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THE TABLE TENNIS CURRICULUM GETS INVOLVED THE RESEARCH OF DEGREE

Abstract

A research on the degree of involvement (DI) in table-tennis courses among college students is investigated in this work. Total 299 students in Ta Hwa Institute of Technology (THIT) and National Chiao-Tung University (NCTU) are explored as the sample population. The reliability and validity of collected data are confirmed first according to the item analysis and confirmatory factor analysis. Afterward, the description-statistics, t-testing, and one-way analysis of variance (ANOVA) are further applied for data analysis. By the statistics, it is found that the students in THIT have much higher DI than those in NCTU. Moreover, male students, people with table-tennis lovers in family or in their friends, and those living at home or renting houses have obviously higher DI than the female ones, those without table-tennis lovers, and those living in the campus, respectively. As a result, it is concluded that the students, belonging to the classification of THIT, male, people with table-tennis lovers in family / in their friends or living at home / renting houses outside campuses, possess higher DI. This statistics result is expected to be the reference for school instructors or any further researches.

Key words: *table-tennis courses, Get involved degree, Confirmatory factor analysis*

I. Introduction

1.1 Main Object

Presently, table- tennis courses are one of the physical education courses that most colleges offer. It's the optional course that a lot of students take, and it is also the exercise which most students participate in when they are in their leisure time. The main Object of physical education of colleges is none other than cultivating the habit and skill of exercise for life of the students; and further, advancing their health (Yi-Qun, Liu2004). According to the research of Wen & Kong & Lee (2005), it doesn't mean that we can benefit only from participating in exercises. It takes" appropriate invest" to gain the advantage of exercise when in the process of involving in the exercise. The "appropriate invest" includes time, energy, money and invest in physical vigor (Jun-Xiong, Gao Ching-Tsai, Wen 1997). Having well participation can get more leisure benefit; it is the concept of so-called leisure involvement. Wen and et cetera (2005) probed into the level of leisure involvement of college students who take table -tennis courses and the relationship of leisure benefit, and found students who get more involved in table-tennis courses (following is called the level of table-tennis involvement for short) can feel more leisure benefit; on the contrary, those who have lower level of involvement feel less leisure benefit. Consequently, level of table-tennis involvement is a problem which should be highly thought. The research will extend the related research about table-tennis in the past, and aim at the differences of the level of involvement of students who take table-tennis courses in different properties, that will do further research.

1.2 The Hypothesis of the Research

- 1.2.1 Is there no difference of get involved degree of students among different schools?
- 1.2.2 Is there no difference of get involved degree of students among different gender?
- 1.2.3 Is there no difference of get involved degree of students with or without lovers of table-tennis in family?
- 1.2.4 Is there no difference of get involved degree of students with or without lovers of table-tennis in friends?

1.2.5 Is there no difference of get involved degree of students among different living condition?

1.3 The Account of Nouns

1.3.1 Get involved degree of table tennis : It is the degree of an individuals' insist or arousal when participating in table tennis courses (Sherif etc.1965).The research means the value core, the importance, the happiness, the interest, and how much do college students care about their self-expression when they participate in table-tennis(Selin&Howard,1988). Its operational definition means the score which shows in the scale of the involvement in table-tennis. Getting higher score shows more attention on the variable than getting lower score does.

1.3.2 Confirmatory Factor Analysis

It's a statistic skill used to simplify the variable and analyze the group relationship of them, or to find the common potential respects behind the variables. Furthermore, supposing a specific hypothesis about structural relations. It is usually used to ensure whether the mode of the data is what the researcher anticipates or not. It works as examination and confirmation for the theory.

2. The Method of the Research

2.1 The Target of the Research

The research targets at 170 students in Ta Hwa Institute of Technology (THIT) and 129 students in National Chiao Tung University (NCTU), who take table-tennis courses. The valid sample is 197 students, including 170 male (56.9%) and 127 female(42.5%), and the average age is 19.74 ± 1.28 years old. There are 144 (48.16%) students with lovers of table-tennis in family; and there are 153 students (51.17%) without lovers of table-tennis in family. There are 246 students (82.27%) with lovers of table-tennis in friends; and there are 50 students (16.27%) without lovers of table tennis in friends. As depicted in graph 1, there are 4(1.34%) students live in friends' or relatives' house, and there are 132 (44.15%) students live in their own house. There are 19(6.35%) rent houses outside the campus, and there are 140 (46.82%) live in school dormitory. Figure 1 is in more details.

