



# Parents' Perception of Kindergarteners' Swimming Lessons in Taiwan

**Chyong-Huoy Huang**

Physical Education Office, National Kaohsiung University of Science and Technology, Kaohsiung, Taiwan

**Email address:**

[aimee@nkust.edu.tw](mailto:aimee@nkust.edu.tw)

**To cite this article:**

Chyong-Huoy Huang. Parents' Perception of Kindergarteners' Swimming Lessons in Taiwan. *American Journal of Sports Science*. Vol. 7, No. 2, 2019, pp. 60-71. doi: 10.11648/j.ajss.20190702.13

**Received:** March 29, 2019; **Accepted:** May 5, 2019; **Published:** June 5, 2019

---

**Abstract:** In Taiwan, the government interestingly requires primary school students to be able to swim 15 meters. By analyzing the drowning statistics between Y2014 and Y2017, the program seems to be working. Understanding American Academy of Pediatrics' recommendation that most children age 4 and older should learn to swim, the purpose of this paper was to understand Taiwanese parents' views and opinions on kindergarteners' swimming lessons. By looking into parents' background and experiences, it is possible to construct a picture on the status of children's swimming before entering primary school and identify opportunities to do better. The target subjects were parents of kindergarteners whom were between 4 and 6 years old. Returned questionnaires were analyzed statistically, and from this the conclusions were drawn. Recommendations were made through literature reviews, online researches and findings. The summary provided below was based on the statistical analysis: (1) Fathers ranked themselves higher on swimming ability than mothers did. (2) More than half of the parents went to swimming once every few months. They liked to go swimming with other family members. (3) Nearly 1/3 of parents thought the best time to learn swimming was between ages of 4 and 5. (4) However, less than 1/4 of parents had helped their child/children signed up for the swimming lessons. Learning to swim before primary school was not popular in Taiwan. (5) Being afraid of water, not interested in swimming, too troublesome were the constraints which affected parents' willingness to sign up swimming lessons for their child/children. (6) Easy to register, cleanliness of the pool, close proximity to home, and kid-friendly pools were the key factors leading to satisfaction. (7) Parents across all income level believed the cost of the swimming lessons were reasonable. (8) Both fathers and mothers shared similar views on how the classes should be conducted. More mothers preferred having certified professionals and having water safety included in the lesson.

**Keywords:** Preschool Swimming Lessons, Kindergarten Swimming Lesson, Taiwan Drowning Statistics, Constraints and Satisfaction

---

## 1. Introduction

Taiwan, also known as Formosa – the beautiful island is surrounded by oceans. It is situated in the subtropical zone and thus has an excellent environment to do many water sports. As Taiwan leaped from developing country to developed country, many sacrifices were made. Many individuals worked long hours in the labor-intensive factories to keep the economy flourishing. The hard work of the baby boomers paid off, and the new generation was able to enjoy relatively stable and easy life. The lifestyle, from one generation to the next, however, became very different. Baby boomers focused their energy on meeting the ends meet. They barely had time to think about leisure sports. Their prime focus were to place their kids into

good school and to get a stable job. Their children now are parents themselves, and face making decisions that affect the quality of life that the older generation did not have the luxury. These parents have to decide on what leisure activities are good for their kids, how much money to spend, and how much time to allocate.

Swimming has been one of the leisure sports that Taiwanese parents would like their kids to master. Knowing how to swim could make a difference between life and death when doing water sports or just play with water, especially there are many temptations in Taiwan. Drowning accidents occur every year.

One way of dealing with drowning is to create fear in people's mind, warn kids not to go near water. It is cheap and easy. Though it works sometimes, it limits the type of

activities that could be participated. Worse still, children sometimes surrender under peer pressure and do dangerous sports even if they are not capable.

Another way of dealing with drowning is through proper education and support system. The best scenario is to start young, give our children safe environments and opportunities to have fun with water, and to have plenty of time to learn and practice water safety rules and know how to use safety devices.

Over the past twenty years, Taiwan government had been promoting exercise and healthy lifestyle for all. The climate in Taiwan made many water sports possible, such as swimming, scuba diving, water aerobics, sailing, water motorbike, and whitewater rafting. Many of these sports were new to Taiwan. With proper equipment and training, they could be fun and exciting. They encouraged people to be outdoor and take advantage of the Mother Nature.

The author wanted to gauge what Taiwanese parents think about their child/children's swimming lessons today; their perception of learning to swim at a younger age and finally, the obstacles they had faced. Literature review, online researches and questionnaire were used to understand the views of parents and to make suggestions for the study.

This chapter aimed at giving some background that solidified the research. Section 1 thru 4 touched on the drowning statistic, the current situation, the past governmental effort and finally the socioeconomic factor in Taiwan. Section 5 and 6 described the current trending in the United States as well as give an example on how pre-elementary swimming was being done. Lastly, Section 7 summarized the literature study on leisure constraints and satisfaction.

**1.1. Drowning Statistics in Taiwan**

After WWII, many Taiwanese had to start from nothing and rebuild their families. For many years, Taiwanese people worked hard and the students had to attend classes on Saturday mornings. The concept of having leisure or recreational hobby was rare. Gradually, the quality of life improved as the economic picked up. The government stopped Saturday morning schools, and eventually shortened the working days to five days per week for most professions. The extra free time allowed parents to spend more time with their children, taking kids to different lessons other than cram schools. All in all, different choices for recreations begun to flourish. This meant new and different outdoors activities, including water sports were being tried for the very first time.

At start, water safety was not a concern in people's mind. There were few famous incidents dated back to 40 years which caught everyone's attention. In Y1973, there was a major incident of furry tipping off in Kaohsiung Qijin. 25 people died [1]. In Y1981, a school trip to Wai Shuang Xi, Taipei, while having BBQ near the creek, due to the release of water from upper reservoir without warning, 15 people were drowned [2].

First forward to Y2007, an article published in Taipei Times was titled "Taiwanese kids at unusually high risk of drowning [3]". In the article, death by drowning was three times more

likely for Taiwanese kids under 14 than Australia kids. While accidental death was the number one cause of death for children since Y1994 in Taiwan, drowning claimed second most lives in the category.

