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스포츠 매니지먼트 석사 학위논문

The application of importance-performance analysis (IPA) to the management of Icheon training center

IPA 기법을 통한 이천훈련원 운영 분석

2018년 8월

서울대학교 대학원

체육교육과

권혜진

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Abstract

The application of importance-performance analysis (IPA) to the management of Icheon training center

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The purpose of study focused on the development of service quality in Korea Paralympic Committee Icheon Training Center. This study provides the basic materials to help the development of sports for people with disability with more efficient and convenient operation of center in the future through the application of Importance-Performance Analysis to the management of .

In order to achieve this study's purpose, the valid 106 replies(87%) were collected after surveys were conducted inquiring the importance and performance level by selecting a study population of the national team athletes and coaches using the Icheon Training Center. The statistically

significant level was set as α=.05, and by using SPSS 18.0, frequency analysis and construct validity were verified, and for factor analysis and reliability verification, Cronbach's α coefficient was calculated. And for the difference verification of IPA, paired sample t-test was conducted, and the result were as follows.

Quadrants 1 shows selected attributes of Icheon Training Center displaying high importance and low performances, five selected attributes(13%) - sound absorption equipment, insect and disease control and the role and service of guidance commissioners, quick resolution of inconvenience, different menu selections by each sports category – meaning that the performance is not on par with the importance that is recognized for these and thus needs better management and improvements as they should be prioritized so that they can move towards Quadrant 2 in the future.

Quadrant 2 displays the highest concentration of selected attributes with 20(53%) located in this quadrant. In particular, seven selected attributes – clean lodging, the professional knowledge of physical therapists, atmosphere and sanitation of cafeteria, the professional knowledge of athletic trainers, accessible facilities of person with disability for lodging and amenities, taste and quality of food, service of sports medical center –

displayed performance scores exceeding 4.5, and thus showed the highest performance.

Quadrant 3 includes ten selected attributes(26%) – education on nutrition management, assignment of female guidance commissioners, shuttle bus for entering and exiting the training center, weekend shuttle buses, leisure facilities, human rights counseling for athletes, dispatch cycle of counselors (twice a week), location of counseling offices, English education, concerts for leisure – are located in this quadrant, where the importance and performance are the lowest compared to other selected attributes.

Lastly, the permanent staff at the information desk, recycling and smoking areas, night-time operation of sports scientific center are attributes located in Quadrant 4, indicating that performance is high, while the importance level is low.

Keywords : Importance-performance analysis, Icheon training center, Professional Sports for People with disabilities, Korea National Team of Sports for People with disability

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Chapter 1. Introduction

1.1. Background

In Korea, the sports for people with disability has became known after the host of Seoul 1988 Paralympic Games. The sports for people with disability has developed rapidly as one of the professional sports due to the revision of National Sports Promotion Act. These social changes have brought the financial and environment support for the sport for person with disability and influenced the training environment. The expansion of budget for the sport for person with disability caused fostering and supporting the professional athletes and new players, training sports coaches and providing of sports science.(Ministry of culture, sport and tourism)

For the best athletic performance, the complex development is very important with improvement of player's physical functional ability through unceasing efforts and environmental factor like professional elite training facilities.(Choi, 2005; Han, 1999), In the past, professional players with disabilities have been trained in backward training center without lodging, barrier-free facilities or accessible training places for preparing to participate in the Games(Han, 2008). Under the poor training environment, players could not be trained with scientific system, it is almost impossible to

improve their performance. Due to these problems, it demands new professional training center for professional sports for people with disability like Korea Taereung National Training Center.(Kim, Cho, 2001; Kim, 2011; Lim, Park, 2005; Han, 1999)

Icheon Training Center has been opened in October, 2009. There are only 2 national training centers for person with disability in the world, Korea and China. It is possible that total 19 out of 29 sports events could be trained, 300~400 players can train simultaneously every year in Icheon Training Center(Korea Paralympic Committee, 2015). As well as there are cafeteria that could provide a more diversified diet for balanced nutritive control, sports medical center and sports science center that could support professional medical services with links to local hospitals. Those make professional athletes with disabilities to maintain their best condition.

Despite the facilities for the professional sports have a positive influence on the space that provides systematic and scientific training surroundings and supplies efficient training services, as well as there will be coexisted limited facilities, the number of players to be admitted and the lack of amenity for the handicapped together(Kang, 2002). Many athletes would be suffered from mental pressure and too much stress because they go through intensive training in an enclosed space for a long period of

time(Kim, 2007).

The yardstick of service quality is made up reliability that fulfils promised service correctly, materiality like physical infrastructure, equipments, human resources, documents, responsibility that is a strong will helping customers and providing service immediately, knowledge, courtesy, confidence, affection, perceptual openness of member of the staff(Baeck, Park, 2008; Jeon, Bae, 2006), Kim (2007) reported that the satisfaction of service quality influences one's repurchase intention including physical quality, human quality and quality of operation system.

For maximizing the athletes' performance of national teams, it is needed the improvement plan to enhance athletes' psychological stability and construct the optimum conditions for effective training by analyzing problems on professional sports training centers and facilities(Lee, Noh, 2016). Though it is difficult to find the research to improve various service quality of Korea training center for person with disability, just one research of "Survey on the degree of use satisfaction on Korea training center for disabled sports of Korea national disabled sports players(Park, 2013) ". Or these are with similar purposes; "Content Analysis on Support System Problems of Elite Sports for Athletes with Disabilities(Kim and Seo, 2014)", "Development of Measurement Instrument and its Validity for a Demand of

Support Services of Athletes with Disabilities(Cho, 2010)". In case of Korea Taereung National Training Center, there are some theses ; "Improvement on Operation of National Training Center(Kang, Lee, Yoon, Park, Lee, Lee, Jun, Shin, 2002)" and "A Comparison study of Sport Facilities in Advanced Countries and Korean National Sports Training Centers(Kim, 2009)". "User of Importance-Performance Analysis for the Efficient Operation of National Sports Center(Koo, Yoon, 2013) " is the first try applied Importance-Performance Analysis in Korea at sports center' service.

In conclusion, this study accessed the problems and improvement plan of management of Korea Icheon Training Center for person with disability applying Importance-performance Analysis(IPA) to measure the importance of the optimum training surroundings from players' services satisfaction and viewpoint and do a survey targeting national team athletes with disabilities to set prioritize factors to improve training environment. The findings from this research can provide information for managers who are working in the center to check out weak points and carry out appropriate plan for further service improvement.

1.2. Purpose

The main purpose of the present paper is to illustrate the usefulness of IPA, for the management of Icheon Training Center, providing a better

understanding of their functioning and a quick identification of the improvement areas.

This study focused on the development of service quality in Korea Paralympic Committee Icheon Training Center. This study has the purpose that provides the basic materials to help the development of sports for people with disability with more efficient and convenient operation of center in the future through the application of Importance-Performance Analysis to the management of .

1.3. Research Questions

To obtain this study's purpose, the major research problems are followings.

RQ1. What is the importance of selected attributes of Incheon Training Center?

RQ2. What is the performance of selected attributes of Incheon Training Center?

RQ3. What is the result of priority analysis among importance-performance of selected attributes of Icheon Training Center?

1.4. Limitation

To obtain this study's purpose, the limitation of research are

followings.

First, there are limitations to generalizing the results of this study as this research is not based on the total population of users of Icheon Training Center.

Second, respondents who answered all the items in the survey indicated that all attributes of Icheon Training Center have different understanding.

Third, there are limitations as there may be key factors that affect the importance and performance of Icheon Training Center selected attributes.

Chapter 2. Review of Literature

2.1. Professional Sports for People with disabilities

Sports for people with disability enables physical, mental, social, and emotional development of person with disability through sports. It involves appropriately transfiguring all sports activities for person with disability or developing tailored programs to allow physical activities. In other words, sports for people with disability represents all physical activities that person with disability can take part in.(Choi, 2004)

Sports for people with disabilties is organized internationally by some sport federations (each has a responsibility to a component structure of member nations) that body a sport event schedule of disability-specific groups. The International Paralympic Committee has responsibility to organize the Paralympic Games and the World Championships for respective Paralympic sports such as athletics, power lifting, dance sport, shooting, swimming and winter sports.(Carwyn and David, 2005)

In the 1980s and 1990s, some people with disability took part in their athletic ability in the sporting arena. Some achieved in the non-disability sport world, while others achieved in disability sport. They have been called "Athletes with disabilities".(Karen, Disability sport, 1995)

People in disability sport compete in a discipline of the sport, specifically for people with disabilities; but these sports are no less valuable or athletic than sports for persons without disabilities. Many of the disability forms of the sport use rules identical to those of the traditional form of sport. Paralympic Games are competitive sport for elite-level international athletes with various physical disabilities, including amputees, visually impaired, dwarfs, athletes with cerebral palsy, and athletes who compete in wheelchairs. The Paralympic sport emphasizes on competition and athletes' performance. These elite athletes compete for their nations just like Olympic athletes.(Eli and Mary, Sports for athletes with disabilities, 1995)

Korea's sports for people with disability started off as a means of rehabilitation for the wounded veterans of the Korean War in 1950s and the Vietnam War in the 1960s, with sports activities intended for treatment purposes, along with setting physical education curriculum in special schools and opening disability sports competitions.(KPC, 2015)

Initially, disability sports had limits in its prosperity because of the lack of understanding of the field and government support, and only perceiving it in the treatment or rehabilitation aspect. Especially, there were limits in expanding sports activities to person with disability populace as a whole because disability sports was governed by the Ministry of Health and

Welfare. To expand disability sports activities to more disabled people, the government transferred all works regarding disability sports to the Ministry for Sports, Culture and Tourism in order to secure expertise. To do so, the government revised the National Sports Promotion Act on July 29th, 2005 to lay the legal grounds and established the Sports & Culture for person with disability Division (the current Sports for person with disability Division) under the Sports Bureau of the then Ministry of Culture and Tourism (the Current Ministry of Sports, Culture and Tourism) to head the affairs. Additionally, each local district office transferred all works responsibilities regarding disability sports from social welfare branches to sports ones.

Based on the National Sports Promotion Act (Art. 34), the Korea Paralympic Committee was founded (November 2005) which oversees sports for all, professional sports, and international sports, and focuses on the professional sports promotion projects to cultivate athletes and enhance their competitiveness.

2.1.1. National Games Support

The national games support project is a professional sports fostering project that annually supports athletic affiliates to enhance athlete performance and discovering excellent talent. From 2008 to 2015, the project supported an average of roughly 70 competitions per year, and since

2011, differentiated support were provided to each sport based on the evaluation results of the athletic affiliates. The project is the key for the disability sports that is involved in not only sports competitions for person with disability but also discovering and cultivating athletes for the Asian Para Games and Paralympics. Since 2014, the project was integrated with the professional talent cultivation support project and is currently being executed as the professional sports support project. Recently, the project's scope has been expanded to support integrated games that invite the participation of professional athletes, club athletes, and person with disability and non-disabled athletes. Table 1. shows the specifics of the support status by year.

Table 1. The status of national games support

Division	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
No. of Sports	12	26	22	24	26	25	30	30	32	29
No. of Domestic Competition	12	67	89	95	60	64	76	82	94	74

※ Source: Korea Paralympic Committee (2015)

2.1.2. Professional Talent Cultivation

To establish the foundational infrastructure for disability sports, cultivating judges and classifiers for each sport is required in parallel with discovering and cultivating disabled athletes. For athletes to concentrate on

the game and get good results in national and international games, training judges who are fair and allow smooth execution of games, and classifiers who are well-versed in the up-to-date international regulations and classification regulations were necessary. The professional talent cultivation project which started from 2006 had trained 1,900 professionals in 2015. Table 2. shows the status of professional talent cultivation by year.

Table 2. The status of professional talent cultivation

Year	Classifier	Referee	Total
2006	5	327	332
2007	37	1,095	1,132
2008	54	1,480	1,534
2009	42	2,268	2,310
2010	55	2,345	2,400
2011	137	4,058	4,195
2012	57	3,310	3,367
2013	103	3,036	3,139
2014	135	2,456	2,591
2015	99	1,801	1,900
Total	625	20,375	21,000

※ Source: Korea Paralympic Committee (2015)

2.1.3. Registered Athletes

Disabled athletes are those who are registered athletes to perform as athletes annually as a member of national sports federations for person with disability of the Korea Paralymic Committee. Athlete registration applications are submitted to the sports organizations of the local si(city),

gun, gu(small unit of counties), confirmed by the city and province

Sports Association for person with disability, and approved by the pertinent organization headquarters. Though the 29 sports organizations remained the same in both 2014 and 2015, the number of registered athletes decreased a bit from 15,337 to 14,786. The status of registered athletes per year and cities & provinces is as shown on Table 3.

Table 3. The status of registered athletes

No	Division	2013			2014			2015		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Total		14,601	11,180	3,421	15,337	11,639	3,698	14,786	11,146	3,640
1	Seoul	1,696	1,309	389	1,821	1,383	438	1,614	1,220	394
2	Busan	799	634	165	803	634	169	736	581	155
3	Daegu	993	747	246	858	619	239	752	552	200
4	Incheon	799	623	176	796	617	179	703	554	149
5	Gwangju	677	489	188	693	508	185	673	497	176
6	Daejeon	848	636	212	910	687	223	845	623	222
7	Ulsan	498	376	122	529	389	140	564	417	147
8	Gyeonggi	2,232	1,709	523	2,543	1,906	637	2,413	1,792	621
9	Gangwon	663	564	119	721	590	131	779	605	174
10	Chungbuk	931	692	239	961	727	234	857	660	197
11	Chungnam	706	533	173	896	670	226	975	728	247
12	Jeonbuk	665	527	138	679	529	150	739	563	176
13	Jeonnam	639	513	126	744	596	148	772	604	168
14	Gyeongbuk	927	664	243	908	668	240	841	621	220
15	Gyeongnam	1,041	810	231	1,060	819	241	991	754	237
16	Jeju	465	334	131	415	297	118	532	375	157

※ Source: Korea Paralympic Committee (2015)

2.1.4. Discovering and Cultivating Outstanding Athletes

The fostering projects for gifted and new athletes started in 2013 to find and train talented athletes 30 years of age and below as the next generation of national athletes who can perform in the international arena in preparation of the Rio 2016 Paralympics and the Pyeongchang 2018 Paralympic Winter Games. In 2015, the project supported the selection of 181 national athletes and 15 gifted/new athletes. Table 4. shows the ratio of new athletes of national team.

Table 4. The ratio of new athletes of national team

	Sports	Total No. of athletes of national team	No. of New athletes of national team	No	Sports	Total No. of athletes of national team	No. of New athletes of national team
Total		181	15				
1	Goalball	6	1	10	Power-lifting	8	-
2	Badminton	12	1	11	Judo	14	-
3	Boccia	13	-	12	Athletics	16	-
4	Shooting	14	1	13	Rowing	6	2
5	Cycling	2	-	14	Wheelchair Curling	5	-
6	Swimming	11	2	15	Table Tennis	23	-
7	Alpine skiing	4	1	16	Wheelchair Tennis	8	2
8	Ice Sledge Hockey	17	3	17	Wheelchair Fencing	4	-
9	Archery	14	-	18	Nordic skiing	4	2

※ Source: Korea Paralympic Committee (2015)

2.1.5. Fostering person with disability pro team

Person with disability pro team fostering project kick-started in 2012 not only to the training conditions of disabled athletes but also ensure economic stability via creating jobs. As of December 2011, 17 disabled pro teams (12 sports, 75 athletes) were operational. From 2012, a budget of 800 million Korean won has been designated to support 24 teams (existing teams, newly founded teams, and joining disabled athletes in the able-bodied teams), 10 teams in 2013 (800 million won), 11 teams in 2014 (800 million won), and 12 teams in 2015 (1.32 billion won). Consequently, as of 2015, there were a total of 53 active pro teams (18 sports, 205 athletes). The detailed status of pro teams per year is as shown on Table 5. and Table 6.

