

**The training satisfaction of table tennis players and the influence it has on team support, team commitment, and the intention to leave:  
A study of university general group table tennis players**

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**Abstract:** This study focuses mainly on the correlation between the training factors involved in university table tennis and team support, team commitment, and a tendency to quit the team. The subjects in this study include 257 general group table tennis players. Evaluating tools include: the table tennis players' training satisfaction scale, team commitment scale, team support scale, and intention to leave scale. The data obtained from these evaluating tools was analyzed using Pearson correlation and multiple regressions. According to the analysis results, training satisfaction is proportional to team support. Among the factors contributing to training satisfaction, sports performance, place and equipment, teammate relationships, training control, and sports devotion can effectively predict team support; while sports performance, teammate relationships, coach professionalism, and place and equipment can effectively predict team commitment. In addition, coach professionalism and team welfare can be used to effectively predict a tendency to quit the team. This study can serve as a reference for schools, players and coaches, and for subsequent research.

**Keywords:** training satisfaction, team support, team commitment, intention to leave

## **1. INTRODUCTION**

### **1.1 Research background**

The main task of group training in university sports teams is to promote school athletics. However, each sports representative comes from a different background and has his/her own unique mindset. Top players tend to think that they have already achieved the stage target of the discipline, which is required for university entrance; therefore most of them do not wish to participate in training again. Also, most players join a team because of recreational interests and do not like the idea of having to strengthen their training. Consequently, the University may face difficulties in recruiting and/or keeping players. Most coaches serve two roles: the role of the physical education teacher and the part-time representative team coach. This dual task may result in increased stress when teaching, studying and heavy training are all being carried out. Chien (2006) has observed that within a sports team, the role of the coach is to be the team leader and key person, and this idea has been accepted by the public. In all matters pertaining to team player relationships, team cohesion and sports performance, the coach plays a very significant role. According to Hsu (1989), a coach has an influence on an athlete that surpasses the influence of teachers. The most respected teacher or friend of a team player is usually not a class teacher, but a past sports coach. Chelladurai (1984) has argued that increasing the training satisfaction of players is the primary factor in maintaining their interest in sports training. Chelladurai (1990, 1993) has stated that

satisfaction with the coach influences not only the level of acceptance of sports training, but also the coach's leadership behavior, as players and coaches influence each other. If the coach knows the player's level of satisfaction with training, this knowledge is helpful in adjusting his/her leadership style and discipline so as to obtain the respect, trust and approbation from players that is required to make training successful.

Eisenberger, Huntington, Hutchison and Sowa (1986) have proposed the concept of perceived organizational support (POS). POS means that each employee will develop a conviction to evaluate the importance that his/her organization attaches to employee contribution and welfare. Wayne, Shore Bommer and Tetrick (2002), Yang (2004), and Chen (2008) have determined that there is a significant positive correlation between employee POS and work performance. Rhoades and Eisenberger (2002) have compiled POS related literature and concluded that POS has a significant positive correlation with many employee attitudes (including work satisfaction, organization commitment, etc.) and behavioral results (including in-role and extra-role behavior, rate of absence, etc.). Two mechanisms are primarily responsible for these findings: the principle of reciprocation and the perception of socio-emotional needs. When employees feel a high POS, this triggers their willingness to repay the organization by exhibiting a positive work attitude along with good behavior. In addition, a high POS satisfies employees' needs for social approbation and emotional support, thus

promoting a happier work feeling, which reduces stress and results in a higher level of performance (Rhoades, Eisenberger & Aemeli, 2001). When employees perceive the support of their organization, this provokes feelings of obligation toward the organization, which in turn impels them to fulfill their obligations through behavior that supports the organization's goals. Thus, Eisenberger et al. (1986) has maintained that employee performance is based on the principle of reciprocation. Extending these findings to team sports, it is possible to conclude that players who receive the full support of their team will do their best to reward the team with good results. By understanding the relation between team support and training satisfaction, coaches can be better equipped to train and construct their teams.

