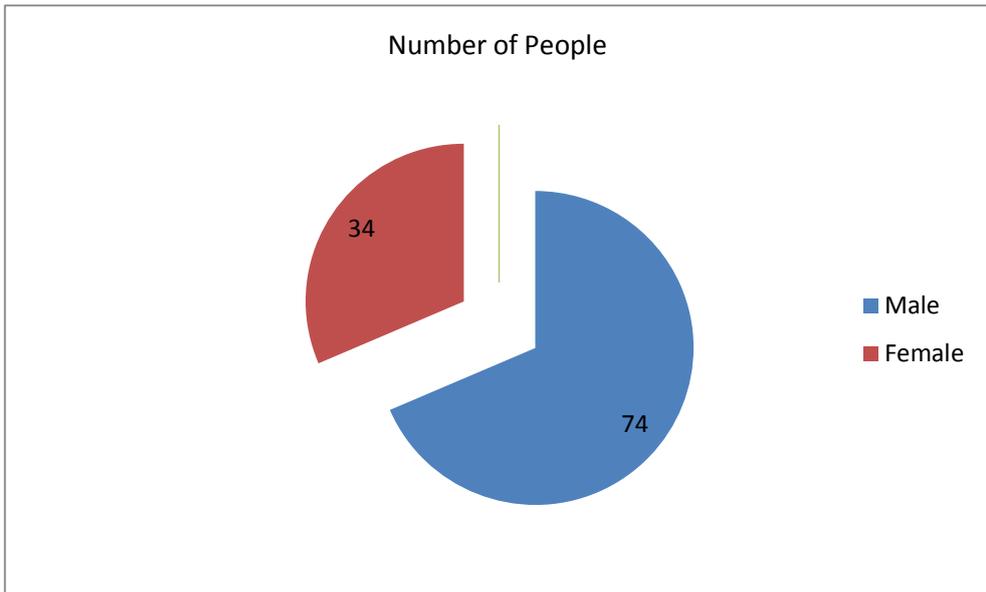


Figure 3. Geographical Distribution of Referees

As Figure 3 shows, taekwondo referees in China are distributed widely but unevenly. In general, referees from northern (29.6%) and eastern (23.1%) China account for a relatively large proportion, over 50% of all, while those from southern and northeastern China have fewer opportunities to referee games, only account for 12%. According to athlete rankings of the three taekwondo games in 2015 as well as performance in previous major games, for regions with better development of taekwondo, there are more national referees and larger proportion of them be sent to games. Therefore, number of high-level referees is related to regional taekwondo development.

Currently, uneven distribution of national referees is detrimental to overall development of taekwondo. Based on training and development patterns, increasing high-level referees and developing taekwondo locally are mutually beneficial. Hence, increasing referees in regions with sluggish development to obtain relatively even distribution among regions can help all-round and balanced development of taekwondo in China.

Figure 4. Gender Structures of National Referees



According to the Figure 4, gender structures reflect the proportion of female and male in total population of a country or region, which exerts great influence on the society and people's life. Therefore, demography and sociology both attach particular attention to gender structure of the population. According to the 6th Nationwide Population Census in 2010, by 2010, male to female ratio in China reached 105.20%,^[9] and that in sports population 179.20%.^[10] Sports population are defined as people who exercise at least 3 times a week, over 30 minutes for each time and feel middle level of load intensity. The majorities of taekwondo referees in China teach sports or manage related work, and have exercise habits or

hobbies, so they are included in sports population. Among 108 respondents, 74 are male referees, accounting for 68.5% and 34 female, accounting for 31.5%, which reflects unbalanced gender structure. China has won many gold medals in women's taekwondo in Olympic Games and other international competitions. However, only a few female referees have judged international games, which means China lags behind in training female taekwondo referees compared with training male ones, and even drops behind global development requirement.

Major task for the current stage is to strengthen training of female referees, increase referees in sluggish regions, balance quantity variance among regions and improve referee team development.

4.1.2. Age Structure and Body Shape

Age structure reflects proportion of referees at different age stages, which lays foundation for maintaining a competent referee team. Physical fitness is closely related to age. Physical quality and capability grow as age increases; however, starting from certain age, capability decreases as age continues to grow as a result of physiological change. Sound physical quality is the foundation for overall control of a competition. Besides, accelerated attack-defense transition in modern taekwondo games raises

even higher requirement for physical fitness of referees. Therefore, it is necessary to survey age structure of taekwondo referees.

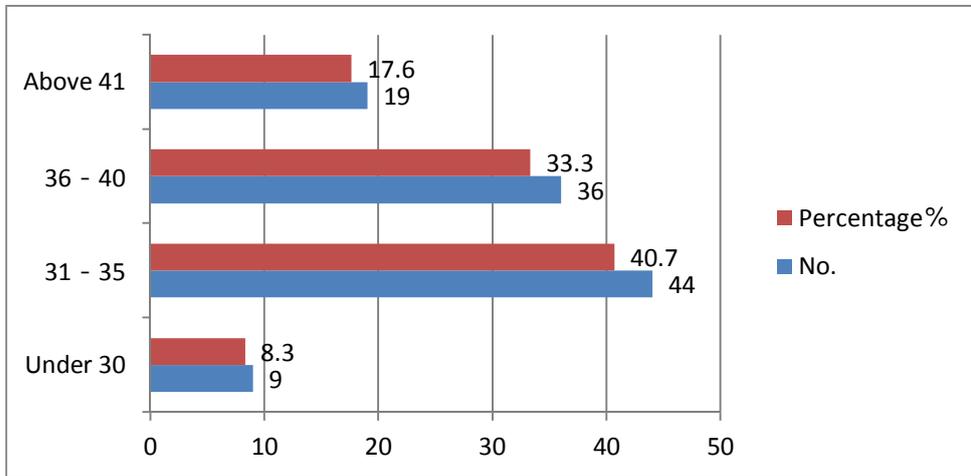


Figure 5. Age Structure of National Referees

Statistical result (refer to Figure 5) demonstrates distribution of various age groups in national referees. The average age of taekwondo referees is 36.4-year old, with the minimum 26, the maximum 54 and the range 28. The majority is between 31 and 40, making up 74% of the total. In contrast, for 30 international taekwondo referees of 2012 London Olympic Games, average age is 43.8-year old, with minimum 32 and maximum 64. Thus, the young taekwondo refereeing team in China, with moderate age structure, is developing towards maturity, which is in accord with

characteristics of taekwondo history in China. Referees over 41-year old constitute 17.6% of the total, most of them are chief judge and members of the arbitration commission who take charge of guiding and supervising refereeing and have little opportunity to refereeing on-site. Referees less than 30 account for 9%. We should strengthen training of young referees and establish backup referee reserve so as to improve refereeing team.

Image of a person helps from a first impression. Study of referees' body shape provides scientific basis for selection and targeted training of referees. According to statistics (refer to Table 8), national male and female referees are appropriately distributed among each height-weight category, their height-weight ratio within the normal range, which means they have neat figure. Most referees were athletes or sports staff, which created favorable conditions for them to keep fit. Besides, taekwondo athletes move fast and fight fiercely, which requires referees to have good flexibility and coordination. Referees' manners and dress represent their image, which in turn inspire athletes, coaches and audiences. Hence, we should establish sound public image and prestige of referees.

Table 8. Height-Weight Table for National Referees

Male

Height (cm)	No.	Percentage (%)	Weight (kg)	No.
Under 170	12	35.3	Under 70	24
171 – 180	53	71.6	71 – 80	25
Above 180	9	12.2	Above 80	25
Total	74	100	Total	74
Female				
Height (cm)	No.	Percentage (%)	Weight (kg)	No.
Under 165	11	32.4	Under 55	10
166 – 170	13	38.2	56 – 60	11
Above 170	10	29.4	Above 60	13
Total	34	100	Total	34

4.1.3. Occupational Structure, Years of Refereeing and Motivation

There isn't any professional taekwondo referees in China. Taekwondo referees are amateur ones with their own jobs. Against current sports system, it is hard to professionalize taekwondo referees, so study of the referee career could provide basis for training or selecting taekwondo

referees.