Table 5. The status of person with disability pro team by year

	2012	2013	2014	2015
Budget (Million Korean Won)	800	800	800	1.,320
No. of pro team by supporting	24	10	11	12
Total No. of pro team	29	38	47	53

※ Source: Korea Paralympic Committee (2015)

Table 6. The management status of person with disability pro team

	Sports	Number	Member Composition				
			Total	Head Coach	Coach	Trainer	Athlete
1	Wheelchair	2	23	2	1	1	19

	Basketball						
2	Wheelchair Tennis	4	20	4	3	-	13
3	Wheelchair Fencing	1	3	1	-	-	2
4	Wheelchair Dance Sports	1	5	1	-	-	4
5	Badminton	5	16	1	2	-	13
6	Boccia	1	7	1	1	1	5
7	Tenpin Bowling	2	4	-	1	-	4
8	Shooting	5	18	2	1	1	14
9	Cycling	1	3	1	4	-	1
10	Swimming	4	24	2	1	-	21
11	Alpine Skiing	3	12	-	-	-	8
12	Ice Sledge Hockey	1	13	-	2	1	11
13	Archery	4	21	4	-	-	17
14	Power-lifting	7	34	5	-	-	27
15	Judo	1	3	1	-	-	2
16	Athletics	6	23	4	-	-	19
17	Sitting Volleyball	1	9	1	-	-	8
18	Table Tennis	4	23	4	2	-	17
Total		53	261	34	18	4	205

※ Source: Korea Paralympic Committee (2015)

2.2. Korea National Team of Sports for People with disabilities

The selection regulation for the national team was set on September 7th 2015 to allow fair and objective selection of players and coaches.

‘National team' refers to ‘members of the national team' and ‘national team coaches'. In accordance with Article 2.4.2 of the National Sports Promotion Act, ‘member of the national team' means a person selected and determined to be sent to an international competition (excluding a friendly game) by the Korea Olympic Committee, Korea Paralympic Committee, or national sports federations, and national sports federations for person with disability. ‘National team coach' means a person selected by the Korea Paralympic Committee or national sports federations for person with disability to instruct and manage members of the national team during the training periods and international competitions. Players and coaches who participate in Korea Paralympic Committee national team trainings are qualified as national team members after the relevant athletic affiliate reports them to the Korea Paralympic Committee. In addition, the national team is selected by the professional sport committee of national sports federations for person with disability and approves the general affairs regarding training. Members of the national team are chosen according to the selection criteria and schedule set six months prior by the athletic affiliate and must hold more than one regular open selection competition that must be concluded by December 31st of the pertaining year. National team members can take part in trainings per the approval of the Korea Paralympic Committee. For

coaches, the head coach must be a certified professional sports instructor with seven years or more experience as an athlete (5 years or more for coaches), five years or more experience coaching a team of disabled players, or a retired player of the sport who has participated in one or more Paralympic games or has won a medal/medals in the Asian Para Games. The enactment of this regulation has set the framework for disabled national team member selection to be transparent and fair.

Fostering national team members is one of the key projects of the Korea Paralympic Committee. Trainings are carried out with the goal of enhancing athletic performance and elevating the national stature by winning medals in the international competitions. While the national team of disabled athletes conducted training scattered because they did not have a dedicated training facility, the establishment of the Icheon Training Center in October 2009 allows training to take place within the compound. In preparation of the London 2012 Paralymics, the participating team of disabled athletes trained from February 1st to August 24th, 2012 at the Icheon Training Center which accommodated teams of 11 sports (goalball, boccia, swimming, archery, power lifting, track and field, rowing, table tennis, wheelchair tennis, and wheelchair fencing) with exception to the two sports that the Center does not have the facilities for (shooting and cycling)

out of 177 team members (104 athletes, 73 executive staff) of 13 sports for an average 165 days (115~180 days). As a result, the national team ranked 12th. The Center accommodated national team training for 29 sports, 486 athletes for an average 62 days in 2013, 29 sports, 1,174 athletes for an average 60 days in 2014 for the 11th Incheon Asia Para Games, and, in order to maximize performance by selection and concentration for the Rio 2016 Paralympics, 27 sports, 416 athletes for an average 100 days in 2015. (KPC, 2015)

Korea's professional disability sports performance ranks in the top 2nd~4th in Asia following China, and 9th~12th in the world. There are only a handful of professional disability sports athletes in Korea (0.001% of person with disability population). The lack of professional athletes means that the overall number of disabled athletes is small, leading to the lack of competitiveness in each sport in international games. For instance, of the roughly 260 sub games of the field and track in the Paralympics, Korean athletes only participate in 10. The key problems of Korea's professional disability sports are the insufficient number of athletes and the aging of active athletes. The average age of the 82 athletes who participated in the 12th Athens Paralympics was 35.1. Of that, 18 athletes, or 22% of the team, have been active since the 1988 Seoul Paralympics. Despite the dire

conditions of Korea's disability sports, person with disability athletes have played a crucial role in promoting Korea's international standing for the past 16 years. However, as Korea's competitiveness is forecasted to dwindle, systematic discovery and fostering of new athletes are required.(Choi, 2004)

The results and overall ranking of the Paralympics(summer and winter) and Asian Para Games(Asia Pacific Para Games) by the national team members among the professional disabled athletes are as shown on Table 7, Table 8 and Table 9.

Table 7. The result of Paralympic Summer Games

No.	Year	Host City	Participation (Countries/Athletes	Result of Team KOREA			
				Gold	Silver	Bronze	Rank
15th	2016	Rio de Janeiro, Brazil	159 / 4,333	7	11	17	20
14th	2012	London, Great Britain	164 / 6,740	9	9	9	12
13th	2008	Beijing, China	145 / 6,451	10	8	13	13
12th	2004	Athens, Greece	136 / 6,032	11	11	6	16
11th	2000	Sydney, Australia	123 / 6,032	18	7	7	9
10th	1996	Atlanta, USA	115 / 4,750	13	2	15	12
9th	1992	Barcelona, Spain	86 / 4,273	11	15	18	12
8th	1988	Seoul, Korea	61 / 4,200	40	35	19	7
7th	1984	New York, USA	46 / 2,500	11	11	6	37

		Stoke Mandeville, Great Britain	41 / 1,422	0	0	1	
6th	1980	Amhem, Netherlands	42 / 2,500	0	2	1	26
5th	1976	Toronto, Canada	42 / 2,700	2	2	1	26
4th	1972	Heidelberg, Germany	44 / 1,400	4	3	1	16
3rd	1968	Tel Aviv, Israel	29 / 1,100	0	0	0	23
2nd	1964	Tokyo, Japan	22 / 390	-	-	-	N/A
1st	1960	Rome, Italy	23 / 400	-	-	-	N/A

Table 8. The result of Paralympic Winter Games

No.	Year	Host City	Participation (Countries/Athletes	Result of Team KOREA			
				Gold	Silver	Bronze	Rank
11th	2014	Sochi, Russia	45 / 1,428				
10th	2010	Vancouver, Canada	45 / 1,350		1		18
9th	2006	Torino, Italy	39 / 480				
8th	2002	Salt Lake City, USA	32 / 571		1		21
7th	1998	Nagano, Japan	32 / 571				
6th	1994	Lillehammer, Norway	31 / 492				Debut
5th	1992	Tiqnes/Albertville, France	24 / 475				
4th	1998	Innsbruck, Austria	22 / 397				
3rd	1984	Innsbruck, Austria	21 / 457				

2nd	1980	Gello, Norway	18 / 350				
1st	1976	Oernskoeldsvi, Sweden	17 / 250				

Table 9. The result of Asian Para Games

No.	Year	Host City	Participation (Countries/Athletes	Result of Team KOREA			
				Gold	Silver	Bronze	Rank
11th	2014	Incheon, Korea	41 / 3,485	72	62	77	2
10th	2010	Guangzhou, China	41 / 2,316	27	43	33	3
9th	2006	Kuala Lumpur, Malaysia	47 / 3,000	58	42	43	3
8th	2002	Busan, Korea	40 / 2,268	63	67	60	2
7th	1999	Bangkok, Thailand	42 / 2,500	31	26	27	4
6th	1994	Beijing, China	45 / 2,081	48	28	17	3
5th	1989	Kobe, Japan	41 / 1,648	73	29	29	4
4th	1986	Surakarta, Indonesia	19 / 834	40	19	9	
3rd	1982	Hongkong	23 / 744	8	4	3	
2nd	1977	Parramatta, Australia	16 / 430	6	1	0	
1st	1975	Oita, Japan	18 / 973	-	-	-	

Korea's professional disability sports has not seen much success in numerous sports to include field and track and swimming. The sub games of field and track (194) and swimming (167) tally up to 361 gold medal

opportunities, covering 2/3 of the total 519 medal events. While Korea won two gold medals in the 100 meter and 200 meter (T-53) and one silver medal in the 400m (T-53) field and track during the Athens 2004 Paralympics, it did not perform as well as China and Japan. China ranked overall first place by winning 63 gold, 46 silver, and 32 bronze medals, of which over 50% were from track and field and swimming, 80% of the national team were new athletes in their early 20s, and 70% of them won medals. Additionally Japan, which ranked behind Korea since the Seoul 1988 Paralympics, surpassed Korea's performance by winning 17 gold, 15 silver, and 20 bronze medals, ending the games in 10th place.(Choi, 2004)

To play a leading role in the international sports arena, Korea must prepare a long term strategy at least in the Paralympics. In other words, Korea needs to hurry to improve the performance of the basic events such as swimming and field and track, and continue to support Korea's strengths in table tennis, shooting, and archery to establish its superior standing. Though Korea accomplished its goal during the Athens Paralympics in table tennis, the performance of other competing countries improved notably, and Korea's performance in shooting, which it dominated during the last games, dwindled, resulting in only one gold medal. The unsuccessful campaign in archery, power lifting, boccia, and cycling seems to be due to the weak

infrastructure of Korea's disability sports, and consequently, the diminished competitiveness of those sports. For future empowerment of these games, Korea requires policies for long-term sports development and active support. (Lee, 2014)

Superficially, Korea's professional disability sports seems to be holding its place within the top 10 in the world, but in fact, it is with numerous problems. The reality is that athletes and coaches are not recognized as a regular job because there are no legal institutions about annual salary system in place. So their living is not stable and could not support their family. Due to this big problem, excellent coaches are not come to field of disability sport and the coaching skill is backward. Table 10 shows daily wage by year.

Table 10. Daily wage by year

Division	2011	2012	2013	2014	2015	2016
Head Coach	80,000	80,000	80,000	120,000	120,000	150,000
Coach	70,000	70,000	70,000	100,000	100,000	120,000
Trainer	50,000	50,000	50,000	70,000	70,000	100,000
Assistant	30,000	30,000	40,000	50,000	50,000	50,000
Training Partner	-	-	40,000	50,000	50,000	50,000
Athlete	30,000	40,000	40,000	50,000	60,000	60,000

(Unit: Korean Won)

One more big problem that hinder the development of professional

disability sport is insufficient training day. The status of training day by year is as shown on Table 11.

Table 11. Training day by year

Division	2011	2012	2013	2014	2015	2016
Training day	50	100 (London PG)	62	60	78	120 (Rio PG)

(Unit: Day)

Korea needs to prepare detailed plan to set grounds for professional disability sports, and to establish systems to invigorate professional disability sports in securing budget, constructing facilities, fostering and dispatching sports coaches, fostering athletes, procuring equipment, and organizing district organizations. Based on such plan supported by government, mid to long term plans must be established not just for professional sports, but also for school sports, and sports for all in order to resolve issues of professional disability sports while devising appropriate measures for each field. Table 12. shows the budget and number of sport and national team Korea.

Table 12. The budget and number of sport and national team Korea

Division	2013	2014	2015	2016
Budget (Korean Won)	3,328,850,000	5,842,750,000	5,990,950,000	7,273,600
Number	25 sports 483 people	30 sports 584 people	27 sports 434 people	27 sports 477 people

2.3. Icheon Training Center

Based on the National Sports Promotion Act (Art. 34) the Korea Paralympic Committee was founded (November 2005) which oversees sports for all, professional sports, and international sports, and focuses on professional sports promotion projects to cultivate athletes and enhance their competitiveness. Then Icheon training center was opened on October, 2009.

2.3.1. Background

The construction of the Icheon Training Center was planned by the predecessor of the Korea Paralympics Committee, the Korea Welfare Promotion Committee for person with disability. On May 15th 1998 President Lee Gunhee, who was appointed the 4th director of the Korea Welfare Promotion Committee for person with disability, acknowledged the need for a ‘complex for person with disability' and proposed constructing a ‘training complex' as one of the key agendas on a brief to the first lady on February 18th 2000. In addition, the need for a training complex facility for the Sydney Paralympics national team was briefed to the Minister of Health and Welfare on September 2000. After going through internal decision-making processes, the construction support option was reviewed during the ‘interagency meeting on sports promotion for person with disability' chaired by the welfare and labour advisor of the prime minister's office on October

4th 2000. On January 31st 2001, the Ministry of Health and Welfare's briefed to the president the construction plans for this training facility, for which the president directed relevant agencies to review it ("actively look into constructing sports facility that person with disability can use"). Later in July 2001, the Korea Development Institute published 'a Feasibility Report on Constructing a Training Complex Facility for person with disability' and in December, the 226th National Assembly meeting passed an initial budget of five billion won for the construction.

After conducting site surveys of candidate sites in 87 areas, the final site of 184,070 square meters located in Doam-ri, Shindun-myeon, Icheon-si, Gyeonggi-do was purchased at roughly 4.5 billion won in March 2003. Until 2005, the Korea Welfare Promotion Association for person with disability spearheaded all efforts up to the design, cultural asset survey, various approval and permit acquisitions, and completing the construction of entry roads to the site.

At the time, the Korea Welfare Promotion Association for person with disability subordinate to the Ministry of Health and Welfare was in charge of disability sports, treating it as a part of welfare and rehabilitation. The Sydney 2000 Paralympics became a milestone for disability sports to be headed by the chief sports policies administrator, the Ministry of Sports,

Culture and Tourism. With the social consensus that support and fostering should be provided under an official ‘sports' framework, the Korea Paralympic Committee was established on November 25th 2005 through state affairs steering committee decision and the National Sports Promotion Act revision. The sports facility for person with disability task was transferred to the Korea Paralympic Committee.

<Timeline>

September 1999: Petition proposed on the need for constructing a sports training complex for person with disability (for the athletes)

October 2000: Established facility construction plan and basic guidance (Ministry of Health and Welfare)

December 2001: Construction budget set (226th National Assembly regular conference, 5 billion won)

October 2002: Site decided (Doam-ri, Shindun-myeon, Icheon-si, Gyeonggi-do)

March 2003: Site purchased (private property, approx. 184,070 square meters, 4.5 billion won)

October 2005: Initial design completed

- Name: Sports Training Complex for person with disability - Project Budget: 83.2 billion won

- Facilities: Sports complex building, dormitory, archery range, education range, field

December 2005: Entry road to the site completed

2.3.2. Construction of the Training Center

After responsibilities were transferred in June 2006, the plan's direction was shifted from a training facility for welfare for person with disability, to become the mecca of disability sports, with the objective of ‘establishing infrastructure for disability sports promotion' and ‘setting the conditions for disability sports for all promotion'. Through the comprehensive opinion sharing of the disability sports community and the construction advisory committee, the facility construction plan incorporated more developed and functional concepts. Design, approvals, and permits were redone, and the construction started on June 28th 2007.

The first phase of the construction included indoor training facilities for indoor sports (swimming, badminton, boccia, sitting volleyball, wheelchair basketball, wheelchair rugby, goalball, table tennis, judo, powerlifting, fencing, wheelchair tennis) and large field (soccer field, running tracks) for outdoor sports (soccer, track and field) which was completed in October 2009 after two years of construction.

The Icheon Training Center was designed to accommodate

convenience for all disabled athletes with four key focus points in the design: being ‘barrier free' for freedom of movement, ‘easily perceivable space', ‘concentrated placement for facilities' for easy and short movement, and ‘stability' that provides comfort and eliminates all hazardous elements. These key points were reflected in the design for the facility to become a model for all sports facilities for person with disability to follow.