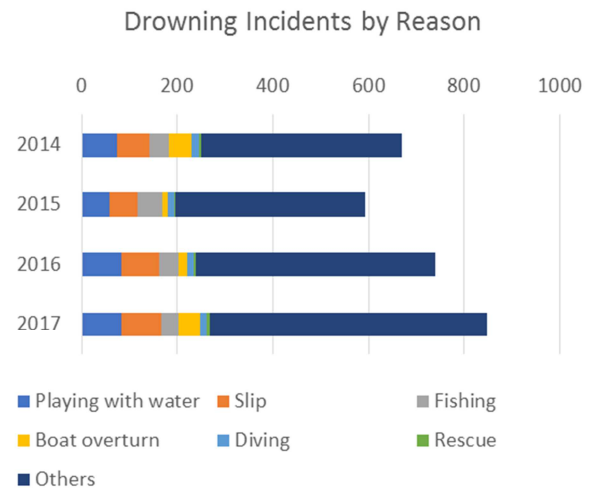
Taiwan government had been working proactively by: (1) sending messages to the public through school, media, flyers, and YouTube, (2) setting up workshops, (3) setting up annual meetings related to water safety, (4) Implementing laws and legislations related to the management of aquatic recreational activities, (5) promoting schools including swimming as part of PE curriculum, and (6) budgeting fund for off-campus swimming teaching.

According to the Sports Administration, the top location prone to cause drowning was sea, followed by streams, rivers, lakes, and reservoirs for students [4]. From the government official website [5], table below gave a summary of the drowning statistic based on the cause for between Y2014 and Y2017 (Table 1 & Figure 1). "Playing with water" and "Slip" were the top two causes for drowning.

*Table 1. Statistics of Drowning Incidents by Cause.*

Reason	2014	2015	2016	2017	Total
Playing with water	74	59	84	83	300
Slip	68	57	79	84	288
Fishing	41	54	40	36	171
Boat overturn	46	10	18	46	120
Diving	17	13	13	13	56
Rescue	5	2	5	7	19
Others*	419	399	500	579	1897
Total	670	594	739	848	2851

\* Others included suicide, work, traffic accidents and floating dead body.

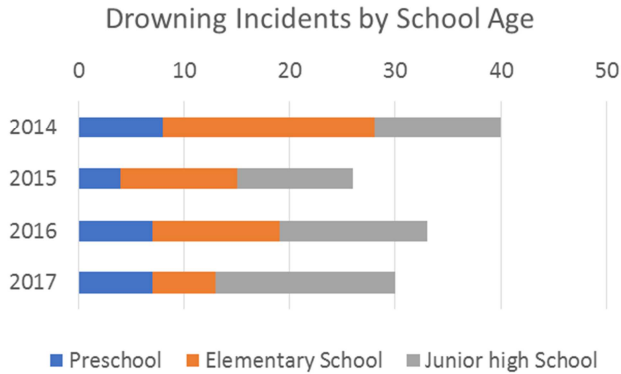


*Figure 1. Chart of Drowning Incidents by Reason.*

Looking at the data more carefully, the number of drowning incidents for younger school children had decreased in the four year between Y2014 and Y2017 (Table 2 & Figure 2). In Taiwan, typical age for the kindergarten was between 4 and 6 years old. Typical age for elementary school was between 6 and 12 years old and for junior high school was between 12 and 15 years old [6].

**Table 2.** Statistics of Drowning Incidents by School Age.

School Age	2014	2015	2016	2017
Kindergarten	8	4	7	7
Elementary School	20	11	12	6
Junior high School	12	11	14	17
Total	40	26	33	30

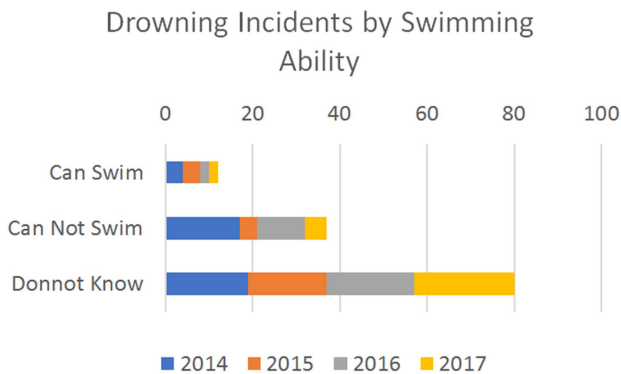


**Figure 2.** Chart of Drowning Incidents by School Age.

Looking into the data further, most of the drowning incidents were children who did not know how to swim or their swimming skill was unknown (Table 3 & Figure 3). This data validated that knowing how to swim can prevent drowning.

**Table 3.** Statistics of Drowning Incidents by Swimming Ability.

Swimming Ability	2014	2015	2016	2017
Can Swim	4	4	2	2
Can Not Swim	17	4	11	5
Do Not Know	19	18	20	23
Total	40	26	33	30



**Figure 3.** Chart of Drowning Incidents by Swimming Ability.

**1.2. Current Situation in Taiwan**

Swimming courses are offered in many places throughout Taiwan, though they tend to be more concentrated in the urban cities. Most of them are small operations and often only offers classes in the summer. Swimming operators in Taiwan could be loosely categorized in: (1) Private companies, (2) Recognized authorities such as YMCA, and (3) Public organizations and schools.

**1. Private Companies**

Swimming schools operate in this category often provide swimming lessons throughout the year. There is no standard on how the contents of the swimming lessons should be. For example, one operates in Kaohsiung offers group course, private course, and 25 meter guarantee course [7]. Another one offers summer training course, guarantee course, private course, and group course [8].

**2. Recognized Authorities**

Recognized authorities usually have their own well established system. For example, YMCA has its own system for running the swimming programs. It offers four different types of swimming courses: (1) Baby course, (2) preschool course, (3) youth course, and (4) adult course.

**3. Public Organizations and Schools**

Many municipal swimming pools and schools also offer swimming classes in the summer. They usually target kids that are in the elementary school and above. For example, the summer swimming classes offered by Tamkang University aim to let students have fun swimming, enhance their personal health and fitness, and promote water safety awareness [9]. Beginner course and advanced course are offered. Individuals who are over age of 7 to 18 years old with the height over 120 cm are eligible to sign up for the course.

Fees charged from all three different types of organizations are not too different from one another. Private companies offer more flexibility, such as customized private lessons. Since they are often advertised through word of mouth, the reputation of the instructors are critical to the success of the business. Courses offered by recognized authority are often well structured with reasonable facility and staffing. Many parents trust courses offered by public swimming pools and schools as often the instructors are experienced school teachers.

Only a handful of swimming schools offer swimming courses for children before 6 years old and are often subject to cancellation if there are not enough people to sign up.

One interesting phenomena worth mentioning is the guaranteed classes. It is virtually unheard of in North America. The author believes the attractiveness of such class is driven by the time and money constrain faced by parents, as well as the mandate from the government that all children need to know how to swim.

**1.3. Taiwan Governmental Effort**

In Y1989, Ministry of Education launched a midterm plan called “Improving Students’ Swimming Ability”, which required primary school students having to swim at least 15 meters, junior high school students having to swim 25 meters before they graduate [10, 11]. Having a nationwide mandate as such was not common amongst countries. Obviously, the government wanted to promote swimming as one of the essential sports and life skill.

