

INFLUENCE OF WOODBALL COACHING LEADERSHIP BEHAVIOR ON ATHLETES' ORGANIZATIONAL COMMITMENT, TEAM COHESION AND TRAINING SATISFACTION

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Abstract

This study aims to explore the effects of woodball coaching leadership behavior on woodball athletes' organizational commitment, team cohesion and training satisfaction. The survey research was adopted, a total of 300 questionnaires were distributed, and 270 were returned, with a recovery rate of 90%. After 16 invalid questionnaires were excluded, 254 valid questionnaires were obtained, with an effective recovery rate of 94.1%. Statistical analysis was conducted using SPSS and AMOS. The research results indicated that: (1) coaching leadership behavior had a significant positive effect on organizational commitment; (2) coaching leadership behavior had a significant positive effect on team cohesion; (3) coaching leadership behavior had a significant positive effect on training satisfaction; (4) organizational commitment had a significant positive effect on training satisfaction; (5) team cohesion had a significant positive effect on training satisfaction. Finally, relevant suggestions were provided for practical application and future research based on the research results.

Key words: woodball athletes, coaching leadership behavior, organizational commitment, team cohesion, training satisfaction.

Introduction

Woodball is an emerging sport originally invented in Taiwan, developed by Mr. Ming-hui Weng in the 1990s. Since

its inception, it has been included in National Middle School Athletic Games, National Intercollegiate Athletic Games, National Games, and the National Woodball Championship in Taiwan. As for

international events, there are Asian University Woodball Championship, World University Woodball Championship, Woodball World Cup, and Asian Beach Games (Woodball event). As seen from this, the promotion of woodball both domestically and internationally has been quite successful, and woodball has gradually become a sport with more and more participants (Chinese Taipei Olympic Committee, 2025; International Woodball Federation, 2025).

In the competition environment, the key to winning or losing often lies in the athletes' training results and their performance on the field, while the coach plays an important role by providing guidance to the athletes in both training and strategic arrangements. Woodball coaches need to have professional technical training literacy and also develop various hitting strategies to enhance athletes' on-the-spot adaptability. Chelladurai (1990) believes that the interaction between athletes and coaches directly affects athletes' motivation and satisfaction. At the same time, the more similar the perception of coaching leadership behavior within a sports team, the higher the satisfaction experienced by the athletes. Therefore, the more closely athletes perceive the coach's leadership behavior, the more they recognize the coach's professional ability and their own performance (Cai, 2023). Westre and Weiss (1991) mentioned that coaching leadership behavior explores the psychological issues between athletes and coaches, while situational research investigates the interaction among the coach, the athletes, and the situation. The Contingency Approach

(situational theory) within leadership theories was incorporated into the Multidimensional Model of Leadership proposed by Chelladurai (1978) in the 1970s. This model integrated the Contingency Approach of Fiedler (1967), the path-goal theory of Osborn and House (1971), the Adapt-Reactive Theory of Hunt (1975) and the Discrepancy Model of Leadership of Yukl (1981) (Cheng, 1997). Later, Chelladurai and Saleh (1978) proposed the Leadership Scale for Sport (LSS) as a measurement tool. This scale is divided into five dimensions: training and instruction behavior, democratic behavior, autocratic behavior, social support behavior, and positive feedback. To this day, coaching leadership behavior in sports situations, which takes contingency (situation) as the main axis, is still extensively used in current research on leadership behavior in various sports.

Research on coaching leadership behavior theories has been conducted for many years. Over time, the focus of the research has gradually shifted from understanding whether it can reflect sports teams' performance or the improvement of athletic skills to emphasizing athletes' psychological processes and the overall operation of the team. Coaches' leadership behaviors during training and competitions not only affect athletes' skills and performance, but also influence individuals' identification with the team, their continued commitment, and their cohesion toward the team (Liu et al., 2024; Liu, 2024).

Therefore, this study revised the Chinese version of the Leadership Scale

for Sport compiled by Cheng (1995) with reference to the Leadership Scale for Sport (LSS) of Chelladurai and Saleh (1980), as well as the scales from studies such as Chang et al. (2011) and Chou (2013). The revised scale was used as the research survey tool.

Recent research on coaching leadership behavior shows that studies on the theories of coaching leadership behavior have shifted from focusing on whether coaches' leadership behaviors affect sports teams' performance to placing greater emphasis on athletes.

Initially, organizational commitment was used to explore the psychological state of identification with the organization at work and applied to job engagement in job satisfaction research. With the continuous advancement of research related to organizational commitment, scholars in different research areas and theoretical foundations have different definitions for organizational commitment. According to the summary and integration in this study, organizational commitment can be defined in the following four aspects: identifying with organizational goals, values, and vision; having loyalty and a sense of identification with the organization; being willing to contribute effort and dedication to the organization; and having the intention to remain in the organization (Kanter, 1968; Sheldon, 1971; Buchanan, 1974; Porter, Crampon and Smith, 1976; Mowday, 1982; Kawakubo, 1987; Meyer and Gellatly, 1990; Leong, Furnham and Cooper, 1996; Bonger and Somech, 2004; Liu, 1993; Tsai, 1993; Liu, 1995; Chang, 2001; Ku, 2001;

Ho, 2004; Chou, 2013). In the above definitions of organizational commitment, factors such as identification with the organization, loyalty, involvement, attitudes, and intention are often mentioned; in addition, some scholars include faith (Morrow, 1983; Lin, 1990) and beliefs (Thompson, 1989; Reyes, 1990) in the study of individuals' organizational commitment.

Regarding the scales of organizational commitment, the main representative scales include the organizational commitment scale with the utilitarian concept developed by Herbiniaik et al. (1972) based on Backer's (1960) side-bet theory and Homas' (1961) exchange theory, and the organizational commitment scale designed by Porter et al. (1974) based on the normative commitment perspective. This study also considered the perspective of scale development and the scales used in Taiwan for investigating organizational commitment in the field of sports (Chang, 2001; Chang et al., 2005; Cheng, 2007; Chang et al., 2011; Chen, 2010; Chou, 2013) and adopted the organizational commitment of Porter et al. (1974) as the research tool, which was divided into the three dimensions of organizational commitment, willingness to exert effort and intention to remain.

As indicated by recent years of research on organizational commitment, when athletes can feel the coaches' dedicated training and instruction as well as care both on and off the field, it can significantly enhance their sense of identification with and belonging to the team, thereby increasing their intention to

remain in the team and training satisfaction (Cai, 2023; Zhu et al., 2022). In addition, related studies have also found that if the coach leading a sports team can clearly define the roles of athletes while providing positive and fair feedback and establishing a good training atmosphere, the sports team will be more willing to invest more effort toward the goal and demonstrate a stronger sense of team identification (Liu, 2024).

Carron (1982) defined team cohesion as the close bond between all members within a team to collectively achieve team goals in a dynamic process. Cheng and Liu (1991) suggested that team cohesion refers to the force that binds team members together to achieve a common goal. The higher the team cohesion, the more the individuals are willing to invest effort for the team they belong to and cooperate to achieve common goals; conversely, the lower the team cohesion, the less centripetal pull the individuals feel toward the team's goals, and the less willing they are to invest effort to the team for unity and cooperation. Lu (1994) pointed out that team cohesion refers to the members within a team being able to set aside all personal barriers and psychologically focus closely on the team. Lu (1995) stated that team cohesion means the extent to which athletes in a team like each other and accept each other as members of their team.