Table 13. Icheon Training Center Facilities

Facility		Size	Area
Sports Building	Gym #1(Floor)	- Size of three basketball courts	14,340 sq meters
	Gym #2(Indoor pool)	- Eight 50m lanes	
	Gym #3	- Power lifting, fencing, table tennis, judo, goalball	
	Sports Medical Room	Sports medical treatment room, gym	
Dormitory (lodging, cafeteria, office)		- 100 rooms for 232 people (84 rooms for two, 16 rooms for four) - Cafeteria, kitchen, management office	8,940 sq meters
Multi-functional gym		- Archery range (14 lanes) - Wheelchair rugby, boccia	4,724 sq meters
Education Building		- Auditorium, seminar room, exhibit room, research room	4,957 sq meters
Field annex facilities		- Changing room, shower room, rest rooms	727 sq meters
Security, rest area		- Security post, rest area, rest rooms	82 sq meters
Field (Field & track, soccer, tennis court)		- Field & track(Athletic) - Artificial grass soccer field: 11 player soccer, 5-a-side soccer fields - Natural grass soccer field: 7-a-side field - Tennis court: 4 courts	43,000 sq meters

* Scale: Total area – 184,070 sq meters, construction area – 33,770 sq meters, 100 dormitory rooms (232 people)

The plaza at the facility's entrance allows the Training Center to

have an open image. The entry point has separate vehicle and pedestrian paths for safety purposes.

At the center of the pedestrian path is a symbolic square named ‘Victor's Street' to bestow pride to the athletes. The massive outdoor field consists of a 400 meter eight lane track, soccer field, and eco-friendly stand. Pass the plaza and field is the Sports Complex Building (1 basement, 4 floors above ground, a total area of 21,188 sq meters).

Entering the building, there is a large courtyard. To the left is a gym floor that is as big as three basketball courts, where most indoor sports training to include wheel chair basketball are conducted. This multi-functional floor can accommodate various programs with its portable wall screens. Other facilities include the training areas for goal ball, tennis, swimming, weight lifting, and table tennis, and a gym.

The indoor swimming pool was built as eight 50m lanes to allow athletes of other sports to use to maximize training effects.

To accommodate athletes during training season, the dormitory can house 232 people in two people rooms and is equipped with convenience facilities for person with disability, Internet connection, and laundry, along with cafeteria and leisure facilities such as dining, arcade, and resting areas.

Most facilities can view the outside nature scenery through the

center courtyard and the building can be ventilated with natural breeze. The safety evacuation path was also planned to allow quick evacuation of the building within a short time.

With the construction of Korea's first and best sports complex facility for person with disability, Korea is now capable of serving athlete training, sports for all, fostering coaches and employees, and establishing a networking venue for the disability sports community.

The opening of the Icheon Training Center not only made enhancing athletic performance and systematically expanding sports for all to person with disability, but also fueled the advancement of disability sports by setting a best case for district governments who are operating or building sports facilities. The Training Center has also become a proud landmark facility to show to foreign officials when they visit Korea.

The second phase involved adding professional sports facilities that were not built in the first phase due to budget constraints. Additional designing efforts were implemented during 2010 and the additional facilities included 28 dormitory rooms, training facilities for strategic sports, education facility, and outdoor training facilities.

The second phase broke ground with the start of the dormitory construction in April 2011 which was completed in December of the same

year. The expansion work added more two people and four people rooms, allowing the facility to hold a total of 232 people in 100 rooms compared to the original 144 people in 72 rooms.

In April 2012, in order to reinforce training facilities for strategic sports games, additional modifications to the project scale and design were carried out. On June 28th, the multi-functional gym construction started and was completed a year after in July 2013. The multi-functional gym enabled more intensify training opportunities for archery, boccia, and wheelchair rugby.

The education facility is a two story above ground, one story underground, 4,691 sq meter building, that was approved and permitted for construction in February 2013, started construction in June, and was completed in July 2014. The building consists of an auditorium, lecture rooms, conference rooms, seminar rooms, and offices, allowing the athletes to receive a more systematic education rather than just physical training. The education building is expected to further contribute to the promotion of disability sports as it is supporting the certification exams and training of certified disability sports instructors since 2015.

Following the completion of the education facility, the construction for the five-a-side soccer field (sight impaired), seven-a-side soccer field

(neurological disorder), and outdoor tennis court began and trial operations began as the construction ended in May 2015. The completion of the outdoor sports facilities allowed athletes of various sports to receive more systematic and tailored training.

The shooting range and curling arena was part of the third phase, which is currently on-going with an expected budget of 23.7 billion won. The shooting range will consist of 10 50m lanes, 15 25m lanes, and 20 10m lanes. The range will bolster Korea's shooting athletes who dominate the sport internationally. The curling arena which has four curling sheets, a promotion gallery, and lounge is meaningful to the Icheon Training Center as its first winter sports facility. Korea's wheel chair curling team, who managed to win a silver medal at the 2010 Vancouver Winter Paralympics without a training facility can now blossom training at a new state of the art facility.

<Timeline>

- June 2006: Project lead transfer (Ministry of Sports, Culture and Tourism / Korea Welfare Promotion Committee for the Disabled → Korea Paralympics Committee)
- September 2006: Approved modified plans for the construction project (Ministry of Sports, Culture and Tourism)

- Name: Disability Sports Complex facility - Budget: 47.9 billion won - Facilities: Sports complex building, dormitory, field - Building gross area: 21,667 sq meters

· December 2006: Secured additional funds for construction (3.5 billion won: Community Chest of Korea & Federation of Korean Industries)

· March 2007: Completed design modifications

- Name: Disability Sports Complex facility - Budget: 47.9 billion won - Facilities: Sports complex building, dormitory, field

· May 2007: Secured public funds (Samsung Foundation – 10 billion won / Community Chest of Korea – 3.5 billion won)

· June 2007: Ground-breaking ceremony of the Icheon Training Center

· October 2009: Opening ceremony of the Icheon Training Center

· April 2011: Started expansion work on dormitory

· December 2011: Completed expansion of dormitory (72 rooms → 100 rooms / 28 rooms added)

· June 2012: Started construction of the multi-functional gym

· June 2013: Started construction on the education building

· July 2013: Completed multi-functional gym

· July 2014: Completed education building

· September 2014: Started construction on outdoor sports facility (outdoor tennis court, seven-a-side/five-a-side soccer field)

· May 2015: Completed outdoor sports facility

· June 2015: Working on shooting range and curling arena construction

2.4. Importance-Performance Analysis and researches of application

There are many methods to evaluate customer satisfaction and preferences by using various ways of instrument and tools. The researches allow companies and public institutions to understand their customers deeply with exact data analysis so they can offer the proper product and services to their target customer. IPA was created by Martilla and James (1977), for measuring the automobile dealer's service by request of big automobile company.

Since its origins in the study by Martilla and James (1977), the importance-performance analysis (IPA) has been applied to various and different fields of services marketing, thus becoming a good method to the measurement of customer and users' preferences and satisfaction and proper management tool simultaneously. The IPA allows for a simple and

functional identification of the strong and weak aspects, or improvement areas, of a given service.

Considering the user selected importance of related aspects of services and observed performance of those services holistically, a four quadrant graph can be drawn.

Because Importance-Performance Analysis is inexpensive and easily comprehensible (Tyrrell J.T., Okrant J.M., 2004), this analysis is used to assess the seams between significance attributes and company performance. It was employed in diverse areas and service sectors to include training (Siniscalchi M. J, Beale K. E, & Fortuna, 2008), hotel (Chu K.S. Raymond & Choi Tat, 2000), tourism and agritourism & farm development (Kinley T, Kim K-Y, Forney J.), (Barbieri Carla., 2010), airport access mode choice (Tam Ling. M., Tam Lam M., & Lam H.K. W., 2005). Chen Y-F and Chang H-Y (2005) used IPA to evaluate the quality of airline service quality (mainly ground service and in-flight service) in the process point of view. This analysis is utilized to assess the difference between significance attributes and the company's performance levels. Feng Min-Cheng and Jeng Yeun-Kung (2005) applied IPA on studying improvement strategies for airline service, and Atilgan E., Akinci S., and Aksoy S (2008) gauged and mapped customer expectations and perceptions towards airlines.

Despite IPA's wide range of application, it has rarely been applied in leisure and sports activities (Tarrant and Smith, 2002), while more and more studies were conducted on the quality and customer satisfaction of sports services covering the last decade (Afthinos et al., 2005; Alexandris et al., 2001; Alexandris et al., 2004; Howat et al., 1996; Howat et al., 2005; Macintosh and Doherty, 2007; Papadimitriou and Karteroliotis, 2000; Theodorakis et al., 2001; Westerbeek and Shilbury, 2003).

Previous studies concentrated on obtaining a valid and dependable measurement of sports centers' service quality and studying their behavioral consequences (Alexandris et al., 2001; Alexandris et al., 2004; Papadimitriou and Karteroliotis, 2000; Westerbeek and Shilbury, 2003).

Such measurements are required to perform correct diagnosis of the services. In this stage, the IPA graph is a handy screening tool in identifying the strengths and weaknesses quickly and easily for all clients and for detailed and strategic segments.

The implementation of IPA is well-documented, covering nearly 20 years of its introduction (Martilla and James 1977). This marketing technique which was designed originally to analyze the service department of an automobile dealing company, has permeated into other diverse fields to include the health care market (Cunningham and Gaeth 1989), dental

practices (Nitse and Bush 1993), banking services (Ennew, Reed and Binks 1993), the hotel industry (Bush and Orinau 1096; Martin 1995), adult education (Alberty and Mihalik 1989). tourism policy (Evans and Chon 1990), escorted tours (Duke and Persoa 1006) and tourist destinations (Uysal, Howard and Jamrozy 1991).

Others strived to build on or develop the technique. Easingwood and Arnott (1991) adopted a similar concept in their survey-based research of generic priorities regarding serviced marketing. They utilized 'current effect on performance' (their version of importance) and 'scope for improvement' (relevant to performance). Additionally, they proposed 'ease of change' and 'sensitivity to change' to be added into the matrix. Slack (1994) built on this concept in studying how this matrix could be reconfigured to see the managers' perception towards 'importance', 'performance' and 'priority for improvement.' Dolinsky (1991) expanded importance-performance analysis to encompass performance of competitors in analyzing healthcare services, pointing out that not including competitive dimensions would be rendered by wrong strategies. Sethna (1982) found that the larger difference between importance and performance of an attribute means bigger dissatisfaction levels of the consumers of a certain product (and requires remedial measures).

Chapter 3. Methodology

3.1. Selection of Research Cases

This study was conducted by selecting a study population of the national team athletes and coaches using the Icheon Training Center from September 1st to November 10th 2017 and choosing 9 sports types with convenience sampling method. The study is planning on carrying out two surveys inquiring the importance and performance level of the Training Center by coordinating with the Training Center managers. The surveys were given to 122 athletes of the 9 selected sports (badminton, judo, power-lifting, rowing, swimming, table tennis, taekwondo, wheelchair basketball, and wheelchair fencing, exclude 16 responses that are assessed as unreliable and use 106 responses (87%) as valid samples. The general characteristics of the study subjects are shown on table 14.

Table 14. The general characteristics of the study subjects

Category	Characteristics	Frequency	Percentage(%)
Gender	Male	75	70.8%
	Female	31	29.2%
Age	10 - 19	5	4.7%
	20 - 29	35	33.0%
	30 - 39	32	30.2%
	40 - 49	23	21.7%
	50 -	11	10.4%

Type of Disability	Myelopathy	22	20.8%
	Cerebral Palsy	19	17.9%
	Visual Impairment	11	10.4%
	Hearing Impairment	1	0.9%
	Intellectual Impairment	7	7.3%
	Les Autres	36	37.5%
Education	High school graduate and less	36	34.0%
	College graduate and less	64	50.9%
	Bachelor's degree and above	16	15.1%
Period of use	First time	33	31.1%
	1 - 2 years	12	11.3%
	2 - 4 years	21	19.8%
	Over 4 year	40	37.7%
Sports career	Less than 3 years	11	10.4%
	3 - 6 years	20	18.8%
	6 - 9 years	18	17%
	9 - 12 years	20	18.9%
	Over 12 years	37	34.9%
Position	Head Coach	9	8.5%
	Coach	10	9.4%
	Trainer	4	3.8%
	Training Partner	7	6.6%
	Training Assistant	7	6.6%
	Athlete	69	65.1%
International Ranking	1 - 5	13	12.3%
	6 - 10	25	23.6%
	10 - 15	12	11.3%
	15 - 20	2	1.9%
	Under 20	32	30.2%

3.2. Research Procedure

To effectively achieve this study's objective, factor analysis was conducted on the selected attributes of Icheon Training Center to verify the validity and reliability of the measurement tool. Next, this study was evaluate the selected attributes by using IPA method on importance and after action performance. Additionally, the valid 106 replies(87%) were processed using SPSS WIN version 18.0. First, to learn the attributes of the survey subjects, frequency analysis was conducted. Second, t-test was performed to verify the perception difference on the selected attributes. Third, IPA method was implemented to survey the expectation survey and satisfaction survey when they stay in training center.

3.3. Measurement Tool

In order to achieve this study’s goal to devise the development and improvement direction of Icheon Training Center by analyzing the respondents' replies on importance and performance levels, variables from surveys already conducted by ‘The Study on Improvement Factors and Relative Significance Analysis of Korean Sports Training Center of person with disability (Dong-chul Lee, Hyoung-kyu Roh, 2016)', ‘Survey on the degree of use satisfaction on Korea training center for disabled sports of Korea national disabled sports players (Park Jungmin, 2013)', and advanced

study on welfare facilities using IPA method(Kim Kyeongsuk, 2015) pertinent to this study were reconfigured. The initial survey was conducted with interviews of national team athletes and coaches of archery, shooting, power-lifting, and table tennis. Afterwards, a Ph.D of special physical education and sports marketing, and a Ph.D of statistics reviewed the questions to modify them to suit each factor. Survey questions regarding the operation of sports medical & scientific center were reviewed by nurse, physical therapists, and trainers who work in Incheon training center. Questions regarding the cafeteria were coordinated with nutrition specialist, and questions regarding the human rights of athletes were coordinated with a sports psychology Ph.D running a counseling center subordinate to the Korea Paralympics Committee. Therefore the survey came out total 7 categories and 42 questions through above sampling procedure; facilities(including accessibility), lodging, sport medical and science service, administration service, cafeteria catering, human rights counseling, leisure program. Every category has 2 ~ 9 questions that were based on Roh(2016) and Kim(2015)'s studies and interviews with athletes. The variable gauge utilizes the likert scale of five points.

In order to analyze the characteristics of the importance and performance levels, the average points were calculated. To verify the

construct validity, the maximum likelihood and oblimin were used. The validity of the gauge was substantiated by factor analysis and reliability analysis to confirm that the survey conducted by this study is valid and trustworthy.

For the validity check of the selected attribute gauge, factor analysis was conducted with oblimin and illustrated into the table 15. Many kinds of factor analysis were conducted by changing method with varimax or direct oblimin and setting the fixed number of factors, it was hard to shows up with seven factors that initially were set when the survey designed. Finally nine factors were reasonable to separate categories, the oblimin was conducted since researcher thought all selected attributes are connected closely. After factor analysis was conducted, four selected attributes - access control of outsiders, weekly head coaches' meetings, service of part-time doctors, and convenience stores and vending machines - were deleted since those are not linked each other in one factor category. And nine factors are as follows; facility, sports medical and scientific service, athletes' human rights counseling, facility management, mobility, shuttle bus, education and leisure, cafeteria catering, and employee service.