Kanter (1968) has defined organizational commitment as a personal willingness to demonstrate the behavior and attitudes that will serve the organization most effectively, and to continue this work ethic over a long term. Morries and Sherman (1981) have stated that organizational commitment can predict the likelihood of job-quitting as well as employee performance. Organizational commitment has already become an important factor that managers take into consideration in hiring. Therefore, the influence of training satisfaction on organizational commitment is a subject that deserves further research.

Lai (2004) has pointed out that when students attend a school team and accept the training, they usually, but not always, have a strong interest in a particular sport. (Sometimes the motivation comes from a classmate or other person whom the student deems important.) However, sports team training is different from after class PE activities. It demands that players devote considerable time and energy to training, which is more than most students do. During the training period, players may be thinking of quitting the team due to stress (which can come from a variety of sources, including parents) or interpersonal relationship issues. Studying the factors that contribute to training satisfaction has as its goal the continuation of a player's participation in sports team training.

## 1.2 Study objectives

- 1.2.1 To understand the correlation between factors that contribute to training satisfaction within a general group of university table tennis players and team support, team commitment, and intention to leave.
- 1.2.2 To determine whether factors which contribute to training satisfaction can effectively predict team support.
- 1.2.3 To determine whether factors which contribute to training satisfaction can effectively predict team commitment.
- 1.2.4 To determine whether factors which contribute to training satisfaction can effectively predict an intention to leave the team.

## 2. RESEARCH METHOD

### 2.1 Research subjects

The subjects in this study were drawn from participants of the Tamkang University Table Tennis Invitational Tournament, which extended from October 20<sup>th</sup> to 21<sup>st</sup>, 2007. Included were 49 teams from 30 universities and colleges, totaling 466 players. 300 players were randomly sampled. After deducting the invalid questionnaires, the total number of respondents was 257: 166 male players, 91 female players, and a recovery rate of 86%.

### 2.2 Research tools

#### 2.2.1 Table tennis players' training satisfaction scale

This scale was constructed to reflect the needs of the university's general group of table tennis players, as determined by Chien (2006), Wang, Tang and Chen (2006), Lee (2003), and Huang (2000). Seven factors were initially designed, including: teammate relations, coach professionalism, team atmosphere, training control, place and equipment, team welfare, and technical performance. A five-point Likert scale was adopted (very satisfied = 5, satisfied = 4, neutral = 3, dissatisfied = 2, and very dissatisfied = 1), consisting of 36 questions in total. Through item analysis, it was determined that the discrimination index of these 36 questions was within 0.83-1.66 and the critical ratio (CR) was between 5.52-14.92,  $p < 0.05$ . According to Ebel (1979) and Wolman (1989), the discriminate index should be higher than 0.4, and the critical ratio higher than 3, which indicates that the scale scores well on these categories. Next, R2 indicated that the questions were all correlated with training satisfaction. Finally, the R1 value of the questions was consistently above 0.4, indicating that these questions have met the medium-high correlation criteria and that the scale has a good reliability. The next step was to conduct factor analysis by principal factor analysis (PFA) and oblique rotation. A total of 7 factors were extracted: coach professionalism (12 questions), technical performance (5 questions), team welfare (4 questions), place and equipment (4 questions), training control (4 questions), team atmosphere (4 questions), and teammate relation (3 questions). The factor burden of each question was above 0.4. Ultimately, the cumulative percentage of variance within the whole scale was 65.41%. In terms of reliability testing, the Cronbach  $\alpha$  value of teammate relation, coach professionalism, team atmosphere, training control, place and equipment, team welfare, and technical performance were: .93, .82, .86, .80, and .79, respectively. These results indicate that the scale has acceptable reliability and validity.

#### 2.2.2 Team commitment scale

This research adopted the short-type scale of organizational commitment designed by Lai and Wang (2002), and based on Mowday, Steers and Poter (1979). A five-point Likert scale was used (very satisfied = 5, satisfied = 4, neutral = 3, dissatisfied = 2, very

dissatisfied = 1), consisting of 7 questions in total. Through item analysis, it was determined that the discrimination index of these 7 questions was within 1.06-1.52 and the CR was between 8.91-13.92,  $p < 0.05$ , which indicates that the scale scores well on these categories. Next, R2 indicated that the questions were all correlated with team commitment. Finally, the R1 value of the questions was consistently above 0.4, indicating that these questions have met the medium-high correlation criteria and that the scale has a good reliability. The next step was to conduct factor analysis by principal factor analysis (PFA) and oblique rotation. One factor was extracted. The factor burden of each question was above 0.4. Ultimately, the cumulative percentage of variance within the whole scale was 59.49%. In terms of reliability testing, the Cronbach  $\alpha$  value was .88. These results indicate that the scale has acceptable reliability and validity.