Further down the timeline, “2008 National Development Project” was introduced by the Executive Yuan, where Sports Administration listed swimming as one of the two main sports to promote within the nation. “Swim Up” project was later established, which is still ongoing today. This long-term

project is set to carry out from year 2010 to year 2021 [12].

There have been good results. The proportion of students who know how to swim was positively correlated with the grade, which indicates the program worked. Also, as Section 2.1 revealed, the number of drowning had been going down in the recent years.

Ministry of Education classified swimming ability into many levels; each level being symbolize by a sea creature. They were: seahorse, octopus, lynx, sea otter, penguin, seal, shark, dolphin, whale, and swordfish. This creative naming was to avoid comparison amongst the students and the parents. It was much friendlier than the grading system that Taiwanese students are used to.

On February 19<sup>th</sup> of 2014, the grading standard was modified. Swimming ability was changed from ten levels to five levels. Also, basic water safety skill was introduced. Students could learn both swimming skills and basic water rescue in parallel [13].

To make the program work, Ministry of Education urged schools to cooperate with local swimming pool operators. At present, there are 3,994 schools at all levels in Taiwan, and only 496 swimming pools available [14].

In Y2017, Department of Sports Administration revealed five factors that schools, from Grade 1 to Grade 12, failed to offer any swimming courses. They were: (1) facility, (2) traffic, (3) funding, (4) humane resource, and (5) administrative factors. Schools with no access to a swimming pool could apply for a special funding for swimming related program. In this case, the school would have to submit a proposal and then get an approval. The fund could then be used for student to take swimming lessons that might be offered in the summer [14].

The program was not perfect. It created extra administrative work, but for the benefit of students and seeing the evidence of making positive progress in case of drowning, the author believed these programs and initiatives are well worth it.

#### 1.4. Taiwan Socioeconomic Influence

Generally speaking, Taiwanese like most Asians are more conservative as compare to North American or European. Listed below are some Taiwanese mentalities that affect the popularity of swimming. Some points might apply to a certain set of population, while other points might apply to a broader set of group.

1. Efficiency: Efficiency was what drove Taiwanese economy apart after WWII and this idea was ingrained in every aspect of life. As previously touched on, people love and are often proud of be able to learn things quickly. Many do not want to waste time. Enjoyment is secondary. Practice makes perfect is amplified by having prolong practices during a short period of time, or is not practiced at all.
2. Dress Requirement: People are very conscious of their body shape and many are perhaps too critical. Media doesn't help to ease the anxiety. Some people rather not touch the water to avoid any potential embarrassment.

Also, the use of tampons is not common for the females.

3. Focus on Academics: The focus on academic achievement was driving by the education system and the job market. For a long time, students were required to take national entrance exams in 9<sup>th</sup> grade and 12<sup>th</sup> grade in order to advance further. Many cram schools were established so the students could study more after school. The result was that the children had no time to do anything else.
4. Focus on Financial Gain: Many baby boomers went through periods of being poor. These people are now grandparents who stress on making money and social status and leaves little time for leisure sports. Furthermore, in the past ten years, Taiwanese economy has slowed down so much that the salary did not keep up with inflation. This places new families in financial strain even if they now have time to enjoy leisure sports.
5. Heavily Depend on Professionals: Chinese culture have tremendous respect for teachers and scholars. Many families have both parents working. So naturally, teaching is left to the professionals, even hobbies. Swimming is no exception. Taiwanese believes learning correctly from the start is the key to success.
6. Low Birth Rate: Taiwan's birthrate in Y2017 was the world's 3<sup>rd</sup> lowest [15]. The total fertility rate was 1.13 (see Table 4). Due to low birth rate, many schools were forced to merge or closed. Parents and grandparents were more protective than ever. Some people believed learning swimming later might be safer.

Table 4. Countries with lowest average total fertility rate.

Country	Total Fertility Rate
Singapore	0.83
Macao	0.95
Taiwan	1.13
Hong Kong	1.19
Puerto Rico	1.22

7. Religious: Due to cultural and religious reason, older generation tends to believe playing in the water in July on the lunar calendar is dangerous because it is a ghost month. This takes time golden time away from learning to swim.

#### 1.5. US Government Trending

Taiwan looks up to US for many things. For swimming, it makes sense as the US has done very well in Olympics and the US generally places great importance on public safety. There had been an ongoing debate on the best time to teach children to swim. In April 2000 issue published by American Academy of Pediatrics (AAP), the policy paper "Swimming Programs for Infants and Toddlers" wrote: "Infant and toddler aquatic programs are popular throughout the United States. An estimated 5 to 10 million infants and preschool children participate in formal aquatic instruction programs. Infant and preschool programs have been developed by such organizations as the American Red Cross and the YMCA [16]." Two of seven recommendations from the paper were:

“Children are generally not developmentally ready for formal swimming lessons until after their fourth birthday” and “Aquatic programs for infants and toddlers should not be promoted as a way to decrease the risk of drowning [16]”.

However in Y2009, the article - Association between Swimming Lessons and Drowning in Childhood written by Brenner et al. [17], concluded that “participation in formal swimming lessons was associated with an 88% reduction in the risk of drowning in the 1- to 4-year-old children [17].”

Armed with new information, in Y2010 AAP updated its policy. It stated, “In the new policy, the AAP reinforces its existing recommendation that most children age 4 and older should learn to swim, but the AAP is now more open toward classes for younger children [18].”

The article on AAP’s website titled “Swim Safety Tips from the American Academy of Pediatrics [19]” had the following points:

1. “Children over age 1 may be at a lower risk of drowning if they have had some formal swimming instruction. However, there is no evidence that swimming lessons or water survival skills courses can prevent drowning in babies younger than 1 year of age [19].”
2. “Everyone should learn to swim - Participation in formal swim lessons can reduce the likelihood of childhood drowning death by 88% [19].”
3. “The decision to enroll a child over age one in swimming lessons should be made by the parent based on the child’s developmental readiness and exposure to water, but swim programs should never be seen as “drown proofing” a child of any age [19].”

Another respected governmental authority in the United States, Centers for Disease Control and Prevention, which gave guidance to child development and parenting tips, recommended “be safe in the water. Teach your child to swim, but watch her at all times when she is in or around any body of

water [20]” for preschoolers (3 – 5 years of age).

Following these recommendations from the government, there is little debates now that learning to swim at preschool age yield benefit. Toddlers and preschool swim classes continue to be popular in North America.