Table 15. The result of factor analysis of selected attribute of ITC

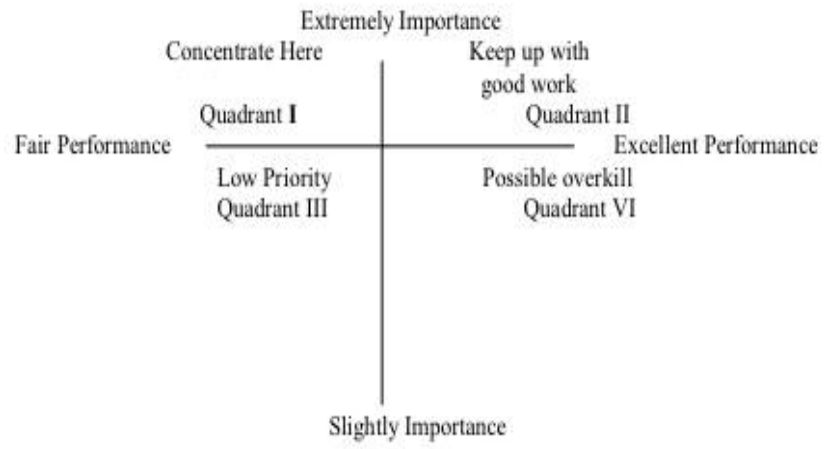
Selected Attribute	Facility	Medical & scientific service	Human rights counseling	Facility management	Mobility	Shuttle bus	Education and leisure	Cafeteria catering	Employee service
Accessible facilities of person with disability	.762	.180	.091	.098	.186	.007	.077	.069	.005
Sound absorption equipment	.762	.121	.144	.028	.099	.094	.119	.027	.172
Clean lodging	.615	.198	.024	.397	.174	.078	.077	.151	-.047
Taste & quality of food	.595	.137	.060	.176	.140	.057	-.051	.530	.194
Insect and disease control	.555	.381	.227	.080	.145	.169	.067	.111	-.027
Quick resolution of inconvenience	.555	.213	.092	.366	.093	.051	.201	.188	.329
A wide range of menus	.526	.177	.060	.125	-.024	.108	-.036	.490	.265
Atmosphere and sanitation of cafeteria	.522	.289	.101	.383	.207	.109	-.007	.282	-.011
Recycling and smoking areas	.328	.186	.131	.313	.235	.319	.157	.265	.034
Service of sports medical center	.252	.776	.253	.011	.238	-.005	-.168	.323	-.109
Night-time operation of sports medical center	.153	.726	.094	.105	.199	.083	.142	-.179	.139
Professional knowledge of physical therapists	.445	.632	.227	.138	.124	.032	-.054	.203	-.103
Equipment and scale of the sports medical center	.207	.622	.142	.231	.024	.121	.187	-.099	.211
Night-time operation of sports scientific center	.064	.595	.038	.170	.006	.056	.336	.182	.303
Equipment and scale of the sports scientific center	.154	.578	.120	.184	-.007	.081	.299	.145	.133
Service of sports scientific center	.101	.537	.142	.253	.009	.113	.102	.174	.146
Professional knowledge of athletic trainer	.433	.528	.035	.468	-.006	-.054	.096	.058	.003
Location of the counseling office	.070	.112	.879	.096	.007	.074	.042	-.025	.094
Dispatch cycle of counselors (twice a week)	.108	.093	.861	.119	-.043	.036	.003	.096	.149
Human rights counseling	.135	.177	.790	.181	.048	.076	.192	-.026	.129
Facility management	.239	.193	.092	.734	.135	-.025	.141	.108	-.019
Additional facilities	.106	.197	.152	.682	.153	.075	.010	.129	.165
Parking for person with disability	.145	.277	.126	.424	.324	.045	.133	.137	.297

Restrooms	.084	.116	.115	.398	.704	.170	.010	.148	-.018
Mobility	.358	.135	.064	.196	.690	.123	.125	.038	.147
Separate lodgings for men and women	.265	-.093	-.066	.091	.451	.205	.291	.048	.087
Weekend shuttle buses	.126	.084	.040	.013	.093	.965	.112	.081	.124
Shuttle bus for entering and exiting the training center	.135	.138	.028	.048	.261	.721	.238	.151	-.029
Concerts for leisure	.005	.240	.430	.101	-.053	.081	.603	.047	.151
Leisure facilities	.348	.052	.123	.046	.081	.077	.493	.043	.130
English education	-.128	.238	.135	.115	.199	.319	.491	.073	.067
Education on nutrition management	.337	.109	.206	-.078	.022	.231	.371	.236	-.203
Different menu selections by each sports category	.133	.011	.044	.162	-.020	.244	.260	.628	.033
Cafeteria employee service	.297	.162	.138	.198	.208	.007	.123	.556	.174
Assignment of female guidance commissioners	.010	.234	.411	-.024	.079	.063	.199	.117	.652
Role and service of guidance commissioners	.355	.174	.229	.225	.062	.073	.056	.155	.564
Attitude of managing employees	.312	.263	.158	.370	.184	.067	.169	.208	.380
Cronbach's alpha	.907	.894	.911	.796	.79	.878	.688	.709	.755
Eigenvalues	4.795	4.665	4.100	2.954	2.248	2.171	2.121	2.034	1.649
% total variance	11.416	11.107	9.762	7.032	5.353	5.169	5.050	4.843	3.927
% cumulative variance	11.416	22.523	32.285	39.318	44.670	49.839	54.889	59.732	63.659

3.4. Data Analysis (IPA)

For this research, it was used Importance-Performance Analysis(IPA) as a tool of analysis of the management of Icheon training center, Figure 1 shows four quadrants.

Figure 1. Four quadrants of IPA



Source: Adapted from Martilla and James (1977): Importance-Performance Analysis. Journal of Marketing

The tool divided into four quadrants: (1) Concentrate Here quadrant indicates that the members of Korea national team consider service attributes important but not satisfied with the service they perceived; (2) Keep Up with the Good Work quadrant indicates that the members of Korea national team consider service attributes important and they are happy with the service perceived; (3) Low Priority quadrant indicates that the members of Korea national team care less about the attributes and they are not satisfied with the service; (4) Possible Overkill quadrant indicates that the members of Korea national team care less about the attributes but the service provider has good performance.(Kankaew, 2012)

This study analyzed the satisfaction level of the athletes who used

Icheon Training Center, and compare the importance and performance (satisfaction) averages by placing IA (Important Attribute) and PA (Performance Attribute) on each axis(X, Y) to verify the difference.

Chapter 4. Findings

4.1. Importance of selected attribute of Icheon Training Center

The four results of the selected attribute(SA) importance of Icheon Training Center is as shown on the following table 16 - 19: (1) all users, (2) population of athletes, (3) coaches with disabilities, and (4) coaches without disabilities. The reason why the four results are brought out, researcher thought it might be different by position and whether they had a disability.

On table 16 that is the result of total population of user, from each selected attribute category, facility was found to be most significant, scoring an average of 4.49, followed by sports medical and scientific service, facility management, mobility, cafeteria catering, employee service, shuttle bus, athletes' human rights counseling, and education and leisure. Specifically, of facility, 'atmosphere and sanitation of cafeteria', and of sports medical and scientific service, 'professional knowledge of physical therapists' were chosen as most significant. For athletes' human rights counseling, 'human rights counseling for athletes' and for facility management, 'parking for people with disability' were selected as most significant. In mobility, 'mobility (in the center)' was picked to be most important and in shuttle bus, 'shuttle bus for entering and exiting the

training center' turned out to have more importance. For education and leisure, ‘education on nutrition management' and for cafeteria catering, ‘cafeteria employee service' were selected as most significant. In employee service, ‘attitude of managing employees' was picked to be most important and in shuttle bus.

Table 16. Importance of Selected Attributes of ITC of all user

Category	Selected Attribute	M	-	±SD
Facility (9)	Accessible facilities of people with	4.5377	4.49	.73257
	Sound absorption equipment	4.4151		.72857
	Clean lodging	4.6132		.61055
	Taste and quality of food	4.5283		.66487
	Insect and disease control	4.5238		.63693
	Quick resolution of inconvenience	4.4717		.70653
	A wide range of menus	4.4528		.66379
	Atmosphere and sanitation of cafeteria	4.6038		.56365
	Recycling and smoking areas	4.2642		.74708
Sports medical and scientific service (8)	Service of sports medical center	4.5094	4.44	.65094
	Night-time operation of sports medical	4.3868		.71141
	Professional knowledge of physical therapists	4.6132		.57852
	Equipment and scale of the sports medical center	4.4623		.60434
	Night-time operation of sports scientific center	4.2642		.72114
	Equipment and scale of the sports scientific center	4.3679		.62222
	Service of sports scientific center	4.3774		.72313
	Professional knowledge of athletic trainer	4.5755		.58470
Athletes’ human rights counseling (3)	Location of the counseling office	3.6321	3.83	.99834
	Dispatch cycle of counselors (twice a week)	3.7547		.90302
	Human rights counseling	4.1132		.86543
Facility management	Facility management	4.4057	4.41	.67299
	Additional facilities	4.3868		.62596

Category	Selected Attribute	M	-	±SD
(3)	Parking for people with disability	4.4528		.67798
Mobility (3)	Restrooms	4.4245	4.39	.75527
	Mobility	4.3962		.76444
	Separate lodgings for men and women	4.3679		.85441
Shuttle bus (2)	Weekend shuttle buses	3.9057	3.94	.99070
	Shuttle bus for entering and exiting the training center	3.9906		1.01883
Education and leisure (4)	Concerts for leisure	3.6321	3.85	1.03579
	Leisure facilities	3.8962		.97521
	English education	3.6698		.95341
	Education on nutrition management	4.2264		.81979
Cafeteria catering (2)	Different menu selections by each sports	4.2925	4.34	.71670
	Cafeteria employee service	4.3962		.64260
Employee service (4)	Assignment of female guidance	4.1226	4.235	.94317
	Role and service of guidance	4.3491		.74377
	Attitude of managing employees	4.4476		.70685
	Permanent staff at the information center	4.0189		.72114

On table 17 that is the result of athletes, from each selected attribute category, facility was found to be most significant, scoring an average of 4.58, followed by sports medical and scientific service, facility management, mobility, cafeteria catering, employee service, shuttle bus, education and leisure and athletes' human rights counseling. There are not big difference with the case of all users.

Table 17. Importance of Selected Attributes of ITC of athletes

Category	Selected Attribute	M	-	±SD
Facility (9)	Accessible facilities of people with	4.6364	4.5859	.65279
	Sound absorption equipment	4.3333		.69222
	Clean lodging	4.7879		.48461

Category	Selected Attribute	M	-	±SD
	Taste and quality of food	4.6364		.54876
	Insect and disease control	4.5758		.61392
	Quick resolution of inconvenience	4.6364		.48850
	A wide range of menus	4.5152		.61853
	Atmosphere and sanitation of cafeteria	4.8182		.39167
	Recycling and smoking areas	4.3333		.73598
Sports medical and scientific service (8)	Service of sports medical center	4.5455	4.5417	.56408
	Night-time operation of sports medical	4.4545		.61699
	Professional knowledge of physical therapists	4.6970		.52944
	Equipment and scale of the sports medical center	4.5152		.56575
	Night-time operation of sports scientific center	4.3333		.64550
	Equipment and scale of the sports scientific center	4.5455		.56408
	Service of sports scientific center	4.5152		.50752
	Professional knowledge of athletic trainer	4.7273		.51676
Athletes' human rights counseling (3)	Location of the counseling office	3.5455	3.7576	1.12057
	Dispatch cycle of counselors (twice a week)	3.6364		1.02525
	Human rights counseling	4.0909		.94748
Facility management (3)	Facility management	4.6061	4.5051	.60927
	Additional facilities	4.3939		.70442
	Parking for people with disability	4.5152		.56575
Mobility (3)	Restrooms	4.5152	4.5051	.71244
	Mobility	4.4545		.71111
	Separate lodgings for men and women	4.5455		.61699
Shuttle bus (2)	Weekend shuttle buses	4.1212	4.1667	.92728
	Shuttle bus for entering and exiting the training center	4.2121		.89294
Education and leisure (4)	Concerts for leisure	3.6970	3.9318	.95147
	Leisure facilities	4.0000		.90139
	English education	3.7273		.91079
	Education on nutrition management	4.3030		.76994
Cafeteria catering (2)	Different menu selections by each sports	4.3939	4.3788	.65857
	Cafeteria employee service	4.3636		.60302

Category	Selected Attribute	M	-	±SD
Employee service (4)	Assignment of female guidance	4.0606	4.2141	.96629
	Role and service of guidance	4.4545		.75378
	Attitude of managing employees	4.5152		.71244
	Permanent staff at the information center	3.8261		.89042

On table 18 that is the result of coaches with disability, from each selected attribute category, facility was found to be most significant as well, scoring an average of 4.58, followed by sports medical and scientific service, facility management, mobility, cafeteria catering, employee service, shuttle bus, education and leisure and athletes' human rights counseling. It is same result with case of athletes.

Table 18. Importance of ITC of coaches with disability

Category	Selected Attribute	M	-	±SD
Facility (9)	Accessible facilities of people with	5.0000	4.8889	.00000
	Sound absorption equipment	5.0000		.00000
	Clean lodging	5.0000		.00000
	Taste and quality of food	5.0000		.00000
	Insect and disease control	5.0000		.00000
	Quick resolution of inconvenience	4.2500		.95743
	A wide range of menus	5.0000		.00000
	Atmosphere and sanitation of cafeteria	5.0000		.00000
	Recycling and smoking areas	4.7500		.50000
Sports medical and scientific service (8)	Service of sports medical center	5.0000	4.375	.00000
	Night-time operation of sports medical	3.7500		1.25831
	Professional knowledge of physical therapists	5.0000		.00000
	Equipment and scale of the sports medical center	4.5000		1.00000
	Night-time operation of sports scientific center	3.7500		1.25831
	Equipment and scale of the sports scientific center	4.2500		.95743

Category	Selected Attribute	M	-	±SD
	Service of sports scientific center	4.0000		1.15470
	Professional knowledge of athletic trainer	4.7500		.50000
Athletes' human rights counseling (3)	Location of the counseling office	4.5000	4.5	.57735
	Dispatch cycle of counselors (twice a week)	4.5000		.57735
	Human rights counseling	4.5000		1.00000
Facility management (3)	Facility management	4.5000	4.4167	1.00000
	Additional facilities	4.5000		1.00000
	Parking for people with disability	4.2500		1.50000
Mobility (3)	Restrooms	4.7500	4.75	.50000
	Mobility	4.7500		.50000
	Separate lodgings for men and women	4.7500		.50000
Shuttle bus (2)	Weekend shuttle buses	4.2500	4.25	.50000
	Shuttle bus for entering and exiting the training center	4.2500		.50000
Education and leisure (4)	Concerts for leisure	2.7500	3.56	1.70783
	Leisure facilities	3.5000		1.29099
	English education	3.2500		1.70783
	Education on nutrition management	4.7500		.50000
Cafeteria catering (2)	Different menu selections by each sports	4.7500	4.75	.50000
	Cafeteria employee service	4.7500		.50000
Employee service (4)	Assignment of female guidance	4.0000	4.125	1.41421
	Role and service of guidance	4.0000		1.15470
	Attitude of managing employees	4.2500		.95743
	Permanent staff at the information center	4.2500		1.50000

On table 19 that is the result of coaches with disability, from each selected attribute category, facility was found to be most significant as well, scoring an average of 4.58, followed by sports medical and scientific service, facility management, mobility, cafeteria catering, employee service, shuttle bus, education and leisure and athletes' human rights counseling. There are

not difference with above two cases.