### 2.2.3 Team support scale

This research adopted the short-type scale of organizational support designed by Lai and Wang (2002) with reference to Eisenberger (1986). A five-point Likert scale was used (very satisfied = 5, satisfied = 4, neutral = 3, dissatisfied = 2, very dissatisfied = 1), consisting of 4 questions in total. Through item analysis, it was determined that the discrimination index of these 4 questions was within 1.08-1.38 and the CR was between 7.07-10.53,  $p < 0.05$ , which indicates that the scale scores well on these categories. Next, R2 indicated that the questions were all correlated with team support. Finally, the R1 value of the questions was consistently above 0.4, indicating that these questions have met the medium-high correlation criteria and that the scale has a good reliability. The next step was to conduct factor analysis by principal factor analysis (PFA) and oblique rotation. One factor was extracted. The factor burden of each question was above 0.4. Ultimately, the cumulative percentage variance within the whole scale was 66.48%. In terms of reliability testing, the Cronbach  $\alpha$  value was .83. These results indicate that the scale has acceptable reliability and validity.

### 2.2.4 Intention to leave scale

This research adopted the scale of intention to leave designed by Lai (2004). A five-point Likert scale was used (very satisfied = 5, satisfied = 4, neutral = 3, dissatisfied = 2, very dissatisfied = 1), consisting of 2 questions in total. Through item analysis, it was determined that the discrimination index of these 2 questions was within 0.49-0.59, and the CR was between 3.02-3.07,  $p < 0.05$ , indicating that this research tool has a possible discrimination. Next, R2 indicated that all the questions have a significant correlation. Finally, the R1 value of all questions was between 0.21-0.25, which is marginally above the 0.2 low correlation criteria. This shows that the scale has a relatively low reliability. The next step was to conduct factor analysis by principal factor analysis (PFA) and oblique rotation. One factor

was extracted. The factor burden of each question was above 0.4. Ultimately, the cumulative percentage of variance within the whole scale was 81.37%. In terms of reliability testing, the Cronbach  $\alpha$  value was .77. The above results indicate that the scale has passable reliability and validity.

## 2.3 Data analysis

This research used Pearson Correlation to analyze the correlation between training satisfaction and team support, team commitment and intention to leave. Also, multiple regressions were used to analyze the predicted situation between training satisfaction and team support, team commitment and the intention to leave, respectively. The level of significance of the various statistical tests in this research was set at  $\alpha = .05$ .

## 3. RESULT

### 3.1 The influence of training satisfaction on team support

Table 1 shows the correlation matrix between the players' training satisfaction and team support. It was found that a positive correlation exists between team support and coach professionalism, training control, sports performance, team welfare, sports devotion, place and equipment, and teammate relations. Among these factors, sports performance has the highest correlation with team support. Table 2 indicates that of the 7 prediction variables of training satisfaction, Sports Performance, Place and Equipments, Teammate Relation, Training Control and Sports Devotion are significant predictors of team support (F values are 149.74, 97.09, 70.74, 57.15, and 47.77, respectively). Sports Performance's predictive role on team support is 48.9%. The second predictive variable is Place and Equipment. Its cumulative coefficient of determination is 53.9%. The third predictive variable is Teammate Relation. Its cumulative coefficient of determination is 55.6%. The fourth predictive variable is Training Control. Its cumulative coefficient of determination is 57.1%. The fifth predictive variable is Sports Devotion. Its cumulative coefficient of determination is 58%. The total variation of team support explained by the predictive variables is 58%. It can be seen from the plus or minus sign of the regression coefficient that the greater the number of scores in Sports Performance, Place and Equipment, Teammate Relation, Training Control and Sports Devotion, the higher the Team Support.