To have a glance of how public swimming courses are structured in North America, the following section uses Toronto as an example. Public swimming courses are offered by city’s Park, Forestry & Recreation division, which is consistent throughout cities in North America.

### 1.6. North American City - An Example

Toronto is the largest city in Canada. It is the provincial capital of Ontario and also has a highest density population in Y2016 [21]. “The City of Toronto Parks, Forestry and Recreation Division is the largest division of the Toronto municipal government. It is responsible for city-owned parks, forests, and recreation centers. With a gross annual budget in Y2018 of C\$468 million, the division is responsible for the City’s over 3 million trees, 1473 named parks, 839 sports fields, 137 community centers, and about 670 other recreational facilities including: pools, golf courses, ski centers, skating rinks, greenhouses and ferries. Each year, more than 1.2 million Toronto residents participate in over 54,000 recreation and leisure programs offered by the division [22].”

Register for the courses could be easily done online, by phone or in person. The courses are quite affordable, however residents with financial problem can get the assistance through the City’s Welcome Policy [23]. Table 5 below summarizes its “Learn to Swim” program for the youth. Babies as young as 6 months old can dip in the water and have fun with the parent. Kids as young as 3 years old can start taking lesson by themselves.

**Table 5.** Course information of “Learn to Swim” program.

Course Name	Age (Years)	No. of Levels	Description
Guardian Swim	0.6 - 5	3	The course focuses on the introduction of water environment and learning basic swimming skills. A parent or guardian is required to accompany the child to participate in the class in the water for the entire time. Having a trusted adult in the water increases the child’s willingness to try.
Preschool Swim	3 - 5	4	Preschool swimming classes are divided into four progressive levels: penguin, stingray, otter, and dolphin. This is a swimming course for children without accompanying adult. This may also be a child first swimming class.
Ultra Swim	5 - 16	9	In these classes, students start to learn proper swimming strokes. Each level has detailed requirements that must be met before moving on to the next level. The length of the classes gradually increases from 30 minutes to 1 hour.
Ultra Youth Swim	9-16	3	These 60 minutes long classes further work on the swimming strokes and water safety. Student can take lifesaving course in parallel to become certified lifeguard.

### 1.7. Theories of Leisure Constraints and Satisfaction

The status of hierarchical leisure constraints theory suggested that there are three types of barriers, which were intrapersonal barriers, interpersonal barriers, and structural barriers [24, 25]. Intrapersonal barriers included psychological conditions that are internal to the individual such as personal factors and attitude. Interpersonal barriers included interaction with people. Structural barriers included

factors that come from external conditions such as lack of transportation and cost of participation. Leisure constraints theory was later reviewed by Godbey, Crawford, and Shen [26], it was concluded that the model was cross culturally relevant and could be used to examine forms of behavior other than leisure.

Beard and Ragheb [27] defined leisure satisfaction as an individual gains positive feeling and feedback when he/she participated in leisure activity. A person decided on the level

of satisfaction by judging the gap between what had been gained versus the expectation before engaging in the leisure activity. The smaller the gap, the higher the satisfaction and vice versa [28]. Investing time and effort in leisure activities helped to gain happiness and create life satisfaction [29]. When individual's needs were fulfilled, satisfaction was created. Beard and Ragheb [27] also developed an instrument to measure satisfaction gained from participation in leisure activities.

Constraints or obstacles were associated with satisfaction. Questionnaire for this research was developed based on the researches done in this section. The paper aimed to rank obstacles which stop parents from signing up swimming classes. So far, there was little studies done. Detailed statistical analysis was summarized in Chapter 3.

## 2. Research Methodology

This chapter summarized how the questionnaire was constructed and used.

### 2.1. Instrumentation

Questionnaire was developed for this study by the researcher. Information gleaned from the literature review and research was used for developing questions to gather data from the selected sample. Questionnaire was divided into three sections which were basic information of the research subject including their degree of involvement, constraints and satisfaction regarding kindergarten swimming.

A panel of experts in the field of physical education in Taiwan was used to determine the content validity of the questionnaire. A critique of the instrument was conducted to avoid any potential misunderstanding that might have occurred during the completion of the questionnaire as this could have a significant effect on the results of the study. A small sample of parents from one of the kindergartens in Taiwan were selected to do the pretest which was to check clarity of the questionnaire and instructions. Several revisions were made. Factor analysis was done to check the construct validity of the questionnaire. Also, Cronbach's  $\alpha$  was calculated to check the reliability of the questionnaire. After the questionnaire was revised, the formal questionnaire was produced.

### 2.2. Research Method

Parents whom had child/children that went to kindergarten during Y2017 - Y2018 school year were selected as research subjects from five metropolitan areas in Taiwan [30]. The study was conducted over a two-month period between April and May of 2018, then all of the legitimate questionnaires were coded and analyzed.

### 2.3. Population and Sample

There were two main reasons why the research sample size was not spread throughout Taiwan. First, kindergarteners in the five metropolitan areas represented the majority of

kindergartener's population in Taiwan [30]. Secondly, kindergarten swimming would be easier to promote in the five metropolitan areas because of existing infrastructure and funding.

The decision on the sample size of this questionnaire was limited by the fact that the sampling method could not meet the requirements of random sampling with complete accuracy. In order to reduce the measurement error and increase the representativeness of the sample, the sample size of this study was set to require 95% confidence level and the tolerance ratio of 3%. The book titled "Marketing Research [31]" indicated generally people would think there was an absolute relationship between sample size and population. In actuality, the number of samples is determined not by the sampling ratio, but by the statistical principle based on the sampling error. With 95% confidence and the tolerance ratio of 3%, at least 1067 samples were required regardless how large the population was for this study. Total of 1596 questionnaires were analyzed for this study which met the requirement.

### 2.4. Data Analysis

The Chinese version of SPSS20.0 was used for data analysis. Percentage, mean, standard deviation, cross tabulation, independent t test, and correlation coefficient were the statistical methods used to calculate the results of the study. The significant level of statistical test in this study is set to  $p < .05$ .

## 3. Results and Discussions

Descriptive and inferential statistics were computed based on responses. Section 3.1 identified the characteristic of the research subjects. Section 3.2 pricked at parents' level of participation and their perception. Section 3.3 identified parents' obstacles and satisfaction from their child/children's swimming lessons.

### 3.1. Characteristics of the Research Subjects

In this section, research subjects' place of residency, age, education level and income were compared.

#### 3.1.1. Location

There were five major metropolitan area in Taiwan. Table 6 summarized the location where the research subjects lived. The percentage distribution was: 23.0% in Taipei-Keelung metropolitan area, 22.1% in Kaohsiung metropolitan area, 18.2% in Taichung-Changhua metropolitan area, 15.8% in Taoyuan-Zhongli metropolitan area, and 20.9% in Tainan metropolitan area.

