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Original Article

Research on the motivation and attitude of college students' physical education in Taiwan

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Abstract
College students' physical education plays an important role in physical activity and cultivates the concept of independent health management. At present, what kind of learning attitude do Taiwan college students face in physical education? What motivation does the student influence the attitude of the physical education? What is the relevance? All of the above are the purpose of this study. The research method adopts the questionnaire survey method, and the survey data adopts descriptive statistical analysis, independent sample t test, single factor variance analysis, LSD post hoc comparison method, and typical correlation analysis. Research results: 1. The different background variables of Taiwanese college students are that the main motivation factor of physical education is to obtain good health fitness for "physical health". 2. Taiwanese college students have different background variables. They all think that the "cognitive learning" of physical education is the main factor of attitude, that is, the knowledge about health care and sports skills. 3. There is a positive correlation between learning motivation and learning attitude (ρ=.90). Learning motivation is one of the important factors affecting learning attitude. Research conclusions: 1. The factors of Taiwanese male and female college students' motivation for learning in physical education are mainly based on "physical health". 2. Freshmen have higher motivations and learning attitudes in physical education than second-grade to fourth-grade. 3. Taiwan female college students average 1 or 2 times per week, male college students have the most athletes 2 to 3 times per week, more than 90% of college students like sports. 4. There is a positive correlation between learning motivation and learning attitude, indicating that the stronger the attribute of learning motivation "physical health", the higher the student's learning attitude. 5. Satisfying students' motivation for learning helps students to learn positively. 6. Another important task of the college physical education class is to prepare students for future lifelong sports.
Keywords: College students' physical education, Learning attitude, Learning motivation, Health fitness

Introduction

Research Background and Motivation

Physical education is a continuous course, Develop appropriate educational programs based on each stage of growth, Purpose to provide students with a healthy lifestyle of knowledge, skills, physical fitness and attitudes ; College physical education still plays an important role in physical activity, And lay the foundation for a lifelong movement after graduation from college, It is important for students to regularly arrange physical activity every week., Because exercise has a close relationship with brain function, Research confirms that regular exercise can improve memory and increase attention（Roig et al, 2013）。College students have perfect cognitive ability, University physical education courses lead students to at least two hours of physical activity per week, In addition to being able to exercise physical ability, Also developing opportunities for students to manage their own health, The concept of independent health management after graduating from university, Value life towards lifelong sports。

The benefits of physical education classes can affect the healthy lifestyle of students. And the physical fitness of students, Now teachers and students can recognize the importance of sports., But how to let students take the initiative to participate and happy learning school physical education class, This is a question that should be considered as a physical education teacher.。Most universities in Taiwan list physical education as compulsory for at least one year., There are also some colleges and universities that classify physical education as a threshold for graduation., under this restriction, Some students hold interest, leisure, fitness, learning

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sports skills and social motivation, There are even many students who drive for "credit" or "compulsory", Therefore, there are different ideas for the motivation of physical education.（Huang, 2013; Chen, 2014; Bryan & Solmon, 2012）。Students participate in physical education classes and present a variety of attitude representations such as active participation and negative rejection., However, these attitudes are one of the important factors behind the motivation for the physical education class.（Mustafa et al, 2016）。

In 1895 Deci and Ryan proposed the self-determination theory.（self-determination theory, SDT）, Differentiate the motivation of the degree of student autonomy, which classified as amotivation、extrinsic motivation and intrinsic motivation。Amotivation indicates lack of motivation, The concept is similar to learning helplessness, It means that the individual cannot perceive the link between his actions and the results., and can't find any good reason to continue this activity. ; Intrinsic motivation refers to an individual who takes the initiative and comes from interest to engage in the activity., And can be fun from the physical body, be part of high degree of autonomy。Extrinsic motivation can be divided from low to high ; 4 types according to the degree of self-determination which are external regulation、introjected regulation、identified regulation、integrated regulation, in " extrinsic motivation " means that many college students have excellent sports quality., But lack the interest to enter the game or work outside to make money, self be willing to invest again because it is controlled by external rewards that are greater than the current real interests.。「intrinsic motivation」 means that students must complete a common subject, Its motives are controlled by the compulsory methods of school, Students in order to obtain a passing score, Showing an inner attitude of active efforts。「intrinsic motivation」refers to the judgment of individual in participating in sports activities, highly important to him (such as : The male of college students in Taiwan implement physical fitness test, the importance of applying for military academies)。「intrinsic motivation」refers to individual elective swimming physical education classes for external reasons such as cooling off, cheap consumption and earning credits。