Carron (1982) proposed a conceptual model of sports team cohesion. This model includes antecedent variables that influence cohesion as well as the outcomes produced by the influence of

cohesion; cohesion is regarded as a mediating variable between sports teams and athletic performance and is affected by four factors: situation, individual, leadership, and team. Cohesion can persist and influence the outcomes of sports team performance, satisfaction, team homogeneity and stability. Based on this concept, team cohesion can serve as a mediating variable in the study of coaching leadership behavior to examine the impact on athlete satisfaction.

Regarding the conceptual dimensions of research on team cohesion, Carron et al. (1985) proposed a conceptual model of cohesion. Team cohesion should be divided into two main directions. The first is “group integration”, which refers to that team members are required to evaluate the entire team based on team tasks and interpersonal activities. This is further divided into “team task integration” (also called team cooperation) and “team social integration” (also called interpersonal attraction). The second is “team attraction to the individual”, which refers to that team members are required to evaluate the team tasks and social activities they participate in. This is further divided into “team task attraction to the individual” (also called team adaptation) and “team interpersonal attraction to the individual” (also called interpersonal attraction) (Hsieh, 1998; Tsia, 2015). The application of the four sub-dimensions mentioned above, namely team cooperation, interpersonal intimacy, team adaptation, and interpersonal attraction, has been widely recognized by researchers in the field of team cohesion. Therefore, this study, referring to the team cohesion

scales of such researchers as Wu (2001), Fang (2009), Pan (2010), Chen (2011), Lu (2013) and Lee (2024), also divided team cohesion into four sub-dimensions: team cooperation, interpersonal intimacy, team adaptation, and interpersonal attraction, which were used as the research tools for studying team cohesion in this study.

Although there is considerable foundation for the use of team cohesion in the study of coaching leadership behavior, from a research perspective, the recent trend tends to approach it from the perspective of team processes, exploring whether coaching leadership behavior is an important factor influencing the relationship between team interaction quality and team cooperation. Research results show that coaches who show more care and support while adopting a more democratic leadership style are more likely to gain the trust of a sports team and enhance communication and trust within the team, which improves overall cohesion and strengthens team cohesion (Kao, 2024; Zhu et al., 2022). In addition, the higher the coach's leadership in terms of consistency and stability for the sports team, the more effectively it can reduce team conflicts and promote team harmony and cooperation (Huang, 2020).

For athletes to demonstrate persistence in sports and training, coaches must meet the needs and desires of athletes through their mental and physical state and the training environment during the training process. Chelladurai and Riemer (1997) suggested that athlete satisfaction is an extension of job satisfaction. They

defined athlete satisfaction as “the positive perceptions or feelings that athletes generate after a series of complex evaluations of the organizations, processes, and outcomes related to their sports experiences”. Wu (2002) argued that higher satisfaction arises when what an individual receives meets or exceeds his or her expectations; otherwise, the satisfaction is lower.

Chelladurai (1984) mentioned that in a sports context, the quality of interaction between coaches and athletes not only affects the relationship between the coach and individual athletes but also has a direct impact on the entire team. He also mentioned that factors influencing athlete satisfaction can be divided into two aspects: “intrinsic motivation” and “extrinsic motivation”. Intrinsic motivation includes a sense of achievement, competence, mastery of sports skills, and overcoming sports-related challenges (successful challenge), which can be satisfied through the coach's training and instruction. As for extrinsic motivation, it refers to material rewards such as money, prizes and trophies etc. as well as intangible factors like others' appreciation, fame, and social status. When these extrinsic rewards or incentives are inappropriately given to athletes, coaches can offset the effects of these extrinsic motivators on athletes through proper management practices and positive feedback methods (Chu and Lin, 2014).

In recent years, empirical studies on coaching leadership behavior and training satisfaction have found that the more positive the coaching leadership behavior,

the higher the satisfaction with training content and team atmosphere (Cai, 2023; Zhu et al., 2022). Moreover, when the coach can teach athletes according to their individual characteristics, provide tailored leadership based on personal differences, and offer timely individualized support and feedback, it will enhance the athletes' level of engagement and satisfaction with training, thereby positively influencing their intention to participate in long-term training. (Huang, 2020).

This study referred to the scales developed by Chang (2006), Yeh (2010), Huang (2012), Lu (2013), Lin et al. (2016), Cai (2023) and others, and made modifications. There were five dimensions: coaching leadership, internal atmosphere, training content, venue facilities, and achievement performance.

Methods

Derivation of Research Hypotheses

In summary of the above, research on the theories of coaching leadership behavior indicates that coaching leadership behavior can no longer be fully represented by a single factor. Instead, it requires the construction of a complete research framework for a multidimension exploration of athletes' psychological process changes in perceiving coaching leadership behavior and their feelings toward the team. Therefore, this study examined the significant effect of coaching leadership behavior on organizational commitment, team cohesion, and training satisfaction. This study summarized and sorted the following previous research

related to coaching leadership behavior, organizational commitment, team cohesion and training satisfaction as the basis for deriving research hypotheses and constructing a structural equation model. Coaching leadership behavior had a significant positive effect on organizational commitment (Chang et al., 2005; Chang et al., 2011; Chen, 2011; Lin, 2013; Chou, 2013; Shen and Chang, 2018).

Based on the above research results,:

H1 was established; coaching leadership behavior has a significant positive effect on team cohesion (Lin, 2013; Tsai, 2015; Kao, 2024). Based on the above research results,

H2 was established; coaching leadership behavior had a significant positive effect on training satisfaction (Chang et al., 2005; Chen, 2011; Lu, 2013; Lin et al., 2016; Cai, 2023; Liu, 2024).

H3 was established; organizational commitment had a significant positive effect on training satisfaction (Chang et al., 2005; Chen, 2011).

H4 was established; team cohesion had a significant positive effect on training satisfaction (Lu, 2013; Cai, 2023).

H5 was established. Regarding research on coaching leadership behavior in woodball, only (Ko et al., 2016; Lai et al., 2018) have explored athlete satisfaction.

There is still a lack of comprehensive examination from coaching leadership theories of the impact pathway constructed for sports team cohesion, organizational commitment, and individual training satisfaction. Therefore, this study aimed to verify the research hypotheses and pathways proposed by inductively summarizing past research related to coaching leadership behavior, and construct a structural equation model, to provide the research findings as practical application and suggestions to woodball coaches in practical terms and to future researchers for relevant research reference and demonstration.

Five research hypotheses were proposed based on the above research background, motivation and related theoretical foundations, and by synthesizing relevant empirical literature for inference:

- H1: Coaching leadership behavior has a significant effect on organizational commitment.
- H2: Coaching leadership behavior has a significant effect on team cohesion.
- H3: Coaching leadership behavior has a significant effect on training satisfaction.
- H4: Organizational commitment has a significant effect on training satisfaction.
- H5: Team cohesion has a significant effect on training satisfaction.

Research Structure

The theoretical framework of this study was constructed based on the above research background, research

motivation and research hypotheses. The research framework is as shown in Figure 1.