Table 6. Location of the research subjects.

Metropolitan Area	Count	Percentage
Taipei-Keelung	367	23.0%
Kaohsiung	353	22.1%
Taichung-Changhua	291	18.2%
Taoyuan-Zhongli	252	15.8%
Tainan	333	20.9%

### 3.1.2. Age of the Research Subjects

Not only Taiwan had low fertility rate as mentioned, but the average ages at first marriage for men and women in 2007 were 31 and 28.1, respectively [32]. Therefore, as expected, 55.3% of the parents or research subjects fall into the range of 35 to 44 years old category as shown in Table 7. Also, about one-third of parents were between 25 to 34 years old.

Table 7. Research subjects' age.

Age	Count	Percentage
< 18	2	0.1%
Between 18~24	59	3.7%
Between 25~34	535	33.5%
Between 35~44	883	55.3%
Between 45~54	117	7.3%

### 3.1.3. Educational Level and Family Income of the Research Subjects

Table 8 revealed that 60.7% of the parents held college/university degree. This was followed by senior high school degree (27.2%), graduate school degree (9.7%), and junior high school and below (2.4%).

Table 8. Educational level of the parents.

Educational Level	Count	Percentage
Junior high school and below	39	2.4%
Senior high school	434	27.2%
College / University	968	60.7%
Graduate school	155	9.7%

The family income was spread from 20,000 Taiwanese dollar (NT) or below to 100,000 NT or above. 33.2% of parents earned between 20,001 to 40,000 NT. 24.9% of parents earned between 40,001 to 60,000 NT and 35.3% of parents earned 60,001 NT and more.

For the past three years, basic monthly wage in Taiwan raised from 21,009 NT in Y2017 to 23,100 NT in Y2019 [33]. Average monthly salary rose to 40,792 NT in April of 2018, which was the largest 4-month increase in 18 years [34].

Table 9. Family income of the parents.

Monthly Income	Count	Percentage
≤ 20,000	105	6.6%
20,001~40,000	530	33.2%
40,001~60,000	398	24.9%
60,001~80,000	257	16.1%
80,001~100,000	171	10.7%
≥ 100,000	135	8.5%

## 3.2. Participation in Swimming and Perception toward Swimming

In this section, parents' self-assessed swimming ability, close proximity to pool, swimming frequency and pattern were discussed. Their perception of swimming and swimming courses were also evaluated.

### 3.2.1. Self-assessed Swimming Ability

Table 10 showed fathers overall scored themselves better than mothers in term of swimming ability. 22.6% of

male subjects did not know how to swim as compared to 41.2% of female subjects. Also, 23.5% of male subjects could swim 50 meters or more, but only 9.2% of female subjects could do the same. It was interesting to note that more than double of females responded to the survey than males. Finally, 36.2% of the parents did not know how to swim.

This was not surprisingly to see the difference. Many studies had shown that females had lower participation rate in exercise than males in Taiwan. For example, from the study done by Wang, Fang, and Yang [35] regarding gender effects on college students' self-motivated participation of leisure sports, the paper concluded female students needed more encouragement than male students to nurture regular exercise behaviors. Another study done by Yang and Chen [36] also showed that unfriendly exercise environment toward females caused lower participation rate. In order to improve and strengthen female students' self-motivated participation, their psychological needs and comfort level had to be addressed.

Table 10. Self-assessed swimming ability.

Gender	0 m	≥ 8 m	≥ 15 m	≥ 25 m	≥ 50 m	Total
Male	# 98	87	67	80	102	434
	% 22.6	20.0	15.4	18.4	23.5	100.0
Female	# 479	275	142	159	107	1162
	% 41.2	23.7	12.2	13.7	9.2	100.0
Total	# 577	362	209	239	209	1596
	% 36.2	22.7	13.1	15.0	13.1	100.0

### 3.2.2. Close Proximity to Pool

From Table 11, nearly two-third of parents responded that there was a swimming pool within 20 minutes from home. 31.3% of research subjects responded there was no swimming pool within 20 minutes of range and 5.1% of the parents did not know. How to service one third of population whom had no easy access to swimming pool would be a good study for the cities under the study.

Table 11. Close proximity to swimming pool (<20 minutes).

Home Close to Pool	Count	Percentage
Yes	1015	63.6%
No	500	31.3%
Don't know	81	5.1%

### 3.2.3. Swimming Pool Participation Rate

Table 12 showed that 54.7% of research subjects went to swimming pool once every few months. Also, 24.1% of research subjects hardly or never went to swimming pool. Since Table 10 showed 36.2% of the subjects didn't know how to swim, it is perceivable 24.1% of subjects hardly or never go to the swimming pool. Besides just taking kids to classes, there were many swimming pool having spa and sauna in Taiwan. This might explain the percentage difference between "don't know how to swim" and "hardly to never go to swimming pool". It was evident from the survey that swimming was not a popular leisure sport for parents in Taiwan.

**Table 12.** Level of Swimming Pool Facility Participation.

Frequency	Count	Percentage
Almost everyday	64	4.0%
1~3 times per week	91	5.7%
1~2 times per month	128	8.0%
Once two months	55	3.4%
Once every few months	873	54.7%
Hardly or Never	385	24.1%

### 3.2.4. Swimming Pattern

Using cross tabulation differences, male and female research subjects' swimming pattern was compared in Table 13. Accompanying family members was on the top pattern where the subjects went to swim. The greatest difference between male and female research subjects' swimming pattern was to go swimming alone (difference = 8.4%). This was followed by accompanied by family/relatives (difference = 6.9%), and never (difference = 3.0%). The least difference was to accompany by friends (difference = 1.2%). There was a bit more than 10% of the parents whom had never swim before.

**Table 13.** Swimming pattern when go swimming.

Swimming Pattern	Percentage		Difference
	Male	Female	
Alone	23.5	15.1	8.4%
Accompanying family members	57.1	64.0	6.9%
Accompanying friends	25.6	29.8	1.2%
Never	10.1	13.1	3.0%

\*Note: Percentages sum to more than 100.0 due to multiple selections

### 3.2.5. Swimming Courses Abroad

As mentioned in Chapter 1, many of the leisure sports were introduced to Taiwan over time. Especially with children's activities, many were copied over from other countries. For instance, it's not uncommon to celebrate Halloween and Christmas in Taiwan even though Buddhism and Taoism were the main religions. Many of children's courses emphasized on the American style. Hence, it was possible to gauge the popularity of young children's swimming in the mind of parents by asking if they knew there were organized swimming course, for babies to kindergartners, by age and ability abroad.

