

# The Relationship between Awareness of Innovation Atmosphere and Student Commitment for Student-athletes in High School

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## ABSTRACT

Using a questionnaire survey, this purpose of this research was to investigate the relationship between athletic class student's perceived innovation atmosphere and student commitment in high school in Taiwan. The Scale of Student's Perceived Innovation Atmosphere and the Scale of Student Commitment were used as the measurement tools. The subjects were 318 High school athletic class student, of which 66.7% were male and 33.3% were female.

The results show that the scores of school innovation atmosphere and student commitment are high; male students' scores of student's perceived innovation atmosphere were higher than females; there were no difference of student's perceived innovation atmosphere between grade; The teacher support and respect dimension of school innovation atmosphere can significantly predict the dimensions of student commitment. The teacher support and respect dimension of school innovation atmosphere can significantly predict the dimensions of student commitment; The school encouragement and emphasis dimension of school innovation atmosphere can significantly predict the school norm dimension of student commitment. Finally, based on the research findings, discussion and recommendations for future development of high schools are proposed.

**KEYWORDS:** organizational innovation atmosphere, organizational commitment, nonprofit organizations, student-athletes

## I. INTRODUCTION

An organization is a purposeful and systematic gathering, which refers to an established group with a particular purpose and objective. Sydow (2017) emphasized that organizational innovation climate is a characteristic of the organization's internal environment which was composed by an interaction of its members. Not only can it be perceived by the members, it also can affect them, so it is regarded as a valuable feature of the organization. Haihui's (2018) study found that organizational commitment has a positive impact on organizational performance and highlighted that the interaction between the two parties and the longer-term exchange relationship. Tina, Nandini, and Shubhada (2016) pointed out that organizational development will be affected by an organizational commitment that based on the organizational management practices, the members' attitudes and behaviors (such as organizational commitment, etc.) will be positively strengthened by organizational identification, as well the organizational performance and productivity will be improved.

The previous literature also has established that the schools' innovation climate is generated by the interaction between schools, teachers, and students. A positive schools' innovation climate will improve quality of teaching and strengthen student commitment (Smith, 2011). Based on the above research motivation, this study explored the relationship between schools' innovation climate and student commitment.

In recent years, many sports talents in Taiwan have emerged in international sports competitions, and the competitive sports in fact is a competition of sports talents. But in the cultivation of excellent sports talents, pour more money into recruiting sports talents has been becoming a mainstream for recruitment methods, which results in a problem for schools to connect sports talents and recruit students. Therefore, this study investigated the differences between internal-external innovation and environmental climates for student commitment of different "gender" and "grades". At the same time, this research provided the results to school, sports coaches, physical education teachers, etc., to develop and improve the school's innovative climate and enhance the commitment of physical education (PE) student. In summary, the purposes of this study are as follows.

(1) To analyze the difference between the innovation climate of the Taiwan Sports Development School and the commitment of the PE students under different background.

(2) To explore the relationship between the Taiwan Sports Development Schools' innovative climate and the PE student commitment.

(3) To predict the effect of various dimensions under the innovative climate of the Taiwan Sports Development School on the PE student commitment.

### Literature review

#### Organizational innovation climate

The definition of organizational innovation climate has two characteristics. One is the members have an innovative shared cognition of the organization's working environment. Specifically, it exists internal the organization, can be consistently experienced by all the members and also will affect the enduring of the organizational innovation behavior (Guo, 2018); Another characteristic is the organizational innovation climate is an objective fact, independent of a feelings and understanding of organizational members (Egypt, 2018).

Organizational commitment

The organizational commitment is an identity that the members willing to continue to keep, and it based on their interest and identification of an organizational goals and values (Jörg, 2017; Xu, 2017). Wang, Long, Zhang, Zhou, Zhang's (2019) related research further divided the organizational commitment into three dimensions, namely affective commitment, continuance commitment, and normative commitment. "Affective commitment" is an individual belief and acceptance of the organization's goals and values; "Continuance commitment" build on the individual recognition of fringe benefits (such as performance bonuses, pensions, etc.); "Normative commitment" is the individual value and organizational value, or the individual responsibility and attitude towards the organization.