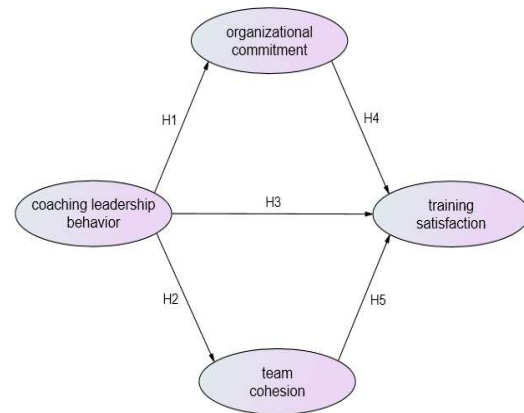


Figure 1. Research Framework

Research Scope and Subjects

This study took high school woodball athletes as research subjects to explore the effects of coaching leadership behavior on athletes' organizational commitment, team cohesion, and training satisfaction. The study used survey research to collect data. A total of 300 questionnaires were distributed, with 270 returned, resulting in a recovery rate of 90%. After 16 incomplete or invalid questionnaires were excluded, there were 254 valid questionnaires, with a valid recovery rate of 94.1%. The final number of valid samples included in the statistical analysis was 254.

Schumacker and Lomax (2004) pointed out that in most Structural Equation Modeling (SEM) related studies, the sample size is generally between 200 and 500, which is considered sufficient to

obtain stable and appropriate estimates. Huang (2007) also supports this view, suggesting that this sample size can enhance the reliability of statistical inference. Additionally, Marsh and Hau (2003) suggested that in SEM analysis, a larger sample size helps improve the stability of parameter estimation and the accuracy of model fit, emphasizing that the larger the sample size, the more stable and representative the analysis results.

Research Tools

The questionnaire used in this study was designed to explore the effect of woodball coaching leadership behavior on high school athletes' organizational commitment, team cohesion, and training satisfaction. The questionnaire was measured with a Likert five-point scale to assess the research subjects' degree of agreement with each item, ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate a higher degree of agreement with the respective dimensions.

The content of the questionnaire in this study was divided into five sections:

- (1) Personal Basic Information: The demographic variables in this section referred to the research tools of Lai et al. (2018) and Cai (2023), and were revised according to the characteristics of the research subjects, comprising a total of 6 items.
- (2) Coaching Leadership Behavior Scale: This scale was revised from the research scales of Cheng (1995), Chang et al. (2011), and Chou (2012), comprising a total of 33 items.
- (3) Organizational Commitment Scale: This scale was revised from the research scales of Chang (2001), Chang et al. (2005), Chang (2007), Chang et al. (2011), Chen (2011), and Chou (2013), comprising a total of 23 items.
- (4) Team Cohesion Scale: This scale was revised from the research scales of Wu (2001), Fang (2009), Pan (2010), Chen (2011), and Lee (2024), comprising a total of 28 items.
- (5) Training Satisfaction Scale: This scale was revised from the research scales of Chang (2006), Yeh (2010), Huang (2012), Lu (2013), Lin et al. (2016), Cai (2023) and other scholars, comprising a total of 20 items.

Data Processing and Analysis

This study collected research data using survey research, and data analysis was conducted using SPSS and AMOS statistical software. First, the data of the recovered questionnaires were organized and coded, and incomplete or invalid questionnaires were removed prior to subsequent statistical analysis. The analysis procedures included reliability and validity testing of the scales, as well as the construction and validation of structural equation models, to examine the relationships among the research variables and the overall model fit.

Results

Sample Characteristics

This study took high school woodball athletes as the research subjects, with a total of 254 valid samples collected. The analysis of the background variables of the subjects is as follows:

In terms of gender, there were 110 male athletes, accounting for 43.3%, and 144 female athletes, accounting for 56.7%, indicating that the proportion of female athletes was slightly higher than that of male athletes. Regarding grade distribution, there were 104 tenth-grade students, accounting for 40.9%; 87 eleventh-grade students, accounting for 34.3%; and 63 twelfth-grade students, accounting for 24.8%. Overall, the tenth-grade students had the highest proportion, followed by eleventh-grade students. As to the total number of weekly training sessions, 115 athletes trained 3 times or less per week, accounting for 45.3%; 119 athletes trained 4 to 6 times per week, accounting for 46.9%; and 20 athletes trained 7 times or more per week, accounting for 7.9%. This showed that most teams' weekly training frequency was between 3 and 6 times. Regarding the total weekly training hours, 123 athletes trained for less than 10 hours per week, accounting for 48.4%; 87 trained for 10 to 14 hours, accounting for 34.3%; 31 trained for 15 to 20 hours, accounting for 12.2%; and 13 trained for more than 21 hours, accounting for 5.1%. It is apparent that most athletes trained for less than 14 hours per week. In terms of the years of participation in woodball training (as shown in the text of the original table), 202 athletes had 1

to 3 years of training (including 3 years), accounting for 79.5%; 52 athletes had 4 years or more of training, accounting for 20.5%, indicating that most athletes had the training experience of 3 years or less. In terms of sports team type, 209 athletes were from regular classes, accounting for 82.3%; 45 athletes were from sports classes, accounting for 17.7%, indicating that the sample in this study was mainly composed of students from regular classes. In summary, the research sample mainly consisted of female athletes, tenth-grade students, athletes training for 3 to 6 times per week, athletes training for less than 14 hours per week, those with less than 3 years of training experience, and students from regular classes.

Measurement Model Analysis

This study conducted a convergent validity test on dimensions such as coaching leadership behavior, organizational commitment, team cohesion, and training satisfaction. According to the analysis results of the Modification Index (MI), when the MI value is greater than 3.84, it indicates that there may be a high correlation between the error items of the item, showing that the model fit still has room for improvement (Huang, 2007). To enhance the fit of the measurement model and construct validity, this study deleted items based on MI values and theoretical rationality and removed a total of 26 items with excessively high MI values, including B1, B2, B9, B14, B18, B24, C1, D1, D3, D4, D7, D8, D9, D18, D20, D21, D23, D24, D26, EE1, EE4, EE5, EE8, EE10, EE13 and EE15. The revised scale retained the

remaining items and underwent subsequent analyses of the measurement and

structural model to ensure the stability and measurement validity of the model.

Table 1. Characteristics of subjects

Background variable	Classification criteria	Sample Number	Percentage %	Cumulative Percentage %
Gender	Male	110	43.3	43.3
	female	144	56.7	100.0
Grade	Tenth-grade	104	40.9	40.9
	Eleventh-grade	87	34.3	75.2
	Twelfth-grade	63	24.8	100.0
Total weekly team training sessions	3 times or less per week	115	45.3	45.3
	4-6 times per week	119	46.9	92.1
	7 times or more per week	20	7.9	100.0
Total weekly team training hours	Less than 10 hours	123	48.4	48.4
	10-15 hours	87	34.3	82.7
	15-20 hours	31	12.2	94.9
	More than 21 hours	13	5.1	100.0
Years of experience in participating in wood-ball training	1~3 years	202	79.5	79.5
	More than 4 years	52	20.5	100.0
Sports team type	Regular class	209	82.3	82.3
	Sports class	45	17.7	100.0

Source: Compiled by this study.

Convergent Validity

The standardized factor loadings for each dimension in this study ranged from 0.62 to 0.94, all reaching a significant level, indicating that the observed variables had good explanatory power

for their latent dimensions. Composite Reliability (CR) ranged from 0.86 to 0.96, all above the recommended standard of 0.60; the Average Variance Extracted (AVE) ranged from 0.55 to 0.87, also all above the threshold of 0.50. These results conformed to the standards

recommended by Bagozzi and Yi (1988) and Hair, Anderson, Tatham, and Black (1998), indicating that each dimension in this study had good convergent validity. The correlation analysis results are shown in Tables 5 to 8.