Table 14 showed 44.1% of parents knew there were organized swimming courses set up for children with different age group abroad, with 55.9% of parents never heard it before. This result indicated that youth swimming before primary school didn't seem to be popular in Taiwan.

**Table 14.** Knowledge of swimming courses for children abroad.

Knowledge	Count	Percentage
Know	704	44.1%
Don't know	892	55.9%

### 3.2.6. Best time to Learn to Swim

Table 15 showed that nearly one-third of research subjects agreed the best time to learn to swim was between age 4 and 5. This was followed by between age 6 and 7, with 2.2%. Surprisingly, 9.8% of research subjects agreed one or less than one years old child could start learning to swim.

As mentioned in Section 2.5 and Section 2.6, the US government highly recommended children to learn to swim at four years of age. In many communities, swimming courses for different age groups were available; swimming courses were offered in a range of courses from 6 month infants to 60+ adults [23, 37, 38]. It was a health and wellness activity worth promoting.

In Taiwan, swimming courses were often designed for children in elementary schools and above. Preschool and kindergarten swimming courses could only be found in a few places. Base on this study, there might be business opportunities to expend course offering to younger children.

**Table 15.** View on best time to learn to swim (in years old).

Age (years)	Count	Percentage
≤ 1	157	9.8%
2~3	218	13.7%
4~5	520	32.6%
6~7	354	22.2%
> 7	347	21.7%

### 3.2.7. Registration for Swimming Class

Table 16 showed 76.1% of research subjects never registered their child/children for a swimming class, only 23.9% of research subjects had. This was yet another evidence that kindergarten swimming required more promotion in Taiwan. Amongst parents who had kids enrolled in the swimming class, 72.5% of them would register for another swimming class again for their child/children. This meant there were rooms for improvement in the existing course offerings.

**Table 16.** Registration experiences.

	Count	Percentage	Register again	
			Yes	No
Never register	1214	76.1%		
Register before	382	23.9%	277	105
			72.5%	27.5%

### 3.3. Swimming Obstacle and Satisfaction

This section discussed the obstacles of taking child/children to swim, how parents felt about the existing swimming facilities, coaching qualifications as well as administration aspect of the swimming courses for kindergartners.

Study done by Chang and Chen [39] on the impact of children's sports participation on body mass index, found that among family members, peers, and teachers, family support was most relevant to children's participation in sports. As children grew up, the choices parents made for their children would influence their extracurricular activities in the future. Hence, it was important to eliminate unnecessary fears, bring up their comfort level and foster positive attitude towards swimming at a young age.

#### 3.3.1. Parents' View on Their Child's Swimming

Table 17 showed reasons as to why parents did not consider their child/children for swimming lessons. Fathers seemed to be more practical and had stronger indication that their child/children was/were not interested in swimming ( $t = 3.786$ ,



$p = .001$ ), or it was too much trouble for them to have their child/children learning to swim ( $t = 1.647$ ,  $p = .000$ ). More mothers felt that learning to swim was very important ( $t = -1.710$ ,  $p = .041$ ).

**Table 17.** Parents' view on swimming.

View on Swimming	Mean		t	p
	Male	Female		
Learning to swim is very important	3.435	3.628	-1.710	.041*
Afraid of water	3.631	3.637	-.051	.087
Not interested in swimming myself	3.574	3.404	1.811	.012*
Child is not interested in swimming	3.689	3.336	3.786	.001*
Too Troublesome for child to learn to swim	3.627	3.478	1.647	.000*

\* $p < .05$

### 3.3.2. Parents' Safety Concern toward Swimming

Table 18 revealed the safety concerns parents had for their child/children when doing swimming. The  $t$  value and  $p$  value for "children are more susceptible to infection" were 1.037 and .002. The  $t$  value and  $p$  value for "a child's boy is not developed enough for swimming" were 1.634 and .679. The  $t$  value and  $p$  value for "accident may occur during swimming class" were 2.358 and .001. Finally, the  $t$  value and  $p$  value for "swimming class offered by certified organization provides more guarantee" were -1.130 and .446. Even though both parents showed great concerns over safety issues, fathers tended to care a bit more about infection and accident.

**Table 18.** Safety concerns in kindergarten swimming.

Safety Concerns	Mean		t	p
	Male	Female		
More susceptible to infection	4.113	4.052	1.037	.002*
Not developed enough for swimming	3.977	3.864	1.634	.679
Accident may occur during swimming class	4.083	3.897	2.358	.001*
Certified organization provides more reassurance	3.859	3.917	-1.130	.446

\* $p < .05$

### 3.3.3. Parents' View on Swimming Facility and Environment

Table 19 showed parents' view on swimming facility and environment. The mean and the standard deviation (SD) for "don't know where to register for swimming class" were 3.440 and 1.411, respectively. The mean and SD for "swimming pool is not close to home" were 3.506 and 1.383, respectively. These values indicated respondents somewhat agreed with the statement. The mean and SD for "kid's swimming pools should be more established" were 3.948 and 1.206 respectively, indicating that respondents agreed with the statement. The mean and SD for "hygiene of the swimming pool is very important to me" were 4.684 and .589, indicating respondents strongly agreed with the statement. The study done by Zhang [40] revealed the obstacles in student swimming classes, factors that hindered participation in swimming lessons. This study and Zheng's study both showed subjects strongly agreed hygiene of the swimming pools was

very important and that the physical wellbeing of the children was the primary consideration.

**Table 19.** Parents' view on swimming facility.

Facility and Environment	Mean	SD
Don't know where to register for swimming class	3.440	1.411
Swimming pool is not close to home	3.506	1.383
Hygiene of the swimming pool is very important to me	4.684	.589
Kid's swimming pools should be more established	3.948	1.206

### 3.3.4. Parents' View on Administration

Family income and satisfaction toward the administration and management was summarized in Table 20. Results indicated that there was a weak positive correlation between family income and each of the following: "cost for swimming lesson is reasonable" ( $r = .038$ ,  $p = .296$ ), and "can't fit swimming into the schedule" ( $r = .015$ ,  $p = .682$ ). There was a weak negative correlation between family income and "teaching experience is very important" ( $r = -.037$ ,  $p = .310$ ), and "Certified lifeguards and proper equipment need to be present" ( $r = -.009$ ,  $p = .803$ ). Study done by Berukoff, and Hill [41] mentioned that socioeconomic status had an impact on swimming proficiency. Higher family income provided more opportunities to get the access to the swimming facility. Also, children living in lower socioeconomic homes and with parents who were non-swimmers, they usually didn't get the chance to learn swimming. From Table 20, a weak positive relationship was found between family income and parent's perception on the cost of swimming lesson. Further looking into the data, parents across different income levels believed the cost of the swimming lessons were reasonable in Taiwan. This was good news.