Self-determination theory establish a learning motivation model, the model is a student-centered learning environment, This kind of environment allows students to achieve the three basic psychological needs of "autonomy, competence, and relevance". (Deci & Ryan, 2000)。The so-called autonomy means that students decide the direction of participation according to their own wishes., example, The teacher designed three-station basketball practice skills to allow students to freely choose and complete the skills needed for the station.。Competency is the behavior that a student can perform effectively and complete a task., In physical education; the ability can be cultivated through appropriate design according to the level of students' development and skills. In the process, students are given many practical opportunities., and provide positive feedback at the right time。Relevance refers to the interaction between students and others., A positive sense of belonging or affiliation in the process of physical education students interacting, Physical education teacher design team teaching activities, students promote interpersonal interaction in teamwork (Siedentop, Hastie, & van der Mars, 2004)。When three needed of basic competent, connected and psychological are met , will lead to more Will lead to more intrinsic motivation, Gain happiness and excitement from learning, and actively pursue new learning, in turn, When students think they are learning, they must do it., At this point they will have an external motivational orientation., the extrinsic motivation requires teachers to use verbal rewards or material incentives in teaching。Students own more intrinsic motivation, active participation in the learning process, also consider physical education as an important subject in their education., At this point, students can participate in physical education classes happily, not for the level of achievement.。The high intrinsic motivation of students' physical education classes also leads to the desire of students to learn actively., such as taking the initiative to participate in sports or participating in sports clubs after class. (AAHPERD, 2014)。

Any learning activity has its motivation to learn, otherwise learning will not be produced。The motivation of students in physical education classes at Taiwan University is influenced by external factors such as school environment, course selection system, administrative coordination, and teacher teaching, and forms the external motivation of students. ; In addition, the student's own intrinsic motivation is influenced by the students' own interests, expectations, compulsory credits, and skills learning. ; These two motivations are all in the students, but the ratio is different.。Therefore there are many kinds of factors in the motivation of Taiwan college students' physical education。For example : Chen and Tsai (2009) are studying the motivation of studying basketball physical education courses in universities, the factors are divided into five factors: knowledge interest, social relationship, interpersonal interaction, establishment of leisure sports and external expectations.。Lin (2009) study the factors influencing college students' elective physical education courses, the results of the study found that personal interests and peer influences are the main considerations for students to take physical education courses., Secondly, the start time, physical education, venue facilities, course content, credits, personal health and other factors。Hsu (2010) has divided the learning motivation scales of the elective

swimming students into five factors: value, expectation, emotion, teacher traits, and teaching methods.。Xie and Ye (2011) xxplore the Differences in Learning Motivation, Attitude and Exercise Behavior of College Students in Physical Education Classes and the Relevance between Variables, The motivational scale of physical education class includes five factors: student self-confidence, peer relationship, participation in regular exercise, exercise habits, and physical health.。Lee (2013) takes the motivation of learning motivation and the willingness to re-study as a tool, the study motivation includes four factors: personal interest, inner emotion, rich life and self-growth.。Huang (2013) investigates the current situation of college students in sports attitudes and learning motivations. The learning motivation scale includes four factors: satisfaction, relationship, self-confidence and concentration.。Hong (2014) explores the current situation of college students' motivation for class selection. The motivation factors for class selection are divided into five factors: physical health, curriculum knowledge, interpersonal needs, stress relief, and psychological needs.。According to the above literatures, this paper proposes five factors related to the motivation of college physical education, including health fitness, stress relief, psychological needs, interpersonal needs, and curriculum knowledge., and also based on five factors, design the study motivation questionnaire。

Physical education class develops students' own sports ability and establishes students' attitudes of courage to participate in sports activities., In order to influence the long-term behavior of students' continuous sports in the future, students can recognize the importance of physical activity when the design content of physical education curriculum can change students' positive attitude towards physical education., Therefore, physical education teachers are regarded as promoting important people in physical education classes. The interaction between physical education teachers and students will affect students' attitude towards physical education. (Arif et al, 2011)。Physical education learning attitude refers to the implementation of physical education in students, and shows different levels of evaluation in three attitudes: cognition, emotion and behavior.。From the content of physical education classes, students individually reflect the positive or negative learning attitudes of the venues, equipment, teachers, goals, sense of accomplishment and peer relationship of the physical education curriculum.。Reda and Ahmad (2012) believes that students respond positively or negatively to physical education courses, mainly due to previous experience in physical education., If students get good experience in high school, they will be interested in physical education classes when they first enter university.。另外，There are also many scholars who study the factors that influence the attitude of physical education in learning., since the role of learning motivation, learning time can be sustained, the quality of participation, and the commitment of the learning process, When students can't enjoy sports fun in physical education classes, they will have the idea of boring or dislike, and reduce the motivation of learning. Even if teachers use external or internal incentives, it is difficult for students to take the initiative or create a sense of pleasure. (Lee, 2013; Hong, 2014)。To comprehensive above researches on the factors of Taiwan college students' attitude towards physical education, included, Huang (2006) Studying the attitudes of female college students in physical education in North Taiwan, designing questionnaires based on three factors: cognition, emotion and behavioral orientation。Tsai and Xu (2006) Using the Student Sports Attitude Scale to understand the differences in the cognitive, affective, and skill factors of college students' sports attitudes。Liu et al (2006) Using the college students' physical education attitude scale, they are composed of three factors: emotion, cognition and behavior.。Chen et al (2009) Studying the behavior of college physical education courses, adopting the attitude sub-table of elective physical education behaviors, according to the attitude of choosing physical education courses, it is divided into five items: achieving health, getting credits, getting leisure, exercising, and learning sports skills.