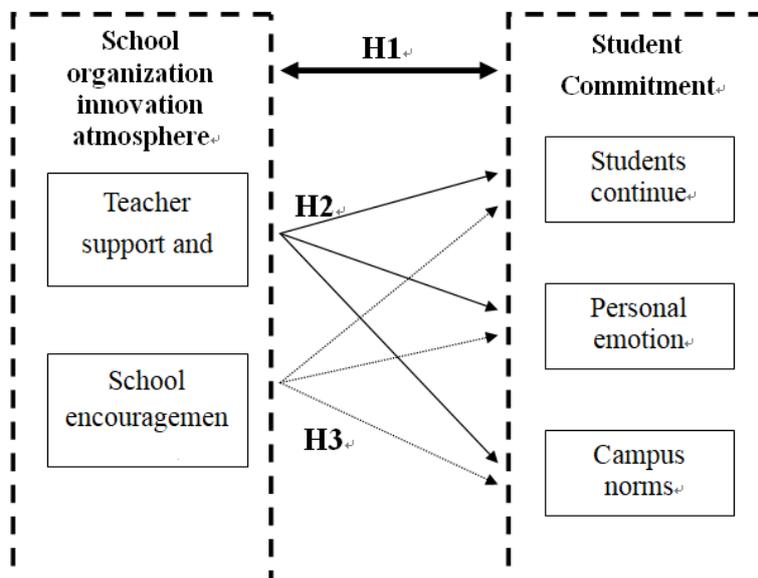
Organizational innovation system

The employees can be effectively motivated by an organizational innovation system and a good working atmosphere, which will enable them to obtain a higher sense of satisfaction, as well will generate higher productivity and working engagement (Chen, 2019), such as Li, Xia, Yin and Da (2013) and Sun (2014) their related research commented that the ideal innovation climate will affect organizational commitment and staff turnover intention. Current domestic research extrapolated that the school's innovation climate has a predictive power for teacher commitment and teachers' retention intention (Cui, Xiao, Wang, 2019). Therefore, based on the above literature, this study assumed that organizational innovation climate impacts the organizational commitment.

II. METHOD

This study focused on PE students, explored whether the two criteria "teachers' support and respect" and "schools' encouragement and appreciation" under the "school's innovation climate" will affect "student commitment", also discussed the impact of "school's innovation climate" on "student commitment". Based on the aforementioned literature discussion and hypothesis inference, the research framework is depicted in Figure 1.

Figure 1.



Research sample

In this study, the PE students of Taiwan Sports Development School were selected as the research object, took the research results to the benefit of the school, sports coaches, and sports teachers into account, the players who had represented the local and counties/cities to participate in the national representative were selected as the research target.

This paper adopted the questionnaire survey method, and the sampling method was random sampling. The list of Taiwan Sports Development Schools was compiled first, then contacted by telephone with the person in charge of distributing the questionnaire's website, also this person guided and supervised the subjects to fill out the questionnaire on the internet. A total of 12 schools were issued, 360 online questionnaires were collected, 42 invalid questionnaires were removed, and finally, 318 valid questionnaires were tested. The effective response rate was 88.3%. Among all the response, the valid samples were males 212, females 105, high one grade 124, sophomore grade 89, senior grade 105.

### *Methodology*

Two scales were designed, namely "school's innovation climate scale" and "student commitment scale", both were compiled based on the actual operation of the schools, and then were distributed in the form of an open survey.

The school's innovation climate scale was obtained from Amabile's (1996) "organizational innovation climate questionnaire". Meanwhile, the organizational innovation climate was modified to the situation of an innovative school climate. For instance, "the corporate organization will characterize its breakthrough and innovation" was revised to "the school is characterized by breakthrough and innovation". The Likert 5 influence score was applied as the linguistic scale (1="strongly disagree" to 5="strongly agree") in this paper. The scale wielded factor analysis, KMO (Kaiser-Meyer-Olkin) measure of sampling adequacy was .924, Bartlett Test Sphericity $\chi^2(3) = 1884.742$  ( $p < .001$ ), 2 factors were acquired from a total of 15 questions, the factor loading all above .4, explained variance was 59.4%. Cronbach's  $\alpha$  of the "organizational innovation climate scale" was .927, which shows that the reliability of this scale is good.

Student commitment scale was originated in the "organizational commitment Scale" of Meyer and Allen (1991). At the mean time, the organizational commitment situation was changed to the degree of emotions and feelings that students may appear. For example, "I strongly feel that I am a part of my organization" to "I strongly feel that I am part of my school". The Likert 5 influence score also was employed as the linguistic scale (1= "strongly disagree" to 5= "strongly agree") in this paper. The scale utilized factor analysis, KMO (Kaiser-Meyer-Olkin) measure of sampling adequacy was .851, Bartlett Test Sphericity $\chi^2(3) = 978.608$  ( $p < .001$ ), 3 factors were acquired from a total of 10 questions, the factor loading all above .4, explained variance was 69.578%. Cronbach's  $\alpha$  of the "student commitment scale" was .946, which shows that the reliability of this scale is good.

### **III. RESULTS**

Analysis of the differences of current situation in school's innovation climate and student commitment

The male felt more than female after acquiring identification and comparison of the independent-sample  $t$ , this result showed that different genders have significant differences in school's innovation climate and student commitment ( $p < .05$ ). Besides, there is no apparent difference in school's innovation climate and student commitment in different grades. The research results are shown in Table 1.