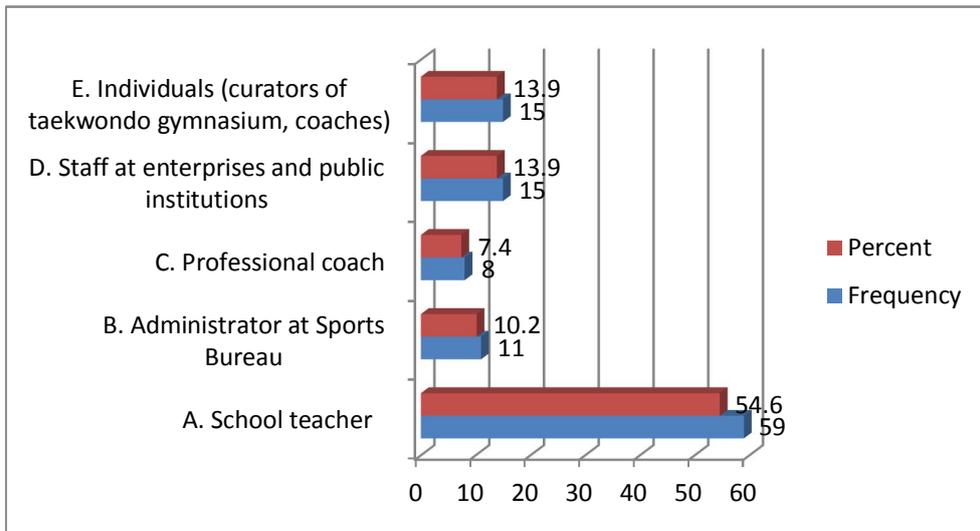


Figure 6. Occupational Structures of National Referees

According to survey results (see Figure 6), current jobs of amateur taekwondo referees are mainly concentrated in five categories, with teachers 54.6%, making up the largest proportion. Teachers are advantaged in refereeing. As most of them teach sports, they can easily be exposed to advanced theories and code of arbitrage and are familiar with tactics of taekwondo. Therefore, they are more familiar to predict movements of athletes and make accurate pre-judgment. Besides, teachers have relatively high degree of political consciousness, so they are able to resist misconduct and enforce rules impartially. Selecting referees from teachers is an

effective and convenient approach. Teachers can enrich refereeing knowledge and improve professional level through teaching and then pass on their practical experience and theoretical knowledge to students, which help enhance taekwondo refereeing in the school. Administrators at sports bureau are another major source of taekwondo referees. Most of them manage taekwondo games and local referees, easily get first-hand refereeing materials, have opportunities to officiate at games, and facilitate population of taekwondo refereeing locally. Meanwhile, individuals such as curators of taekwondo clubs and practitioners of other industries are joining the refereeing team, which shows sound popularization of taekwondo and better serving society with more diversified refereeing team. However, it cannot be neglected that long term existence of amateur and part-time referee system results in limited opportunities of refereeing and low frequency of refereeing high level competitions, which impedes enhancement of China's refereeing capability to the international level.

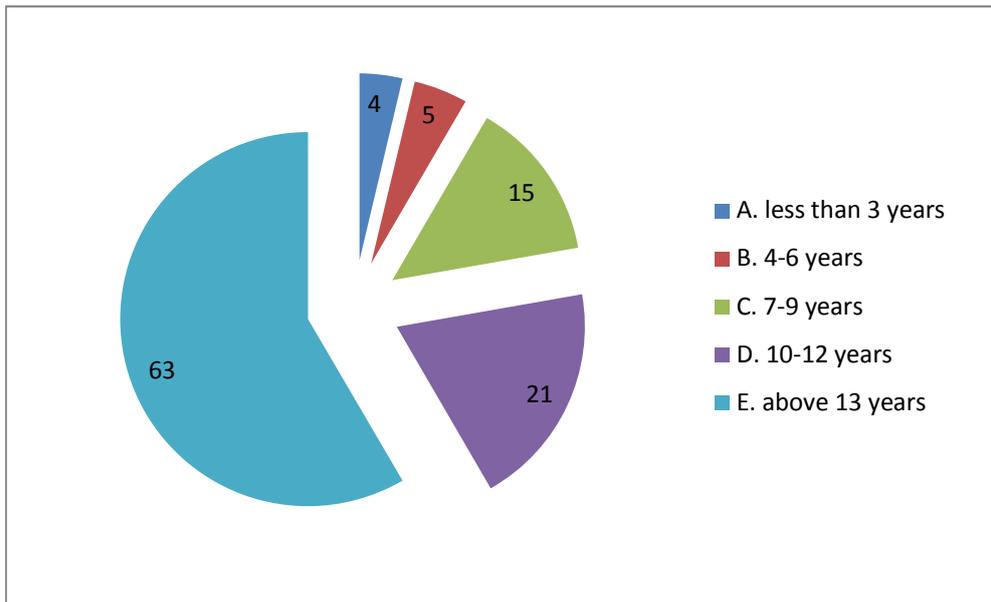


Figure 7. Years of Refereeing

Years of refereeing is an important influencing factor of refereeing level. The paper investigates into refereeing experience of 108 referees. According to the Figure 7, referees with over 13-year experience constitute the majority, about 63 people, accounting for 58.3%. It means over half of the referees have moderate years of refereeing, but we lack high level new blood and the refereeing team still needs improvement. This is relevant with short history of taekwondo development in China. Senior referees should mentor and use high quality young referees, which will facilitate seeking and cultivating young generation of referees.

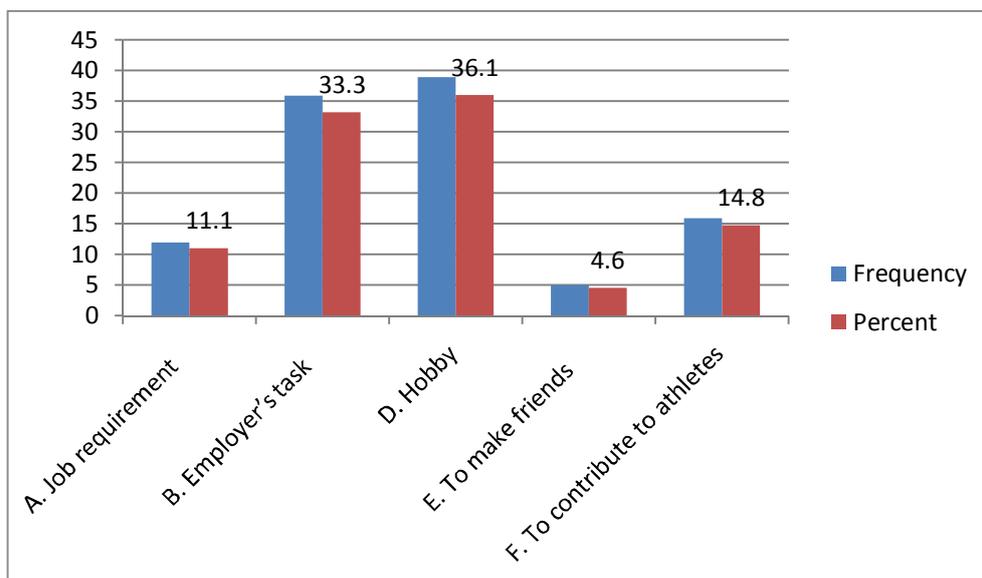


Figure 8. Major Motivations for Officiating

According to the Figure 8, motivation for officiating mainly originates in hobbies and elevating professional level, which is linked with referee's vocational attribute. Most of referees are teachers and sports administrators, whose daily work is closely related with taekwondo or sports. They not only are passionate about officiating at taekwondo games, but also hope to improve professional level through participation. Moreover, the majority of national referees are provincial or municipal chief judges or leaders in the sector. Their participation in national games and improvement

of professional level can promote all-round enhancement of regional refereeing level. None of the respondents choose the option C: to make a living.

4.1.4. Education, English Proficiency and Research Capacity

Degrees obtained basically reflect a person's education and knowledge level. In the fast developing society, educational level became important criteria for selecting talents in all works of life, and refereeing is no exception. Education level will affect awareness and understanding of work as well as practical skills. It is an important factor that influences overall quality. Therefore, sophisticated referees should pursue high degrees.

Statistics of Table 9 show that among national taekwondo referees, 53 are graduates, accounting for 49% of the total, 1 of them with doctorate; 46 are undergraduates, accounting for 42.6%; and 9 are junior college graduates, accounting for 8.3%. It shows that taekwondo referees in China has relatively high education level. Referees with higher degree has wider scope of knowledge and broader vision, is more willing to accept new refereeing theories, more used to exploring and analyzing problems occurred on the spot and faster in improving refereeing skills. None of the respondents choose the option A: Secondary school or below.