The content of the questionnaire is to reach the degree and importance of the topic, to study the degree of achievement of the behavioral attitude and the importance of achieving the result to itself.。Hong (2010) studies the situation of college students' sports attitudes, and the research tools adopt three levels of cognition, emotion and behavior to understand the evaluation of students' different attitudes in participating in physical education.。Xie and Ye (2011) studied the attitudes of college students in physical education, including three factors: emotion, intention, and behavior.。Huang (2013) investigates the attitudes of college students in physical education, including cognitive, affective, and behavioral factors.。Finally, according to the above literature, we can clearly understand the study attitude of students in physical education. We should consider the three factors of "cognition", "sentimentality" and "behavior", and design a questionnaire on the attitude of learning attitude in this study based on three factors.。

Due to different departments, college students' attitudes towards the physical education curriculum are different from the students' learning. The values of the physical education curriculum are different from the learning motivation, resulting in a variety of attitudes towards the physical education curriculum.。Therefore, the students' learning attitudes may be influenced by individual learning motivation. Driven by different behavioral intentions, the formation of attitudes has positive and negative points. If students have positive learning motivation for physical education, students may show positive learning attitudes.。In addition, through the interpretation of self-awareness and personal values, college students have different expectations and

attitudes towards school physical education curriculum. The influence of physical education learning attitude may be influenced by the prior experience and the motivation of individual participation.。Therefore, this study is related to the motivation and attitude of college students in Taiwan in the physical education class. By discussing the motivation of college students for the learning of physical education, to understand the difference between different background variables of college students and the attitudes of learning in physical education curriculum,, and understand the relationship between college students' learning motivation and learning attitude。

Research Methods

1. Research object

The research object is to sample five universities in the south of central Taiwan and north of central part in 2018 (including Taichung).， Each university sampled 200 students, a total of 2000 copies, 1908 copies were collected, 23 invalid questionnaires were removed, 1885 valid questionnaires were filed. The effective rate of questionnaire recovery was 94.3%.。

2. Research tool

Through the self-made questionnaire, the questionnaire named "Taiwan University Students' Relationship between Motivation and Learning Attitudes in Physical Education Classes" is divided into three parts. The following steps are explained as in below：

(1) The first part is "Background change"

Comprehensive Taiwan and foreign scholars：Xie and Ye (2011)、Arif et al (2011)、Reda and Ahmad (2012)、Huang (2013)、Hong (2014) and other literature, design the first part of the questionnaire: “College background change” has included gender, grade, and average number of weekly sports. After the initial questionnaire has passed the validity of the expert, three background variables remain.

(2) The second part is "Learning motivation"

Based on the literature of Chen and Tsai (2009)、Lin (2009)、Hsu (2010)、Xie and Ye (2011)、Lee (2013)、Huang (2013)、Hong (2014)，observed that the motivation of physical education is based on five factors: physical health, stress relief, psychological needs, interpersonal needs, and curriculum knowledge.。Therefore, according to the above scholars, the revised preliminary questionnaire was compiled, and then the expert validity and pre-test results were obtained. Finally, 22 questions were retained.。Compiled the second part of the questionnaire：「The motivation in learning physical education for college students」。In the second part of the questionnaire, the score is calculated. The higher the average, the more the learning motivation is more in line with its own needs. On the contrary, the lower average means that the learning motivation is less.。

(3) The third part is "Learning attitude"

According to Tsai and Xu (2006), Huang (2006), Liu et al (2006), Hong (2010), Chen et al (2009), Xie and Ye (2011), Huang (2013), etc. Most of the learning attitudes use the three factors of "cognition", "behavior" and "emotion" as the variables of research attitude.。Therefore, according to the above scholars, the revised preliminary questionnaire was compiled, and then the expert validity and pre-test results were obtained. Finally, 20 questions were retained.。Compilation of the third part of the questionnaire：「The attitude3 towards physical education for college students」。In the third part of the questionnaire, the score is calculated. The higher the average, the more the learning attitude is consistent with its own values and active positive. On the contrary, the lower average means that the learning attitude is more negative and evasive.。

3. Data processing

The probability of making the first type of error in this study was *p=.05, which was the test standard (p<.05) that met the statistically significant level. The data obtained were processed by SPSS 20.0 for Windows statistical software package. Analytical method: Descriptive statistical analysis, Independent sample t test, one-way ANOVA, LSD, Canonical correlation analysis.

