The Influences of Teachers' Instructional Leadership on the Effectiveness of Art Education Management: A Case of Shanghai Colleges and Universities, China

Hu Yanqiu,
Sukhum Moonmuang and Prapatpong Senarith
Bangkokthonburi University, Thailand
Corresponding Author, E-mail: 260998624@qq.com

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Abstracts

The objectives of this research were aimed to study the effects of teachers' instructional leadership on teachers' effectiveness of art education management. The participants were 208 of Art Teachers in colleges and universities in Shanghai Province, China. The instruments were four rating scale questionnaires, which were developed by the researcher. The quality of the instruments was investigated in term of reliability and construct validity. Data analysis were descriptive statistics for general information of sample, CFA model analysis for measurement modeling, and structural equation modeling (SEM) for hypothesis testing. The finding was (1) when controlling the variables self-efficacy and the organizational culture constant, we found no direct effect of teachers' instructional leadership on effectiveness of art education management (2) but we found that there were indirect effects of these effects via both intervening variables teachers' self-efficacy and organizational culture.

Keywords: Instructional Leadership; Art Teachers; Management; Effectiveness; Shanghai Colleges and Universities.

Introduction

In recent years, art education in Chinese colleges and universities has developed rapidly, and remarkable achievements have been made in the fields of discipline construction, personnel training, and academic research. However, in terms of art education management in colleges and universities, there were no effective combination of management theory and art discipline characteristics, and the backwardness of art education management level restricts the development of art education to a large extent (Shan, Wang, & Dong, 2015, p. 1). Due to various historical and other reasons, Chinese universities not only have the problem of uneven school-running level, but also have the problem of inefficient management of higher education. The low level and quality of running schools in colleges and universities was largely caused by the low effectiveness of educational management. Improving the effectiveness of higher education management was an inevitable requirement to improve the quality of higher education (Wang, 2010, p. 3). The practice of school education management has proved that there were many qualitative and variable factors in the management process. If the correct grasp of the initiative of the management subject was ignored, and the particularity of teachers' labor and education management was ignored, it will easily affect their work initiative, enthusiasm and creativity (Zhang & Xu, 2005 : 24-25).

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It can be seen that teachers' instructional leadership was the core driving force for school development and student learning (Wu X., 2018 : 72-77). As a first-tier city on the Chinese map, Shanghai has unique and representative characteristics. Its uniqueness was that it was the first city of China's economy and a well-known international metropolis at home and abroad. Its representativeness was that it has always played a pioneering role in China's education reform. Therefore, Shanghai, as a municipality directly under the Central Government in China, has high hopes for education reform (Zhong, 2016, pp. 6-9). In order to better promote modern education, Shanghai has always been the former of exploration and reform, and has better education governance capabilities, thus showing certain replicable and popularized educational experience. It sets an example for more areas of education that need to be improved, and has a certain external validity for the development of education in other cities. Art majors in Shanghai higher education institutions, as the main positions for cultivating Chinese art talents, were particularly important for their teachers' instructional leadership. Therefore, this research will discuss the influence of teachers' instructional leadership on the effectiveness of art education management from the direction of art majors in colleges and universities, and the model relationship between the two, and on this basis, put forward the educational management methods and methods in the development of teachers' teaching. The method has a certain guiding role for teachers' teaching effect and professional development.

Research Objectives

The objectives of this research were:(1)To develop the relationship model of the teachers' instructional leadership on the effectiveness of art education management in colleges and universities in Shanghai city, China.(2) To decompose the effects of the relationship model of the teachers' instructional leadership on the effectiveness of art education management.(3) To test if the relationship model of the teachers' instructional leadership on the effectiveness of art education management model fit well to the empirical data.

Research Methodology

Participants

Participants were 208 art teachers who were teaching in college and universities in Shanghai province which were selected by using stratified random sampling technique classified by gender ratio, with 48.1% males and 51.9% females. Among them, 40.9% have a Ph.D., 43.8% have a master's degree, and 15.4% have a bachelor's degree. Among the professional categories, design majors (67.8%) accounted for the highest proportion, and the other four majors accounted for 32.2%. Lecturer (40.4%) accounted for the highest proportion of current job titles among respondents of art majors in Shanghai colleges and universities, followed by associate professor (22.6%), professor (11.1%), teaching assistant (11.5%) and other titles (14.4%) lowest proportion.