Table 9. Education, English Proficiency and Research Capacity

Content	Option		Frequency	Percentage (%)	Cumulative
Educational degree	A	Secondary school	0	0	0
	B	Junior college	9	8.3	8.3
	C	Undergraduate	46	42.6	50.9
	D	Master	52	48.1	99.1
	E	PhD	1	.9	100.0
English competence	A	None	45	41.7	41.7
	B	Under PETS 4	41	38.0	79.6
	C	PETS 4	16	14.8	94.4
	D	PETS 6	5	4.6	99.1

	E	TEM 8	1	.9	100.0
Academic papers	A	None	29	26.9	26.9
	B	1-3	42	38.9	65.7
	C	4-6	15	13.9	79.6
	D	7-9	8	7.4	87.0
	E	Above 10	14	13.0	100.0

Exchanges in international sports games become more and more frequent. International sports games held in China, such as Beijing Olympic Games, Guangzhou Asian Games and Nanjing Youth Olympic Games, provide valuable opportunities not only of refereeing, but also of learning from international referees. English is a universally used language and the tool for communication. It should be one of the basic abilities owned by each referee. Survey into English proficiency of referees gives an overview of referees' language ability, which will guide training of international referees in the future.

To know English proficiency of national taekwondo referees, English test grades established by China's Ministry of Education are used as categorization standard. According to the survey results (see Table 9), 45 respondents haven't pass any level of English test (accounting for 41.7%), 41 have passed PETS (Public English Test System) III or grades below (accounting for 38%), which means 3/4 referees do not possess basic English communication ability. Only 6 respondents have passed CET-6 (College English Test), accounting for 5.5%, and few referee could communicate fluently in English. The statistics show relatively low English proficiency of referees, which is unmatched with their high education level. The main cause is that referees above 30-year-old constitute 70% of total referees in China. Most of them finished school in professional sports schools and universities where insufficient attention is paid to English study and students are poor in English, thus resulting in the above-mentioned phenomenon. In international games, referees need to communicate with organizers, referees from other countries, coaches and athletes. Therefore, it is hard for a referee who cannot speak English to be promoted to international referee or to officiate at international competitions. Currently, low English proficiency of taekwondo referees constrains their internationalization process and impedes them from officiating at

international games. The overall development of taekwondo in China calls for sophisticated referees with high English proficiency. Therefore, improving English proficiency of referees is an urgent task for China.

Sports science provides a knowledge system to understand sports and its objective developing law. Study of sports science can drive sports development. For individuals, good at discovering problems in work and exploring solutions is critical for improving working capability and professional skills. Development of modern taekwondo has been driven by comprehensive research of development law and training by coaches and scholars however, there is few research on refereeing, an indispensable and critical part of taekwondo studies. Researches by taekwondo referees can reflect their cognitive competence of objective laws in this sector and enhance their understanding of refereeing theories and practices. With fast development in taekwondo sector, refereeing becomes a pressing issue to be studied and solved. Therefore, taekwondo referees should seize the opportunity of fast progress and strengthen researches of judgment, so as to improve overall quality and refereeing skills of the team and keep up with the rapid development.

According to statistics, referees have published limited number of research papers and 29 of them haven't published any paper. It shows a lack

of attention on taekwondo studies by referees in this sector. Therefore, we should strengthen studies by referees on their own sector, hold seminars regularly and establish research groups, so as to carry out theoretical studies on refereeing-related issues, enhance research capabilities of Chinese referees and improve the overall quality of taekwondo refereeing team.

4.2. Training System of National Taekwondo Referees

Efficient referee training system aims at improving overall quality of referees, beefing up reserves of referees and promoting fair competition and taekwondo development.

4.2.1. Number and Content of Training

According to statistics (see Table 10), 58 taekwondo referees attend two centralized training annually, accounting for 53.7% of the total. On average, referees participate in less than three training annually. Compared with Korean referees' five-time training each year, that of Chinese referees should be increased. We should regularly held nationwide training class for taekwondo referees, or train referees in batches and by stages based on their referee class and officiating task, so as to improve training administration system of referees.

Table 10. Number of Training and Content of Pre-Competition Training

Training No.	No. of People	Percentage (%)	Content	No. of People	Percentage (%)
1	14	13	Rules explanation	21	19.4
2	58	53.7	Simulation	6	5.6
3	27	25	Actual practices	48	44.4
4	8	7.4	Experience sharing	28	25.9
5	1	1	Video analysis	5	4.6

Currently, training of national referees includes centralized training before matches and training classes opened by competent department, which is narrow in terms of content coverage. In particular, pre-competition training is limited to rules explanation and on-the-spot practices, for instance, only a fixed small number of referees have received training of drawing lot and schedule arrangement. As a result, referees lack wide vision and open mind, which adds difficulty to national referees' training. As shown in Table 10, 48 referees believe actual practices are the most important, accounting for 44.4%, and only 4.6% believe video analysis the most important, minimum among all. This means Chinese referees generally lack opportunities of actual practice and do not pay enough attention to video analysis. In contrast, for referee training before international competitions, video analysis has always been a focus.

4.2.2. Channels and Difficulties during Training

According to the Table 11, 59.3% referees master competition rules through centralized training, the major source, and 33.3% from the internet, which suggest single channel to gain new rules and a lack of communication among referees.

Table 11. Channels and Difficulties for Referees during Training

Channel	No.	Per(%)	Difficulties	No.	Per(%)
Internet	36	33.3	basic theory	2	1.9
magazines	0	0	competition rules	15	13.9
referee's	8	7.4	responsibilities	1	1
centralized	64	59.3	ethnic education	3	2.8
			techniques	0	0
			judgment scale	53	49.1
			video case study	6	5.6
			schedule	28	25.9

Besides, 49.1% believe “judgment scale” is a difficulty. Mastery degree of judgment scale measures a referee’s familiarity with rules and refereeing skills. And 25.9% believe schedule arrange of competition is also difficult. It means referees lack systematic and comprehensive knowledge about competition rules.

4.2.3. Satisfaction Survey of the Referee's Training System

According to the Table 12, 50 national referees agree that the training suits current need of project development, accounting for 46.3% of the total, and 51 strongly agree, which means the majority referees are satisfied with training offered by CTA. In terms of organization and duty performance of the Referee Commission under CTA, nearly 30% referees stand neutral or unsatisfied, which exposes weak work linkage and insufficient participation of referees in Referee Committee's work. 82.4% referees basically recognize that the training program is scientific and fully implemented. But there still exists room for improvement, i.e. soliciting more opinions from experts when establishing training plans and keeping up with changes and the times. CTA has always emphasized the faculty for training. It invites experts of the WTF and senior international referees to give lectures in China, which has won unanimous praise from national referees.

Curriculum design and teaching method of referee training are relatively simple, most of which include theory course, simulation and on-the-spot internship but lack analysis of tactics and skills as well as actual practice. In this fast developing information era, we should use as much as possible computer technology to make teaching software and digital

photographing to record teaching films. Choosing the most optimized training mode by advanced and scientific method is an effective way to improve overall quality of taekwondo referees.

Table 12. Satisfaction Survey of the Referee's Training System

content	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	No.	%	No.	%	No.	%	No.	%	No.	%
The training suits current need of project development.	0	0	3	.8	4	3.7	50	46.3	51	47.2
The Referee Committee is well-established and performs its duty.	3	2.8	5	4.6	24	22.2	37	34.3	39	36.1
The training program is scientific and fully implemented.	0	0	4	3.7	15	13.9	54	50	35	32.4
The faculty is perfect.	0	0	3	2.8	9	8.3	47	43.8	49	45.4
Scientific course is well designed and teaching method is good.	0	0	2	1.9	8	7.4	66	61.1	32	29.6

CTA is the most authoritative agency in cultivating taekwondo referees in China. It should carry out bold reforms in training method and content, learning from advanced overseas experience and establish administration system of taekwondo referees that suits Chinese realities, so as to contribute to improving refereeing performance of taekwondo in China.

4.3. Competition System of National Taekwondo Referees

Efficient competition system of referees aims at building a stronger refereeing team, guaranteeing fairness of sports games and better serving event development.

4.3.1. Selection and Appointment of Referees

For annual games, provincial and municipal sports bureaus first recommend a list of outstanding national referees, and then based on that, CTA considers various factors and pick out the best to be participating referees. Selection of referees is usually influenced by nature, scale and location of the competition, division of refereeing work among different posts, regional representation of referees and their distribution, male-female ratio and many other factors. All factors considered and finally appropriate participating referees are selected. Respondents are from China's three most important taekwondo competitions of 2015, which include elite referees

nationwide. As statistics (refer to Table 13) have shown, 72.2% respondents believe selection is fair and 11.1% very fair.