Table 19. Importance of SA of ITC of coaches without disability

Category	Selected Attribute	M	-	±SD
Facility (9)	Accessible facilities of people with	4.6364	4.5859	.65279
	Sound absorption equipment	4.3333		.69222
	Clean lodging	4.7879		.48461
	Taste and quality of food	4.6364		.54876
	Insect and disease control	4.5758		.61392
	Quick resolution of inconvenience	4.6364		.48850
	A wide range of menus	4.5152		.61853
	Atmosphere and sanitation of cafeteria	4.8182		.39167
	Recycling and smoking areas	4.3333		.73598
Sports medical and scientific service (8)	Service of sports medical center	4.5455	4.5417	.56408
	Night-time operation of sports medical	4.4545		.61699
	Professional knowledge of physical therapists	4.6970		.52944
	Equipment and scale of the sports medical center	4.5152		.56575
	Night-time operation of sports scientific center	4.3333		.64550
	Equipment and scale of the sports scientific center	4.5455		.56408
	Service of sports scientific center	4.5152		.50752
	Professional knowledge of athletic trainer	4.7273		.51676
Athletes' human rights counseling (3)	Location of the counseling office	3.5455	3.7576	1.12057
	Dispatch cycle of counselors (twice a week)	3.6364		1.02525
	Human rights counseling	4.0909		.94748
Facility management (3)	Facility management	4.6061	4.5051	.60927
	Additional facilities	4.3939		.70442
	Parking for people with disability	4.5152		.56575
Mobility (3)	Restrooms	4.5152	4.5051	.71244
	Mobility	4.4545		.71111
	Separate lodgings for men and women	4.5455		.61699
Shuttle bus (2)	Weekend shuttle buses	4.1212	4.1667	.92728
	Shuttle bus for entering and exiting the training center	4.2121		.89294

Category	Selected Attribute	M	-	±SD
Education and leisure (4)	Concerts for leisure	3.6970	3.9318	.95147
	Leisure facilities	4.0000		.90139
	English education	3.7273		.91079
	Education on nutrition management	4.3030		.76994
Cafeteria catering (2)	Different menu selections by each sports	4.3939	4.3788	.65857
	Cafeteria employee service	4.3636		.60302
Employee service (4)	Assignment of female guidance	4.0606	4.273	.96629
	Role and service of guidance	4.4545		.75378
	Attitude of managing employees	4.5152		.71244
	Permanent staff at the information center	4.0606		.93339

4.2. Performance of selected attribute of Icheon Training Center

The four results of the selected attribute(SA) performance of Icheon Training Center is as shown the following table 20 - 23 as same as Importance of selected attribute: (1) all users, (2) population of athletes, (3) coaches with disabilities, and (4) coaches without disabilities. The survey found that actual usage of the selected attributes the users hold important led to low performances in all 9 factors to include facility, sports medical and scientific service, athletes' human rights counseling, facility management, mobility, shuttle bus, education and leisure, cafeteria catering, and employee service.

On table 20, the performance per factors resulted in 4.15 for facility management, 4.12 for mobility, 4 for cafeteria catering, 3.98 for sports medical and scientific service, 3.90 for facility, 3.73 for employee service,

3.61 for athletes' human rights counseling, 3.29 for education and leisure, and 2.98 for shuttle bus. In terms of facility management, 'parking for people with disability' which were selected as most significant showed the highest performance. 'restrooms' showed the highest performance for mobility. 'cafeteria employee service' for cafeteria catering, 'professional knowledge of athletic trainer' for sports medical and scientific service, 'atmosphere and sanitation of cafeteria' for facility, and 'attitude of managing employees' for employee service exhibited the highest performances. 'location of the counseling office' showed the highest performance for athletes' human rights counseling.

Table 20. Performance of selected attribute of ITC of all users

Category	Selected Attribute	M	-	±SD
Facility (9)	Accessible facilities of people with	4.1604	3.90	.89588
	Sound absorption equipment	3.3491		1.13844
	Clean lodging	3.9717		.99002
	Taste and quality of food	3.9906		.94108
	Insect and disease control	3.6321		1.06302
	Quick resolution of inconvenience	3.7925		.94332
	A wide range of menus	4.0189		.95599
	Atmosphere and sanitation of cafeteria	4.2264		.86501
	Recycling and smoking areas	3.9717		.99960
Sports medical and scientific service (8)	Service of sports medical center	4.0283	3.98	.96073
	Night-time operation of sports medical	4.0095		.88247
	Professional knowledge of physical	4.0283		.93051
	Equipment and scale of the sports medical	4.0094		.82225
	Night-time operation of sports scientific	3.9135		.89346

Category	Selected Attribute	M	-	±SD
	Equipment and scale of the sports scientific	3.8208		.89226
	Service of sports scientific center	3.9340		.88661
	Professional knowledge of athletic trainer	4.1132		.84313
Athletes' human rights counseling (3)	Location of the counseling office	3.6415	3.61	.86397
	Dispatch cycle of counselors (twice a week)	3.5943		.84828
	Human rights counseling	3.6132		.85714
Facility management (3)	Facility management	4.1509	4.15	.83714
	Additional facilities	3.9906		.81059
	Parking for people with disability	4.3113		.77291
Mobility (3)	Restrooms	4.333	4.12	.8165
	Mobility	4.0283		.85588
	Separate lodgings for men and women	4.0189		1.09528
Shuttle bus (2)	Weekend shuttle buses	3.0094	2.98	1.05555
	Shuttle bus for entering and exiting the	2.9528		1.09006
Education and leisure (4)	Concerts for leisure	2.9811	3.29	1.11254
	Leisure facilities	3.5755		.97539
	English education	2.9434		1.14501
	Education on nutrition management	3.6762		1.00475
Cafeteria catering (2)	Different menu selections by each sports	3.7830	4	.95623
	Cafeteria employee service	4.2170		.91552
Employee service (4)	Assignment of female guidance	3.3396	3.731	1.10313
	Role and service of guidance	3.6887		.91925
	Attitude of managing employees	3.9811		.89423
	Permanent staff at the information center	3.9151		.94736

On table 21 that is the result of performance of selected attribute of ITC of athletes as follows.

Table 21. Performance of selected attribute of ITC of athletes

Category	Selected Attribute	M	-	±SD
Facility	Accessible facilities of people with	4.1014	3.8003	.92585

Category	Selected Attribute	M	-	±SD
(9)	Sound absorption equipment	3.2609		1.20845
	Clean lodging	3.7536		1.06282
	Taste and quality of food	3.9420		.98345
	Insect and disease control	3.5652		.99230
	Quick resolution of inconvenience	3.6957		.98972
	A wide range of menus	3.9420		1.02733
	Atmosphere and sanitation of cafeteria	4.0870		.91938
	Recycling and smoking areas	3.8551		1.01858
Sports medical and scientific service (8)	Service of sports medical center	3.9130	3.8873	.98128
	Night-time operation of sports medical	4.0000		.88098
	Professional knowledge of physical	3.8986		.92585
	Equipment and scale of the sports medical	3.9275		.82816
	Night-time operation of sports scientific	3.8088		.81511
	Equipment and scale of the sports scientific	3.7536		.84724
	Service of sports scientific center	3.7826		.87228
	Professional knowledge of athletic trainer	4.0145		.84875
Athletes' human rights counseling (3)	Location of the counseling office	3.4928	3.4493	.88489
	Dispatch cycle of counselors (twice a week)	3.4203		.82970
	Human rights counseling	3.4348		.86566
Facility management (3)	Facility management	4.1304	4.1111	.78428
	Additional facilities	3.9420		.87252
	Parking for people with disability	4.2609		.79802
Mobility (3)	Restrooms	4.235	4.0301	.8659
	Mobility	3.8986		.89352
	Separate lodgings for men and women	3.9565		1.06322
Shuttle bus (2)	Weekend shuttle buses	2.9710	2.913	.99957
	Shuttle bus for entering and exiting the	2.8551		1.00404
Education and leisure (4)	Concerts for leisure	2.9710	3.2303	1.07061
	Leisure facilities	3.4928		1.02359
	English education	2.8986		1.12649
	Education on nutrition management	3.5588		1.11144

Category	Selected Attribute	M	-	±SD
Cafeteria catering (2)	Different menu selections by each sports	3.7536	3.9203	.99122
	Cafeteria employee service	4.0870		1.01081
Employee service (4)	Assignment of female guidance	3.2319	3.63	1.12649
	Role and service of guidance	3.5652		.93113
	Attitude of managing employees	3.8986		.92585
	Permanent staff at the information center	3.8261		.89042

The results of performance of selected attribute of ITC of coaches with disability is as shown on Table 22.

Table 22. Performance of selected attribute of ITC of coaches with disability

Category	Selected Attribute	M	-	±SD
Facility (9)	Accessible facilities of people with	4.2500	4.1944	1.50000
	Sound absorption equipment	3.5000		1.29099
	Clean lodging	4.7500		.50000
	Taste and quality of food	4.2500		.95743
	Insect and disease control	4.0000		2.00000
	Quick resolution of inconvenience	4.0000		1.41421
	A wide range of menus	4.5000		1.00000
	Atmosphere and sanitation of cafeteria	4.5000		1.00000
	Recycling and smoking areas	4.0000		2.00000
Sports medical and scientific service (8)	Service of sports medical center	4.0000	4.1563	2.00000
	Night-time operation of sports medical	4.0000		1.41421
	Professional knowledge of physical	4.0000		2.00000
	Equipment and scale of the sports medical	4.2500		1.50000
	Night-time operation of sports scientific	4.2500		1.50000
	Equipment and scale of the sports scientific	4.2500		1.50000
	Service of sports scientific center	4.2500		1.50000
	Professional knowledge of athletic trainer	4.2500		1.50000
Athletes' human rights	Location of the counseling office	4.5000	4.5	1.00000
	Dispatch cycle of counselors (twice a week)	4.5000		1.00000

Category	Selected Attribute	M	-	±SD
counseling	Human rights counseling	4.5000		1.00000
Facility management (3)	Facility management	4.2500	4.25	.95743
	Additional facilities	4.0000		.81650
	Parking for people with disability	4.5000		1.00000
Mobility (3)	Restrooms	4.500	4.5	1.0000
	Mobility	4.2500		1.50000
	Separate lodgings for men and women	4.7500		.50000
Shuttle bus (2)	Weekend shuttle buses	3.0000	3	1.41421
	Shuttle bus for entering and exiting the	3.0000		1.41421
Education and leisure (4)	Concerts for leisure	2.7500	3.1875	1.70783
	Leisure facilities	3.5000		1.29099
	English education	2.7500		1.70783
	Education on nutrition management	3.7500		.95743
Cafeteria catering (2)	Different menu selections by each sports	4.0000	4.25	.81650
	Cafeteria employee service	4.5000		1.00000
Employee service (4)	Assignment of female guidance	3.7500	3.938	1.50000
	Role and service of guidance	3.7500		1.50000
	Attitude of managing employees	4.0000		1.41421
	Permanent staff at the information center	4.2500		1.50000

The results of performance of selected attribute of ITC of coaches without disability is as shown on Table 23.

Table 23. Performance of SA of ITC of coaches without disability

Category	Selected Attribute	M	-	±SD
Facility (9)	Accessible facilities of people with	4.2727	4.0774	.76128
	Sound absorption equipment	3.5152		.97215
	Clean lodging	4.3333		.69222
	Taste and quality of food	4.0606		.86384
	Insect and disease control	3.7273		1.09752
	Quick resolution of inconvenience	3.9697		.76994

Category	Selected Attribute	M	-	±SD
	A wide range of menus	4.1212		.78093
	Atmosphere and sanitation of cafeteria	4.4848		.66714
	Recycling and smoking areas	4.2121		.78093
Sports medical and scientific service (8)	Service of sports medical center	4.2727	4.1594	.71906
	Night-time operation of sports medical	4.0303		.84723
	Professional knowledge of physical	4.3030		.72822
	Equipment and scale of the sports medical	4.1515		.71244
	Night-time operation of sports scientific	4.0938		.96250
	Equipment and scale of the sports scientific	3.9091		.91391
	Service of sports scientific center	4.2121		.78093
	Professional knowledge of athletic trainer	4.3030		.72822
Athletes' human rights counseling (3)	Location of the counseling office	3.8485	3.8586	.71244
	Dispatch cycle of counselors (twice a week)	3.8485		.75503
	Human rights counseling	3.8788		.69631
Facility management (3)	Facility management	4.1818	4.2222	.95048
	Additional facilities	4.0909		.67840
	Parking for people with disability	4.3939		.70442
Mobility (3)	Restrooms	4.515	4.2828	.6671
	Mobility	4.2727		.62614
	Separate lodgings for men and women	4.0606		1.19738
Shuttle bus (2)	Weekend shuttle buses	3.0909	3.1212	1.15552
	Shuttle bus for entering and exiting the	3.1515		1.22783
Education and leisure (4)	Concerts for leisure	3.0303	3.4394	1.15879
	Leisure facilities	3.7576		.83030
	English education	3.0606		1.14399
	Education on nutrition management	3.9091		.72300
Cafeteria catering (2)	Different menu selections by each sports	3.8182	4.1364	.91701
	Cafeteria employee service	4.4545		.61699
Employee service (4)	Assignment of female guidance	3.5152	3.917	1.00378
	Role and service of guidance	3.9394		.78817
	Attitude of managing employees	4.1515		.75503

Category	Selected Attribute	M	-	±SD
	Permanent staff at the information center	4.0606		.99810

4.3. Analysis of Priority on I and P of Selected Attribute

The overall ranking of importance and performance per selected attribute is reflected on the following table 24 - 27: (1) all users, (2) population of athletes, (3) coaches with disabilities, and (4) coaches without disabilities.

First off, the fact that the importance of selected attributes for the professional knowledge of physical therapists (4.61), clean lodging (4.61), atmosphere and sanitation of cafeteria (4.60), for the professional knowledge of athletic trainers (4.57), accessible facilities of person with disability (4.53), the taste and quality of food (4.528), insect and disease control (4.523), service of sports medical center (4.50) all scored an average of at least 4.50 shows that the users of Icheon Training Center place greater importance on factors for sports medical and scientific service and cafeteria catering than any others.

On the other hand, restroom (4.33), parking people with disability (4.31), atmosphere and sanitation of cafeteria (4.22), cafeteria employee service (4.21), accessible facilities of person with disability for lodging and amenities (4.16), facility management (4.15), the professional knowledge of

athletic trainers (4.11) and the professional knowledge of physical therapists (4.02) scored highest in terms of performance, which means that users of Icheon Training Center are satisfied with the cafeterias catering towards person with disability and expertise of the sports medical and scientific center's staff. However, at the other end of the spectrum, English education (2.94), Shuttle bus for entering and exiting the training center (2.95), and concerts for leisure (2.98) on average scored less than 3.00, indicating a dissatisfaction with transportation, education and leisure. The expertise of physical therapists, which was considered the most significant attribute, ranked 8th on the performance list, a relatively high score. Among the 38 selected attributes the location of the counseling office for athletes' human rights was the only criteria where the performance was relatively high compared to the importance.