Table 5. Summary of convergent validity and dimension reliability-coaching leadership behavior

Items	Stand- ardized regres- sion co- effi- cient	Un- stand- ardized regres- sion co- effi- cient	S.E.	C.R. (t-value)	<i>p</i>	SMC	C.R.	AVE
B3<---autocratic behavior	0.67	1.00				0.45	0.86	0.55
B4<---autocratic behavior	0.87	1.07	0.09	11.68	***	0.77		
B5<---autocratic behavior	0.82	1.10	0.10	11.14	***	0.67		
B6<---autocratic behavior	0.73	1.05	0.10	10.29	***	0.53		
B7<---autocratic behavior	0.62	0.90	0.10	8.80	***	0.38		
B8<---democratic behavior	0.73	1.00				0.53	0.89	0.64
B10<---democratic behavior	0.77	1.00	0.08	12.24	***	0.60		
B11<---democratic behavior	0.79	0.99	0.08	12.28	***	0.62		
B12<---democratic behavior	0.83	1.07	0.08	12.80	***	0.69		
B13<---democratic behavior	0.88	1.05	0.08	13.58	***	0.77		
B15<---social support behav- ior	0.80	1.00				0.64	0.90	0.70
B16<---social support behav- ior	0.80	0.94	0.06	14.48	***	0.64		
B17<---social support behav- ior	0.89	0.98	0.06	16.99	***	0.79		
B19<---social support behav- ior	0.86	1.00	0.06	16.02	***	0.74		
B20<---positive feedback	0.91	1.00				0.82	0.94	0.77
B21<---positive feedback	0.93	1.03	0.04	25.63	***	0.87		
B22<---positive feedback	0.86	0.95	0.05	20.68	***	0.74		

B23<---positive feedback	0.88	0.91	0.04	21.36	***	0.77			
B25<---positive feedback	0.82	0.91	0.05	18.26	***	0.67			
B26<---training and instruction behavior	0.90	1.00					0.82	0.96	0.75
B27<---training and instruction behavior	0.90	1.08	0.05	23.21	***	0.82			
B28<---training and instruction behavior	0.87	0.97	0.05	21.14	***	0.76			
B29<---training and instruction behavior	0.85	0.95	0.05	19.98	***	0.72			
B30<---training and instruction behavior	0.87	0.98	0.05	21.01	***	0.75			
B31<---training and instruction behavior	0.92	1.02	0.04	24.19	***	0.84			
B32<---training and instruction behavior	0.77	1.03	0.06	16.18	***	0.59			
B33<---training and instruction behavior	0.88	1.08	0.05	21.79	***	0.78			

Source: Compiled by this study.

Table 6. Summary of convergent validity and dimension reliability – organizational commitment

Items	Standardized regression coefficient	Unstandardized regression coefficient	S.E.	C.R. (t-value)	<i>p</i>	SMC	C.R.	AVE
C2<---team identification	0.89	1.00				0.80	0.96	0.80
C3<--- team identification	0.92	1.07	0.05	23.65	***	0.84		
C4<--- team identification	0.92	1.04	0.04	24.04	***	0.85		
C5<--- team identification	0.86	1.10	0.05	20.36	***	0.75		
C6<--- team identification	0.88	1.03	0.05	21.16	***	0.77		

C7<--- team identification	0.91	1.06	0.05	22.84	***	0.82		
C8<--- team identification	0.91	1.03	0.04	23.24	***	0.83		
C9<---willingness to exert effort	0.83	1.00				0.68	0.96	0.77
C10<---willingness to exert effort	0.87	0.95	0.05	17.60	***	0.76		
C11<---willingness to exert effort	0.92	1.08	0.06	19.46	***	0.85		
C12<---willingness to exert effort	0.89	1.05	0.06	18.23	***	0.78		
C13<---willingness to exert effort	0.88	0.99	0.06	17.96	***	0.78		
C14<---willingness to exert effort	0.89	1.02	0.06	18.44	***	0.80		
C15<---willingness to exert effort	0.90	0.99	0.05	18.57	***	0.81		
C16<---willingness to exert effort	0.88	0.92	0.05	18.02	***	0.78		
C17<---intention to remain	0.81	1.00				0.66	0.94	0.72
C18<---intention to remain	0.89	1.06	0.06	17.57	***	0.79		
C19<---intention to remain	0.88	0.96	0.06	17.35	***	0.78		
C20<---intention to remain	0.88	1.04	0.06	17.32	***	0.78		
C21<---intention to remain	0.86	1.01	0.06	16.64	***	0.75		
C22<---intention to remain	0.81	0.97	0.06	15.18	***	0.66		
C23<---intention to remain	0.81	1.03	0.07	15.13	***	0.66		

Source: Compiled by this study.

Table 7. Summary of convergent validity and dimension reliability -team cohesion

Items	Stand- ardized regres- sion co- effi- cient	Unstand- ardized re- gression coefficient	S.E.	C.R. (t-value)	<i>p</i>	SMC	C.R.	AVE
D2<---team coopera- tion	0.90	1.00				0.81	0.91	0.79
D5<---team coopera- tion	0.88	0.97	0.05	21.12	***	0.78		
D6<---team coopera- tion	0.89	0.97	0.04	22.02	***	0.80		
D10<---interpersonal intimacy	0.64	1.00				0.41	0.91	0.68
D11<--- interpersonal intimacy	0.87	1.26	0.11	11.65	***	0.76		
D12<--- interpersonal intimacy	0.91	1.40	0.12	12.01	***	0.84		
D13<--- interpersonal intimacy	0.90	1.18	0.10	11.91	***	0.81		
D14<--- interpersonal intimacy	0.79	1.24	0.11	10.89	***	0.63		
D15 <---team adapta- tion	0.90	1.00				0.81	0.94	0.79
D16 <---team adapta- tion	0.93	0.96	0.04	24.58	***	0.87		
D17 <---team adapta- tion	0.91	1.06	0.05	23.30	***	0.83		
D19 <---team adapta- tion	0.83	0.90	0.05	18.77	***	0.69		
D22 <---interpersonal attraction	0.85	1.00				0.72	0.92	0.75
D25 <---interpersonal attraction	0.90	1.02	0.05	19.33	***	0.80		
D27<---interpersonal attraction	0.91	1.08	0.05	19.99	***	0.83		
D28 <---interpersonal attraction	0.82	0.97	0.06	16.41	***	0.67		

Source: Compiled by this study.

Table 8. Summary of convergent validity and dimension reliability - training satisfaction

Items	Stand- ardized regres- sion co- effi- cient	Unstand- ardized re- gression coefficient	S.E.	C.R. (t-value)	<i>p</i>	SMC	C.R.	AVE
EE2<---training content	0.93	1.00				0.87	0.93	0.87
EE3<--- training content	0.94	1.06	0.04	27.45	***	0.89		
EE6<---coach leadership	0.93	1.00				0.86	0.93	0.81
EE7<--- coach leadership	0.90	0.93	0.04	24.04	***	0.82		
EE9<--- coach leadership	0.88	0.92	0.04	22.26	***	0.78		
EE11<---internal atmosphere	0.89	1.00				0.79	0.90	0.81
EE12<--- internal atmosphere	0.92	0.99	0.04	22.55	***	0.85		
EE14<---achievement performance	0.93	1.00				0.86	0.91	0.78
EE16<--- achievement performance	0.86	1.00	0.05	20.66	***	0.74		
EE17<--- achievement performance	0.86	0.97	0.05	20.51	***	0.74		
EE18<---venue facilities	0.92	1.00				0.84	0.89	0.74
EE19<--- venue facilities	0.93	0.98	0.04	24.45	***	0.86		
EE20<--- venue facilities	0.72	0.75	0.05	14.13	***	0.51		

Source: Compiled by this study.