Table 13. Investigation of Selection and Appointment of Referees

Questions	Results	No.	%
Is it fair in terms of selection and appointment of national level referees for the national competition?	not at all	1	1
	not that fair	5	4.6
	neutral	12	11.1
	fair	78	72.2
	very fair	12	11.1
Is inviting foreign referees to co-referee helpful for improving performance of national referees & fairness of competitions?	extremely unhelpful	3	2.8
	unhelpful	6	5.6
	neutral	27	25
	helpful	42	38.9
	very helpful	30	27.8
What do you think is the best approach to select and appoint referees for a match?	random selection	29	26.9
	appointment by the chief referee	0	0
	combine new & experienced referees	25	23.1
	groups & circular appointment	6	5.6
	Random selection & appointment	48	44.4

In National Games and Youth National Games held every four years, competitions are fierce. Therefore, CTA has invited foreign referees to enhance the fairness and avoid influence or interference from competing teams via the barrier of interpersonal relations and language. Besides, Chinese referees could learn advanced officiating philosophy and rich experience from foreign referees through co-refereeing. But only 38.9% respondents believe co-refereeing is helpful and 27.8% very helpful. The survey result is somewhat different from the original intention of CTA's measure.

Selection of on-the-spot referees is the core issue concerned by competing teams and referees. 44.4% referees recognize combination of random selection and appointment, 26.9% random selection and 23.1% combination of new and experienced referees. However, no one recognize appointment by chief referee, the most widely used approach in conventional games, which needs to be considered.

4.3.2. Competition Service Standard of Referees

The questionnaire investigates service guarantee of referees during the competition from three aspects. According to the Table 14, in terms of remuneration, 46.3% referees believes it is moderate, 29.6% relatively low,

and 21.3% low, which means the majority of referees are unsatisfied with remuneration standard. It may result in discontent referees during the whole competition, which will impact normal refereeing.

In terms of travel expenses and accommodation standard, 39.8% referees chooses neutral and 35.2% are satisfied, which shows service standard is moderate in this aspect and meet the expectation of most referees.

Table 14. Remuneration, Travel Expense and Uniform Design

Questions	Results	No.	%
What do you think of the remuneration of taekwondo referees domestically?	low	23	21.3
	relatively low	32	29.6
	neutral	50	46.3
	relatively high	2	1.9
	high	1	1
Are you satisfied with current travel expenses and accommodation standard of taekwondo games in China?	not at all	1	1
	not satisfied	15	13.9
	neutral	43	39.8
	satisfied	38	35.2
	very satisfied	11	10.2
Are you satisfied with design and color of referee uniform?	not at all	10	9.3
	not satisfied	17	15.7
	neutral	53	49.1
	satisfied	25	23.1
	very satisfied	3	2.8

Style and color of uniforms represent the integral image of the refereeing team. Nearly half (49.1%) of the referees take a neutral attitude, which calls for better design of referee uniform. More references should be made to style and color of referee uniforms of other events so that referee uniform with taekwondo and Chinese characteristics will be designed and the refereeing team will be bright scenery in the court.

4.3.3. Employer Support, Supervision and Penalty of Referees

In China, taekwondo referees are non-occupational ones with their own job and career, so their participation in officiating taekwondo games needs to be approved by their employers. According to statistics, the majority of employers support refereeing, which eliminates referees' worries about work during the competition. However, most of time out of the game, the referees are not keeping close contact with the CTA.

Table 15 Referees' Employer Support, Supervision and Penalty

Questions	Results	No.	%
What's your employer's attitude toward your being a referee in games?	oppose	0	0
	not that support	3	2.8
	neutral	17	15.7
	support	27	25.2

	strongly support	61	56.5
What do you think of the implementation of referee assessment and supervision mechanism?	completely ineffective	0	0
	ineffective	2	1.9
	neutral	35	32.4
	effective	53	49.1
	perfectly effective	18	16.7
What do you think of the punishment for referees who make mistakes?	not serious at all	4	3.7
	not that serious	15	13.9
	neutral	66	61.1
	serious	23	21.3
	very serious	0	0

Examination, supervision and assessment of referees during the competition are important parts of referee competition administration. Appropriate set of supervisory authority, scientific supervision measures and standardized supervision enforcement is critical in guaranteeing fruitful refereeing work. Statistics (see Table 15) show that 35 respondents or 32.4% of them believe supervision and assessment have a common effect.

Trust in referees lays the foundation for referee administration, however, trust cannot replace penalty. Once making mistakes, referees should be penalized according to *Regulations on Punishment of Taekwondo*

Referees so as to achieve self-examination and warning for others. 78.7% respondents believe penalties need to be more severe, which may result from complicated interpersonal relations in China.

4.4. Refereeing Performance of National Referees

On-site performance of a referee reflects a referee's comprehensive refereeing capability and the effect of referee training and competition administration.

4.4.1. Overall Performance and Familiarity with the Rules

About 80.6% respondents believe their refereeing ability matches the "national referee" title, 15.7% take a neutral attitude and 3.7% think their ability does not match the title. Competition rule of taekwondo provides the basis for on-site refereeing and the code of arbitrage the approaches to execute rules. Taekwondo referees must first understand all kinds of skills used by athletes during the competition, which help predict scoring and foul movement; they must also master competition rules and code of arbitrage so that rules could be executed correctly and penalties and scores being accurate. Statistics (see Table 16) show that national referees are familiar with rules. However, since it is a hand-to-hand combat featuring subjective

judgment, its referees are required to have a flexible understanding of rules and apply them skillfully.

Table 16. Overall Performances and Familiarity with the Rules

Content	Results	Number	%
Overall Performance Match “National Referee” Title or Not	not at all	0	0
	not that match	4	3.7
	neutral	17	15.7
	match	68	63
	perfectly match	19	17.6
Familiarity with Competition Rules	ambiguous	0	0
	not familiar	0	0
	neutral	5	4.6
	familiar	61	56.5
	very familiar	42	38.9

4.4.2. Psychological Study of Refereeing Performance

Referees’ psychology refers to all kinds of psychological activities that may influence refereeing. The author researches concentration and nervousness of referees, which reflect their psychological stability and endurance during the competition.

Taekwondo games raise relatively high requirement for referees’ concentration: referees not only need to have wide range of observation, or be observant and alert, but also strong attention diversion and distribution

ability. The environment of the court is ever-changing, emergency situations may popping up unexpectedly. Information inside and outside the court, such as enthusiastic atmosphere, well-known athletes, pressure imposed by big name coach, will directly or indirectly influence referees' psychology. Unconfident or inexperienced referees may lose his head. Great psychological pressure could result in low concentration, narrow observation range, or even temporary mind blank and loss of self-control. All these factors will affect accurate thinking, cognition and judgment ability of referees. One taekwondo match consists of three rounds of two minutes each, with one minute rest between rounds. Generally, national referees are concentrated but their nervousness and stress tolerance fluctuates. Statistics (refer to Table 17) show that 11.1% are a little bit nervous and 27.8% sometimes nervous, which means cultivating psychological quality is the focus of and difficulty in improving refereeing capability.

Table 17. Psychology Survey of Refereeing Performance

Questions	Results	No.	%
To what extent are you concentrated during competitions?	not at all	0	0
	not that concentrated	1	1
	neutral	0	0
	concentrated	53	49.1
	strongly concentrated	54	50
To what extent are you nervous during refereeing?	not at all	34	31.5
	not that nervous	32	29.6
	neutral	30	27.8
	a little bit nervous	12	11.1
	very nervous	0	0

4.4.3 Penalty Accuracy of Refereeing Performance

Penalty accuracy is the core factor in deciding refereeing performance. The survey assesses penalty accuracy of taekwondo referees from three aspects, self-confirmation, and number of mistakes and times of result overturned.

Table 18. Survey of Referees' Penalty Accuracy

Questions	Results	No.	%
To what extent are you accurate when you are imposing penalties as a center referee or recording points as a corner judge?	not at all	0	0
	not that accurate	0	0
	neutral	6	5.6
	accurate	89	82.4
	completely accurate	13	12
During a national level competition, how many times have you imposed erroneous or missed sanctions?	none	40	37
	1-2	39	36
	2-3	22	20.4
	3-4	6	5.6
	above 5	1	1
During national competitions in the past years, how many times have your original judgment been changed by the Board of Arbitration upon appeal?	none	71	65.7
	1-2	28	25.9
	3-4	6	5.6
	5-6	3	2.8
	above 6	0	0

Since 2009 when electronic body protectors start to be used in taekwondo games, frequency of referees' participation in recording the points has been lowered. Electronic body protectors automatically record 1 point when abdomen is hit, however hit on the head and spinning technique,

with relatively high points of 3 and 2 respectively, are still scored by referees. Lower participation of referees in scoring and clearer provision of penalties assists to increase refereeing performance in accuracy of penalties and scoring. According to the Table 18, 82.4% referees believe they are accurate and 12% completely accurate in imposing penalties and recording points. However, because points recorded by referees are relatively high, even an occasional mistake may result in reversal or overturn of competition results. Statistics show that mistakes and overturns still exist. In one national competition only, the rate of false-positive accumulates to 63%, and some referees even have imposed wrong or missed sanction for several times.