Table 1: Correlation matrix of players' training satisfaction vs. team support

Variable	1	2	3	4	5	6	7	8
Team Support	1.00							
Coach Professionalism	1 0.38*	1.00						
Training Control	2 0.35*	0.24*	1.00					
Sports Performance	3 0.49*	0.58*	0.38*	1.00				
Team Welfare	4 0.29*	0.27*	0.37*	0.37*	1.00			
Sports Devotion	5 0.35*	0.40*	0.29*	0.42*	0.39*	1.00		
Place & Equipment	6 0.46*	0.44*	0.43*	0.55*	0.21*	0.34*	1.00	
Teammate Relations	7 0.40*	0.44*	0.17*	0.46*	0.14*	0.28*	0.47*	1.00

\*P<.05

Table 2: Multiple stepwise regression analysis summary of team support

Select sequence	Predict. variable	B	$\beta$	R <sup>2</sup> Cum.	R <sup>2</sup>	R <sup>2</sup> Δ	F
1	Sports Perform.	0.25	0.23	0.489	0.239	0.239	149.74*
2	Place & Equip.	0.17	0.16	0.539	0.290	0.051	97.09*
3	Teammate Relations	0.18	0.17	0.556	0.309	0.019	70.74*
4	Training Control	0.14	0.13	0.571	0.326	0.017	57.15*
5	Sports Devotion	0.11	0.11	0.580	0.336	0.010	47.77*
	Intercept	0.53					

\*P<.05

### 3.2 The influence of training satisfaction on team commitment

Table 3 shows the correlation matrix between the players' training satisfaction and team commitment. It was found that a positive correlation exists between team commitment and coach professionalism, training control, sports performance, team welfare, sports devotion, place and equipment, and teammate relations. Among these factors, sports performance has the highest correlation with team commitment. Table 4 indicates that of the 7 prediction variables of training satisfaction, Sports Performance, Teammate Relation, Coach Professionalism, and Place & Equipment are significant predictors of team commitment (F values are 202.81, 148.07, 115.82, and 96.14, respectively). Sports Performance's predictive role on team commitment is 55%. The second predictive variable is Teammate Relation. Its cumulative coefficient of determination is 62%. The third predictive variable is Coach Professionalism. Its cumulative coefficient of determination is 65%. The fourth predictive variable is

Place and Equipment. Its cumulative coefficient of determination is 67%. The total variation of team commitment explained by the predictive variables is 67%. It can be seen from the plus or minus sign of the regression coefficient that the greater the number of scores in Sports Performance, Teammate Relation, Coach Professionalism, and Place and Equipment, the higher the Team Commitment.

Table 3: Correlation matrix of players' training satisfaction vs. team commitment

Variable	1	2	3	4	5	6	7	8
Team Commitment	1 1.00							
Coach Professionalism	2 0.53*	1.00						
Training Control	3 0.23*	0.24*	1.00					
Sports Performance	4 0.55*	0.58*	0.38*	1.00				
Team Welfare	5 0.17*	0.27*	0.37*	0.37*	1.00			
Sports Devotion	6 0.34*	0.40*	0.29*	0.42*	0.39*	1.00		
Place & Equipment	7 0.52*	0.44*	0.43*	0.55*	0.21*	0.34*	1.00	
Teammate Relations	8 0.51*	0.44*	0.17*	0.46*	0.14*	0.28*	0.47*	1.00

\*P<.05

Table 4: Multiple stepwise regression analysis summary of team commitment

Select sequence	Predict variable	B	$\beta$	R <sup>2</sup> Cum.	R <sup>2</sup>	R <sup>2</sup> Δ	F
1	Sports Performance	0.20	0.20	0.55	0.30	0.30	202.81*
2	Teammate Relations	0.22	0.23	0.62	0.38	0.09	148.07*
3	Coach Professionalism	0.22	0.23	0.65	0.42	0.04	115.82*
4	Place & Equipment	0.19	0.20	0.67	0.45	0.03	96.14*
	Intercept	0.72					

