

Effects of TARGET Strategy-Based Football Lessons on Classroom Experience and Football Performance in College Students

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Abstract: In this study, we measured differences in classroom activity experiences and football skills of 114 university students who got traditional (EIC-SEM, n=56) vs. innovated classroom (TIC-SEM, n=58) teaching environments throughout a semester. TIC-SEM participants outperformed others in task, authority, grouping, and evaluation, and also demonstrated better improvements in technical skills - dribbling and shooting - and the overall game. These impacts were small to moderate only. These findings show TIC-SEM may be a viable way for improving student experience, as well their skill learning outcomes, in teaching college football.

Keywords: TARGET Framework; Physical Education; Football; Educational Climate; Sport

1. Introduction

The subpar performance of China's national team has influenced a negative attitude towards football classes among a lot of university students who also show low involvement^[1,2]. In view of this problem, teachers have resorted to various methods to tackle the issue, with the identification of creating a positive educational climate being a major approach^[3]. Educational climate is the situational goal structure set up by teachers that students learn and react to^[4]. As a matter of fact, nowadays, such educational climates often focus on competition and success. Under those conditions, students compare their talents and skills with others in the hope of gaining superiority. That is why traditional educational climate generally focuses only on the achievement of goals and students' interests are not considered. If students do not achieve successful results, they will start to feel insecure about themselves and probably leave doing the tasks altogether^[5,6]. On the other hand, setting up a football education environment that supports

self-improvement, task mastery, and interest will help a lot. The TARGET strategy is a practical intervention that can lead to building a positive learning atmosphere, which consists of six components: Task, Authority, Recognition, Grouping, Evaluation, and Time^[9]. Through the strategy, students gain self-esteem from having reached their personal goals, challenge themselves while cooperating, take pleasure in learning, and keep pushing themselves to improve their skills at the same time. This results in a lesser tendency of students to give up on a task just because it leads to failure or they are frustrated. Instead, they show willingness to take on challenges. These five dimensions together create a better learning environment and lead to better performance from students in multiple aspects of pedagogy. Such an educational environment also helps improve students' perceived competence, task orientation, satisfaction levels, decreases the risk that students would get bored, or become too self-centered. It also results in higher motivation for learning, performance improvement of athletes, more autonomy, cooperative learning, focus, and persistence in sport. Lastly, it encourages cooperation behaviors and sports performance in general^[10,11]. These pieces of evidence validate the role of TARGET based educational climate in enhancing teaching and learning in PE through providing an effective model.

2. Materials and Methods

2.1 Participants

Three physical education professors and 114 non-football students participated in the study. Each professor was asked to have instructional classes with two groups of students. One was the control group that had physical lessons of the kind ego-involving climate-sport education model (EIC-SEM), while the other was the

experimental group that was given physical lessons of the task-involving climate-sport education model (TIC-SEM) for its members only. A total number of 114 college students majoring in areas other than football were recruited, then divided into two separate groups: the TIC-SEM group ($n=58$) consisting of students of an average age of 19.90 ± 1.38 years and EIC-SEM group ($n=56$) consisting of students of an average age of 19.97 ± 1.46 years. The implementation of physical education classes was done over one semester which is 16 weeks in total and each week two physical education lessons took place.

2.2 Research Design

The current study adopted a quasi-experimental pre- and post-tests design, comparing experimental group (TIC-SEM) and control group (EIC-SEM). Student learning outcomes were measured before the intervention (Week 1) and again after the 16-week intervention. The instructors were trained via 8 specialized physical education curriculum workshops prior to the intervention. These included theoretical concepts supporting TIC-SEM and EIC-SEM, related courses, and design of various course components of the learning activities associated with. The control group employed the tradition teaching method (EIC-SEM) whereas the experimental group applied a teaching method (TIC-SEM) grounded in TARGET theory and developed by three physical education methods experts and three motivation atmosphere research experts. The quality of teaching implementation was ensured by random selection of one lesson per class for recording throughout the intervention. This was independently judged by two physical education teachers with over 10 years' teaching experience according to Metzler's criteria^[12]. The findings show that on average the score of each aspect in the EIC-SEM group were 0.87, 0.89, and 0.88, whereas these in the TIC-SEM group were 0.87, 0.85, and 0.83, indicating that both groups performed at levels exceeding the criterion for satisfactory teaching of 0.80 and demonstrating a quite standardized approach.