4.4.4. Factors that Influence Refereeing Performance

Factors that influence refereeing performance can be divided into subjective and objective ones. The former refers to morality and professionalism of referees, and the latter refers to nature and environment of the competition.

According to statistics (see Table 19), subjective factors that impact refereeing performance mainly include “lack of refereeing experience” (59 person-time), “hard to identify penalty criteria” (55 person-time) and “biased refereeing motivation” (55 person-time). The first two factors are constrained by referee’s age, times of training and years of refereeing, and

also influenced by the ability of learning, understanding and application of rules; while biased refereeing motivation have multiple causes. Pursuing “Justice, Fairness and Transparent” is the refereeing philosophy of refereeing, however, individual morality and quality decides the ability to resist interference and influence from the outside.

Table 19. Factors Influencing Refereeing Performance

Subjective Factors			Objective Factors		
1	D	59	1	B	87
2	B	55	2	A	75
3	A	55	3	C	36
4	C	39	4	G	32
5	E	39	5	D	20
6	G	24	6	F	19
7	H	24	7	H	15
8	F	14	8	E	13

Objective factors that impact refereeing performance mainly include “iniquity agreement between referees” (87 person-time), “biased inspirations from competent leader” (75 person-time) and “requirement by sports teams” (36 person-time). Agreement between referees embodies the Chinese-style interpersonal relations and exchange of interests. Since referees come from different provinces and represent different interest groups, their “agreement” benefits small communities or individual agencies but harms the overall image of referees and competing environment of

taekwondo. The factor of inspirations from competent leader results from China's sports system, which enables the competent leader to "decide the life and death" of referees. One hand, some competent leaders of events that need recording points implicitly or explicitly pass on unfair information to influence referees; one the other hand, some referees are used to surmising intentions of leaders, both of which result in black whistle. Requirement by sports teams is prevalent as well, for sports teams striving to complete matches naturally will target referees as an easier path to win. Besides, most referees used to be athletes and are familiar with coaches or leaders of sports teams, so they may pay back on the court and use improper methods to maintain interpersonal relations. Managing sound relationships between referees and sports teams is a difficulty in referee competition administration.

4.5. Main Problems of Current Referee Issues

Through the survey data of main problems of current referees' issues from every single referee's point of view, it is very clear to list the importance of these problems we are facing with (see Table 20). The prominent problem of current issues is "referees lack experience and exchanges"; "different emphasis on referees by different provincial and municipal sports bureaus" highlights the issues of training system; issues of

“selection, training, assessment, supervision institutions do not constitute a dynamic system” is most remarkable of competition system.

Table 20. Survey of Main Problems of Referee Issues

Questions	Results	No.	Rank
current national level referees	referees lack experience and exchanges	82	1
	weak professional skills	43	2
	large cultural difference, weak learning ability	27	3
	strong influence of adverse social and competing environment	24	4
	Judging ability do not match referee level	23	5
	lack of professional ethnic	17	6
	unbalanced age structure	6	7
current national level referee training system	different emphasis on referees by different provincial and municipal sports bureaus	66	1
	monotonous training form	53	2
	uneven geological distribution of training	40	3
	imperfect incentive and disincentive systems	32	4
	imperfect assessment system	30	5
	focus much more on theories than on practices	23	6
current national level referee competition system	selection, training, assessment, supervision institutions do not constitute a dynamic system	72	1
	lack of self-management platform, which result in passive reception of management	50	2
	lack of quantitative indexes and incentive and penalty system	43	3
	referee management positions are relatively fixed, which lack competing and elimination systems	39	4
	government regulation does not separate from management, and usually one person alone has the say	21	5

Chapter 5. Discussion

5.1. Summary of Findings

The main purpose of the study is to gain a better understanding of the current situation of national taekwondo referees in China. Through analyzing the data of the survey and interview of the experts, the results of this study support the idea to identify current issues of referee's demographics, training & competition system, and the essential factors of refereeing performance. The findings help explore a better referee administration system that may influence elite refereeing performance and promote sound development of the national referee's team building.

According to the survey, there are prominent problems of demographics of taekwondo referees: uneven geographical distribution of national referees, imbalanced male-to-female ratio, a lack of young referees and relatively low ability of English and research, which impedes national referees from further improvement and gearing up to international standard.

Administration of referees' training encounter prominent problems as follows: annual training cannot meet the demand of referees and requirement by competitions, training content is incomplete and its focus inconsistent with international referee training, channel and form of training

is simple, effective solutions to difficulties in understanding rules haven't been found, imperfect institutional setting and failure to perform duty.

The main problems of competition system reveal that: No one recognizes "appointment by chief referee", which is the most widely used approach in conventional games on selection of on-the-spot referees. Majority of referees are unsatisfied with remuneration standard. Trust in referees lays the foundation for referee administration, however, trust cannot replace penalty, as 78.7% respondents believe penalties need to be more severe.

Regarding key factors that influence referee performance, generally, national referees are concentrated but their nervousness and stress tolerance fluctuate. Lack of refereeing experience and hard to identify penalty criteria of rules, while iniquity agreement between referees and biased inspirations from leaders are the other key factors.

Wrap these all together, the study highlights that there are four key aspects of referee issues. Enhancing the administration of referee training and competition can facilitate referee team building and refereeing performance. Conversely, referee team building and refereeing performance can measure and assess the efficiency of referee training & competition

administration. The study probes into the interactions of four interrelated causal feedback loops concerning overall quality of referees (See Figure 9).



Figure 9. Interrelated Causal Feedback Loops of Referee Administration

5.2. Discussion the Novelty of the Findings

5.2.1. Referees' Team Building

Targeting at the findings of referee's team building, the paper proposes changes from sports administration perspective as follows:

Firstly, national policies should emphasize cultivating referees from regions where taekwondo is underdeveloped and young and talented referees, offer them more opportunities of training and refereeing matches,

and observe the training principle of “Stressing Overall Picture and Making Reasonable Plans”.

Secondly, optimize age structure of the refereeing team, encourage senior referees to “pass on, help and lead” the young, give more opportunities for young and middle-aged referees to officiating at important positions during the game, emphasize on cultivating backbone referees, consolidate referee reserves and gradually establish “pyramid” structure of the refereeing team.

Thirdly, establish Women’s Referee Committee under CTA by reference to development of gender equality planning of IOC, research effective training plans for female referees, and promote gender equality program through taekwondo referees. Fostering gender equality and strengthening women’s participation in, and through, sport is one of the key missions of the International Olympic Committee (IOC). Gender equality and innovation are key principles contained in Olympic Agenda 2020, the IOC’s strategic roadmap for the future of the Olympic Movement (the IOC, 2015).

Fourthly, English training of referees should observe the principle of “walking on two legs”: on one hand, we should improve English capability from the grass-root level and select talents from young referees for key

training; on the other hand, we should attract talents who are good at English and interested in refereeing into the team of national referees, focus on improving their officiating skills, provide more practice opportunities for them, help them grow fast into international referee reserve with the ability of refereeing in international competitions, and encourage the whole team of national referees to follow the example and improve English. This strategy is consistent with WTF Referee Chairman's comments on Chinese national referees: "The only problem I always experience is the English language. I have met many talented referees with high skills, with excellent games management but their English skills are not enough. I am very sure if they study English they will be as good as our Chinese international referee colleagues which are among the best referees in the world." Besides, the author suggests taking various forms to establish national research groups on academic exchange system of refereeing.

5.2.2. Referees' Training System

Training can provide specific skills, knowledge and expertise that will not come from any degree-level courses and will still be essential for sports administrators in the work situation (Watt, 2003). The need for training is often identified regardless of whether a person already possesses a qualification, a degree or even a post-graduate award (Watt, 2003).

Training should be designed to meet the needs of the referees and the requirements of the competition. Referee's training administration should focus on the product – the referee's ability to perform is often seen as the end product in terms of training administration. The impact of the training must be helpful to the referees, the organization, and the whole taekwondo industrial attitude towards sports administration. These are compatible with the findings of Hang In-jae (2007), who groped that the training development plan and the revision of education course of referees are regarded as the improvement plan of taekwondo referee training administration system.