Instruments

This study used a structured questionnaires to determine the perception of the art teachers. The first part highlights the information to collect the demographic profile of respondents. The second part of the questionnaire intended to highlight the observed variables in models. The questionnaires in this study were consisted of 4 questionnaires, namely (1) Cognitive assessment questionnaire for teachers' instructional leadership (2) Questionnaire on the factors affecting the effectiveness of art education management (3) Questionnaire for

evaluating the influencing factors of organizational culture, and (4) Subjective evaluation questionnaire on teachers' self-efficacy. All of four questionnaires were Likert's 5-rating scale, and the qualities were assessed by Cronbach's alpha reliability, convergent validity and discriminant validity.

Table 1. Number of items IOC and Cronbach's coefficient alpha of each instrument

Instruments	number of items	IOC	Cronbach's alpha
1.Teachers' instructional leadership	36	.60-1.00	0.977
a. Education foresight	9	.60-1.00	0.918
b. Teachers' charisma	10	.60-1.00	0.932
c. Teaching decision-making	9	.60-1.00	0.951
d. Teaching organization	8	.80-1.00	0.915
2 Effectiveness of art education management	21	.60-1.00	0.964
a. Scientific management	12	.60-1.00	0.938
b. Innovative consciousness	9	.60-1.00	0.96
3 Organizational culture	25	.60-1.00	0.975
a. Values	7	.60-1.00	0.965
b. Cultural atmosphere	9	.60-1.00	0.96
c. Interpersonal communication	9	.80-1.00	0.948
4 Teachers' self-efficacy	28	.60-1.00	0.983
a. Confidence level	10	.60-1.00	0.952
b. Effective teaching	10	.80-1.00	0.968
c. Student achievement	8	.80-1.00	0.956

Data collection and data analysis

The questionnaires were distributed to participants directly by the researcher and with the cooperation of teachers in colleges and university. Data processing and data management were used the SPSS software, and data base was stored in SPSS format.

Descriptive statistics and SEM statistical modeling were employed to investigate the demographic and observed variables and hypotheses testing respectively.

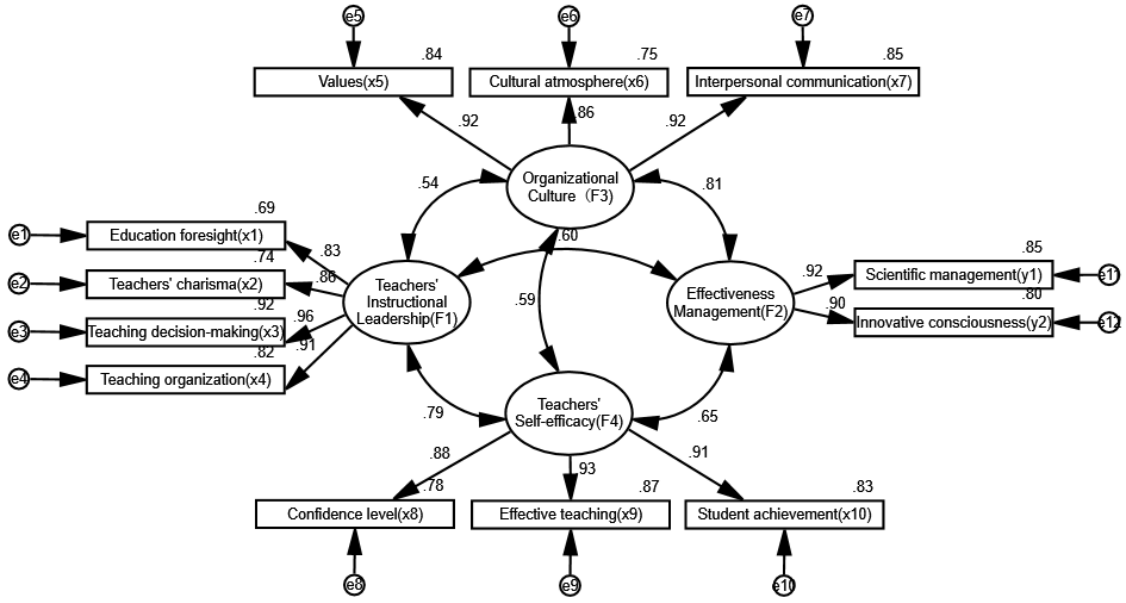
The SEM which divided into two parts, the measurement model and the structural model. The measurement model described the relationships between the latent variables and the observed variables (Brown, T. A., 2015; Kline, R. B., 2011), and the structural model describes the relationships among the latent variables (3). SEM can be constructed and analyzed with SPSS24.0 and AMOS24.0 software (Collier, 2020). The first part was used to assess the measurement model for controlling the measurement errors. And the second part were used to hypothesis testing (Kline, R. B., 2011), effects decomposition and multi-group analysis (Collier, 2020).