2.3 Questionnaire Design

The classroom experience questionnaire is built around a scale by Kim et al.^[13], with closed-ended questions that cover six aspects of classroom experience: basic demographic

questions, Task, Authority, Recognition, Grouping, Evaluation, and Time. Firstly, a group of 20 students were pre-tested by asking them to experience two different teaching methods briefly and the questionnaire and its language were changed on the basis of their comments to improve its clarity and practicality. The final form was approved by two specialists in physical education. The questionnaire was delivered in person only after getting electronic informed consent to minimize the disclosure of participants' identities. A total of 114 valid questionnaires were collected to conduct the statistical analysis with no exclusions.

2.4 Evaluation of Football Performance

In this research, the main football competence of the youth players was tested with two football exercises: one was measuring how long a player took to do 20 keepie-uppie movements, and the other was how long a player took to do a run-around-a-pole-and-shoot-on-goal movement. During the keepie-uppie task, the players had to hit the ball and keep it in the air for 20 times in the same limited area as specified while the time needed to achieve the objective was also noted. The revolving shot test was to determine the cumulative time taken by a player in bouncing the ball and making the goal. Both tests must be completed in accordance with the specified requirements for the scores to be considered valid.

2.5 Statistical Analysis

Data were analyzed using SPSS 26.0. General characteristics were examined via frequency analysis. Questionnaire validity and reliability were assessed by confirmatory factor analysis and Cronbach's α , with item retention criteria set at $\alpha > 0.7$ and common factor > 0.6 . Classroom experience and sports performance were compared using one-way ANCOVA. Effect size was measured by η^2 (large ≥ 0.14 , medium 0.06-0.14, small < 0.06), and statistical significance was set at $p < 0.05$.

3. Results

Items with low reliability and validity, specifically authority 8, recognition 11, grouping 16, evaluation 20, evaluation 22, and time 23, were excluded as their factor loadings were below 0.6 (Table 1). Accordingly, the retained valid items in the questionnaire were: task 1-4, authority 5-7, recognition 9, 10, 12, grouping

13-15, 17, evaluation 18, 19, 21, and time 25-27 (Table 1).

Table 1. Factors and Reliability Analysis of Items

Items	Composition					
	Task	Authority	Time	Evaluation	Grouping	Recognition
Task 4	0.818					
Task 1	0.763					
Task 2	0.723					
Task 3	0.691					
Authority 6		0.844				
Authority 7		0.791				
Authority 5		0.783				
Time 27			0.770			
Time 26			0.742			
Time 24			0.725			
Time 25			0.695			
Evaluation 21				0.837		
Evaluation 19				0.823		
Evaluation 18				0.816		
Grouping 15					0.806	
Grouping 14					0.791	
Grouping 13					0.648	
Grouping 17					0.615	
Recognition 9						0.858
Recognition 10						0.794
Recognition 12						0.709
Intrinsic value	2.381	2.379	2.376	2.245	2.213	2.091
Dispersion	11.338	22.669	33.985	44.674	55.213	65.168
Kaiser-Meyer-Olkin = 0.747; Bartlett X^2 = 802.219; df = 210, P < .001						
Cronbach's α	0.768	0.821	0.757	0.721	0.814	0.746

The results showed that students in the TIC-SEM group scored significantly higher than those in the EIC-SEM group on four dimensions of classroom experience: Task, Authority, Grouping, and Evaluation, with scores of 4.017 vs. 3.701 ($P=0.008$), 3.925 vs. 3.637 ($P=0.047$), 3.987 vs. 3.750 ($P=0.036$), and 4.253 vs. 3.988 ($P=0.044$). From the perspective of effect analysis, the η^2 values of the four dimensions are 0.060, 0.035, 0.039, and 0.036, respectively, suggesting that interventions to an educational atmosphere exert a moderate effect on a task dimension, while a small effect on an Authority, Grouping, and Evaluation dimension (Table 2). Students exposed to education by means of TIC-SEM obtained higher results in the task dimension which shows that through a school educational atmosphere students can be led to concentrate more on the study course itself. If pupils understand the learning tasks as moderately demanding, but still within their competenc level, they become really devoted, work harder, and persist much longer. Besides that, an educational system based upon task

oriented learning and emphasizing individual progress can make students more willing to do their homework and increase their commitment to their academic studies, and at the same time develop the belief that efforts always bring success.