Discriminant validity

To test the discriminant validity of each latent dimension, this study used the Bootstrap sampling method to

estimate the 95% confidence interval of the correlation coefficients between the dimensions. The analysis results showed that the confidence intervals of the correlation coefficients between the dimensions did not include 1, indicating that there were significant differences

between the dimensions, and they can be effectively distinguished from each other, so they had good discriminant validity (Torkzadeh, Koufteros, & Pflughoeft, 2003). The correlation analysis results are shown in Table 9 to Table 12.

Table 9. 95% Confidence interval of Bootstrap correlation coefficients – coaching leadership behavior

			Bias-corrected		Percentile method		
			Estimate	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Autocratic behavior	<--	Democratic behavior	-0.54	-0.69	-0.36	-0.70	-0.36
Autocratic behavior	<--	Social support behavior	-0.62	-0.76	-0.44	-0.77	-0.46
Autocratic behavior	<--	Positive feedback	-0.58	-0.73	-0.40	-0.73	-0.40
Autocratic behavior	<--	Training and instruction behavior	-0.60	-0.74	-0.43	-0.75	-0.43
Democratic behavior	<--	Social support behavior	0.86	0.74	0.93	0.75	0.93
Democratic behavior	<--	Positive feedback	0.79	0.67	0.86	0.67	0.86
Democratic behavior	<--	Training and instruction behavior	0.78	0.67	0.87	0.66	0.87
Social support behavior	<--	Positive feedback	0.88	0.82	0.93	0.82	0.93
Social support behavior	<--	Training and instruction behavior	0.91	0.82	0.96	0.83	0.96
Positive feedback	<--	Training and instruction behavior	0.89	0.84	0.93	0.84	0.93

Source: Compiled by this study.

Table10. Bootstrap 95% Confidence interval of Bootstrap correlation coefficients - organizational commitment

			Bias-corrected		Percentile method		
			Esti- mate	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Team identifica- tion	<--	Willingness to exert effort	0.97	0.93	0.99	0.93	0.99
Team identifica- tion	<--	Intention to remain	-0.57	-0.70	-0.41	-0.71	-0.43
Willingness to exert effort	<--	Intention to remain	-0.48	-0.63	-0.33	-0.64	-0.34

Source: Compiled by this study.

Table 11. Bootstrap 95% Confidence interval of Bootstrap correlation coefficients –
team cohesion

			Bias-corrected		Percentile method		
			Esti- mate	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Team coopera- tion	<--	Interpersonal inti- macy	0.93	0.90	0.97	0.90	0.97
Team coopera- tion	<--	Team adaptation	0.86	0.78	0.93	0.78	0.93
Team coopera- tion	<--	Interpersonal attrac- tion	0.95	0.91	0.99	0.91	0.99
Interpersonal in- timacy	<--	Team adaptation	0.84	0.76	0.90	0.76	0.90
Interpersonal in- timacy	<--	Interpersonal attrac- tion	0.93	0.88	0.96	0.88	0.97
Team adaptation	<--	Interpersonal attrac- tion	0.90	0.84	0.94	0.85	0.94

Source: Compiled by this study.

Table 12. Bootstrap 95% Confidence interval of Bootstrap correlation coefficients -train-
ing satisfaction

			Bias-corrected		Percentile method		
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			Esti- mate	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Training content	<--	Coach leadership	0.89	0.83	0.94	0.83	0.94
Training content	<--	Internal atmosphere	0.90	0.84	0.86	0.84	0.96
Training content	<--	Achievement performance	0.87	0.79	0.94	0.79	0.93
Training content	<--	Venue facilities	0.80	0.70	0.89	0.70	0.89
Coach leadership	<--	Internal atmosphere	0.92	0.85	0.97	0.86	0.97
Coach leadership	<--	Achievement performance	0.83	0.77	0.89	0.77	0.89
Coach leadership	<--	Venue facilities	0.82	0.71	0.90	0.72	0.90
Internal atmosphere	<--	Achievement performance	0.87	0.79	0.93	0.79	0.93
Internal atmosphere	<--	Venue facilities	0.82	0.72	0.90	0.73	0.90
Achievement performance	<--	Venue facilities	0.89	0.83	0.94	0.83	0.95

Source: Compiled by this study.

Structural Model Analysis

The study evaluated the overall fit of the structural model using indicators including the chi-square value (χ^2), the ratio of chi-square to degrees of freedom (χ^2/df), the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), and the Parsimonious Comparative Fit Index (PCFI).

The analysis results showed $\chi^2/df = 3.58$, GFI = 0.85, AGFI = 0.80, RMSEA = 0.10, CFI = 0.93, and PCFI = 0.78.

Overall, the majority of the fit indices met the criteria suggested by Bagozzi and Yi (1988), Browne et al. (1993), Hair et al. (1998), and Schumacker and Lomax (2004). Although the RMSEA value was slightly higher than the ideal standard, it was still within an acceptable range, indicating that the structural model constructed in this study, "The Study of Woodball Coaching Leadership Behavior on Athletes' Organizational Commitment, Team Cohesion, and Training Satisfaction—A Case Study of High School" had an acceptable and good overall fit. The relevant results are shown in Table 13.

Table 13. Overall model fit analysis

Fit index	Allowable standard	After model correction	Model fit determination
χ^2 (Chi-square)	The smaller the better	408.25	
Ratio of χ^2 to degrees of freedom	<5	3.58	Fair
GFI	>0.80	0.85	Conforming
AGFI	>0.80	0.80	Conforming
RMSEA	<0.10	0.10	Fair
CFI	>0.80	0.93	Conforming
PCFI	>0.50	0.78	Conforming

Source: Compiled by this study.

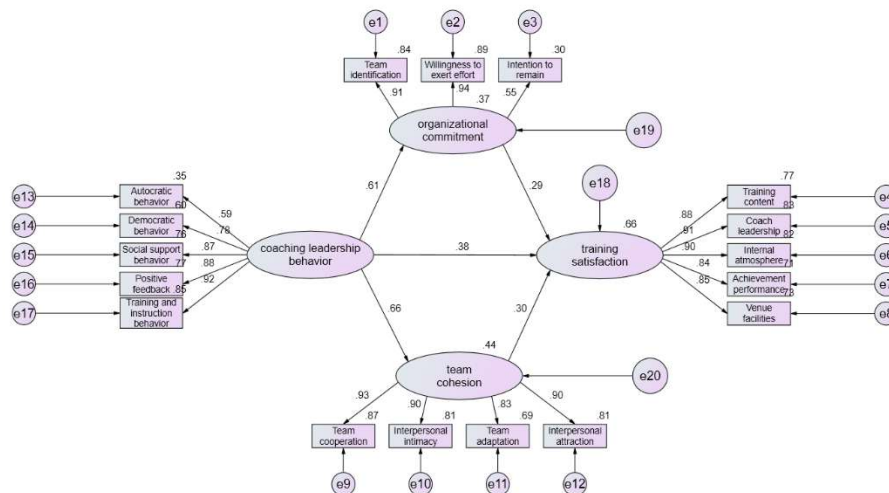


Figure 2. Research model of study on woodball coaching leadership behavior on athletes' organizational commitment, team cohesion and training satisfaction - a case study of high school

Based on the analysis results of the structural equation modeling (SEM) in this study, the test results of each research hypothesis are as follows: coaching leadership behavior had a significant positive effect on organizational commitment (H1 was supported); coaching leadership behavior had a significant

positive effect on team cohesion (H2 was supported); coaching leadership behavior had a significant positive effect on training satisfaction (H3 was supported); organizational commitment had a significant positive effect on training satisfaction (H4 was supported); team cohesion had a significant positive effect

on training satisfaction (H5 was supported). Overall, all five hypotheses proposed in this study were empirically

supported, and the related analysis results are shown in Table 14.