**Table 20.** Satisfaction toward Swimming Administration and Management.

Administration and Management	Correlation	p
Cost for swimming lesson is reasonable	.038	.296
Can't fit swimming into the schedule	.015	.682
Teaching experience is very important	-.037	.310
Certified lifeguards and proper equipment need to be present	-.009	.803

\* $p < .05$

### 3.3.5. Parents' View on Professionalism

Table 21 showed parents' view on the qualifications of the swimming instructors. Females indicated a significantly greater desire than males on "swimming instructor should possess swimming instructor certificate" ( $t = -4.737$ ,  $p = .047$ ) and "water rescue should include into the swimming lessons" ( $t = -4.740$ ,  $p = .012$ ). Both males and females liked the idea of receiving report card after class, though this practice was not often done. By giving out the report card, parents would know how their child/children did in the class. Also, they would know what class to sign up next time. It seemed parents might be willing to pay more for more structured and organized management.

*Table 21. Parents' view on professionalism.*

Professionalism	Mean		t	p
	Male	Female		
Giving report card after class	4.111	4.164	-1.042	.592
Swimming instructor should possess swimming instructor certificate	4.412	4.586	-4.737	.047*
Water rescue should be included into the swimming lessons	4.415	4.590	-4.740	.012*

\*p&lt;.05

## 4. Conclusions and Recommendations

### 4.1. Conclusions

Based on the survey, it was clear that learning to swim before entering primary school was not popular in Taiwan. More than 1/3 of the surveyed parents did not know how to swim and majority of the parents rated themselves poor swimmers who could do less than 15 meters. Although many swam with family, they only did so once every few months. While parents believed the best time to learn swimming was between ages 4 and 5 and that the lesson fee was reasonable, less than 1/4 of parents had helped their child/children with signing up for lessons. The main contributions to parents' reluctance were fear of water, not interested in swimming and too troublesome. Easy to register, cleanliness of the pool and close proximity to home were welcomed by the parents. Both parents preferred to have certified professionals and having water safety included in the curriculum.

### 4.2. Recommendations

With the information gathered and analyzed from the questionnaire, as well as the researches done through the Internet, books and journals, the following recommendations were made in hope to push Taiwanese children to start swimming at younger age, to increase general public's participation, and to take safety precautions more seriously.

1. More kindergarten swimming classes should be offered to meet the demands. In North America, there are a lot of city sponsored children swimming programs at the community centers. Swimming lessons are very popular. This is perhaps the most challenging point for Taiwanese as both parents are often both working. The kids even at preschool age might have long school hours and are often looked after by grandparents or nannies. Money is a challenge. Time is also a challenge.
2. Parental perception of swimming needs to be more positive and realistic. Due to the busy schedule, Taiwanese parents often emphasize on efficiency, especially with activities that do not improve school grade. Some parents expect kids to learn how to swim in a summer through guaranteed classes. However, one should emphasis enjoyment of swimming and doing sports for that matter in order for these activities to be lifelong enduring.
3. Even though Taiwanese are generally in shape, people are made aware of their body image and to wear

swimming suits would make some people uncomfortable to a point that they would resist the sport. Having positive body image of all shapes and types does not happen overnight and requires conscious effort by the community, not just an individual effort.

4. Government should consider adding more budgets to build swimming pools exclusively for children under 6 years old. These swimming pools are often called wading pools with very shallow water. Most preschoolers can sit in the water and play. These pools usually have water toys and sometimes slides and other play structures. If a swimming pool is needed to be rebuilt or repaired, it might best time to consider a wading area or adding mobile plate to adjust the depth of the water.
5. Organizing the workshops specifically to train and teach instructors on kindergarten swimming and basic first-aid. Teaching kids requires patients and creativity. For preschoolers the most important goals are to be comfortable with water and have correct knowledge about water safety.
6. Use other countries as a reference to set up the reasonable and affordable programs for the general public. For example in North America, community centers are heavily used by children not old enough yet to attend school as well as seniors during the day. The registration usually occurs every few months with nominal fee or sometimes even free. These community centers are sometimes subsidized and they also make money by offering after school activities for older kids. The swimming curriculum and levels are well explained with parents receiving report cards at the end of the session.
7. The content of the swimming course should include basic life-saving skill. Children need to learn how to put on the floating devices and use them properly. Practice makes perfect. For older kids and adults, they need to learn how to be helpful and in case of emergency.
8. Require presence of lifeguards based on the number of attendances. Each pool should have a rule on the number of people that can be admitted based on the number of lifeguards at present. The American Lifeguard Association has recommended at least two lifeguards on duty during the opening hour all the time. Although it is not a requirement, it has been a national standard for over 20 years. Also, once if the pool reaches a capacity of 50 patrons, one lifeguard should be added for every additional 25 people as a minimum standard. In North America, many of the lifeguards are high school students. It is a great opportunity for the students to earn money and responsibility.

Overall, the awareness of water safety and doing leisure sports, such as swimming has been on the rise in Taiwan. While knowing how to swim is not a pre-requisite to do the water sports, having some basic floating skills, knowing how to use water safety devices and knowing what to do in the emergency situation could avoid injury and save lives. The

next step would be to follow North America and push for children to learn to swim at a younger age. To get kids to swim younger in Taiwan will take time. It will require adults to change their mentality. It might require families to change their lifestyle. Finally, it will require a system with funding. Perhaps the easiest approach to start this new chapter is to fund swimming program starting from kindergarten, including it as part of the curriculum as what the government has done for primary school children.