According to results, the TIC-SEM group's students showed significantly higher means in the aspect of authority. The fact that students can choose their training density or the mode/tool of studying (including self-assessment of their academic achievements) at classroom level is a big plus. Besides that, the program encourages students to act as a leader in their peer group at the level of classroom discussion. This kind of arrangement of authority enables students to make independent choices, and by participating more actively in their educational process, they get their autonomy reinforced^[14]. Hence, a learning environment offering support also increases the students' energy and initiative levels to engage continuously in learning as well as their awareness of health and physical exercise over the long run, hence laying the

foundation for developing regular exercise habits.

According to the scores for the grouping dimension, the TIC-SEM students have got higher results, meaning this type of teaching is likely to result in heterogeneous and flexible student groups that will allow students to enjoy collaborative learning. By means of class debate, working together, and finding joint solutions for problems students encounter while studying, students can be involved in class interaction quite a lot. A variety in grouping methods on the one hand promotes individual student development but allows the student to gain more experience in interpersonal and teamwork, thereby supporting their social growth^[15]. Furthermore this way of organizing learning groups supports the cooperative teaching methods and shared development principles of

TIC-SEM. As a result this enhances team bond and fosters pleasant collaborative learning atmosphere, which in turn, promotes all round student development.

Results for evaluation dimension have also turned out to be higher in the TIC-SEM students meaning that this teaching environment helps them evaluate their learning against explicit criteria and constantly improve learning by using evaluation mechanisms and feedback. By focusing evaluations on students' personal progress at school level, classroom participation, and effort the student is given a chance to be reflective of her/his performance by knowing her/his capabilities and limitations and then setting herself/himself realistic goals for her/his next level of learning outcome in fact the most optimal learning result^[16].

Table 2. Comparison of Students' Classroom Experience between Those Undergoing TIC-SEM Sport Education Model or EIC-SEM Sport Education Model

	TIC-SEM (n = 58)	EIC-SEM (n = 56)	F	P-value	Effect η^2
Task	4.017 ± 0.680	3.701 ± 0.573	7.191	0.008	0.060
Authority	3.925 ± 0.819	3.637 ± 0.706	4.044	0.047	0.035
Recognition	3.649 ± 0.825	3.435 ± 0.639	2.409	0.123	0.021
Grouping	3.987 ± 0.553	3.750 ± 0.640	4.492	0.036	0.039
Evaluation	4.253 ± 0.662	3.988 ± 0.727	4.138	0.044	0.036
Time	3.897 ± 0.566	4.058 ± 0.718	1.785	0.184	0.016

Furthermore, the study revealed that students in the TIC-SEM group exhibited a more pronounced increase in shot-on-goal scores (7.241 vs. 5.000; $P = 0.016$) as well as overall scores (14.655 vs. 11.875; $P = 0.031$) between the pre- and post-education periods in comparison to those in the EIC-SEM group (Table 3). The effect size, indicated by the value of η^2 , for running around the pole combined with goal shooting scores and total scores was 0.051 and 0.041, respectively, signifying a modest impact of the educational climate intervention on the running around the pole combined with goal shooting performance and total scores (Table 3). The research findings indicate that the connection between sports

performance and students' experiences within the educational setting remains significant. A substantial body of research in the domain of sports has consistently reported that a TIC-SEM educational climate yields enhanced enjoyment, perceived competence, motor skills, intrinsic motivation, and positive sport engagement among students^[17,18]. It can be posited that when the classroom educational climate steers students' focus towards the learning process, instills perceptions of randomness and flexibility in grouping approaches, and fosters a sense of autonomy in determining training aspects such as content, intensity, tools, and self-assessment of mastery, an improved sports performance is likely to ensue.