Table 14. Summary of research hypotheses and test results

Research Hypotheses	Path value	Result of validation
H1: Coaching leadership behavior has a significant effect on organizational commitment.	0.61*	Supported
H2: Coaching leadership behavior has a significant effect on team cohesion.	0.66*	Supported
H3: Coaching leadership behavior has a significant effect on training satisfaction.	0.38*	Supported
H4: Organizational commitment has a significant effect on training satisfaction.	0.29*	Supported
H5: Team cohesion has a significant effect on training satisfaction.	0.30*	Supported

Source: Compiled by this study, * $p < 0.05$.

Conclusion and Suggestions

Conclusion

The main purpose of this study was to explore the effect of woodball coaching leadership behavior on athletes' organizational commitment, team cohesion, and training satisfaction. Through empirical data analysis, this paper arrived at the following main conclusions:

(1) H1 was supported: Coaching leadership behavior had a significant positive effect on organizational commitment. The research results are consistent with those of Chang et al. (2005); Lin (2011); Chang et al. (2011); Chen (2011); Lin (2013); Chou (2013); Shen and

Chang (2018). Coaches are the leaders of sports teams, and athletes' organizational commitment is influenced by the different leadership behaviors of coaches in sports team organizations. Coaches should use appropriate leadership styles corresponding to different situations to enhance athletes' organizational commitment.

(2) H2 was supported: Coaching leadership behavior had a significant positive effect on team cohesion. The research results are consistent with those of Lin (2013), Tsai (2015); Kao (2024). Coaches spend time closely interacting with athletes, and high school students are still minors. Whether during school training, off-site training, or competitions,

if coaches provide more attention to the athletes, the athletes can better perceive the coaches' leadership behavior. Therefore, the coaches' leadership style positively influences overall communication, collaboration, and displayed attitudes within the sports team, thereby affecting team cohesion in a positive manner.

(3) H3 was supported. Coaching leadership behavior had a significant positive effect on training satisfaction. The research results are consistent with the findings of Chang et al. (2005); Chen (2011); Lu (2013); Lin et al. (2016); Cai (2023); Liu (2024). In the process of leading the team, coaches establish shared goals and visions with athletes, allowing athletes to feel during training that the coaches can lead the entire team to achieve these goals.

(4) H4 was supported. Organizational commitment had a significant positive effect on training satisfaction. The research results are consistent with the findings of Chang et al. (2005); Chen (2011). Organizational commitment is the psychological feeling of athletes' demonstration of loyalty and identification with the sports team. The higher the loyalty and identification, the more willing they are to invest effort in training and in anything that contributes to the team's progress, which also increases their satisfaction during training.

(5) H5 was supported. Team cohesion had a significant positive effect on training satisfaction. The research results are consistent with the findings of Lu (2013); Cai (2023). The stronger the

cohesion within a sports team, the better the cooperation, interpersonal interaction, and centripetal force among athletes, which also affects the overall training atmosphere. Therefore, the higher the team cohesion, the more positive influences training satisfaction.

Suggestions

Suggestions for Training Practice

Based on the structural equation model of how woodball coaching leadership behavior affects athletes' organizational commitment, team cohesion, and training satisfaction constructed in this study, interpersonal interactions between coaches and athletes, as well as athletes' perceptions of coaching behaviors, positively influenced loyalty, sense of identity, and cohesion within the organization and team. At the same time, it fostered recognition of venue facilities, training content and team atmosphere, forming a positive connection. It is recommended that coaches, when implementing leadership behaviors, consider the current state of both the team and the athletes, and dynamically adjust their leadership, so that the athletes and the entire team can experience positive feelings from the coach's leadership, enhance team identity, and are willing to contribute to the team. When satisfaction is achieved, it will improve their training satisfaction and make them work together toward the goals.

In actual training and competition situations, the purpose of coaches' leadership behavior should, in addition to

focusing on athletes' skills and performance, also consider providing positive support and feedback to meet athletes' psychological needs. When athletes perceive positive leadership from the coach, it will naturally make them have centripetal force towards the improvement of team cohesion and cooperation.

In training arrangement, coaches should increase the diversity and challenge of training content, while adapting training flexibly and dynamically according to the circumstances, avoiding rigid training patterns. This allows athletes to gain a sense of achievement and satisfaction during training, making them more willing to invest in training and work toward the team's common goals.

Coaching leadership management is not only reflected in the training and competition of athletes. The interactions with school sports-related administrative departments is also very important. Close cooperation with the school's sports administration team to secure strong support and resources can offer positive benefits for the long-term development of the entire sports team.

Suggestions for Future Research

1. Consideration of Research Samples

This study was limited by time and other factors, so a convenience sampling method was used for the survey. It is recommended that future research could further employ longitudinal study analysis with repeated measurements of data

collected at different time points (for example, conducting surveys according to the training and competition cycle) to analyze the differences. This could make the overall research results more complete.

2. Inclusion of Other Variables for Exploration

This study only examined coaching leadership behavior based on a multi-dimensional leadership model. Future researchers may incorporate other leadership behavior models for exploration. Additionally, other themes such as motivation and efficacy theories could be included for extension and investigation, which may enrich the research content on sports coaching leadership.

3. Increasing Qualitative Research

This study used a questionnaire survey to analyze the effect of woodball coaching leadership behavior on various variables of the athletes' organizational commitment, team cohesion, and training satisfaction. There are unexplored aspects regarding woodball athletes' interactions with coaches in daily life, as well as their psychological experiences during training and competitions. Therefore, it is suggested that future research incorporates qualitative interviews along with quantitative data for cross-analysis, to further explore actual psychological experiences and potentially uncover new areas for investigation.