\*P<.05

### 3.3 The influence of training satisfaction on the intention to leave

Table 5 shows the correlation matrix between the players' training satisfaction and intention to leave. It was found that a negative correlation exists between the intention to leave and coach professionalism, sports performance, sports devotion, place and equipment, and teammate relations. Among these factors, coach professionalism has the highest correlation with the intention to leave. In addition, training control and team welfare are positively correlated with intention to leave, team welfare having a higher correlation than training control. According to Table 6, among the 7 prediction variables of training satisfaction, coach professionalism

and team welfare are the most significant predictors of the intention to leave (F values are 35.91 and 28.46, respectively). The predictive power of coach professionalism on the intention to leave is 26%. The second predictive variable is team welfare. Its cumulative coefficient of determination is 33%. The total variation of the intention to leave explained by the predictive variables is 33%. It can be seen by the plus or minus sign of the regression coefficient that the greater the number of scores for coach professionalism, the lower the intention to leave, whereas higher scores for team welfare correlate with a higher intention to leave.

Table 5: Correlation matrix of players' training satisfaction vs. intention to leave

Variable	1	2	3	4	5	6	7	8	
Leave Team	1	1.00							
Coach Professionalism	2	-0.26*	1.00						
Training Control	3	0.06	0.24*	1.00					
Sports Performance	4	-0.12*	0.58*	0.38*	1.00				
Team Welfare	5	0.11*	0.27*	0.37*	0.37*	1.00			
Sports Devotion	6	-0.03	0.40*	0.29*	0.42*	0.39*	1.00		
Place & Equipment	7	-0.17*	0.44*	0.43*	0.55*	0.21*	0.34*	1.00	
Teammate Relations	8	-0.14*	0.44*	0.17*	0.46*	0.14*	0.28*	0.47*	1.00

\*P<.05

Table 6: Multiple stepwise regression analysis summary of the intention to leave

Select sequence	Predict variable	B	$\beta$	R <sup>2</sup> Cum.	R <sup>2</sup>	R <sup>2</sup> Δ	F
1	Coach Profession.	-0.47	-0.32	0.26	0.07	0.07	35.91*
2	Team Welfare	0.27	0.20	0.33	0.11	0.04	28.46*
	Intercept	3.24					

\*P<.05

## 4. DISCUSSION

### 4.1 Training satisfaction vs. team support

Anderson and Sullivan (1993) maintained that customer satisfaction is important for the success of an enterprise. However, on a good sports team, the training satisfaction of players is reflected not only in the success of the team, but in the enthusiasm of the team players, the team's operations, etc. According to the results of this research, sports performance is the strongest predictor of team support. It follows that a coach's priority should be to upgrade sports performance. In addition, coaches should aim to improve the quality of training places and equipment, promote interaction, support and trust among players, and reduce tedious training. The best way to

enhance training is to develop interesting and creative ways of managing control, which will allow players to engage in training voluntarily. According to Rhoades and Eisenberger (2002), who conducted meta-analysis on 70 subjects, there is a significant positive correlation between awareness of organizational support and work results, a finding corroborated by Chen (2008). It follows that increasing the training satisfaction of players will positively influence team support.

### 4.2 Training satisfaction vs. team promise

According to the research of Huang (2002) and Currivan (1999), a player's satisfaction significantly influences his/her commitment to the team; the higher the player satisfaction, the higher the team commitment. This finding correlates with the research conducted on work satisfaction in the industry field and its impact on organizational commitment. Esienberger (1986) found that when employees feel a satisfactory level of organizational support, they feel an obligation towards the organization, which they demonstrate by behavior and attitudes that support organizational goals. With regard to the training satisfaction of the university's general group of table tennis players, the results of this study show that sports performance has the strongest predictive influence on team support and commitment. Coaches should therefore focus on upgrading performance, while also building good teammate relations, enhancing self professionalism, and striving for better training places and equipment, as all of these factors positively influence team commitment.

### 4.3 Training satisfaction vs. intention to leave

Price (1997) maintains that a high level of work satisfaction reduces the leaving rate of employees. However, Lai (2004) maintains that of the 7 predictive variables on training satisfaction, only coach professionalism and team welfare can predict the intention to leave. This study would seem to reflect both views. Coach professionalism and team welfare are not the only predictors of the intention to leave, but they are the most important predictors; the higher the scores for coach professionalism, the lower the intention to leave, whereas higher scores for team welfare correlate with a higher intention to leave. According to these findings, it is important to have an intelligent coach with good judgment. Dong, Han, Jiang and Liu (2006) have indicated that coaches should have knowledge of the main sciences (sports physiology, sports psychology, sports biomechanics), the concept of applied sciences (sports coaching, physical training, management), the design of exercise prescription, and an understanding of player selection.