Table 24. The priority of I and P per selected attribute by all users

	Selected Attribute	Importance	Selected Attribute	Performance
1	Professional knowledge of physical therapists	4.6132	Restrooms	4.333
2	Clean lodging	4.6132	Parking for person with disability	4.3113
3	Atmosphere and sanitation of cafeteria	4.6038	Atmosphere and sanitation of cafeteria	4.2264
4	Professional knowledge of athletic trainer	4.5755	Cafeteria employee service	4.2170
5	Accessible facilities of person with disability	4.5377	Accessible facilities of person with disability	4.1604

6	Taste and quality of food	4.5283	Facility management	4.1509
7	Insect and disease control	4.5238	Professional knowledge of athletic trainer	4.1132
8	Service of sports medical center	4.5094	Professional knowledge of physical therapists	4.0283
9	Quick resolution of inconvenience	4.4717	Service of sports medical center	4.0283
10	Equipment and scale of the sports medical center	4.4623	Mobility	4.0283
11	Parking for person with disability	4.4528	A wide range of menus	4.0189
12	A wide range of menus	4.4528	Separate lodgings for men and women	4.0189
13	Attitude of managing employees	4.4476	Night-time operation of sports scientific center	4.0095
14	Restrooms	4.4245	Equipment and scale of the sports medical center	4.0094
15	Sound absorption equipment	4.4151	Additional facilities	3.9906
16	Facility management	4.4057	Taste and quality of food	3.9906
17	Cafeteria employee service	4.3962	Attitude of managing employees	3.9811
18	Mobility	4.3962	Clean lodging	3.9717
19	Additional facilities	4.3868	Recycling and smoking areas	3.9717
20	Night-time operation of sports scientific center	4.3868	Service of sports scientific center	3.9340
21	Service of sports scientific center	4.3774	Permanent staff at the information desk	3.9151
22	Separate lodgings for men and women	4.3679	Night-time operation of sports scientific center	3.9135
23	Equipment and scale of the sports medical center	4.3679	Equipment and scale of the sports medical center	3.8208
24	Role and service of guidance commissioners	4.3491	Quick resolution of inconvenience	3.7925

25	Different menu selections by each sports category	4.2925	Different menu selections by each sports category	3.7830
26	Recycling and smoking areas	4.2642	Role and service of guidance commissioners	3.6887
27	Night-time operation of sports scientific center	4.2642	Education on nutrition management	3.6762
28	Education on nutrition management	4.2264	Location of the counseling office	3.6415
29	Assignment of female guidance commissioners	4.1226	Insect and disease control	3.6321
30	Human rights counseling	4.1132	Human rights counseling	3.6132
31	Permanent staff at the information desk	4.0189	Dispatch cycle of counselors (twice a week)	3.5943
32	Shuttle bus for entering and exiting the training center	3.9906	Leisure facilities	3.5755
33	Weekend shuttle buses	3.9057	Sound absorption equipment	3.3491
34	Leisure facilities	3.8962	Assignment of female guidance commissioners	3.3396
35	Dispatch cycle of counselors (twice a week)	3.7547	Weekend shuttle buses	3.0094
36	English education	3.6698	Concerts for leisure	2.9811
37	Location of the counseling office	3.6321	Shuttle bus for entering and exiting the training	2.9528
38	Concerts for leisure	3.6321	English education	2.9434

The priority of importance and performance per selected attribute by athletes are as shown on Table 25.

Table 25. The priority of I and P per selected attribute by athletes

	Selected Attribute	Importance	Selected Attribute	Performance
1	Atmosphere and sanitation of cafeteria	4.8182	Parking for people with disability	4.2609

2	Clean lodging	4.7879	Restrooms	4.235
3	Professional knowledge of athletic trainer	4.7273	Facility management	4.1304
4	Professional knowledge of physical therapists	4.6970	Accessible facilities of people with disability	4.1014
5	Quick resolution of inconvenience	4.6364	Atmosphere and sanitation of cafeteria	4.0870
6	Taste and quality of food	4.6364	Cafeteria employee service	4.0870
7	Accessible facilities of people with disability	4.6364	Professional knowledge of athletic trainer	4.0145
8	Facility management	4.6061	Night-time operation of sports medical center	4.0000
9	Insect and disease control	4.5758	Separate lodgings for men and women	3.9565
10	Separate lodgings for men and women	4.5455	Additional facilities	3.9420
11	Service of sports medical center	4.5455	A wide range of menus	3.9420
12	Equipment and scale of the sports scientific center	4.5455	Taste and quality of food	3.9420
13	Parking for the disabled	4.5152	Equipment and scale of the sports medical center	3.9275
14	Restrooms	4.5152	Service of sports medical center	3.9130
15	A wide range of menus	4.5152	Mobility	3.8986
16	Equipment and scale of the sports medical center	4.5152	Professional knowledge of physical therapists	3.8986
17	Service of sports scientific center	4.5152	Attitude of managing employees	3.8986
18	Attitude of managing employees	4.5152	Recycling and smoking areas	3.8551
19	Mobility	4.4545	Permanent staff at the information desk	3.8261
20	Night-time operation of sports medical center	4.4545	Night-time operation of sports scientific center	3.8088

21	Role and service of guidance commissioners	4.4545	Service of sports scientific center	3.7826
22	Additional facilities	4.3939	Different menu selections by each sports category	3.7536
23	Different menu selections by each sports category	4.3939	Clean lodging	3.7536
24	Cafeteria employee service	4.3636	Equipment and scale of the sports scientific center	3.7536
25	Recycling and smoking areas	4.3333	Quick resolution of inconvenience	3.6957
26	Sound absorption equipment	4.3333	Insect and disease control	3.5652
27	Night-time operation of sports scientific center	4.3333	Role and service of guidance commissioners	3.5652
28	Education on nutrition management	4.3030	Education on nutrition management	3.5588
29	Shuttle bus for entering and exiting the training center	4.2121	Leisure facilities	3.4928
30	Weekend shuttle buses	4.1212	Location of the counseling office	3.4928
31	Human rights counseling	4.0909	Human rights counseling	3.4348
32	Assignment of female guidance commissioners	4.0606	Dispatch cycle of counselors (twice a week)	3.4203
33	Permanent staff at the information desk	4.0606	Sound absorption equipment	3.2609
34	Leisure facilities	4.0000	Assignment of female guidance commissioners	3.2319
35	Concerts for leisure	3.7273	Weekend shuttle buses	2.9710
36	English education	3.6970	Concerts for leisure	2.9710
37	Dispatch cycle of counselors (twice a week)	3.6364	English education	2.8986
38	Location of the counseling office	3.5455	Shuttle bus for entering and exiting the training	2.8551

Table 26 shows the priority of importance and performance per

selected attribute by coached with disability.

Table 26. The priority of I and P per SA by coaches with disability

	Selected Attribute	Importance	Selected Attribute	Performance
1	Accessible facilities of people with disability	5.0000	Clean lodging	4.7500
2	Sound absorption equipment	5.0000	Separate lodgings for men and women	4.7500
3	Clean lodging	5.0000	A wide range of menus	4.5000
4	Taste and quality of food	5.0000	Atmosphere and sanitation of cafeteria	4.5000
5	Insect and disease control	5.0000	Location of the counseling office	4.5000
6	A wide range of menus	5.0000	Dispatch cycle of counselors (twice a week)	4.5000
7	Atmosphere and sanitation of cafeteria	5.0000	Human rights counseling	4.5000
8	Service of sports medical center	5.0000	Parking for people with disability	4.5000
9	Professional knowledge of physical therapists	5.0000	Restrooms	4.500
10	Recycling and smoking areas	4.7500	Cafeteria employee service	4.5000
11	Professional knowledge of athletic trainer	4.7500	Accessible facilities of people with disability	4.2500
12	Restrooms	4.7500	Taste and quality of food	4.2500
13	Mobility	4.7500	Equipment and scale of the sports medical center	4.2500
14	Separate lodgings for men and women	4.7500	Night-time operation of sports scientific center	4.2500
15	Education on nutrition management	4.7500	Equipment and scale of the sports scientific center	4.2500
16	Different menu selections by each sports category	4.7500	Service of sports scientific center	4.2500
17	Cafeteria employee service	4.7500	Professional knowledge of athletic trainer	4.2500

18	Equipment and scale of the sports medical center	4.5000	Facility management	4.2500
19	Location of the counseling office	4.5000	Mobility	4.2500
20	Dispatch cycle of counselors (twice a week)	4.5000	Permanent staff at the information desk	4.2500
21	Human rights counseling	4.5000	Insect and disease control	4.0000
22	Facility management	4.5000	Quick resolution of inconvenience	4.0000
23	Additional facilities	4.5000	Recycling and smoking areas	4.0000
24	Quick resolution of inconvenience	4.2500	Service of sports medical center	4.0000
25	Equipment and scale of the sports scientific center	4.2500	Night-time operation of sports medical center	4.0000
26	Parking for people with disability	4.2500	Professional knowledge of physical therapists	4.0000
27	Weekend shuttle buses	4.2500	Additional facilities	4.0000
28	Shuttle bus for entering and exiting the training center	4.2500	Different menu selections by each sports category	4.0000
29	Attitude of managing employees	4.2500	Attitude of managing employees	4.0000
30	Permanent staff at the information desk	4.2500	Education on nutrition management	3.7500
31	Service of sports scientific center	4.0000	Assignment of female guidance commissioners	3.7500
32	Assignment of female guidance commissioners	4.0000	Role and service of guidance commissioners	3.7500
33	Role and service of guidance commissioners	4.0000	Sound absorption equipment	3.5000
34	Night-time operation of sports medical center	3.7500	Leisure facilities	3.5000
35	Night-time operation of sports scientific center	3.7500	Weekend shuttle buses	3.0000
36	Leisure facilities	3.5000	Shuttle bus for entering and exiting the training	3.0000

37	English education	3.2500	Concerts for leisure	2.7500
38	Concerts for leisure	2.7500	English education	2.7500

On table 27 that is the priority of importance and performance per selected attribute by coached without disability.

Table 27. The priority of I and P per SA by coached without disability

	Selected Attribute	Importance	Selected Attribute	Performance
1	Atmosphere and sanitation of cafeteria	4.8182	Restrooms	4.515
2	Clean lodging	4.7879	Atmosphere and sanitation of cafeteria	4.4848
3	Professional knowledge of athletic trainer	4.7273	Cafeteria employee service	4.4545
4	Professional knowledge of physical therapists	4.6970	Parking for people with disability	4.3939
5	Quick resolution of inconvenience	4.6364	Clean lodging	4.3333
6	Accessible facilities of people with disability	4.6364	Professional knowledge of physical therapists	4.3030
7	Taste and quality of food	4.6364	Professional knowledge of athletic trainer	4.3030
8	Facility management	4.6061	Accessible facilities of people with disability	4.2727
9	Insect and disease control	4.5758	Service of sports medical center	4.2727
10	Service of sports medical center	4.5455	Mobility	4.2727
11	Equipment and scale of the sports scientific center	4.5455	Recycling and smoking areas	4.2121
12	Separate lodgings for men and women	4.5455	Service of sports scientific center	4.2121
13	A wide range of menus	4.5152	Facility management	4.1818

14	Equipment and scale of the sports medical center	4.5152	Equipment and scale of the sports medical center	4.1515
15	Service of sports scientific center	4.5152	Attitude of managing employees	4.1515
16	Parking for people with disability	4.5152	A wide range of menus	4.1212
17	Restrooms	4.5152	Night-time operation of sports scientific center	4.0938
18	Attitude of managing employees	4.5152	Additional facilities	4.0909
19	Night-time operation of sports medical center	4.4545	Taste and quality of food	4.0606
20	Mobility	4.4545	Separate lodgings for men and women	4.0606
21	Role and service of guidance commissioners	4.4545	Permanent staff at the information desk	4.0606
22	Additional facilities	4.3939	Night-time operation of sports medical center	4.0303
23	Different menu selections by each sports category	4.3939	Quick resolution of inconvenience	3.9697
24	Cafeteria employee service	4.3636	Role and service of guidance commissioners	3.9394
25	Sound absorption equipment	4.3333	Equipment and scale of the sports scientific center	3.9091
26	Recycling and smoking areas	4.3333	Education on nutrition management	3.9091
27	Night-time operation of sports scientific center	4.3333	Human rights counseling	3.8788
28	Education on nutrition management	4.3030	Dispatch cycle of counselors (twice a week)	3.8485
29	Shuttle bus for entering and exiting the training center	4.2121	Location of the counseling office	3.8485
30	Weekend shuttle buses	4.1212	Different menu selections by each sports category	3.8182
31	Human rights counseling	4.0909	Leisure facilities	3.7576
32	Assignment of female guidance commissioners	4.0606	Insect and disease control	3.7273

33	Leisure facilities	4.0000	Sound absorption equipment	3.5152
34	Permanent staff at the information desk	4.0606	Assignment of female guidance commissioners	3.5152
35	English education	3.7273	Shuttle bus for entering and exiting the training	3.1515
36	Concerts for leisure	3.6970	Weekend shuttle buses	3.0909
37	Dispatch cycle of counselors (twice a week)	3.6364	English education	3.0606
38	Location of the counseling office	3.5455	Concerts for leisure	3.0303

4.4. The difference verification of importance-performance

A difference verification of five percent between the importance and the performance was considered significant for the purposes of analysis on the nine selected attributes and corresponding detailed characteristics of each attributes of Icheon Training Center. With regards to the detailed characteristics, facility, sports medical and scientific service, athletes' human rights counseling, facility management, mobility, shuttle bus, education and leisure, cafeteria catering, and employee service all categories showed significant differences, but among them, 6 selected attributes don't displayed significant differences. The difference verification between the importance and performance for the selected attributes of Icheon Training Center is reflected on the following table 28. Overall, the importance and performance for selected attributes of Icheon Training Center demonstrated

highly significant differences. This means that there is a distinct disparity between the importance and performance users of Icheon Training Center feel, meriting an appropriate solution on part of the training center's management so that users can enjoy the highest performance.

Table 28. The difference verification of importance-performance

Category	Selected Attribute	I	P	t
Facility (9)	Accessible facilities of people with	4.5377	4.1604	3.909***
	Sound absorption equipment	4.4151	3.3491	7.948***
	Clean lodging	4.6132	3.9717	5.787***
	Taste and quality of food	4.5283	3.9906	5.622***
	Insect and disease control	4.5238	3.6321	8.111***
	Quick resolution of inconvenience	4.4717	3.7925	6.779***
	A wide range of menus	4.4528	4.0189	4.075***
	Atmosphere and sanitation of cafeteria	4.6038	4.2264	4.081***
	Recycling and smoking areas	4.2642	3.9717	2.506*
Sports medical and scientific service (8)	Service of sports medical center	4.5094	4.0283	4.604***
	Night-time operation of sports medical	4.3868	4.0095	3.809***
	Professional knowledge of physical	4.6132	4.0283	5.714***
	Equipment and scale of the sports medical	4.4623	4.0094	4.534***
	Night-time operation of sports scientific	4.2642	3.9135	3.096**
	Equipment and scale of the sports scientific	4.3679	3.8208	5.399***
	Service of sports scientific center	4.3774	3.9340	4.200***
	Professional knowledge of athletic trainer	4.5755	4.1132	4.700***
Athletes' human rights counseling (3)	Location of the counseling office	3.6321	3.6415	-.185
	Dispatch cycle of counselors (twice a week)	3.7547	3.5943	1.596
	Human rights counseling	4.1132	3.6132	5.159***
Facility management (3)	Facility management	4.4057	4.1509	2.902**
	Additional facilities	4.3868	3.9906	4.035***
	Parking for people with disability	4.4528	4.3113	1.965
Mobility	Restrooms	4.4245	4.333	1.340

Category	Selected Attribute	I	P	t
(3)	Mobility	4.3962	4.0283	3.574***
	Separate lodgings for men and women	4.3679	4.0189	2.985**
Shuttle bus (2)	Weekend shuttle buses	3.9057	3.0094	6.494***
	Shuttle bus for entering and exiting the	3.9906	2.9528	7.264***
Education and leisure (4)	Concerts for leisure	3.6321	2.9811	4.734***
	Leisure facilities	3.8962	3.5755	2.269*
	English education	3.6698	2.9434	4.996***
	Education on nutrition management	4.2264	3.6762	4.004***
Cafeteria catering	Different menu selections by each sports	4.2925	3.7830	4.411***
	Cafeteria employee service	4.3962	4.2170	1.841
Employee service (4)	Assignment of female guidance	4.1226	3.3396	5.745***
	Role and service of guidance	4.3491	3.6887	6.228***
	Attitude of managing employees	4.4476	3.9811	4.852***
	Permanent staff at the information center	4.0189	3.9151	1.017

*p<0.05; **p<0.01;***p<.001

4.5. The result of analysis of IPA Matrix

The selected attributes of importance (I) and performance (P) of Icheon Training Center were simultaneously compared and analyzed by surveying the importance and measuring the performance after use for each characteristic. In this study using a matrix through IPA analysis, Alberty and Mihalik(1989), Guadagnolo(1985), Hollenhorst et al.,(1992), Kong(2006) and Kim(2013) used the mean value for performances and the mean value for importance as a median value. As such, the IP point of intersection was set using the median value for this study, and the results of the analysis are

laid out in quadrants with the X-axis representing the performance and the Y-axis representing the importance.