Table 3. Comparison of Students' Test Scores between Those Undergoing TIC-SEM Sport Education Model or EIC-SEM Sport Education Model

	TIC-SEM (n=58)	EIC-SEM (n=56)	F	P-value	Effect η^2
Keepie-uppie	7.414 ± 4.977	6.875 ± 5.271	0.315	0.576	0.003
running around the pole combined goal shooting	7.241 ± 5.475	5.000 ± 4.156	6.030	0.016	0.051
Total score	14.655 ± 7.000	11.875 ± 6.576	4.770	0.031	0.041

4. Conclusion

To sum up, the research analyzed the effects of

learning in two different environments on students' classroom experiences and participation in sports. The results show that

students' perceptions, their views, and experiences largely depend on TIC SEM. In other words, relative to EIC SEM, students of TIC SEM focus more on the learning process and independent decision making while working on their assignments. By making use of various task styles and collaborative methods, they could effectively achieve the task goals. Besides that, data also showed that generally the students from the TIC SEM had better scores in their physical activities than those from EIC SEM when performing their sporting tasks. These performance indicators, although being of a smaller size, still point out the feasibility of the TIC SEM educational setting as a means of evaluation of student's participation in their academic sports.

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References

- [1] Chang B, Song L, Zhang S. Study on the Learning Burnout of Students Majoring in Physical Education in Shandong Province. *Bulletin of sport science & technology*. 2019; 27(7): 18-20.
- [2] Cheng G. The Reform of Physical Education Teaching in Colleges and Universities and the Cultivation of College Students' Lifelong Physical Education Consciousness. *Innovation and Practice of Teaching Methods*. 2021; 4(1): 89-91.
- [3] Khauanpuck A, Kaewdee S. Effects of using 5E learning cycle cooperate with songs on science learning achievement and positive learning atmosphere of lower secondary school students, Bangkok metropolitan. *Scholar: Human Sciences*. 2016; 8(2): 201-210.
- [4] Nikolova I, Van Ruysseveldt J, De Witte H, Van Dam K. Learning climate scale: Construction, reliability and initial validity evidence. *Journal of vocational Behavior*. 2014; 85(3): 258-265.
- [5] Ntoumanis N. Motivational clusters in a sample of British physical education classes. *Psychology of Sport and Exercise*. 2002; 3(3): 177-194.
- [6] Spray CM. The effects of task-involving and ego-involving goals on soccer performance. *Medicine and Science in Sports and Exercise*. 2002; 34(5): 812-815.
- [7] Park SW. The Effect of perceived motivational climate on sport commitment and continuance intention in teenaged Judo trainees. *Yongin si: Yong In University*; 2012.
- [8] Morgan K, Carpenter P. Effects of manipulating the motivational climate in physical education lessons. *European Physical Education Review*. 2002; 8(3): 207-229.
- [9] Epstein J. Effective schools or effective students? Dealing with diversity. In R. Hakes, & B. MacRae (Eds.). *Policies for America's public schools: Teacher, equity, and indicators* (pp. 89-126). Ablex Publishing; 1988.
- [10] Morgan K, Kingston K. Promoting a mastery motivational climate in a higher education sports class. *Journal of Hospitality, Leisure, Sport and Tourism Education*. 2010; 9(1): 73-84.
- [11] Kingston K, Wixey DJ, Morgan K. Monitoring the climate: Exploring the psychological environment in an elite soccer academy. *Journal of Applied Sport Psychology*. 2020; 32(3): 297-314.
- [12] Metzler MW. *Instructional Models for Physical Education*, 3rd ed.; Holcomb Hathaway Publishers: Scottsdale, AZ, USA; 2011.
- [13] Kim GH. *Development and Validation of the Motivation Improvement Scale in the Physical Class*. Seoul: Chung Ang University; 2008.
- [14] Barkoukis V, Tsorbatzoudis H, Grouios G. Manipulation of motivational climate in physical education: Effects of a seven-month intervention. *European Physical Education Review*. 2008; 14(3): 367-387.
- [15] Dyson B, Casey, A. Introduction: Cooperative Learning as a pedagogical model in physical education. In B. Dyson, & A. Casey (Eds.). *Cooperative Learning in Physical Education*. Amazon UK: Routledge; 2012.

- [16] Newton A, Bowler M. Assessment for and of learning. In S. Capel, & M. Whitehead (Eds.), *Learning to Teach Physical Education in the Secondary School: A companion to school experience*. Routledge; 2010.
- [17] Gernigon C, d'Arripe-Longueville F, Debove V, Puvis A. Situational indexes of achievement motivation, help-seeking, and performance: Influences of the learning context and gender differences. *Research quarterly for exercise and sport*. 2003; 74(4): 473-479.
- [18] Harwood C, Spray CM, Keegan R. Achievement goal theories in sport. In T. S. Horn (Eds.), *Advances in sport psychology*. Human Kinetics; 2008. pp: 157-185, 444-448.