One novelty of the findings is that referee training administration should follow three effect laws:

Accumulative effect law of referee training: growth of a referee is an accumulative process that needs time and experience. Appropriately increasing training times and refereeing opportunities can help referees widen range of experience and improve skills, which further enhance refereeing capabilities of them.

Succession effect law of referee training: receiving learning guidance from teachers or masters help avoid detours and yield twice the result with half the effort. Employing sophisticated refereeing experts and

senior international referees can set standard and examples for national referees through their sharing of understanding of theories, rich refereeing experience, novel teaching method and keen trend analysis of rules. Therefore, provision of teachers is an effective way to improve training quality.

Expectation effect law of referee training: expectation effect is an important discover of modern incentive management theory. According to this theory, driving force of a person to be engaged in certain work or to adopt certain behavior originates in his expectation of results of the behavior, which includes motivation, hobbies, success and other factors. Psychologists believe that motivation is the subjective reason that drives people to act and the psychological status in which individuals initiate and maintain their behavior. Because all taekwondo referees are amateur, refereeing will take up time for their own job and for leisure. Therefore, without clear motivation and strong interest, it is hard to go through tough training and laborious refereeing. For taekwondo referees, they hope to combine development in their own career with contribution to refereeing and deliver fruitful results. Besides, interest is an important factor that influences self-consciousness and enthusiasm during the training.

5.2.3. Referees' Competition System

The findings of referee's competition system from sports administration perspective with induction mainly encounter the following problems:

First, contradictions in "staff and affairs management". Referees are under dual leadership of CTA and their employers. Separation of "career" and "*hukou*" adds more difficulties to referees' competition administration. In actual work, to meet the requirement of games, referees' skills are usually improved through pre-competition training. Referees have contact with CTA only when receiving officiating tasks, so there is a lack of necessary and regular communication between the two.

Second, simple mechanism of referee's competition administration. CTA and provincial and municipal sports bureaus take charge of studying and deciding referees and keep a tight hand on the power, while referees are basically passive receivers and executors of instructions. It's hard for referees to give feedback to administrators, in other words, the simple vertical administration results in deficiency of feedback mechanism. Rule of man overrides rule of law. Selection and appointment of participating and on-the-spot referees reflect "the will of leaders". Without objective evaluation criteria and sound competition environment, it is hard to

implement the competition mechanism of “survival of the fittest”. Referee’s competition management should require registration, qualification and grade verification, setting inspection panel to conduct comprehensive assessment on referees’ officiating performance, scope of authority, observance of discipline etc., and adoption of open, transparent and competition for posts management mechanism. Moreover, the author highlights the importance of technology. As we all know, the appointment of referees to matches is one of the most basic yet important tasks for any referee association. Given the numerous inter-relationships and interactions among the stakeholders, it doesn’t take a great deal of thought to realize that the referee appointment process is an extremely complex operation. For example, to assist WTF referee chairman carry out this challenging but vital task, a computer software system – the Referee Appointment System – has been developed to help coordinate, organize and control the appointment of referees to matches. Objective, proper and diversified selection and appointment method of referees should established based on combination of WTF’s advanced model and China’s realities. This is almost the same to the findings of Rene Leveaux (2012) who elaborated that differing information technologies have been introduced into sports with differing levels of success and is now reasonably well received as part of the game.

Third, supervision and penalty implementation not in place. As long as referees officiating at matches, they may impose wrong or missed sanction. Regulations on supervision and sanction of referees aim at restraining this phenomenon to the minimum extent and decreasing unfairness and loss of athletes as a result of refereeing factors to the minimum. Non-standard and non-rigorous supervision and sanction of referees are represented by unreasonable setting of supervisory body, irregular supervision measures and inconspicuous penalty results. For instance, *Ordinance on Penalty of Referee's Competition* provides upgrading and downgrading of referees, but in actual practices, once national or even international grade has been gained, the referee will always hold the grade, even if he commits major mistakes. There hasn't been any case of downgrading. The "lifelong tenure" impedes referees from raising awareness and skills, making them easily become self-content and disincentive for progressing. The Referee Committee under CTA takes charge of referee training, selection and management, as well as appointment of on-the-spot referees, supervision and imposing sanction. The power is over-concentrated. Establishing independent referee supervision agency should be considered, i.e. Setting Competition Supervision Committee consisting of recognized senior referees and experts,

so that the two committees can supervise each other meanwhile both under the leadership of CTA.

5.2.4. Elite Refereeing Performance

Most of the literature on sports officials has investigated samples of referees merely described as qualified (D. R. Mascarenhas et al., 2005). This study highlights findings, which may be more reliably generalized to elite refereeing performance rather than qualified. Collecting different sources of data from a variety of national taekwondo referees; identify the essential subjective & objective factors that may influence refereeing performance and assist to develop a framework for refereeing performance for Chinese realities in the future.

According to the research, subjective factors that influence refereeing performance include:

Understanding and application of rules. Different understanding of competition rules and code of arbitrage results in non-uniform scale of penalty.

Refereeing experience. Each decision-making by referees is based on their accumulation of refereeing experience, including selection of position and movement, accurate judgment of scoring movement and foul behavior as well as overall control of the competition. To some point, our

results are similar to Ripoll (2009) who determined that judgment is the application of logical functions which make it possible to find a solution, while decision-making is taking what seems to be the most suitable solution from a number of solutions through experience.

Psychological state on-the-spot. Stability of refereeing psychology and concentration on matches reflect a referee's psychological quality and influence his performance. In terms of the relationship between referee's psychology and performance, which is consistent with the previous research which emphasized the potential importance of stress control as a key factor in referee performance is somewhat speculative (D. R. Mascarenhas et al., 2005).

Professional integrity of referees. Though refereeing capability is not directly linked with professional integrity, but refereeing performance will be constrained by interpersonal relations or influenced by interests during the match. Referee's morality goes through severe test and will indirectly influence his performance.

Objective factors that affect refereeing performance focus on environment of the competition, industrial ethos and administrative mechanism. Some leaders in charge of referees haven't got rid of the old habit of match fixing, do not lead by example and directly deteriorate

industrial ethos. Moreover, imperfect administrative mechanism leads to unhealthy ethos as well: sports teams always want to seek preferential refereeing through various channels. And improper “mutual help” phenomenon prevails among referee teams.

Besides, it was also found that from the national governing body’s (NGBs) perspective, referee administration typically involves passing some form of fitness test and a written test on the laws of the game. Clearly, these two attributes, physical fitness, and knowledge of the law are critical to the referee’s performance (Mascarenhas et al., 2005). Yet, while generic fitness assessments such as the multi-stage fitness test (Ramsbottom, Brewer, & Williams, 1988) may provide a crude measure of a referee’s ability to keep up with play, and pencil and paper tests may examine knowledge of the written law, very little has been done to assess and develop the other, arguably more important aspects of referee performance, such as how to apply this knowledge of the law (Mascarenhas et al., 2005) .

5.3. Implication

The findings from this study have implications for referee administration of different types of human-scoring competition events. To a certain extent, it is found that the evolution for referee administration is not static, and it keeps going on with no "stop button".

Through interview from WTF referee chairman's comment, in order to reach high level of fairness and transparency, the training program to educate referees need to be improved. WTF looked into how to unify the criteria for the rules and regulations, how to explain all the prohibited acts in the most simple and easy way to make the understanding and the application of the rules more consistent. Development of new software to train and educate the referees took place, where the referees could practice and develop their reaction time; their ability to react even more quickly and to improve their scoring simulation ability. WTF also established an efficient physical training program to keep the referees in a good shape. The referees must be fit and have a good physical health. WTF created different physical tests as well in order for the referees to know at which level they are expected to be at. Following the guideline and requirement of referee training from WTF, the study provides a standard or direction of international level compared to the national level in China.

In addition to the implications for referee administrator involved in referee's competition administration, the study offers implications that three aspects should also be considered in operation:

First, to follow "people-oriented" principle. Administrative measures and supervisory regulations are specially set for referees. Therefore, they

should be referee-oriented, considering feelings and pride of referees, specifying incentives and disincentives and be fair enough.

Second, to avoid the phenomenon of “power rent-seeking”. Even the best referee management system still needs to be implemented by executors. Referees officiate at matches and meanwhile being supervised by higher authorities. Either sports teams or referees, once making mistakes, want to trivialize them, so implementation of supervision may be influenced by interest groups. The author suggest strengthening supervision by media and the public opinion, which help achieve transparent power of law-executors and minimized power rent-seeking and interest exchange space.