References

- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the academy of marketing science*, 16(1), 74-94.
- Becker, Howard S. (1960). "Notes on the Concept of Commitment." *American Journal of Sociology* 66, 1: 32-40.
- Bogler, R., & Somech, A. (2004). Influence of teacher empowerment on teachers' organizational commitment, professional commitment and organizational citizenship behavior in schools. *Teaching and teacher education*, 20(3), 277-289.
- Browne, M. W., Cudeck, R., Bollen, K. A., & Long, J. S. (1993). Alternative ways of assessing model fit. *Testing structural equation models*, 154(4), 136-162.
- Buchanan, B. (1974). Government managers, business executives, and organizational commitment. *Public administration review*, 339-347.
- Cai, Y. Z. (2023). The Study of the Relationship between Basketball Coach's Leadership Behavior, Team Cohesion and Satisfaction of the Players in High School Basketball League(HBL) Second Group. Unpublished, master's thesis, National Yunlin University of Science and Technology, Yunlin County.
- Carron, A. V. (1982). Cohesiveness in sport groups: Interpretations and considerations. *Journal of Sport and Exercise Psychology*, 4(2), 123-138.
- Carron, A. V., Widmeyer, W. N., & Brawley, L. R. (1985). The development of an instrument to assess cohesion in sport teams: The Group Environment Questionnaire. *Journal of Sport and Exercise psychology*, 7(3), 244-266.
- Chang, C. M., Hsu, C. H., Tseng, K. H. (2005). A Study on the Interrelations among the Coaches' Leadership Behaviors, Players' Organizational Commitment, and Players' Satisfaction in Field Hockey. *Sports & Exercise Research*, 7(1), 157-168.
- Chang, D. C., Cheng, W. N., Chang, C. H. (2011). Leadership and Organizational Commitments in Roller Hockey Players. *Journal of Sports Research*, 20(1), 115-123.
- Chang, S. C. (2006). The research of Coaches' Leadership Behaviors and Players' Satisfactions on the First Class Elementary Basketball Teams. Unpublished, master's thesis, Taipei Municipal University of Education, Taipei City.
- Chang, Y. Y. (2001). A Study of Transformational Leadership Behavior of Collegiate Coaches and Its Relationship to Athletes' Achievement Goals and Organizational Commitment. Unpublished, master's thesis, National Taiwan University of Sport, Taichung City.
- Chelladurai, P. (1978). A contingency model of leadership in Athletics. Unpublished doctoral dissertation, University of Waterloo, Canada.
- Chelladurai, P. (1984). Discrepancy between preferences and perceptions of leadership behavior and satisfaction of athletes in varying sports.

- Journal of Sport and Exercise Psychology, 6(1), 27-41.
- Chelladurai, P. (1990). Leadership in sports: A review. *International Journal of Sports Psychology*, 21, 328-354.
- Chelladurai, P., & Riemer, H. A. (1997). A classification of facets of athlete satisfaction. *Journal of sport management*, 11(2), 133-159.
- Chen, L. S. (2010). The Structural Model for Leadership Behavior of Track and Field Coaches, Organizational Commitments of Athletes, and Satisfaction of Athletes. *Journal of Sport and Recreation Management*, 8(1), 127-141.
- Chen, S. H. (2011). Study on the Relationship between Team Cohesion and Learning Satisfaction of Athletic Representative Teams of Sports Classes and Regular Classes of Elementary Schools in Taipei. Unpublished, master's thesis, Taipei Municipal University of Education, Taipei City.
- Cheng, C. C. (2007). A Study on the Relationship between Coaches' Leadership and Players' Satisfaction in the Collegiate Baseball Teams. Unpublished, master's thesis, College of Kinesiology, Taipei City.
- Cheng, C. F. (1995). Development of Sport Leadership Scale (Chinese Version). Taipei City: Shta Books.
- Cheng, C. F. (1997). Study on Sport Coaching Leadership Behavior. Taipei City: Shta Books.
- Cheng, M. H., Liu, Y. M. (1991). Study on the Relationship between Coaching Leadership Behaviors and Team Cohesion - A Case Study of Teams Participating in the 1990 Academic Year National College Men's Volleyball Selection Tournament. Proceedings of the 80th Annual Sports Academic Conference of the Chinese Taipei University Sports Federation, 235-252. Taipei: Chinese Taipei University Sports Federation.
- Chinese Taipei Olympic Committee (2025). Woodball. Retrieved from: <https://www.tpenoc.net/sport/woodball/>
- Chou, T. W. (2013). Structural Equation Modeling Study on Relationship between Perceived Coaching Leadership Behavior, Organizational Commitment, and Training Satisfaction among Group A Basketball Players of Elementary Schools in Taiwan. Unpublished, master's thesis, Taipei Municipal University of Education, Taipei City.
- Chu, L. C., Lin, H. Y. (2014). The Influence of Coaches' Leadership Behavior on Athletics' Satisfaction- Taking Flow Experience as the Mediating Variable. *Operating Management Reviews*, 1-13.
- Fang, S. C. (2009). The Research of Tchoukball Players Perceived Coach Leadership Behaviors and Team Cohesion in Asia Pacific Tchoukball Championships 2008. Unpublished, master's thesis,

- Taipei Municipal University of Education, Taipei City.
- Fiedler, F. E. (1967). *A theory of leadership effectiveness*. New York: McGraw-Hill.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Canonical correlation analysis*. *Multivariate data analysis*, 768.
- Herbiniak, L. G. & Alluto, J. A. (1972). *Personal and Role-Related Factors in the Development of Organizational Commitment*. *Administrative Science Quarterly*, 17, 555-572.
- Ho, C. M. (2004). *Study on Relationship Between Perceived Coaching Leadership Behavior and Organizational Commitment of Elementary School Tug-of-War Team Athletes in Taipei City*. Unpublished, master's thesis, Taipei Municipal Teachers College, Taipei City.
- Homans, George Caspar. 1961. *Social Behavior: Its Elementary Forms*. New York: Harcourt, Brace and World.
- House, R. J. (1971). *A path goal theory of leader effectiveness*. *Administrative science quarterly*, 321-339.
- Hsieh, T. D. (1998). *Study on Work Engagement, Team Cohesion, and Social Loafing of Elementary School Teachers*. Unpublished, master's thesis, National Pingtung University of Education, Pingtung County.
- Huang, K. E. (2020). *The Influence of Coach Authoritarian Leadership on Collective Effectiveness: A Moderated Mediation Model*. Unpublished, master's thesis, National Taiwan Normal University, Taipei City.
- Huang, Y. Z. (2012). *A Study on the Relationship between Perceived Coach Leadership Behavior and Training Satisfaction for the Junior High School Track and Field Athletes in Taiwan*. Unpublished, master's thesis, Taipei Municipal University of Education, Taipei City.
- International Woodball Federation (2025). *Rules of Woodball (Beach Woodball)*. Retrieved from: [extension://efaidnbmnibpcjpcglclefindmkaj/https://www.iwb-woodball.org/images/1021050620_0828E8213p2.pdf](https://www.iwb-woodball.org/images/1021050620_0828E8213p2.pdf)
- Kanter, M. (1968). *Commitment and Social Organization: A Study of Commitment Mechanisms in Utopian Communities*, *American Sociological Review*, 33, 499.
- Kao, H. H. (2024). *The Relationships Among Coach Leadership Behavior, Sport Goal Orientation, Team Cohesion and Sport Performance – A Study of Intercollegiate Swimming Team*. Unpublished, master's thesis, National Taiwan University, Taipei City.
- Kawakubo, M. K. (1987). *Perception of authority, control, and commitment in Japanese organizations*. The University of Wisconsin-Madison.
- Ko, L. M., Tsai, P. H., Jiang, R. S. (2016). *The Participative Motivation, Social Support, Perceived Coach Leadership Behavior, and Player Satisfaction*