Research Result

1. Descriptive statistical analysis

This study used a questionnaire survey to sample the areas south of central Taiwan and north of central China (including Taichung) in 2018.（Five universities in each of southern and northern Taiwan, each with 200 students sampled and 50 in each grade.）， A total of 2,000 copies were issued, and the effective questionnaire rate was the highest in freshman, with an effective rate of 97.0%. ; The lowest in seniors, the effective rate is 89.2%. ; The total recovery rate was 94.3% (1885 valid questionnaires). Recycling the questionnaire statistics column, as shown in Table 1。

Table 1 Formal questionnaire sampling list

grade	number	recycling	invalid	valid	efficient
first	500	487	2	485	97.0%
second	500	484	2	482	96.4%
third	500	479	7	472	94.4%
fourth	500	458	12	446	89.2%
total	2000	1908	23	1885	94.3%

The first part of the research questionnaire "background variables are divided into: gender, grade, number of weekly sports", and the results are summarized, as shown in Table 2。Through the sampling results of the questionnaire, the ratio of boys and girls tends to be consistent, with 49.7% males and 50.3% females. ; The freshman questionnaires accounted for up to 25.7%, followed by the second year with 25.6%, juniors with 25.0%, and seniors with at least 23.7%. ; The number of weekly sports activities of Taiwanese college students: 39.6% of the students who exercised twice a week were the most, followed by 36.4% of the weekly exercise, and again twice or more of the weekly exercise (inclusive), 22.9%, and the average weekly exercise was less than once. Accounted for 1.1%。It is known from the above that most Taiwanese college students have more than twice the number of weekly sports, including more than 60%.。

Table 3 is a cross-analysis table of background variables. It is found that the number of male and female students in each grade is consistent, and the proportion of males and females in each grade is half.。he biggest difference between boys and girls is the average number of sports per week. Boys have 89.5% of the average weekly exercise more than twice (472+367/937), and girls have 91.2% of the average weekly exercise 1 or 2 times (591+274/948).。The average number of weekly sports, as the grade is larger (first to fourth), is decreasing year by year, with 1.2% of senior girls having an average weekly exercise dissatisfaction (11/948)。

Table 2 Sample background variable description statistical analysis table

background	option	number	percentage
gender	1. male	937	49.7%
	2. female	948	50.3%
grade	1. first	485	25.7%
	2. second	482	25.6%
	3. third	472	25.0%
	4. fourth	446	23.7%
Average number of weekly sports	1. dissatisfied once	21	1.1%
	2. once	687	36.4%
	3. twice	746	39.6%
	4. more than three times (inclusive)	431	22.9%

N＝1885

Table 3 Sample background variable cross-analysis table

background		gender		grade				weekly sports			
		male	female	first	second	third	fourth	1	2	3	4
gender	male	-		242	238	235	222	2	96	472	367
	female			243	244	237	224	19	591	274	64
grade	first	242	243	-				1	121	198	165
	second	238	244					4	198	151	129
	third	235	237					5	185	204	78
	fourth	222	224					11	183	193	59
weekly sports	1	2	19	1	4	5	11	-			
	2	96	591	121	198	185	183				
	3.	472	274	198	151	204	193				
	4.	367	64	165	129	78	59				

Note: 1→dissatisfied once, 2→once, 3→twice, 4→more than three times (inclusive)

N＝1885

2. Analysis of differences between sample background variables and learning motivation and learning attitudes in physical education

(1) Gender

According to Table 4, the gender differences in questionnaire learning motivation (t = 2.45*) and learning attitude (t = 3.15*) were significantly differen。It is found that female college students in Taiwan have higher averages in learning motivation and learning attitudes in physical education than male students.。

"Learning Motivation": Female students' average score of 4.03 is significantly different from male students' average of 3.85 (t=2.45*), The data show that female college students in Taiwan have higher motivation for learning in physical education than male students.。There is no significant difference between "physical health" and "interpersonal needs" for male and female students in terms of various factors., However, from the average of the responses, it is found that both male and female students have a high degree of approval in both of these factors, indicating that male and female college students take physical education courses as the main motivation for "physical health" and "interpersonal needs".。In addition, the three factors of stress relief (t=2.29*), psychological needs (t=2.41*), and course knowledge (t=3.27*) are significant differences between male and female students, among which female students The motivation of these three factors is higher than that of male students.。