**Table 1, A summary of the differences in schools' innovation climate and student commitment between different genders and academic years (N=318)**

Dimension	Male/Female		Number	average	standard deviation	t/F value	difference
<b>Schools' Innovation Climate</b>	Male		212	56.9	10.53	2.00*	M>F
	Female		106	54.4	10.07		
	High one grade	High	124	55.61	9.69	.208	n.s.
	Sophomore year		89	56.31	10.72		
	Third grade		105	56.44	11.08		
	<b>Students' Commitment</b>	Male		212	33.35	7.67	2.36*
Female			106	31.29	6.80		
High one grade		High	124	32.05	6.58	1.091	n.s.
Sophomore year			89	33.57	7.15		
Third grade			105	32.62	8.55		

\* $p < .05$ .

#### Analysis of variables

This study was carried out by a series of multivariate regression analysis, the school's innovation climate scale (i.e., teachers' supporting and respect, schools' encouragement and appreciation) of PE students was defined as the predictor variable, and the student commitment was defined as the dependent variable to analyze its predictive effects. Each independent variable's tolerance or variance inflation factor (VIF) was tested to ensure there is no multicollinearity problem. In the following regression analysis, the maximum VIF = 3.521 and the minimum tolerance value was 0.284, which shows that there is no problem of multi-collinearity in this study.

The independent variable can effectively explain the variation of 20.7% of the student continuous commitment [ $F = 41.222$ ,  $p = .000b$ ]. The criterion schools' encouragement and appreciation [ $t(318) = 2.773$ ,  $p = .006$ ] and teachers' support and respect [ $t(318) = 2.262$ ,  $p = .024$ ], the PE students achieved significant results. The results of multivariate regression are shown in Table 2.

**Table2, Summary table of predictive variable analysis of schools' innovation climate and student commitment (N=318)**

Predictive variable	$\beta$	$t$	$p$
Teachers' support and respect	.261	2.773	.006
Schools' encouragement and appreciation	.213	2.262	.024

#### IV. CONCLUSION AND DISCUSSION

Compared to the previous research that used school's perspective to study about PE students' viewpoint of the influence between school's innovation climate and student commitment. This article applied a student's perspective to analyze an internal-external innovation school climate, and

assumed that the school's innovation climate maybe is the potential influence factors that will decrease or motivate student commitment. In this paper, first, required to identify the students' sensitivity to the school's innovative climate, and second, analyzed the student commitment which appeared in the school's innovation climate. An original study was provided to understand the interaction between PE students and their schools. More importantly, the results of this study also supported the view that PE students may have distinct types of commitments when confront a different school's innovation climate.

About the dimension of school's innovation climate, "teachers' support and respect" and "schools' encouragement and appreciation", regarding the perception, the feeling of the male was greater than that of female, which indicated that they are more likely to experience school life, environment, etc. school climate than the female. Contrary to expectations, the results did not find a significant difference in different "grades" between the school's innovation climate and student commitment, which assumed there is no difference of sensitivity among the different "grades" students, showed that the school does not treat the sports class differently due to their "grades".

After carefully analyzed the criteria of school's innovation climate's influence on student commitment, we discovered an obvious sensitivity of PE students between "teacher' support and respect" and "school' encouragement and appreciation", the finding showed that PE students' emotions and retention intention, etc. commitment will be significant positive impacted by the school's/teacher's behavior. The PE students' sensitivity of "schools' encouragement and attention" is higher than "teachers' support and respect", according to the influence of criteria under the school's innovation climate on student commitment, the research result proved that teachers must obtain support from school administration and school policies during teaching and other related activities. Therefore, the cognition and feeling of PE students have a higher influence at the school than at the teacher.

The generalizability of these results is subject to certain limitations. For instance, the nature of the school (the software and hardware resources of each school, the emphasis on sports development). In this study, the PE class was analyzed as the target, however, there is a real problem among the PE students that who are the valued for the school or who are received the resources from the school (for instance, the better competition performance, the more appreciation/resources). Second, by contrast, different regions attach varying degree importance to sports development, so the support for PE classes was limited by the school development considerations under the difference of resources and attention given to schools. In the future, these generalization issues will be studied by the observation method or experimental method to analyze in the schools' actual situation, to understand the schools' difference and the student commitment in PE class.

The results of this paper have provided many possible directions for future studies. First, in the future research, the "voice motives" and "voice behavior" should be included in the study, because the initial objective of this paper only was to explore the relationship between the school's innovation climate and student commitment, it has not taken students' intrinsic motivation and extrinsic behavior, etc. (for example: "voice motives", "voice behavior") into account, moreover, up to now, far too little research has been studied about the Taiwan Sports development school. Second, although this study has identified the relationship between school's innovation climate and student commitment, this is maybe the first step to understand the PE student commitment to school.

In light of the findings of this paper, the following questions for future research directions are presented:

What are PE students' feelings and inner thoughts about the management policies which formulated by the school?

And what kind of extrinsic behavior will be taken?

How to solve the problem?

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