Quadrants 1 shows selected attributes of Icheon Training Center displaying high importance and low performances, while Quadrant 3 displays selected attributes where both importance and performances are lowest. Five selected attributes - sound absorption equipment, insect and disease control and the role and service of guidance commissioners, quick resolution of inconvenience, different menu selections by each sports category – appeared in Quadrant 1, meaning that the performance is not on par with the importance that is recognized for these attributes.

Quadrant 2 displays the highest concentration of selected attributes with 20 located in this quadrant. In particular, seven selected attributes – clean lodging, the professional knowledge of physical therapists, atmosphere and sanitation of cafeteria, the professional knowledge of athletic trainers, accessible facilities of person with disability' for lodging and amenities, taste and quality of food, service of sports medical center – displayed performance scores exceeding 4.5, and thus six selected attributes showed high performance relatively except insect and disease control.

Ten selected attributes – education on nutrition management, assignment of female guidance commissioners, Shuttle bus for entering and

exiting the training center, weekend shuttle buses, leisure facilities, human rights counseling for athletes, dispatch cycle of counselors (twice a week), location of counseling offices, English education, concerts for leisure – are located in Quadrant 3, where the importance and performance are the lowest compared to other selected attributes. Assignment of female guidance commissioners, Shuttle bus for entering and exiting the training center, and weekend shuttle buses are services yet to be offered by the training center, and displayed relatively low importance. The human rights counseling for athletes is a service established through government policy implemented in 2015 and is now in its third year. As human rights of athletes is an issue that will become more important with time, further efforts to improve performance will be needed in the future. Selected attributes located in Quadrant 3 are software attributes such as human rights, education, leisure that mostly have little direct correlation to training and sports performance, but are areas that need continuous improvement efforts on behalf of the athletes residing in the training center.

Lastly, the permanent staff at the information desk, recycling and smoking areas, night-time operation of sports scientific center are three attributes located in Quadrant 4, indicating that performance is high, while

the importance level is low. The role of this employee is to guide visitors to the training center and manage mail and package deliveries.

Analysis results show that the performance level indicated upon use and importance level of selected attributes of Icheon Training Center display slight disparities. This what users consider important manifests itself after users have experienced the selected attributes firsthand. Therefore, the administrators and staff of Icheon Training Center should be aware of the importance and performance of Icheon Training Center selected attributes.

Table 29. The result of analysis of IPA Matrix

Quadrant	Selected Attribute
Ⅰ quadrant (5)	● Sound absorption equipment ● Insect and disease control ● Role and service of guidance commissioners ● Quick resolution of inconvenience ● Different menu selections by each sports category
Ⅱ quadrant (20)	● Clean lodging ● Professional knowledge of physical therapists ● Atmosphere and sanitation of cafeteria ● Professional knowledge of athletic trainers ● Accessible facilities of person with disability for lodging and amenities ● Taste and quality of food ● Service of sports medical center ● Restrooms

	● Parking for person with disability ● Cafeteria employee service ● Facility management ● Mobility ● A wide range of menus ● Separate lodgings for men and women ● Additional facilities ● Attitude of managing employees ● Service of sports scientific center ● Night-time operation of sports scientific center ● Equipment and scale of the sports medical center ● Equipment and scale of the sports scientific center
Ⅲ quadrant (10)	● Education on nutrition management ● Assignment of female guidance commissioners ● Shuttle bus for entering and exiting the training center ● Weekend shuttle buses ● Leisure facilities ● Human rights counseling for athletes ● Dispatch cycle of counselors (twice a week) ● Location of counseling offices ● English education ● Concerts for leisure
Ⅳ quadrant (3)	● Permanent staff at the information center ● Night-time operation of sports scientific center ● Recycling and smoking areas

Figure 2. IPA Graph with attribute ratings for Icheon Training Center

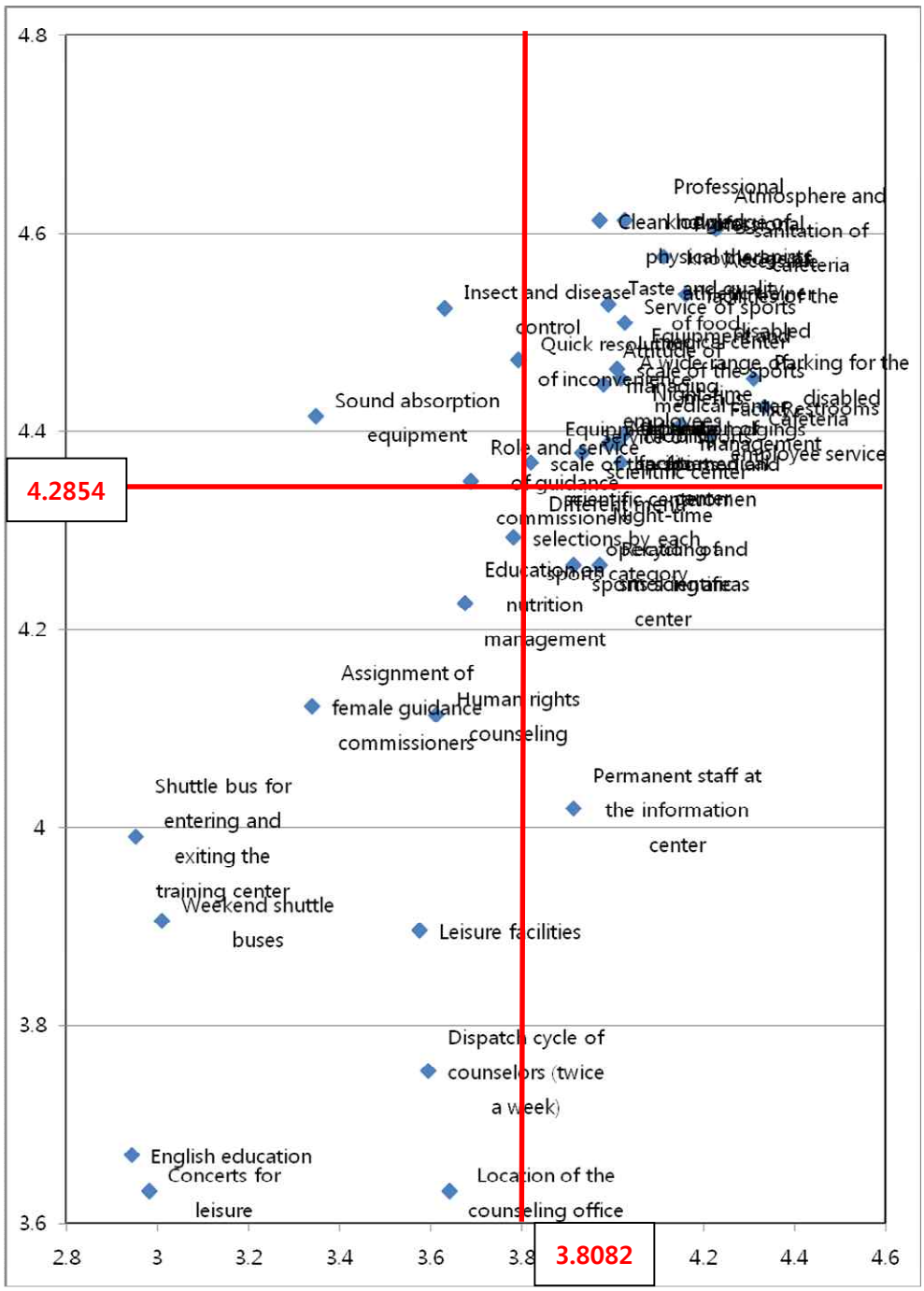
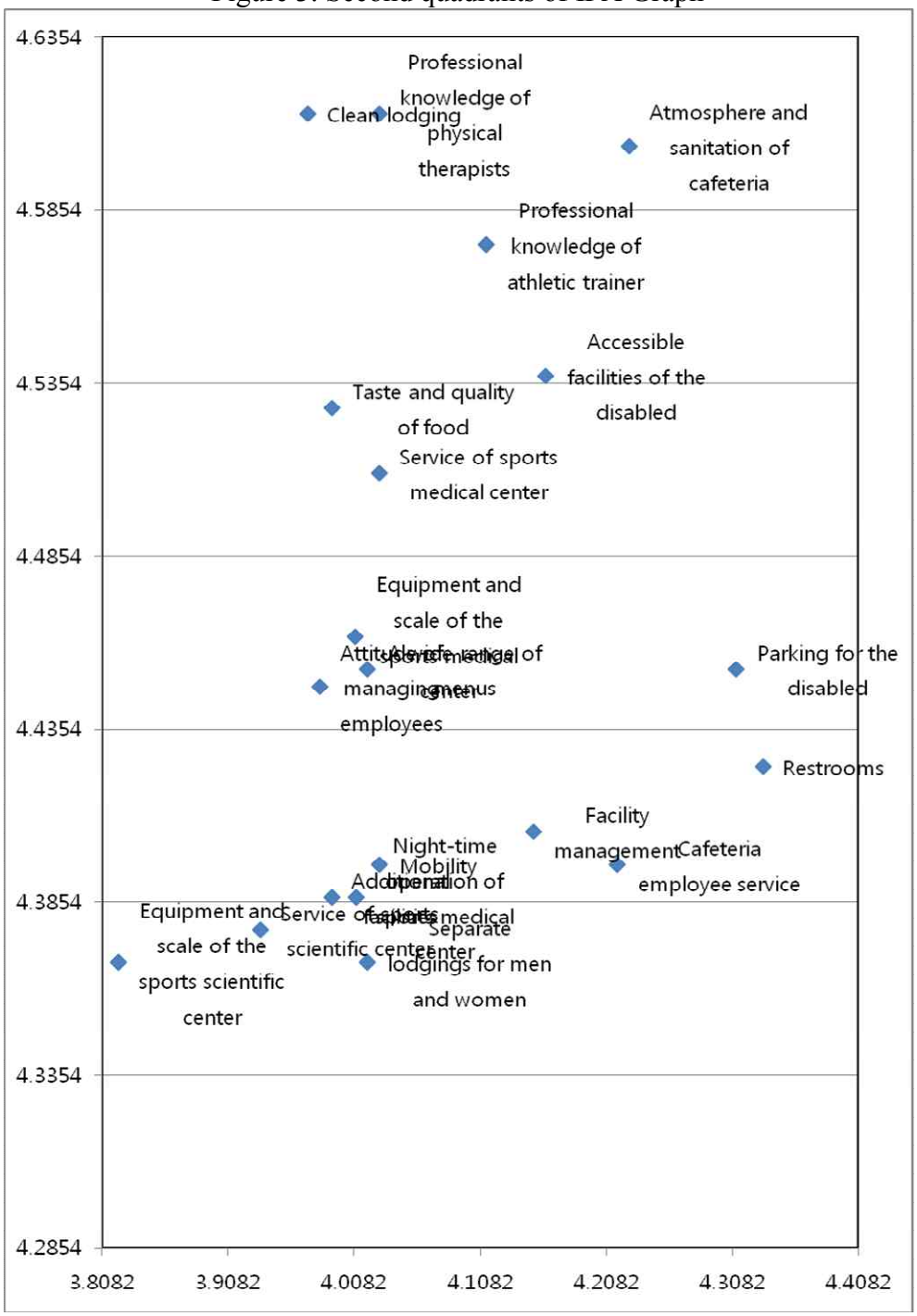


Figure 3. Second quadrants of IPA Graph



Chapter 5. Discussion and Conclusions

5.1. Discussion

This study aims to provide methods of improvement as a means of creating an optimal training environment that will assist national athletes with disabilities in improving their athletic abilities, by analyzing the priorities associated with each factor by deducing the current problems of operation of the training center and their remedies. In this chapter, the meaning behind the results of the study is reviewed and focus on the connections with previously conducted researches. An overall assessment of the selected attributes of Icheon Training Center was conducted by conducting and analyzing the importance and performance measurements of users of the training center for 38 selected attributes after factor analysis. The direction of the study established through literature reviews of past studies, and the contents and results of analysis of basic statistical analysis of the 106 materials collected and IPA is as follows.

Five selected attributes - sound absorption equipment, insect and disease control and the role and service of guidance commissioners, quick resolution of inconvenience, different menu selections by each sports category – appeared in Quadrant 1, meaning that the performance is not on par with the importance that is recognized for these attributes. Quadrant 2

displays total 20 selected attributes in particular, seven selected attributes – clean lodging, the professional knowledge of physical therapists, atmosphere and sanitation of cafeteria, the professional knowledge of trainers, accessible facilities of person with disability for lodging and amenities, taste and quality of food, sports medical center's. Ten selected attributes – education on nutrition management, assignment of female guidance commissioners, shuttle bus for entering and exiting the training center, weekend shuttle buses, leisure facilities, human rights counseling for athletes, dispatch cycle of counselors (twice a week), location of counseling offices, English education, concerts for leisure – are located in Quadrant 3. Lastly, the permanent staff at the information desk recycling and smoking areas, night-time operation of sports scientific center are attributes located in Quadrant 4. This result supports the previous results of the previous studies (Cho, 2010, Kim, 2011; Kim et al., 2016; Choi et al., 2005) which shows the need for a training support system that set out and implement an overall and long-term plan for improvement concerning not only the hardware aspects (accessibility, training facilities, amenities, lodging, etc.), but also software aspects (employee service, leisure programs, a system for nurturing specialists in field of sport for person with disability, support programs, athlete welfare, etc.).

First, with regards to the weaknesses and important items, Quadrant 1 indicates the urgent need for quick resolution system of inconvenience, providing different menu selections for each sports category, and strengthened meticulous management of facilities such as sound absorption equipment and insect and disease control. Quadrant 1 is also evidence that the identity and role of guidance commissioners must be clarified. Quadrant 1 represents the selected attributes where performance is not on par with the level of importance recognized by users of the training center, and thus needs better management and improvements as they should be prioritized so that they can move towards Quadrant 2 in the future. This supports the results of the research(Lee, Roh, 2016) that analyzed the improvement factors and relative importance of Comprehensive Sports facilities for person with disability, where the importance and order of priority in improving sound proofing of amenities and lodgings, assignment guidance commissioners to be in charge of each sports category, and stench and disease control management systems, were outlined.

Quadrant 2 represents the high points of the training center such as restrooms, parking for person with disability, atmosphere and sanitation of cafeteria, cafeteria employee service, accessible facilities of person with disability, facility management, professional knowledge of athletic trainer,

professional knowledge of physical therapists, service of sports medical center, mobility, a wide range of menus, separate lodgings for men and women, equipment and scale of the sports medical center, additional facilities, taste and quality of food, attitude of managing employees, clean lodging, service of sports scientific center, night-time operation of sports medical center, equipment and scale of the sports medical center. Of the 38 selected attributes, 20 (53%) are located in Quadrant 2 where importance and performance are both high, which means that in these areas the performance is in line with the expectation levels of current users. Given that separation of lodgings for men and women, parking for person with disability, and nighttime operations of medical facilities were presented as areas in need of improvement in Lee, Roh(2016), but placed high scores of 4.01, 4.31, and 4.00 respectively in this study, this is an indication that improvements have been made after interviews were conducted back in 2015. This study also supports the results of the previous study (Park, 2013) that investigated the satisfaction level of sports facilities for person with disability by surveying national athletes with disabilities, which indicated high performance for cafeteria and service, lodgings, work abilities and politeness of employees, and training center conditions. Moreover, this study supports the research on types of injuries of national athletes with

disabilities (Lee et al., 2011) which showed that athletes with disabilities experience more injuries due to physical conditions, and called for increased visits to the medical office, and use of physical therapy or oriental medicine treatment in order to prevent injuries and improve athletic performance, and the need for professional sports treatment programs. A previous research (Kim, Seo, 2015) also highlighted scientification of sports when it comes to elite athletes with disabilities, pointed out the need for consistently supporting sports scientists and improved treatment of such people, and argued that a scientific method of training must be implemented by accumulating data through analysis of athletic performance. However, as sports science service and expertise of trainers displayed high performance in this study, improvements have been made in these areas. The results of this study are also in line with the comparative research (Kim, 2010) between sports developed countries and Korea's elite athlete' village facilities which indicated the need for sports scientification through effective used of international sports information (sports science, sports facilities construction, training methods).