"Learning attitude": Female students' average score of 3.86 is significantly different from male student's average of 3.58 (t=3.15*)., The data show that female college students in Taiwan have higher attitudes towards physical education than male college students.。It also shows three factors: cognition (t=2.69*), behavior (t=3.16*), and emotion (t=2.85*). Both male and female students are significantly different. Female students are cognitive, behavioral, and emotional. Three factors have a higher learning attitude than male students。

Table 4 Summary table of differences in t-tests of questionnaires for different genders

variable	factor	male n＝937		female n＝948		*t*
		M	SD	M	SD	
learning motivation		3.85	.61	4.03	.43	2.45*
	healthy body	4.11	.31	4.15	.27	.74
	pressure relief	3.81	.65	4.03	.33	2.29*
	psychological needs	3.73	.78	3.97	.44	2.41*
	interpersonal needs	3.98	.42	4.06	.37	1.31
	course knowledge	3.64	.86	3.96	.45	3.27*
learning attitude		3.58	.81	3.86	.65	3.15*
	cognition	3.75	.76	4.01	.35	2.69*
	behavior	3.39	1.07	3.69	.82	3.16*
	emotion	3.61	.91	3.89	.58	2.85*

*$p < .05$

(2) Grade

It is known from Tables 5 and 6 that there are significant differences in learning motivation (F=2.36*) and learning attitude (F=3.24*) in different grades.。It is found that Taiwan college freshmen have higher averages of learning motivation and learning attitudes in physical education courses than second- and fourth-grade students.。

"Learning Motivation": The overall average of the first year is 4.01 is the highest, The freshman has a significant difference from the average of the second to fourth grades (F=2.36*), After the event, found that: freshman > sophomore > junior > senior。Data display that Freshman in Taiwan college has a high motivation for physical education。From the learning motivation factors, the two factors, "physical health (F=1.08)" and "interpersonal needs (F=.83)", did not reach significant differences between grades, but each grade had an average of high scores. The display indicates "agree"。

In addition, the grades of the motivational factors in the physical education classes are based on factors such as “pressure relief (F=2.25*)”, “psychological needs (F=2.69*)”, and “course knowledge (F=3.14*)”. Significant difference。*The "stress relief" factor was found after the event: freshman, sophomore, junior > senior*。The "psychological needs" factor was found after the event: freshman > sophomore > junior > senior。The "course knowledge" factor was found after the event: freshman > sophomore > junior > senior。

"Learning attitude": The average score of the first year is 3.80. The highest score is calculated for the attitude of the physical education class. The freshman has a significant difference from the average of the second to fourth grade (F=3.24*)., After the event, I found that: freshman > sophomore > junior > senior。Data

display that College freshmen in Taiwan have a high degree of learning attitude towards physical education。From the attitude of learning attitudes, only the "cognition (F=1.27)" factor has not reached a significant difference between grades, but the average of the results of each grade is consistent.。

The attitudes of the grades for the physical education class are significantly different by the factors of "behavior (F=3.65*)" and "emotion (F=2.51*)".。The "behavior" factor was found after the event: freshman > sophomore > junior > senior。The "emotional" factors were found after the event: freshman, sophomore, junior, senior。

Table 5 Summary table of one-way ANOVA of questionnaire variables in different grades

variable	factor	first grade n＝485		second grade n＝482		third grade n＝472	
		M	SD	M	SD	M	SD
learning motivation		4.01	.43	3.98	.47	3.93	.55
	healthy body	4.15	.23	4.14	.25	4.12	.26
	pressure relief	3.95	.51	3.93	.55	3.91	.58
	psychological needs	3.93	.55	3.88	.62	3.83	.73
	interpersonal needs	4.03	.38	4.01	.43	4.03	.38
	course knowledge	3.98	.47	3.86	.68	3.74	.86
learning attitude		3.80	.77	3.78	.85	3.71	.93
	cognition	3.93	.55	3.91	.58	3.84	.72
	behavior	3.67	.98	3.62	1.01	3.51	1.05
	emotion	3.78	.81	3.79	.83	3.76	.89

*p＜.05

Table 6 Summary table of one-way ANOVA of questionnaire variables in different grades (continued)

variable	factor	fourth grade n＝446		F	LSD
		M	SD		
learning motivation		3.87	.65	2.36*	①＞②＞③＞④
	healthy body	4.11	.28	1.08	---
	pressure relief	3.85	.70	2.25*	①、②、③＞④
	psychological needs	3.76	.89	2.69*	①＞②＞③＞④
	interpersonal needs	4.02	.40	.83	---
	course knowledge	3.62	.94	3.14*	①＞②＞③＞④
learning attitude		3.59	1.03	3.24*	①、②＞③＞④
	cognition	3.84	.72	1.27	---
	behavior	3.24	1.14	3.65*	①＞②＞③＞④
	emotion	3.67	.97	2.51*	①、②、③＞④