Figure 1: The Analysis of Basic Data of Sample

Variable	Detail	Number of People	%
School	THIT	170	56.86
	NCTU	129	43.14
Gender	Male	170	56.86
	Female	127	42.47
Age	19.74 ± 1.28		
With table-tennis lovers in family	Yes	144	48.16
	No	153	51.17
With table-tennis lovers in friends	Yes	246	82.27
	No	50	16.72
The living condition	In relatives' or friends' house	4	1.34
	In their own house	132	44.15
	Rent houses outside the campus	19	6.35
	In school dormitory	140	46.82

2.2 The Instrument of the Research

The instrument of the research is the scale of the involvement in table-tennis. Firstly, testifying the evaluation of the scale by item analysis. We know that the scale has well evaluation from Figure 2 (DP are all more than 0.4, and CR are all more than 3). Secondly, we know the related value of the topics in the scale all reach a remarkable level according to the R2 value.

Lastly, examining through R1 value, the R1value of the entire questions meet the high-middle related request for more than 4.0, the Cronbach α is 0.852, showing the well reliability of the scale. And then, calculating the 7 observed variable's peakedness and skewness by PRELIS. The result shows as Figure 3. We know the coefficient of the 7 observed variable's peakedness and skewness all between ± 2 . According to Mardias(1985)'s research, observed variable has to fit in with normal distribution, its coefficient of peakedness and skewness had better between ± 2 . Afterward, testing the validity by confirmatory factor analysis; almost of evaluation index reach the range of acceptability according to Figure 4. To sum up, we can know that the scale of the involvement in table-tennis has acceptable reliability and validity.

Figure 2: Abstract of the analysis of the scale of the level of involvement in table-tennis course

Questions	DP	CR	R1	R2
1. I act well when I participate in table-tennis.	1.40	11.53	0.68	0.54
2. I have a lot of fun with classmates when I participate in table-tennis.	1.13	11.86	0.69	0.59
3. I comprehend well about the character, the content, and the process of table-tennis.	1.45	16.02	0.75	0.65
4. I almost forget what besides the exercise when I participate in table-tennis.	1.83	16.73	0.78	0.67
5. Although I can't win the table-tennis contest, I still like to participate in it.	1.33	12.35	0.72	0.61
6. Sometimes I will get involved in it when I participate in table-tennis.	1.49	15.45	0.79	0.70
7. I will be aware of the condition of the paddle, the rubber and adjust it anytime when I participate in table-tennis.	1.48	12.26	0.71	0.57

Figure 3: Abstract of each observation index Skewness and Kurtosis

Observed Variable	X1	X2	X3	X4	X5	X6	X7
Skewness	-0.08	-0.54	0.01	-0.34	-0.73	-0.30	-0.26
Kurtosis	-0.05	1.52	-0.42	-0.19	1.78	0.14	-0.16

Figure 4: Abstract of the analysis of the confirmatory factor of the scale of the involvement in table-tennis.

The index of evaluation	χ^2/df	GFI	AGFI	NFI	NNFI	RMR
The research	3.38	0.95	0.91	0.96	0.96	0.02
The standard of acceptability	1.0~3.0	>0.90	>0.90	>0.90	>0.90	<0.05

2.3 The Processing of the Data

When the investigation of the questionnaires is completed, we analyze the data by the statistic software spss 13.0 and LISREL 8.54 version. Firstly, testing the reliability and validity of instruments of the research by analyzing the data and the confirmatory factor; afterward, analyzing the differences by t-test and One- Way ANOVA, and after-check by Scheffe. The significant difference of the statistic testing of the research is set at $\alpha = .05$.

3. The Result and Discussion

3.1 The Analysis of the Differences among Students in Different Schools

According to Figure 5, the level of involvement of students among different schools, which in THIT is obviously higher than those in NCTU. Whereas, the possible reason of the condition is the two schools' difference as such. THIT belongs to the system of technical schools; the ranking of students is in the middle in the system of technical schools. While NCTU belongs to generally integrated university, the standard of students' entrance results is top 3 in the entrance examination of generally universities. As a result, there is a gap between students about the standard when they entered school as such. Furthermore, there is stronger pressure of schoolwork on students in NCTU than students in THIT.