Cheng and Fang (1994) and Chen (1995) maintained that a coach's duties extend to issues that are seemingly unrelated to training, such as promoting the players and acting as a love advisor and mental health counselor. Evidently, a coach who can meet all these requirements will have diversified skills. Although a

good or bad sports team cannot be the sole responsibility of the coach, there is no doubt that a successful coach can improve team performance and not only by knowing how to play the game. A professional coach will have a significant impact on players, whether they stay on the team and continue with training, or not.

When a team acquires more welfare, which may mean more resources, a resource allocation inequity sometimes results. Adams (1965) has indicated that an individual in a state of inequality pertaining to reputation or remuneration, typically reacts by re-adjusting his/her physical or mental state; substituting the current object of comparison for one that reflects his/her current state; or leaving this realm (i.e., giving up). Many team players would choose the first option: lower their own performance to match the reward they get. Some would combine this with the second option: choose a player who performs less well as a comparative object. Finally, there are those who would opt out; therefore, a coach should be aware that excessive welfare will not necessarily influence the team positively. On the contrary, it may have a significantly negative impact. Coaches should consider this possibility, and manage team welfare carefully to prevent any negative reactions.

## 5. CONCLUSION

### 5.1 Main purpose and recommendations

The main purpose of this study was to understand the relationship between training satisfaction and team support, team commitment and the intention to leave. After analysis via multiple regression, the following recommendations emerged:

- 5.1.1 The university's general group of table tennis players should make sports performance their primary mission. This requires team support, which is enhanced by a high-quality training place and equipment, positive team relationships, and training control conducted in joyful and creative ways to encourage players to actively devote themselves to training.
- 5.1.2 The university's general group of table tennis players should focus on improving performance by strengthening team commitment. This is accomplished by establishing good teammate relationships, continuously enhancing professionalism, and building better places for training and better equipment.
- 5.1.3. Tennis coaches should be especially aware of the importance of professionalism, since a high level of professionalism correlates negatively and significantly with the intention of players to leave the team. Coaches should also be aware that implementing team welfare may increase the intention to leave. Therefore, coaches should carefully manage team welfare to avoid negative reactions from players.

### 5.2 Further Suggestions

#### 5.2.1 Research result application

For most table tennis players who belong to a university group, it is no longer attractive to require long-term painstaking training in order to obtain a good performance. Players tend to be more interested in enhancing their social skills through table tennis than in training; they are also focused on obtaining employment after graduation. It is suggested that coaches establish a social interaction network between the team's graduate alumni and the school players. For example, alumni activity can be held periodically to provide current players with assistance in their studies and employment through an exchange in jobs and in the stadium. In addition, coaches should enhance their sports-related professional knowledge. It is also suggested that coaches study the principles of team construction and group dynamics to enhance the process of sports training and to teach players how to communicate effectively, how to build relationships of trust, improve their decision-making and problem-solving abilities, compete and cooperate with others, and deal with frustration, etc. Only then can they guide the players systematically during the period of training to practically apply and transfer what they have learned on the school team to other domains.

#### 5.2.2 Future research suggestions

There is a definite correlation between the training satisfaction of players and team support and commitment. The latent mediator variables are worth studying. Positive mood might be taken as an example of a latent mediator variable. According to the theory of attribution, a person in a positive mood tends to impute failure to environmental influences. No doubt, there are other latent mediator variables that wait to be discovered.

In the future, researchers interested in conducting studies on the intention to leave might consider closely their selection of research subjects. The study subjects in this research were contestants of a competition. Basically, these are players with a low intention to leave; therefore, they cannot represent with any degree of accuracy the intention of general team players. Nevertheless, it is very difficult and impractical to obtain as study subjects players who are thinking of leaving or have just left the team. In view of this difficulty, it might be useful to conduct an in-depth interview with each team's coach prior to the selection of research subjects.

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