Note:「①」first grade,「②」second grade,「③」third grade,「④」fourth grade

*p＜.05

(3) Average weekly exercise times

From Tables 7 and 8, it is known that the students with “average number of sports per week” have significant differences in the questionnaire variables: learning motivation (F=3.28*) and learning attitude (F=4.35*). As a result, it is found that Taiwanese college students have an average of more than three times a week (inclusive) of the number of times of exercise, and the average of the motivations and learning attitudes in the physical education class.。

"Learning Motivation": The average student's "average exercise per week or more" is 4.09. The highest score is for students' "weekly exercise" ; There is a significant difference in the average value of the average number of sports per week for students (F=3.28*), After the event, it was found that the average was more than three times a week > twice > once > none. The data shows that Taiwanese college students "have an average of three or more sports per week" have a high motivation for physical education.。From the motivational factors of learning, students showed that "the average number of weekly sports movements was different" was not significantly different for the motivation of physical education ("F=.47"), and the average value of the answering results indicated a high degree of "consent". This shows that Taiwan University does not have different reasons for the motivation of physical education because of the number of sports per week. Most of them are for "health".。

In addition, the "average number of weekly sports" is based on "stress relief (F=2.45*)", "psychological needs (F=3.71*)", and "interpersonal needs (F=3.82*)". Significant differences in factors such as "Course

Knowledge (F=4.24*)"。The "stress relief" factor was found after the facts: on average "more than three times a week", "two times", "once" and "less than once"。The "psychological needs" factor was found after the facts: on average, "more than three times a week" > "two times" > "once" and "less than once".。The "interpersonal needs" factor was found after the facts: on average "more than three times a week", "two times" > "once" > "less than once"。「course knowledge」factor was found after the fact：on average "more than three times a week", "two times" > "once" > "less than once"。

"Learning attitude": The average number of different sports per week has a significant difference in the overall learning attitude of the physical education class (F=4.35*), After the event, it was found that the average weekly exercise was "more than three times" > "second time" > "once" > "less than once"。The data shows that Taiwanese college students "have an average of three or more sports per week" have a high degree of learning attitude towards physical education.。From the attitude of learning attitudes, there are significant differences in the factors of "cognition (F=4.27*)", "behavior (F=4.39*)", and "emotion (F=4.21*)".。The "cognitive" factors were found after the facts: on average "more than three times a week", "two times" > "once" > "dissatisfied once"。The "behavior" factor was found after the facts: on average "more than three times a week" > "second time" > "once" > "less than once"。"Emotional" factors are found after the fact : Average "more than three times a week" > "second time" > "once" > "less than once"。

Table 7 Summary table of one-way ANOVA of various factors for average weekly exercise times

variable	factor	①		②		③	
		n＝21		n＝687		n＝746	
		M	SD	M	SD	M	SD
learning motivation		3.78	.85	3.87	.66	4.01	.43
	healthy body	4.09	.31	4.14	.25	4.15	.23
	pressure relief	3.79	.83	3.95	.51	3.96	.47
	psychological needs	3.62	.99	3.65	.98	3.97	.45
	interpersonal needs	3.79	.83	3.94	.53	4.16	.21
	course knowledge	3.63	.99	3.71	.93	3.83	.70
learning attitude		3.44	1.09	3.67	.96	3.83	.73
	cognition	3.59	1.02	3.90	.56	3.99	.45
	behavior	3.29	1.19	3.37	1.14	3.65	.98
	emotion	3.45	1.07	3.75	.91	3.86	.67

*p＜.05

Table 8 Summary table of one-way ANOVA of various factors for average weekly exercise times (continued)

variable	factor	④		*F*	LSD
		n＝431			
		M	SD		
learning motivation		4.09	.31	3.28*	④＞③＞②＞①
	healthy body	4.14	.25	.47	---
	pressure relief	3.98	.47	2.45*	④、③、②＞①
	psychological needs	4.15	.23	3.71*	④＞③＞②、①
	interpersonal needs	4.18	.19	3.82*	④、③＞②＞①
	course knowledge	4.02	.39	4.24*	④＞③＞②＞①
learning attitude		3.94	.53	4.35*	④＞③＞②＞①
	cognition	4.04	.36	4.27*	④、③＞②＞①
	behavior	3.85	.67	4.39*	④＞③＞②＞①
	emotion	3.94	.53	4.21*	④＞③＞②＞①