## References

- [1] Labor Women Memorial Park. Wikipedia. <https://zh.wikipedia.org/wiki/%E5%8B%9E%E5%8B%95%E5%A5%B3%E6%80%A7%E7%B4%80%E5%BF%B5%E5%85%AC%E5%9C%92>. Accessed October 25, 2018.
- [2] Floodgate of Wai Shuang Xi was released without warning. CTS news. <https://news.cts.com.tw/cts/society/201109/201109060817364.html>. Accessed March 28, 2019.
- [3] Loa, L. S. 2007. Taiwanese kids at unusually high risk of drowning. Taipei Times. <http://www.taipetimes.com/News/taiwan/archives/2007/06/23/2003366448>. Accessed March 28, 2019.
- [4] Statistics. Ministry of Education -Water Safety. <http://www.sports.url.tw/home/%E7%B5%B1%E8%A8%88%E6%95%B8%E6%93%9A>. Accessed September 30, 2018.
- [5] Fire Department Water Rescue Statistics. DATA. GOV. TW. <https://data.gov.tw/dataset/7065>. Accessed July 10, 2018.
- [6] Education in Taiwan. Wikipedia. [https://en.wikipedia.org/wiki/Education\\_in\\_Taiwan](https://en.wikipedia.org/wiki/Education_in_Taiwan). Accessed March 27, 2019.
- [7] Sales Promotion. Natural Paradise Swimming Diving Club. <http://www.dadi99.com.tw/>. Accessed January 4, 2019.
- [8] Course Description. Nan-Ho Swimming Pools and SPA. <http://www.nhspa.com.tw/page/training.html>. Accessed January 4, 2019.
- [9] Tamkang University. 2017. Swimming class. Available from: [http://www.dec.tku.edu.tw/index\\_2.jsp?pageidx=01&subidx=2206](http://www.dec.tku.edu.tw/index_2.jsp?pageidx=01&subidx=2206).
- [10] Chen XH. Teach swimming – Creative way of swimming teaching method. School Physical Education. 2001; 11 (6): 102-107.
- [11] Ministry of Education. Midterm plan of improving students' swimming ability. Taipei: Ministry of Education. 2000.
- [12] Chen JP. A study on the effect and obstacles of swimming teaching in Taiwan National Primary School. Journal of Taipei College of Maritime Technology. 2017; 8 (2): 167-180.
- [13] Ministry of Education – Water Safety. 2015. Swimming classroom. Available from: <http://www.sports.url.tw/classroom/detail/item/5>.
- [14] Xu CY, Huang GC, Xu NW, Lin JY. Consolidation of public and private swimming pools – Final report of promotion of schools without swimming pools to offer swimming courses off-campus. Taipei: Ministry of Education – Sports Administration. 2018.
- [15] Salmonsén R. 2017. Taiwan's birthrate now world's 3<sup>rd</sup> lowest. Taiwan News. Available from: <https://www.taiwannews.com.tw/en/news/3312276>.
- [16] American Academy of Pediatrics. Swimming programs for infants and toddlers. Pediatrics. 2000; 105 (4): 868-870.
- [17] Brenner et al. Association between swimming lessons and drowning in childhood: a case-control study. Archives of Pediatrics Adolescent Medicine. 2009; 163 (3): 203-210.
- [18] American Academy of Pediatrics. 2010. AAP gives updated advice on drowning prevention. Available from: <https://www.aap.org/en-us/about-the-aap/aap-press-room/pages/AAP-Gives-Updated-Advice-on-Drowning-Prevention.aspx>.
- [19] Swimming safety tips from the American Academy of pediatrics. American Academy of Pediatrics. <https://www.aap.org/en-us/about-the-aap/aap-press-room/news-features-and-safety-tips/Pages/Swim-Safety-Tips.aspx>. Accessed October 5, 2018.
- [20] Preschoolers (3-5 years of age). Centers for Disease Control and Prevention. <https://www.cdc.gov/ncbddd/childdevelopment/positiveparenting/preschoolers.html>. Accessed February 7, 2019.
- [21] Toronto. Wikipedia. <https://en.wikipedia.org/wiki/Toronto>. Accessed January 6, 2019.
- [22] Toronto Parks, Forestry and Recreation Division. Wikipedia. [https://en.wikipedia.org/wiki/Toronto\\_Parks,\\_Forestry\\_and\\_Recreation\\_Division](https://en.wikipedia.org/wiki/Toronto_Parks,_Forestry_and_Recreation_Division). Accessed January 6, 2019.
- [23] Toronto Parks, Forestry and Recreation. The FUN Guide. Scarborough District: City of Toronto. 2019.
- [24] Crawford DW, Jackson EL, Godbey G. A hierarchical modal of Leisure constraints. Leisure Sciences. 1991; 13: 309-320.
- [25] Crawford DW, Godbey, G. Reconceptualizing barriers to family leisure. Leisure Sciences. 1987; 9: 119-127.
- [26] Godbey G, Crawford, DW, Shen XS. Assessing hierarchical leisure constraints theory after two decades. Journal of Leisure Research. 2010; 42 (1): 111-134.
- [27] Beard JG, Ragheb, MG. Measuring leisure satisfaction. Journal of Leisure Research. 1980; 12 (1): 20-33.
- [28] Campbell A. The sense of well-being in America. New York: McGraw Hill. 1980.
- [29] Mannell R, "Leisure Satisfaction," in Jackson E. and Burton T., Eds. Understanding Leisure and recreation: Mapping the past, charting the future (pp. 281-301). State College, PA: Venture Publishing. 1989.
- [30] Main statistical table – past years. Department of Statistics. <https://depart.moe.edu.tw/ed4500/cp.aspx?n=1B58E0B736635285&s=D04C74553DB60CAD>. Accessed February 26, 2018.
- [31] Ke HX, Ding LH, Lu CX, Su ZX, Xie BC. Market Survey. Taipei: Taiwan Knowledge Bank Co., Ltd. 2002.

- [32] Central News Agency. 2009. Average age for first marriage rises in Taiwan: statistics. Taiwan News. Available from: <https://www.taiwannews.com.tw/en/news/975507>.
- [33] The formulation and adjustment of basic wages. Ministry of Labor. <https://www.mol.gov.tw/topic/3067/5990/13171/19154/>. Accessed January 10, 2019.
- [34] Everington K. Average monthly salary in Taiwan rose to NT\$40,792 in April. Taiwan News. <http://www.taiwannews.com.tw/en/news/3456289>. Accessed January 10, 2019.
- [35] Wang JS, Fang PH, Yang, HT. Gender effects on college students' self-determined participation motivation of leisure sport. *Bulletin of Sport and Exercise Psychology of Taiwan*. 2014; 14 (2): 51-65.
- [36] Yang LM & Chen CM. The influences of exercise participation, indoor stadiums image and using satisfaction: An analysis in female perspectives. *NCYU Physical Education, Health & Recreation Journal*. 2016; 15 (2): 1-13.
- [37] American National Red Cross. 2017. Swim classes & lessons. Available from: <http://www.redcross.org/take-a-class/swimming?latitude=38.8964&longitude=-77.044701>.
- [38] Canadian Red Cross. 2016. Swimming and water safety. Available from: <http://www.redcross.ca/in-your-community/ontario/swimming-and-water-safety>.
- [39] Chang HC, Chen JF. The Impact of the Characteristics of Children's Sports Participation on Body Mass Index. *Journal of Sport, Leisure and Hospitality Research*. 2010; 5 (4): 50-60.
- [40] Zhang JY. Investigation of the constraints in student swimming classes. *Journal of Tamkang Sports*. 2011; 14: 115-122.
- [41] Berukoff KD, Hill GM. A study of factors that influence the swimming performance of Hispanic high school students. *International Journal of Aquatic Research and Education*. 2010; 4: 409-421.