Influence of Community Management on Student Club Evaluation from the Perspective of Informatization

Yan Meng[1*], Qi Tang[2]

{772832203@qq.com[1*], 2458397912@qq.com[2]}

Changshu Institute of Technology, No. 99 South Sanhuan Road, Changshu City, China

Abstract. Participating in student clubs is an indispensable campus experience in college life, and the dormitory is an important area of college life. Community informatization has had a significant impact on the activities and development of clubs. Based on the development of student clubs and the level of community informatization. this study aims to explore the impact of dormitory informatization on the development of student clubs. A multivariate linear regression model is used to analyze the club development situation reflected in the 418 samples. The results indicate that 45.8% of club development can be explained by the frequency of club activities, inter community communication, and informatization. Community informatization and communication between communities have a certain promoting effect on the development of student clubs.

Keywords: comunity managemnet, student clubs, informatization, multivariate linear regression model.

1 Introduction

Student clubs are an important component of college life, where students learn entrepreneurial experience [1], alleviate employment anxiety [2], and conduct international exchanges [3]. Participating in student clubs is a valuable educational experience that can increase the likelihood of academic success for college students [4-5]. Majority of students will join 2-3 student clubs to improve their socialization skills. Dormitories are one of the main places of college life, and student club activities often take place here. Communities composed of many dormitories also play an important role in the promotion of student clubs. With the deepening of dormitory informatization, technologies such as intelligent power distribution [6], dormitory management systems [7], and facial recognition [8] have reduced the time cost of college students. At the same time, the communities have greatly reduced the promotion cost of student clubs. The room for improvement of student clubs has been greatly expanded. Existing research indicates that community has a certain positive effect on the development of student clubs, but there is little research on new technologies such as dormitory Internet of Things.

The community is a widely used management method in Chinese universities, and student clubs are also one of the organizations with high participation from Chinese college students. Therefore, this study aims to explore the relationship between community management and

club development based on the multivariate linear regression model, which has certain practical significance for the development of student clubs.

2 Method

2.1 Samples and Variable Composition

This study takes Changshu Institute of Technology as an example and analyzes the 418 questionnaires collected. A total of 450 valid questionnaires were distributed, and 418 were returned, with a response rate of about 92.9%. In our initial sample, the main source of sample loss was due to invalid samples. We con-sider responses with too rapid a completion time and high consistency of options to be invalid and do not use methods such as multiple random imputation [9] to handle missing data. Therefore, 8,178 samples were included in the analysis. Our research used multiple indicators rather than a single dimension to measure the relationship between student clubs and community building. The questionnaire included a total of 18 questions, covering aspects such as community building, club development, and activity implementation, to more accurately measure the impact on clubs. The questions regarding community building included dormitory hardware conditions, community environment, the number of IoT devices, community management personnel configuration, the number of community activities, the frequency of intercommunication between communities, and the number of clubs within the community. Previous research has shown that interpersonal interaction between communities has a positive effect on club development [10], and habits of community members also influence each other [11]. The answers were rated on a scale of 5, ranging from "strongly disagree" to "strongly agree". The score for each item was added to the total score of the impact of community building on student clubs. All item descriptions were positive descriptions to avoid re-coding. The Cronbach α coefficient for internal consistency of the questionnaire was 0.84, indicating good reliability. The total scores for these items ranged from 18 to 90, with higher scores indicating a greater impact of community building on club development.

The development of student clubs is reflected in the star rating of the clubs, which is an indicator reflecting the maturity of student club management. The star rating is determined by professional institutions, taking into account factors such as the frequency of club activities, the club's financial situation, competition results, gender, and grade. The star rating only considers a large number of indicators related to the club itself and is the most suitable dependent variable to reflect the overall situation of the club without considering other external factors.

2.2 Analysis

The dependent variable, club evaluation score, is measured using interval measurement, while 12 independent variables are measured using interval measurement, and 6 independent variables are measured using ordinal measurement. Regression analysis is a statistical technique used to estimate the relationship between causes and effects [12-13]. In this study, there is a causal relationship between the independent variables and the dependent variable, and the measurement of the independent variables and the dependent variable satisfies the requirements of the multivariate linear regression model. Therefore, using this method to

analyze the impact of the independent variables on the dependent variable has certain feasibility.

3 Result

3.1 Descriptive Statistics

The minimum score of the 418 questionnaires was 19 (18-90), and the maximum score was 81 (18-90). The mean and standard deviation were 58.5 and 9.14, respectively. The descriptive statistics of the 12 interval measurement independent variables are shown in Table 1.

Table 1. Descriptive statistics of sample independent variables

Independent variable	N	Minimum	Maximum	Mean	Std. Deviation
Community management	418	1	5	2.15	1.043
Communication between communities	418	1	5	2.30	1.409
Number of clubs in the community	418	1	5	3.82	1.020
Number of activities organized by the club in the community	418	1	5	4.27	.887
Number of activities carried out by the club	418	1	5	4.01	.864
The cost of promoting the club in the community	418	1	5	3.84	.757
Cost of club promotion	418	1	5	3.68	.834
Adequacy of club funds	418	1	5	3.87	.855
Club satisfaction	418	1	5	3.77	.935
Informatization of club	418	1	5	3.73	.854
Informatization of community	418	1	5	3.75	.888
Community environment	418	1	5	3.74	.921

194 questionnaires were from male students, accounting for 46.4%. Female students are more actively involved in student clubs than male students. 31.3% of students believe that clubs organized more activities in community organizations than in other places. 39.2% of students indicate that communication between communities needs to be strengthened. The average scores of community management and communication between communities are relatively low, respectively 2.15 and 2.3. In the 418 samples, 62.0% were from second-year students, 36.8% were from third-year students, and their participation in student clubs was relatively high.