- of Woodball Team Members in High School. *Journal of Sport and Recreation Management*, 13(2), 1-13.
- Ku, C. Y. (2001). A study of the relationship among employee autonomy, job characteristics, and organizational commitment: A comparison of the electronics industry in the US, China, and Japan. Unpublished doctoral dissertation, International Business Management Institute, Chinese Culture University.
- Lai, C. Y., Ho, C. L., Tsai, P. H., Chen, H. Y. (2018). The Perceived Coach Leadership Behavior, and Player Satisfaction of Woodball Team Members in Middle School. *Journal of Physical Education National Taichung University*, (3), 16-33.
- Lee, P. Y. (2024). The Relationship between Perceived Coach Leadership Behavior and Team Cohesion among Junior High School Badminton Players. Unpublished, master's thesis, Department of Physical Education, National Kaohsiung Normal University, National Kaohsiung City.
- Leong, C. S., Furnham, A., & Cooper, C. L. (1996). The moderating effect of organizational commitment on the occupational stress outcome relationship. *Human relations*, 49(10), 1345-1363.
- Lin, C. J. (1990). Relationship between Work Experience, Internal and External Control Beliefs, and Organizational Commitment of Elementary School Teachers in Taipei City. Unpublished, master's thesis, National Chengchi University, Taipei City.
- Lin, C. M. (2013). Leadership Behavior, Organizational Climate, Organizational Commitment and Team Cohesion for Soccer Players-The Moderating Effect of Cultural Differences. *Taiwan Journal of Sports Scholarly Research*, (5), 21-46.
- Lin, H. H., Chen, M. S., Chen, Y. C. (2016). The Perceived Coach's Leadership Behavior and Training Satisfaction for Elementary School's Track and Field Athletes in Taipei. *Journal of Taiwan Sport Pedagogy*, 11(1), 51-69.
- Lin, H. Y. (2014). Study on Effects of Coach Leadership Behavior, Team Cohesion and Flow Experience on Athlete Satisfaction: A Case Study of Junior High and Elementary School Teams in Chiayi City. Unpublished, master's thesis, Nanhua University, Chiayi County.
- Liu, C. C., Yang, S. Y., Chen, J. F. (2024). Exploring the Wisdom and Leadership Style of Elite Coaches in Taiwan. *Sport Studies*, (4), 107-143.
- Liu, C. R. (1993). Study on the Relationship between Organizational Structure, Organizational Commitment, and School Effectiveness of National Elementary Schools. Unpublished, master's thesis, National Chengchi University, Taipei City.
- Liu, P. Y. (2024). A Study on Coach Leadership Behavior and Player

- Satisfaction among High School and Above Eight-Person Tug-of-War Athletes TAMSUI OXFORD Journal of Sports Knowledge, (1), 30-37.
- Liu, Z. P. (1995). Study on Relationship between Elementary School Teachers' Participation Decision, Organizational Commitment, and Organizational Effectiveness. Unpublished, master's thesis, National Hsinchu Teachers College, Hsinchu City.
- Lu, S. E. (1995). Study on Relationship between Perceived Sports Motivation Climate and Team Cohesion of Junior College Basketball Players. Unpublished, master's thesis, National Taiwan Sport University, Taoyuan City.
- Lu, T. L. (2013). The Structural Equation Modeling of Perceived Coach Leadership Behavior, Participate Motivation, Team Cohesion and Training Satisfaction on the Taiwan University Basketball Association Open Division first-class basketball players. Unpublished, master's thesis, Taipei Municipal University of Education, Taipei City.
- Marsh, H. W., & Hau, K. T. (2003). Big-Fish--Little-Pond effect on academic self-concept: A cross-cultural (26-country) test of the negative effects of academically selective schools. *American psychologist*, 58(5), 364.
- Meyer, J. P., Allen, N. J., & Gellatly, I. R. (1990). Affective and continuance commitment to the organization: Evaluation of measures and analysis of concurrent and time-lagged relations. *Journal of applied psychology*, 75(6), 710.
- Morrow, P. C. (1983). Concept redundancy in organizational research: The case of work commitment. *Academy of Management Review*, 8, 486-500.
- Mowday, R. T. (1982). Expectancy theory approaches to faculty motivation. *New Directions for Teaching and Learning*, (10), 59-70.
- Osborn, R. N., & Hunt, J. G. (1975). An adapt-reactive theory of leadership research. In J.G. Hunt and L. L. Larson (Eds.) *Leadership frontiers*. OH: Kent State University.
- Pan, Y. R. (2010). Study on Perceived Coaching Leadership Behavior and Team Cohesion of Elementary School Track and Field and Swimming Athletes in Taipei City. Unpublished, master's thesis, Taipei Municipal University of Education, Taipei City.
- Porter, L. W., Crampon, W. J., & Smith, F. J. (1976). Organizational commitment and managerial turnover: A longitudinal study. *Organizational behavior and human performance*, 15(1), 87-98.
- Porter, L.W., Steers, R. M., Mowday, R. T., Boulian, P. V. (1974). Organizational commitment, job satisfaction, and turnover among psychiatric technicians. *Journal of Applied Psychology*. 59, 603-609.
- Reyes, P. (1990). Teachers and their workplace: Commitment, performance, and productivity. Sage Publications/Corwin Press, 2455

- Teller Rd., Newbury Park, CA 91320.
- Schumacker, R. E., Lomax, R. G. (2004). *A beginner's guide to structural equation modeling*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Sheldon, M. E. (1971). Investments and involvements as mechanisms producing commitment to the organization. *Administrative science quarterly*, 143-150.
- Shen, H. Y., Chang, R. X. (2018). Optimal Make-To-Order Production Scheduling with Production Consideration Researching the Relationship Between Leadership Style and Organization Commitment by Job Satisfaction and Work Motivation. *Management Information Computing*, 7(2), 57-68.
- Thompson, F.L. (1989). The relationship between leadership style and organizational commitment in selected Wisconsin elementary schools. *Dissertation Abstracts International*, 51, 5A, 1472.
- Torkzadeh, G., Koufteros, X., & Pflughoeft, K. (2003). Confirmatory analysis of computer self-efficacy. *Structural Equation Modeling*, 10(2), 263-275.
- Tsai, C. H. (1993). Study on Relationship between School Principals' Leadership Styles and Teachers' Organizational Commitment in National Junior High Schools. Unpublished, master's thesis, National Taiwan Normal University, Taipei City.
- Tsai, H. E. (2015). A Study of the Relationships among Coaches' Leadership Behavior, Team Cohesion, Social Support and Sport Confidence: Taking Junior and Senior High School Track and Field Players in Chiayi County as an Example. Unpublished, master's thesis, Nanhua University, Chiayi County.
- Westre, K. R., & Weiss, M. R. (1991). The relationship between perceived coaching behaviors and group cohesion in high school football teams. *The sport psychologist*, 5(1), 41-54.
- Wu, H. C. (2001). Related Study Among Coaches' Leadership Perceived by Players, Team Conflict, Team Cohesion and Satisfaction. Unpublished doctoral dissertation, National Taiwan Normal University, Taipei City.
- Yeh, A. C. (2010). Perceived Coaching Leadership Behaviors and Training Satisfaction of Grade A Male Basketball Players of National Senior High Schools. Taipei Municipal University of Education, Taipei City.
- Yukl, G. (1981). Managerial leadership and the effective principal.
- Zhu, D., Zhou, Z. W., Li, X. X., Yu, T. B., Sha, L. B. (2022). A Study on the Relationship between Leadership Behaviors of Chinese College Basketball Coaches and Athletes' Training Satisfaction: The Mediating Effect of Organization Commitment. *Journal of Chengdu Sport University*, 48(6), 80-84.