Figure 5: Abstract of analysis of the differences in the get-involved degree of table-tennis among students in different schools

Name of the school	Number of people	average number	standard deviation	df	T value	P value
THIT	170	27.16	3.83	297	5.85 *	0.01
NCTU	129	24.57	3.76			

3.2 The Analysis of Differences among Students in Different Gender

According to Figure 6, it is obviously that the level of involvement of male students is higher than female students among different gender. It indicates that male students have stronger level of involvement. The possible reason is the difference between the role play of female and male traditionally. It results in the difference of the two genders' participations and cognition toward the exercise. The society tends to anticipate and request female to match up, to take care of, and to serve others, having lower mobility. Parents supervise female much more, they watch TV and novels at home. On the other hand, what events does the society encourage male and female to do is different. There is much ban for female; therefore, male have higher level of involvement than female.

Figure 6: Abstract of analysis of the difference in the get-involved degree of table-tennis among students in different genders

Gender	Number of people	average number	standard deviation	df	T value	P value
Male	170	26.95	3.86	295	4.72 *	0.01
Female	127	24.80	3.91			

3.3 The Analysis of Differences among Students With/Without Lovers of Table-tennis in Family

According to Figure 7, in the aspect of the level of involvement with lovers of table-tennis in family, who has lovers of table-tennis in family is obviously higher than who doesn't have lovers of table-tennis in family. It shows that who has lovers of table-tennis in family has better level of involvement. The possible reason is that people interact continuously with others around them since they were born. Parents and family members are people who everyone contacts the earliest, and are the most important another person in one's whole life. As a result, parents and family members' love to something will cause children's learning and imitation. So, having lovers of table-tennis in family is also the reason that influences the level of table-tennis involvement being higher.

Figure 7: The Analysis of Differences among Students With/Without Lovers of Table-tennis in Family

Lovers of table-tennis in family	Number of people	average number	standard deviation	df	T value	P value
Yes	144	26.67	4.02	295	2.71 *	0.01
No	153	25.42	3.93			

3.4 The Analysis of Differences among Students With/Without lovers of Table-tennis in Friends

According to graph 8, in the aspect of the level of involvement with lovers of table-tennis in friends, who has lovers of table-tennis in friends is obviously higher than who doesn't have lovers of table-tennis in friends. It shows that who has lovers of table-tennis in friends has better level of involvement. In terms of the viewpoint of Developmental Psychology, a group of intimate friends narrows gradually in the period of university; while the range of making friends broadens gradually. The interest in friends of the same sex starts to turn to the interest in friends of the opposite sex. The group which consists of intimate friends and friends of the opposite sex accounts for an important status in social activities. It is usually composed of people who have the same interest; they usually participate in related activities together. As a result, having lovers of table-tennis in friends is also the reason that influences the level of table-tennis involvement being higher(Wei Cheng Chu 1991).

Figure 8: Abstract of the Analysis of Differences With/Without Lovers of Table-tennis in friends

Lovers of table-tennis in friends	Number of people	average number	standard deviation	df	T value	P value
Yes	246	26.39	3.99	294	3.55*	0.01
No	50	24.22	3.71			

3.5 The Analysis of Differences among Students in Different Living Condition

According to Figure 9, in the aspect of the level of involvement among students in different living condition, who live in their own house or rent houses outside the campus is obviously higher than those who live in school dormitory. It shows that who live in their own house or rent houses outside the campus has better level of involvement. The possible reason is that the interaction with classmates is more intimate when living in school dormitory, there is much exercise which can be attended comparatively. Instead, under this situation, table-tennis can't attract these students, and results in lower level of involvement.

Figure 9: Abstract of the Analysis of Differences among Students in Different Living Condition

The living condition	Number of people	average number	standard deviation	F value	P value	significant difference
In relatives' or friends' house	4	26	6.68	9.16*	0.01	
In their own house	132	26.93	3.68			2>4
Rent houses outside the campus	19	28.32	4.63			3>4
In school dormitory	140	24.83	3.83			

4. Conclusion and Suggestion

4.1 Conclusion

The research mainly discusses college students of different variables of population statistics about the differences of the level of involvement when they take table-tennis courses. We know that students in THIT, male students, who with lovers of table-tennis in family, who with lovers of table-tennis in friends, and who live in their own house and rent houses outside the campus have better level of involvement according to the statistic analysis and discussion. While in the aspect of education, the main point is how to enhance the get involved degree of students who have a lower one as students in NCTU, female students, who without lovers of table-tennis, and who without lovers of table-tennis.

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