3.2 Multivariate Linear Regression

The results of the multivariate linear regression analysis showed that the regression equation was significant, with F=30.396 and p<0.001. Among the variables, communication between community, number of activities organized by the club in the community, the cost of promoting the club in the community, cost of club promotion, informatization of community,

informatization of club significantly positively predicted the student club evaluation. The number of clubs in the community, community management, community environment had little relationship with the excellence of the student club. These variables together explained 45.8% of the variation in the club evaluation score.

Table 2. Summary of multivariate linear regression model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.688a	.474	.458	.588	1.905

Table 3. The result of variance analysis

|	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	126.034	12	10.503	30.396	.000b
1	Residual	139.940	405	.346		
	Total	265.974	417			

4 Discussion

The adjusted R-square is shown in Table 2, all independent variables explain 45.8% of the variation in the dependent variable, the DW value of 1.905 is less than 3, indicating that the data meets the independence assumption. In the variance analysis, F=30.396, p<0.001, at least one independent variable explains a part of the variation in the dependent variable, indicating a successful model construction. Table 3 shows the residual values of the model. Communication between communities, number of activities organized by the club in the community, the cost of promoting the club in the community, cost of club promotion, informatization of club and informatization of community all have a positive impact on the assessment level of student clubs, and the number of clubs in community will not have a significant impact on the evaluation score of club.

Table 4. Regression coefficient of independent variable

Model	Unstandardized Coefficients B	Standardized Coefficients Std. Error	t Beta	Sig.	Collinearity Statistics	Tolerance	VIF
(Constant)	.447	.188		2.374	.018		
Community management	.013	.034	.017	.384	.701	.668	1.498
Communication between communities	.090	.036	.109	2.518	.012	.689	1.452
Number of clubs in the community	-.002	.024	-.004	-.094	.925	.700	1.429
Number of activities organized by the club in the community	.112	.040	.143	2.824	.005	.504	1.985
Number of activities carried out by the club	.066	.044	.073	1.508	.132	.552	1.812

The cost of promoting the club in the community	.143	.057	.135	2.506	.013	.446	2.243
Cost of club promotion	.147	.045	.154	3.246	.001	.580	1.723
Adequacy of club funds	.051	.040	.055	1.275	.203	.696	1.437
Club satisfaction	-.046	.058	-.054	-.796	.427	.279	3.581
Informatization of club	.162	.058	.173	2.775	.006	.333	3.003
Informatization of community	.125	.045	.139	2.759	.006	.513	1.949
Community environment	.017	.053	.019	.319	.750	.348	2.872

The results of collinearity statistics show that the VIF values of all independent variables are greater than 1 (Table 4), indicating that there is no significant multicollinearity in the independent variables in this study. The residual histogram (Fig. 1) and P-P plot (Fig. 2) follow the normal distribution, with mean close to 0 and standard deviation close to 1, indicating that linear regression satisfies the normality condition.
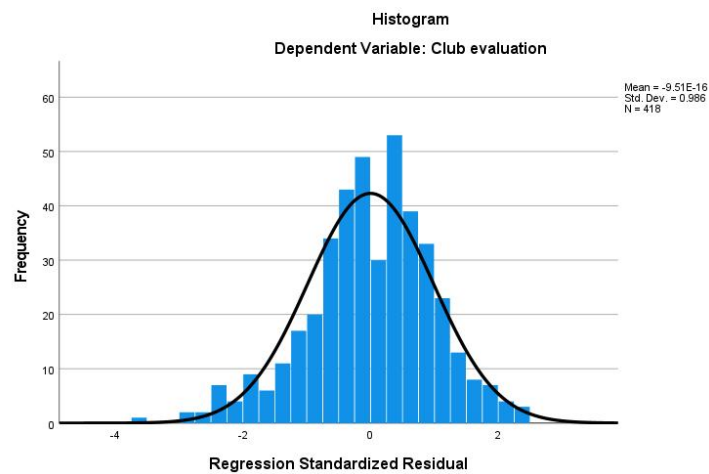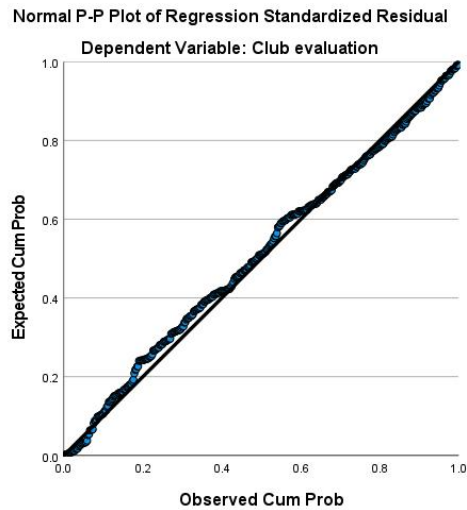

Fig. 1. The residual histogram.

Fig. 2. P-P diagram.

5 Conclusion

The multivariate linear regression model constructed in this study can effectively explain the relationship between the assessment results of student clubs and community construction. The variation explanation degree is over 30%, which can be considered as evidence of the positive impact of community construction on student clubs. Better community construction can lead to more outstanding student clubs. Based on the above analysis, there are mainly four conclusions:

1.More communication between communities promotes the improvement of student clubs and reduces the cost of club promotion.

2.The more activities organized by student clubs in communities, the higher the evaluation of the clubs.

3.Enhancing informatization is an important way to promote the development of student clubs and the informatization level of communities has a certain promoting effect on clubs within the community.

4.The number of student clubs in communities has little relationship with the evaluation of the clubs.

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