With regards to the low priority items, Quadrant 3 includes education on nutrition management, assignment of female guidance commissioners, shuttle bus for entering and exiting the training center,

weekend shuttle buses, leisure facilities, human rights counseling for athletes, dispatch cycle of counselors (twice a week), location of counseling offices, English education, concerts for leisure. A previous research (Lee, 2017) evidenced the disparities in the perception of human rights depending on age, individual and team sports categories, and national and non-national athletes, and the need for regular human rights education and counseling, and an environment conducive to the improvement of human rights set out in this study is also in line with this previous research. However, this study shows contrasting results with the study (lee, Noh 2016) that indicated shuttle bus for entering and exiting the training center, and weekend shuttle buses as the top priorities. Because attributes located in Quadrant 3 display both low levels of importance and performance, they do not merit urgent improvements, but should be focused on as a means of providing better services in the future. Specially in case of education on nutrition management, it is an area with problems what is also echoed by training center nutritionists and thus merits education programs implemented on a regular basis about nutrition management for each sports category.

Lastly, the permanent staff at the information desk, recycling and smoking areas, night-time operation of sports scientific center are selected attributes located in Quadrant 4, indicating that performance is high, while

the importance level is low. This means that maintaining the current level in terms of Icheon Training Center administrators and staff is sufficient. This area shows high performance and strengthen the role or information desk employees to make improvements in performance area.

5.2 . Limitation and Recommendation for Future Research

First of all, there are limitations to generalizing the results of this study as this research is not based on the total population of users of Icheon Training Center. Second, some of respondents who answered all the items in the survey indicated that all attributes of Icheon Training Center are below average, and thus it is hard to jump to conclusions. Therefore, there are limitations to the reliability of the data as well. Third, there are limitations as there may be key factors that affect the importance and performance of Icheon Training Center selected attributes.

Despite such limitations, this study provides the foundation for national research on Icheon Training Center selected attributes. Furthermore, the fact that this study measured both importance and performance to provide takeaways makes this study an even more effective basic data base for the management of Icheon Training Center. This study is timely given the fact that the expectation of Icheon Training Center users is on the rise and the level of service provided at the training center is also improving in

tandem. Research results that will drive better serves will be conducted in the future if they are to expand the scope of survey to not only national athletes and coaches but also substitute and new athletes and users that rent out Icheon Training Center. In addition, a comparative analysis between Korean and overseas cases of managing comprehensive training facilities for athletes with disabilities will be needed in the future. Studying methods of applying these benchmarks will also greatly benefit the operations of Icheon Training Center. A detailed analysis must be carried out and prepared in terms of high-quality service provided and the selected attributes in order to enhance management of Icheon Training Center.

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Appendix A

안녕하십니까.

이 설문조사는 “IPA 기법을 통한 이천훈련원 운영 분석”을 통해 훈련원 운영의 개선방안을 모색하고자 진행하는 연구의 기초자료입니다. 훈련원을 이용하면서 중요한 부분이 무엇이며, 만족한 부분은 무엇인지에 대한 설문으로 구성되어 있습니다. 귀하의 응답 내용은 비밀이 보장되며, 연구목적 이외에는 절대로 사용하지 않을 것을 약속드립니다.

동 설문지는 2 개로 구성되어 있으며 첫 번째는 이천훈련원을 이용할 때 중요도와 관련된 설문지이며 첫 번째 설문지 완료 후 두 번째 만족도 설문지에 응해 주시기 바랍니다. 훈련원을 이용하는 입장에서 각 문항을 잘 읽은 후 문항들에 대해 빠짐없이 응답해 주세요. 귀하의 솔직한 답변은 훈련원의 큰 발전과 서비스 개선을 위한 소중한 자료가 될 것입니다.

귀중한 시간을 할애하여 주셔서 진심으로 감사드립니다.

서울대학교 대학원 체육교육과 권혜진

■ 인구통계학적 질문입니다.

1. 귀하의 성별은?

①남성 ②여성

2. 귀하의 연령은?

①10 대 ②20 대 ③30 대 ④40 대 ⑤50 대 이상

3. 귀하의 장애유형은?

①뇌성마비 ②척수장애 ③절단장애 ④시각장애 ⑤청각장애

⑥지적장애 ⑦비장애인

4. 귀하의 학력은?

①중졸 이하 ②고졸이하 ③대졸 ④대졸이상

5. 훈련원을 이용기간은(연단위)?

①이번이 처음 ②1 년 이상~2 년 미만 ③2 년 이상~4 년 미만 ④4 년 이상

6. 귀하의 종목은? _____

7. 귀하의 해당 종목 경력은?

①3 년 미만 ②3 년~6 년 미만 ③6 년~9 년 미만 ④9 년~ 12 년 미만 ⑤12 년 이상

8. 귀하의 직함은?

①감독 ②코치 ③트레이너 ④파트너 ⑤훈련보조 ⑥선수

9. 귀하의 국제대회 랭킹은?

①1~5 위 ②6 위~10 위 ③10 위~15 위 ④15 위~20 위 ⑤20 위 이상

Ⅰ. 다음은 이천훈련원 이용 중요도에 관련된 질문사항입니다. 읽어보시고 중요하다고 생각되는 정도를 해당번호에 맞게 표시(✔)해 주십시오.

문항	이천훈련원 이용 중요도	전혀 그렇지 않다	그렇지 않다	보통이다	그렇다	매우 그렇다
1	훈련장의 관리상태는 중요하다	①	②	③	④	⑤
2	훈련장 부대시설(화장실, 회의실, 장비보관실)은 중요하다	①	②	③	④	⑤
3	편리한 주차공간(장애인주차구역)은 중요하다	①	②	③	④	⑤
4	이동에 편리한 훈련장 동선은 중요하다	①	②	③	④	⑤
5	넓고 위생적인 화장실은 중요하다	①	②	③	④	⑤
6	쓰레기통/분리수거/흡연실의 적절한 위치는 중요하다	①	②	③	④	⑤
7	주말 셔틀버스 운영은 중요하다	①	②	③	④	⑤
8	입퇴촌일 인근 역 또는 버스터미널 버스 운영은 중요하다	①	②	③	④	⑤
9	운동 종목에 따른 식단 구성은 중요하다	①	②	③	④	⑤
10	식당 구성원의 서비스는 중요하다	①	②	③	④	⑤
11	음식의 맛과 질은 중요하다	①	②	③	④	⑤
12	다양한 메뉴는 중요하다	①	②	③	④	⑤
13	식당의 분위기 및 위생적인 환경은 중요하다	①	②	③	④	⑤
14	주기별 영양 관리 및 섭취에 대한 교육은 중요하다	①	②	③	④	⑤
15	쾌적하고 깨끗한 숙소는 중요하다	①	②	③	④	⑤
16	남녀 숙소 분리는 중요하다	①	②	③	④	⑤
17	여가시설(당구장, 영화관, 인터넷까페, 도서관,	①	②	③	④	⑤

	노래방)은 중요하다					
18	숙소 및 여가시설 소음 장치는 중요하다	①	②	③	④	⑤
19	장애인 배려설치(턱없는 문, 슬라이딩도어, 경보장치 등)는 중요하다	①	②	③	④	⑤
20	편의점(또는 자판기) 설치는 중요하다	①	②	③	④	⑤
21	방역/방충은 중요하다	①	②	③	④	⑤
22	물리치료사의 전문지식은 중요하다	①	②	③	④	⑤
23	스포츠의학실 서비스는 중요하다	①	②	③	④	⑤
24	양의사(한의사) 촉탁의 서비스는 중요하다	①	②	③	④	⑤
25	스포츠의학실 야간운영은 중요하다	①	②	③	④	⑤
26	스포츠의학실 장비 및 규모는 중요하다	①	②	③	④	⑤
27	트레이너의 전문지식은 중요하다	①	②	③	④	⑤
28	스포츠과학실 서비스는 중요하다	①	②	③	④	⑤
29	스포츠과학실 야간운영은 중요하다	①	②	③	④	⑤
30	스포츠과학실 장비 및 규모는 중요하다	①	②	③	④	⑤
31	체육동 입구 안내데스크 직원 배치는 중요하다	①	②	③	④	⑤
32	직원들의 친절한 태도는 중요하다	①	②	③	④	⑤
33	불편사항에 대한 신속한 해결은 중요하다	①	②	③	④	⑤
34	지도위원 역할 및 서비스는 중요하다	①	②	③	④	⑤
35	여자 지도위원의 배치는 중요하다	①	②	③	④	⑤
36	주 1 회 감독자회의는 중요하다	①	②	③	④	⑤
37	훈련시설 외부인 출입관리 철저는 중요하다	①	②	③	④	⑤
38	스포츠인인권상담은 중요하다	①	②	③	④	⑤
39	상담사 파견 주기(현재 주 2 회)는 중요하다	①	②	③	④	⑤
40	상담실 위치는 중요하다	①	②	③	④	⑤
41	영어교육은 중요하다	①	②	③	④	⑤
42	여가를 위한 공연은 중요하다	①	②	③	④	⑤

2. 다음은 이천훈련원 이용 만족도에 관련된 질문사항입니다.

읽어보시고 이용 만족도에 대해서 해당번호에 맞게 표시(✓)해 주십시오.

문항	이천훈련원 이용 만족도	전혀 그렇지 않다	그렇지 않다	보통이다	그렇다	매우 그렇다
1	훈련장의 관리상태는 만족한다	①	②	③	④	⑤
2	훈련장 부대시설(화장실, 회의실, 장비보관실)은 만족한다	①	②	③	④	⑤
3	편리한 주차공간(장애인주차구역)은 만족한다	①	②	③	④	⑤
4	이동에 편리한 훈련장 동선은 만족한다	①	②	③	④	⑤
5	넓고 위생적인 화장실은 만족한다	①	②	③	④	⑤
6	쓰레기통/분리수거/흡연실의 적절한 위치는 만족한다	①	②	③	④	⑤
7	주말 셔틀버스 운영은 만족한다	①	②	③	④	⑤
8	입퇴촌일 인근 역 또는 버스터미널 버스 운영은 만족한다	①	②	③	④	⑤
9	운동 종목에 따른 식단 구성은 만족한다	①	②	③	④	⑤
10	식당 구성원의 서비스는 만족한다	①	②	③	④	⑤
11	음식의 맛과 질은 만족한다	①	②	③	④	⑤
12	다양한 메뉴는 만족한다	①	②	③	④	⑤
13	식당의 분위기 및 위생적인 환경은 만족한다	①	②	③	④	⑤
14	주기별 영양 관리 및 섭취에 대한 교육은 만족한다	①	②	③	④	⑤
15	쾌적하고 깨끗한 숙소는 만족한다	①	②	③	④	⑤
16	남녀 숙소 분리는 만족한다	①	②	③	④	⑤
17	여가시설(당구장, 영화관, 인터넷까페, 도서관, 노래방)은 만족한다	①	②	③	④	⑤
18	숙소 및 여가시설 소음 장치는 만족한다	①	②	③	④	⑤

19	장애인 배려설치(턱없는 문, 슬라이딩도어, 경보장치 등)는 만족한다	①	②	③	④	⑤
20	편의점(또는 자판기) 설치는 만족한다	①	②	③	④	⑤
21	방역/방충은 만족한다	①	②	③	④	⑤
22	물리치료사의 전문지식은 만족한다	①	②	③	④	⑤
23	스포츠의학실 서비스는 만족한다	①	②	③	④	⑤
24	양의사(한의사) 촉탁의 서비스는 만족한다	①	②	③	④	⑤
25	스포츠의학실 야간운영은 만족한다	①	②	③	④	⑤
26	스포츠의학실 장비 및 규모는 만족한다	①	②	③	④	⑤
27	트레이너의 전문지식은 만족한다	①	②	③	④	⑤
28	스포츠과학실 서비스는 만족한다	①	②	③	④	⑤
29	스포츠과학실 야간운영은 만족한다	①	②	③	④	⑤
30	스포츠과학실 장비 및 규모는 만족한다	①	②	③	④	⑤
31	체육동 입구 안내데스크 직원 배치는 만족한다	①	②	③	④	⑤
32	직원들의 친절한 태도는 만족한다	①	②	③	④	⑤
33	불편사항에 대한 신속한 해결은 만족한다	①	②	③	④	⑤
34	지도위원 역할 및 서비스는 만족한다	①	②	③	④	⑤
35	여자 지도위원의 배치는 만족한다	①	②	③	④	⑤
36	주 1 회 감독자회의는 만족한다	①	②	③	④	⑤
37	훈련시설 외부인 출입관리 철저는 만족한다	①	②	③	④	⑤
38	스포츠인인권상담은 만족한다	①	②	③	④	⑤
39	상담사 파견 주기(현재 주 2 회)는 만족한다	①	②	③	④	⑤
40	상담실 위치는 만족한다	①	②	③	④	⑤
41	영어교육은 만족한다	①	②	③	④	⑤
42	여가를 위한 공연은 만족한다	①	②	③	④	⑤

국 문 초 록

IPA 기법을 통한 이천훈련원 운영분석

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본 연구의 목적은 대한장애인체육회 이천훈련원 서비스 품질 향상으로 국가대표 경기력 향상에 초점을 두고 있다. 이 연구는 이천훈련원 운영과 관련하여 중요도-만족도 분석(Importance-Performance Analysis)의 적용을 통해 훈련원 운영이 더 효율적이고 편리하게 발전할 수 있도록 기초적인 자료를 제공한다.

이 연구의 목적을 달성하기 위하여 이천훈련원을 이용하는 국가대표 선수 및 지도자들을 선별하여 중요도 및 만족도에 대해 실시한 설문지 중 106부의 유효한 설문지가 모아졌다. 통계적으로 중요한 레벨을 α=.05로 설정하여 SPSS 18.0을 사용하였으며,

빈도분석, 구성 타당도를 검증하였으며 요인분석과 신뢰도 검증을 위해 크론 바흐의α 계수가 사용되었다. 요인분석을 통해 카테고리 재분배 및 선택속성 42개 중 4개가 삭제되었다. 또한 IPA 차이 검증을 위해 대응표본 T-test를 실시하였으며 연구 결과는 다음과 같다.

1 사분면에 위치한 이천훈련원의 선택속성은 높은 중요도와 낮은 만족도를 나타내며 5개의 선택속성(13%) 즉 방음장치, 방충방역, 지도위원의 역할 및 서비스, 불편사항 신속 해결, 종목별 다양한 메뉴 제공이 있다. 이는 이천훈련원 운영직원들이 최우선으로 개선해야 할 항목들이다.

2 사분면에는 20개의 가장 많은 선택속성(52%)이 차지하고 있다. 특히 깨끗한 숙소, 물리치료사의 전문지식, 식당의 분위기와 위생, 트레이너의 전문지식, 장애인들을 위한 배려장치, 식당 음식의 맛과 질, 스포츠의학실의 서비스 이 7개의 선택속성은 4.5점을 넘어 가장 큰 만족도를 보여 주고 있다.

3 사분면에는 10개의 선택속성(26%)이 포함되어 있는데 이는 여자 지도위원 배치, 입·퇴촌일 셔틀버스, 주말 셔틀버스, 여가 시설, 스포츠인 인권상담, 인권상담사 파견주기(주2회), 인권

상담실 위치, 영어교육, 여가 위한 공연, 영양관리교육이며 상대적으로 다른 선택속성에 비해 중요도와 만족도 모두 낮은 점수를 나타냈다.

마지막으로 4 사분면에는 3개의 선택속성, 안내데스크 직원 상주, 분리수거 및 흡연실, 스포츠과학실 야간운영이 포함되어 있으며 이는 만족도는 높으나 중요도는 덜하다고 볼 수 있다.

주요어: 중요도-만족도 분석(Importance-performance analysis), 대한장애인체육회 이천훈련원, 장애인 엘리트 스포츠, 장애인 국가대표

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