Note:「①」dissatisfied once,「②」once,「③」twice,「④」more than three times (inclusive)
*p＜.05

In summary, the results of research on different background variables and learning motivations (stress relief, psychological needs, interpersonal needs, curriculum knowledge), learning attitudes (behavior, emotions) are significantly different.。However, the "physical health" factors of learning motivation and the "cognitive" factors of learning attitudes are not significantly different because of gender, age, and number of different sports

per week, and the results of the responses are all agreed. This result is related to Li Jianlin. (2013), Huang Wenbin (2013), Hong Shengcheng (2014), Chen Jianbin (2014), the results are consistent。It can be seen that Taiwanese college students generally take "physical health" for physical education classes, and actively ask questions about sports related knowledge and diet weight loss in the classroom, showing that they have a good learning attitude.。

三、Canonical Correlation Analysis of Learning Motivation and Learning Attitude in Physical Education Class

This study uses the five factors of learning motivation (physical health, stress relief, psychological needs, interpersonal needs, curriculum knowledge) as control variables (self-variation), three factors of learning attitude (cognition, emotion, behavior) as Canonical variation (variation), typical correlation analysis。

The typical correlation analysis of learning motivation and learning attitude and related path situation, the analysis results are shown in Table 9, typical correlation analysis path diagram, as shown in Figure 1.。Its typical correlation coefficient ρ=.90, the decision coefficient ρ2=.81, which indicates that the control variable (χ1) can explain the total variation of the typical factor of the criterion variable (η1) by 81%, and χ1 is from the control variable. The typical factors extracted account for 84.15% of the total variation of the effect variable group, and 68.04% of the typical variables (η1) of the control variable and the criterion variable, indicating that the typical factors of the criterion variable can explain the control. The total variation of the variable is 68.04%, and η1 is a typical factor extracted from the criterion variable, accounting for 72.65% of the total variation of the effect variable, and the criterion variable overlaps with the typical factor of the control variable (χ1). The part has 58.74%, indicating that the typical factor of controlling the variable can explain 58.74% of the total variation of the criterion variable。

As far as the typical correlation structure is concerned, in the control variables, physical health, stress relief, psychological needs, interpersonal needs, curriculum knowledge and typical factors are highly correlated. The typical factor load is .92, respectively. 85, .81, .91, .86。Therefore, the typical correlation between control variables and criterion variables is mainly caused by physical health, stress relief, psychological needs, interpersonal needs, and curriculum knowledge in the control variables. Typical factors affect the effect variable through typical factors χ1 H1. And η1 is close to cognition, emotion, and behavior. From the positive and negative signs of the factor load, the relationship is positive。

Table 9 Summary table of canonical correlation analysis between learning motivation and learning attitude

control variable (X variable)	canonical factor χ^1	effect variable (Y variable)	canonical factor η^1
healthy body	.92	cognition	.84
pressure relief	.85	behavior	.78
psychological needs	.81	emotion	.75
interpersonal needs	.91		
course knowledge	.86		
extracting the number of mutations %	84.15		72.65
overlapping %	68.04		58.74
ρ^2			.81
ρ			$.90^{**}$

$^{**}p<.01$

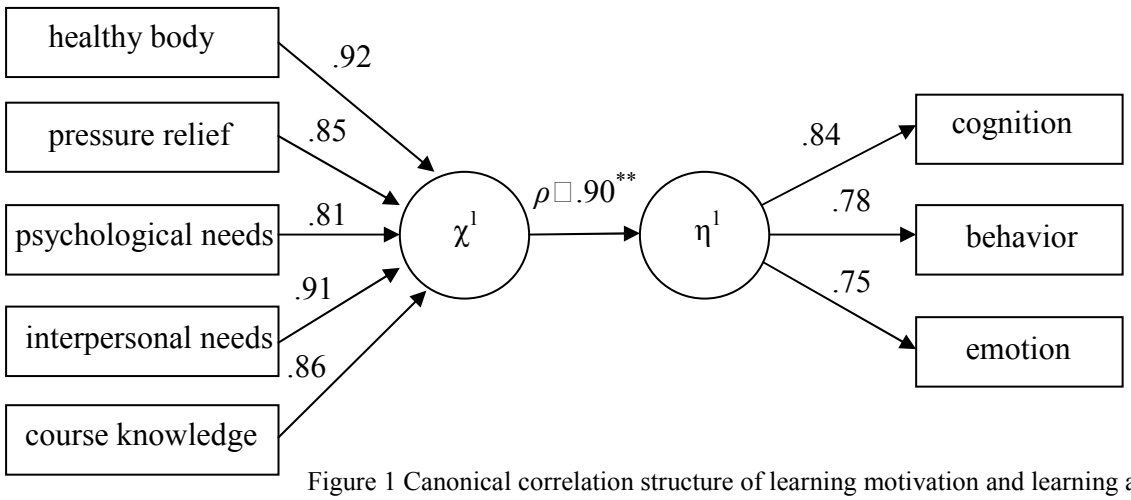

Figure 1 Canonical correlation structure of learning motivation and learning attitude