Third, to avoid “butterfly effect” triggered by minor mistakes. “Butterfly effect” is used to describe a superficially minor and unrelated thing may bring huge change. It enlightens us that details are critical in determining the success or failure. Measures of referee’s competition administration are linked with one another. Problems occur in any linkage may result in malfunction of the whole referee’s competition administration system. Therefore, only full communications with referees during assessment and objective reflection of realities during assessment can guarantee effective implementation of the administration. For instance, as referees represent officials appointed by the CTA, the first impression of the

CTA is the one that the referee provides, either on or off the competition field. Therefore, standards of dress and appearance are intended for referees traveling to and from a match, for the referee instructor while teaching any course or training program, and for the referee assessor while evaluating or assessing a referee performance.

In terms of international level of referee's competition administration, the director of WTF Sport Department concludes that the most requests from international referees are related with their promotion which is big motivation for referees to. He always thought one of his important tasks was to find talented referees and give them opportunity to show their talents. During the competition in major championships, by using randomized referee assignment system, WTF put experienced referees and those new ones in match, and evaluated their performance. As a referee administrator, he believes providing fair chance to referees is the essential one.

As WTF sport director commented in the interview: "Yes, I believe it is important to strengthen the referee administration. For example, we will start Referee Ranking System from 2016, which I believe that we will have more accurate and fair system for selection of referees, and I believe this can influence refereeing elite performance in the competition."

Particularly, taekwondo referees in China are amateur, but this study highlights findings based on analysis of current situations of national referees against the performance requirement of global high-level professional referees. China can compare and learn from the popular previous study: “The Cornerstones Model of Refereeing Performance”, as a standard of assessment to Chinese amateur referee’s performance as well as Chinese taekwondo national referee’s training & competition administration.

Once a model is in place, it is then crucial to design performance measures. These measures should be able to precisely identify and quantify specific indicators of success or failure. Sometimes it is difficult to put a number on a measure (Russell, Aaron, 2015). In summary, at the start of any structured support program there is a clear need to understand the environment in which the performers are operating (Anderson, 2000).

5.4. Limitations

As any research has certain limitations, our study probes into a limited perspective from the national level taekwondo referees, there is no objective comments from the other Chinese taekwondo people, typical sports officials, athletes and coaches on the point of views of the study.

In addition, the research targeting groups are 108 national referees who have participated in the competition 2015, which are not in the scope of the whole 218 national referees registered at the CTA.

5.5. Future Research Recommendations

The results of the study could serve as a useful foundation model for the references of other sports referee's administration perspective in China. It also provides a mirror to the CTA and WTF upon which specific elite referee's decision & skills training and research programs could be further developed, which facilitates the referees to focus on promoting better decision making, a fairer competition platform and subsequently improved players performance.

Refereeing performance is crucial to the success of the match. Therefore, a further research on identifying the main factors of taekwondo refereeing performance in China should be conducted in details comparing with "The Cornerstones Model of Refereeing Performance".

More studies should also be constructed to examine the potentiality of the applications of referee's training and competition administration, and there is need to develop the survey instrument to measure the influence of referee administration to the refereeing performance and referee team building.

5.6. Conclusion

Sports referee is not a new phenomenon in the research area and captured attention of numerous scholars and researchers. However, the very limited research was conducted with the focus on referee from sports administration perspective. The uniqueness of this study is characterized by two main points. It provides insight into the analysis of referee's current demographics, training & competition system and refereeing performance from sports administration perspective first, and second analyze the importance of relationships among them.

The study revealed the characteristics of demographics of referees, the barriers and malpractices of referee's training & competition system, and the key factors of influencing refereeing performance in China. Likewise, it proposes a standard of assessment of elite refereeing performance, which can also measure the administration of referees.

In summary, at the start of any structured support program there is a clear need to understand the environment in which the performers are operating. In particular, the study probes into the interactions of four interrelated causal feedback loops to better understand the nature of the development of taekwondo referees. The findings of this study attach great importance to the administration of referee issues. It provides evidence that

there is a need to enhance referee's administration as it influences referee's team building and refereeing performance. Provide efficient administration of referees is critical because it designs the actual environment and contributes to the policies approaching as close as practicable to rationalities.

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Appendix: Questionnaire

Introduction of a Survey to National Taekwondo Referees in China

Study Information Sheet

A study of status quo and development strategy of national taekwondo referees in China.

You are cordially invited to participate in a research study. We ask that you read this form and ask any questions you may have before agreeing to be in the study. The study is being conducted by Mr. Si Liang in the Dream Together Master Program of Global Sport Management of Seoul National University.

Study Purpose

The purpose of this phenomenological study is to have a deeper understanding to the current situation of national taekwondo referees in China, to explore the key factors of referee issues from sports administration perspective, and to provide practical applications to improve referee's team building and elite refereeing performance.

Number of People Taking Part in the Study

If you agree to participate, you will be one of the 108 subjects (All National level Taekwondo Referees in China) who will be participating in this research.

Procedures for the Study

If you agree to be in the study, you will do the following things:

The procedures involve filling out questionnaires. You understand that your participation will require approximately 20 minutes. You will be asked about your attitude toward Taekwondo refereeing training system and management policy. Example question includes: “I participate in national referees’ seminar for training because it may help me make progress.” The sample for the main study will aim to include all the 108 national Taekwondo referees in China.

Benefits

There are no potential benefits to study participants beyond participating in research that will further develop their knowledge of research methods.

Alternatives to Taking Part in the Study

An alternative to participating in the study is to choose not to participate.

Confidentiality

All information collected in this study is confidential to the extent permitted by law. You understand that the data you provide will be grouped with data others provide for reporting and presentation and that your name will not be used.

Contact

If you have questions at any time about the study or the procedures, you may contact the researcher, Mr. Si Liang, +86-13511011497, +82-10-71028898 and chinataekwondo@sina.com

Voluntary Nature of Study

Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. Leaving the study will not result in any penalty or loss of benefits to which you are entitled. Your decision whether or not to participate in this study will not affect your current or

future relations with the investigator(s). If you withdraw from the study before data collection is completed, your data will be returned to you or destroyed.

Thank You

Thank you for taking the time to participate in my survey. It is very important to me to get your opinions.

A Questionnaire for Study of National Taekwondo Referees in China

Information:

1. Gap Filling: please fill in the gaps “_____”.
2. Multiple Choice: please select the most appropriate option and tick “√” in corresponding letters.

I. Demographics of Referees

1. Gender _____ Age _____ Height _____ Weight _____
Referees representing _____ (provinces, municipalities, industrial associations, sports colleges and universities)
2. Your highest educational degree (obtained or still studying for)
A Technical secondary school or below B Junior college
C Undergraduate D Master E PhD
3. Your current job:
A School teacher B Administrative staff at Sports Bureau C Professional coach of sports teams D Administrative staff at enterprises and public institutions E Individuals (curators of taekwondo gymnasium, coaches)
4. Which administrative region does the institution you represent belongs to?
A Eastern China (including Shandong, Jiangsu, Anhui, Zhejiang, Fujian and Shanghai)
B Southern China (including Guangdong, Guangxi and Hainan)
C Central China (including Hubei, Hunan, He’nan and Jiangxi)
D Northern China (including Beijing, Tianjin, Hebei, Shanxi and Inner Mongolia)

E Northwestern China (including Ningxia, Xinjiang, Qingdao, Shaanxi and Gansu)

F Southwestern China (including Sichuan, Yunnan, Guizhou, Tibet and Chongqing)

G Northeastern China (including Liaoning, Jilin and Heilongjiang)

5. What's your attitude toward refereeing:

A Strongly dislike B Dislike C Just so so D Like D Strongly like

6. The main reason for your being a referee:

A job requirement B employer's task C to make a living D hobby

E to make friends F to contribute to training excellent athletes for our country

7. How many years have you been a referee?

A less than 3 years B 4-6 years C 7-9 years D 10-12 years

E above 13 years

8. What kind of Taekwondo training and competition do you have?

A none B only amateur training and competition experience

C have professional training and competition experience

D scored the third or above prize in national professional competition

E scored the third or above prize in international professional competition

9. How many academic papers about taekwondo have you published?

A none B 1-3 C 4-6 D 7-9 E above 10

10. Your English competence:

A haven't passed any competence exam B PETS 4 or below C PETS 4

D PETS 6 E TEM 8

II. Training System of Referees

1. How many exams for national level referees have you attended before gaining the qualification?

A Once B Twice C 3 times D 4 times E 5 times

2. In your opinion, how many times is it appropriate for a national level referee to attend professional training (including pre-competition training) per year?