It is known from the results that a typical set of factors can be obtained in the typical correlation analysis between learning motivation and learning attitude.。As far as the typical factor load is concerned, it is

known from the typical correlation coefficient that the higher the motivation for learning in the "motility" (.92) and "interpersonal needs" (.91) learning motivation, the "cognition of learning attitude" (.84) The higher the facet.。According to the above typical correlation results, students have a typical correlation with the motivation and learning attitude of physical education (ρ=.90). Among them, the “cognitive” facet of learning motivation is the most relevant to the “cognitive” facet of learning attitude.。The results of this study are consistent with Li Jianlin (2013), Huang Wenbin (2013), and Hong Shengcheng (2014).。

Conclusion

According to the research results, the following conclusions are drawn and the reference direction for the future planning of the physical education curriculum of University in Taiwan。

1. Differences in background among college students in Taiwan for learning motivation and learning attitude in physical education

(1) Gender aspect

Female college students in Taiwan generally have higher motivations and learning attitudes in physical education than male students.。The male and female students' motivation for learning in physical education is mainly based on "physical health". Female students have higher motivation for learning physical education than male students, and female students' perceptions, behaviors and emotions in learning attitudes. Factors are better than male students。However, from the questionnaire, there are still a small number (1.2%) of female college students who do not participate in sports. This is contrary to the significance of most college students participating in physical education classes for "health". Therefore, encouragement and incentives are used to achieve the habit of all college students participating in sports. 。

(2) Grade aspect

Freshmen have higher motivations and learning attitudes in physical education classes than grades 2 to 4, mainly due to the training of previous high school physical education classes. They are just exposed to the freedom of college interest selection. Students choose courses according to their interests and can stimulate students to learn positively. attitude。There are multiple "elective courses" in physical education classes in major schools in Taiwan. It is also an opportunity for students to continue to participate in sports in college life. From the freshman to the fourth year, there are sports elective courses. On the one hand, it can cultivate the habit of college students to develop continuous exercise.。However, the questionnaire shows that the number of weekly sports in colleges and universities in Taiwan is generally reduced, which may be affected by personal career planning (preparation for off-campus internship, a graduate school entrance examination, obtain employment)., This phenomenon depends on the school and relevant authorities in Taiwan to strengthen the education of students to make good use of time to exercise, set up a sports guidance team, and open up the use of gyms and venues in the school.。

(3) Weeks in different sports

Female college students in Taiwan have the most athletes per week, with an average of one or two times a week. Male college students have an average of two or three times a week. Most of them have more than 90% of college students, From the data, the higher the number of spontaneous activities of students on weekdays, the higher the motivation and attitude for physical education.。

2. The Relationship between Learning Motivation and Learning Attitude of College Students in Taiwan

From the above research results, it is known that there is a positive relationship between learning motivation and learning attitude, indicating that learning motivation is one of the important factors affecting learning attitude, Therefore, the stronger the attribute of the motivation of learning motivation, the higher the student’s learning attitude.。The main motivation for Taiwanese university students to "choose an elective" in physical education is "physical health", When the motivation can meet the students' ability to show a positive learning attitude, it also shows that the arrangement of physical education courses for Taiwanese college students should be based on "physical health".。It also shows that regardless of the course of any individual project (eg basketball, volleyball, track and field, swimming, etc.), the teacher should focus on the student's physical health (health fitness) and integrate into the individual sports technique during the course plan. To increase the cognitive awareness of the subject。

Satisfying students' motivation is helpful to students' positive learning attitude. At the end of each semester, the "Sports Class Satisfaction Questionnaire" survey is conducted to understand the students' opinions and problems during the whole semester.。Students' opinions help teachers to carry out future curriculum projects, grasp the most valuable and interesting topics of students, and provide diverse and rich learning content.。

Finally, another important task of college physical education is to prepare students for future lifelong sports。Teachers should make good use of opportunities to detail the importance of physical education curriculum, and use classroom teaching to strengthen students' attitudes towards correct physical education., Not only increase students' ability to cognition of sports, but also build students' attitudes toward

sports to promote health，Assist students in finding suitable sports for them, and then guide students to take the initiative to use their spare time to generate self-motivated behaviors for the purpose of future lifelong sports.。

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