A Once B Twice C 3 times D 4 times E 5 times

3. Which aspect do you think should be emphasized during pre-competition training of referees?

A Explanation of rules and theories B Independent simulation and exercise
C Actual practices D Refereeing experience sharing
E Video analysis

4. Through what channel mainly do you gain latest development of taekwondo refereeing rules?

A Internet B Newspapers & magazines C Communications among referee
D Centralized training of referees E Others _____

5. What's the most difficult part to master during your training?

A Basic theories of competition B Competition rules and refereeing methods
C Responsibilities for referees' D Ethnic education for referees
E Taekwondo techniques F Judgment and penalty scale
G Case study of videos H Schedule arrangement and competition recording

Satisfaction Survey of the Referee Training System

Strongly dissatisfied unsatisfied hard to tell basically satisfied strongly satisfied

6. The training suits current need of project development

7. The Referee Committee is well-established and performs its duty
8. The training program is scientific and fully implemented
9. The faculty
10. Scientific course design and teaching method

III. Competition System of Referees

1. In your opinion, is it fair in terms of selection and appointment of national level referees for the national competition?

A not at all B not that fair C just so so D fair E very fair

2. What do you think of the remuneration of taekwondo referees domestically?

A low B relatively low C just so so D relatively high E high

3. Are you satisfied with current travel expenses and accommodation standard of taekwondo games in China?

A not at all B not that satisfied C just so so D satisfied E very satisfied

4. Are you satisfied with design and color of referee uniform?

A not at all B not that satisfied C just so so D satisfied E very satisfied

5. To strengthen management, do you think it's necessary for the referees to hand in cellphones during games?

A not at all B not that necessary C doesn't matter D a bit necessary
E absolutely necessary

6. What's your employer's attitude toward your being a referee in games?

A oppose B not that support C a little support D support
E strongly support

7. What do you think of the implementation of referee assessment and supervision mechanism?

A completely ineffective B ineffective C just so so D effective

E perfectly effective

8. What do you think of the punishment for referees who make mistakes?

A not serious at all B not that serious C just so so D a little serious

E serious

9. In your opinion, is inviting high level foreign referees to co-referee in China helpful for improving the performance of national level referees and the fairness of competitions?

A extremely unhelpful B unhelpful C just so so D helpful

E very helpful

10. What do you think is the best approach to select and appoint referees for a match?

A random selection B appointment by the referee chairman

C combination of new and experienced referees

D referees divided into groups and circular appointment of the groups

E combination of random selection & appointment based on match progress

IV. Refereeing Performance

1. To what extent are you familiar with the competition rules before the games?

A Ambiguous B Not familiar C Just so so D familiar E very familiar

2. To what extent are you nervous during refereeing?

A not at all B not that nervous C just so so D a little bit E very nervous

3. To what extent are you concentrated during competitions?

A not at all B not that concentrated C just so so D concentrated

E strongly concentrated

4. To what extent are you accurate when you are imposing penalties as a center referee or recording points as a corner judge?

A not at all B not that accurate C just so so D accurate

E completely accurate

5. To what extent do you think the overall refereeing performance of national level referees matches their “national level” title?

A not at all B not that match C just so so D match E perfectly match

6. During a national level competition, how many times have you imposed erroneous or missed sanctions?

A none B 1-2 times C 3-4 times D 5 times E over 5 times

7. During national competitions where you are one of the referees in the past years, how many times have your original judgment been changed by the Board of Arbitration upon appeal?

A none B 1~2 C 3~4 D 5~6 E over 6

8. What endogenous factors do you think affect refereeing performance? (by importance)

A biased refereeing motivation B hard to identify penalty criteria

C hard to set unified score standard D lack of refereeing experience

E weak immunity capacity from interferences and psychologically handicapped

F ambiguous about scoring skills and techniques

G hard to concentrate due to lack of rest

H unfamiliar with electronic scoring system

_____、_____、_____、_____、_____、_____、_____、_____

9. What exogenous factors do you think affect refereeing performance? (by importance)

A inspirations from competent leader B agreement between referees

C requirement by sports teams

- D signs given by or pressure imposed by onsite coaches
- E audiences stir up trouble or provoke chaos
- F requested by someone who affects your economic interests
- G prejudiced by first impressions of excellent athletes
- H worried about offending well-known coaches

____、____、____、____、____、____、____、____

10. What do you focus on when you are not refereeing in a particular competition? (by importance)

- A gestures of and penalties imposed by center referee
- B score recording by corner judges
- C technical performance of athletes
- D features of coaches' present command
- E competing results of the your institution or entity
- F behaviors of competent leader
- G interpersonal relations between referees and sports teams

____、____、____、____、____、____、____

V. Problems and Suggestions

1. In your opinion, do professional skills of current national level referees meet the requirement of events development and competition level?

A not at all B not that meet C just so so D meet E completely meet

2. What do you think are main problems of current national level referees? (multiple choices allowed)

- A referees lack experience and exchanges
- B weak professional skills
- C Judging ability do not match referee level
- D large cultural difference, weak learning ability

- E unbalanced age structure F lack of professional ethnic
- G strong influence of adverse social and competing environment
- H Others _____

3. What do you think are main problems of current national level referees training system? (multiple choices allowed)

- A focus much more on theories than on practices
- B monotonous training form
- C uneven geological distribution of training
- D different emphasis on referees by different provincial and municipal sports bureaus
- E imperfect assessment system
- F imperfect incentive and disincentive systems
- G Others _____

4. What do you think are main problems of current national level referees management? (multiple choices allowed)

- A government regulation does not separate from management, and usually one person alone has the say
- B selection, training, assessment, supervision institutions do not constitute a dynamic system
- C lack of quantitative indexes and incentive and penalty system
- D lack of self-management platform, which result in passive reception of management
- E referee management positions are relatively fixed, which lack competing and elimination systems
- F Others _____

5. Please talk about suggestions for sustainable development of taekwondo referees in China. (no words limit)

국문 초록

중국태권도 심판의 현황에 관한 연구: 스포츠행정가의 관점을 중심으로

Liang Si

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중국에서 태권도 인구가 점차 늘어남에 따라, 태권도 심판의 역할이 더욱 강조되고 있다. 이와 같은 현상에도 불구하고 태권도 심판에 관한 이슈는 스포츠과학 혹은 체육교육맥락에서 연구가 미진한 실정이다. 특히, 관리자의 관점에서 태권도 심판의 환경을 살핀 연구는 없다.

이에 이 연구는 현재 중국 내 태권도 심판의 인구통계학적 특성, 심판 교육 및 경쟁시스템의 현황, 심판활동에 주요하게 작용하는 요인은 무엇인지 등을 살핌으로써 심판을 관리함에 있어 어떤 부분에 주력해야 하는지를 알아보고자 한다. 이를 통해 궁극적으로 전문

심판의 성과 및 심판 팀 구축에 발전을 위한 노력을 어느 부분에 특히 신경 써야 할지를 알아보고자 한다.

이 연구는 위해 서베이 조사를 통한 질적 연구방법으로 진행되었다. 설문은 2015년 국내 태권도 시합에서 활동한 108명의 심판을 대상으로 진행했다. 총 45개 설문문항으로 심판의 인구통계학적 특성, 훈련 시스템, 경쟁시스템, 심판 성과 등을 물었다. 기술분석을 통해 데이터를 분석했으며, 연구 결과의 타당성을 높이기 위하여 인터뷰도 함께 진행했다.

이 연구의 결과를 통하여 심판을 둘러싼 행정시스템의 중요성을 강조할 수 있다. 행정시스템의 정형화된 기준설정이 심판의 팀 구축 및 전문체육 무대에서의 질 높은 활동에 크게 기할 수 있다. 분석결과 태권도 심판의 질을 향상시키기 위한 최적의 조직환경에 대한 정답은 정해져 있지 않으며, 수치화 할 수도 없다. 이에 이 연구에서 밝히고자 했던 4가지 기준 간 상호 중복되기도 하는 모습을 보였지만, 이는 역동적으로 이루어지는 실제 사례에 대한 심도 깊은 이해를 위한 일환이었다.

결론적으로 태권도 심판의 전반적인 질을 높이기 위해서는 제반 시스템 및 환경에 대한 정비가 정형화되어야 한다는 함의를

가진다.

주요어: 태권도 심판, 스포츠행정, 심판 관리

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