Results

Confirmatory factor analysis

CFA was conducted to confirm the quality and adequacy of the measurement model (Brown, T. A., 2015). When using normally distributed data, it was suitable to use ML for model estimation (Collier, 2020). The initial model was established as shown in Figure 2. The preliminary test of the model was qualified, and the fitness assessment can be carried out. To evaluate the internal structure fit, average variance extracted (AVE) can be used to assess the significance of the estimated parameters in the model, the indication and the reliability of the latent variables. In addition, composite reliability (CR) was used to evaluate the reliability of the construct. The CR should be greater than or equal to 0.7 and the AVE test should be greater than 0.5 to meet the intrinsic quality verification analysis standard of the model (Hair, A. et al., 2017). In Figure 1 showed the fit index calculations, where χ^2 /df is 1.760 (<3), RMSEA is 0.061 (<0.08), CFI is 0.985 (>0.9), revealed that the model fit well to the empirical data, and the measurement model appeared to be acceptable.

Reliability and validity of CFA were mainly determined by MaxR (H) and MSV. In general, the MaxR(H) value of each variable should be greater than their CR value, and the MSV value of each variable should be less than their AVE value. Table 2 showed that the MaxR(H) values for variables F3, F2, F1, and F4 were 0.933, 0.908, 0.954, and 0.939, respectively. As can be seen, the MaxR (H) of each variable was greater than their CR value. The MSV values of the variables F3, F2, F1, and F4 were 0.658, 0.658, 0.623, and 0.623, respectively, and the AVE values were: 0.812, 0.828, 0.791, and 0.829. The results showed that the MSV values of the four variables were all smaller than the AVE value, indicated that the model has good reliability and validity.



Chi-square=84.463 df=48 p=.001 ratio=1.760 CFI=.985 RMSEA=.061

Figure 1. The Measurement Model of Four Latent Variables and Their Intercorrelation in Standardized Format, and The Model Fit Indexes

Table 2. The Composite Reliability (CR), The Average Variance Extracted (AVE) The Maximum Shared Variance (MSV), The Maximum Reliability (MaxR(H)), and The Latent Variables Intercorrelation with Square Root of AVE at The Diagonal

Latent variables	CR	AVE	MSV	MaxR(H)	F3	F2	F1	F4
Org-culture (F3)	0.928	0.812	0.658	0.933	**0.901**			
Eff- AE-management (F2)	0.906	0.828	0.658	0.908	0.811	**0.91**		
T-In-leadership (F1)	0.938	0.791	0.623	0.954	0.545	0.598	**0.889**	
T-self-efficacy (F4)	0.936	0.829	0.623	0.939	0.591	0.65	0.79	**0.91**

*Note: CR=composite reliability, AVE=average variance extracted, MSV=maximum shared variance, MaxR(H)=maximum reliability. In order to identifying the latent variable reliability, the CR ≥ .70, MSV less than CR and the MaxR(H) >CR, in order to identifying the convergent validity of the AVE ≥ .50, to identify the discriminant validity by the method of Fornell & Larcker (1981, pp. 39-50), the square root of the latent variables must be more than its correlations to the others latent variables.

Hypothesis testing

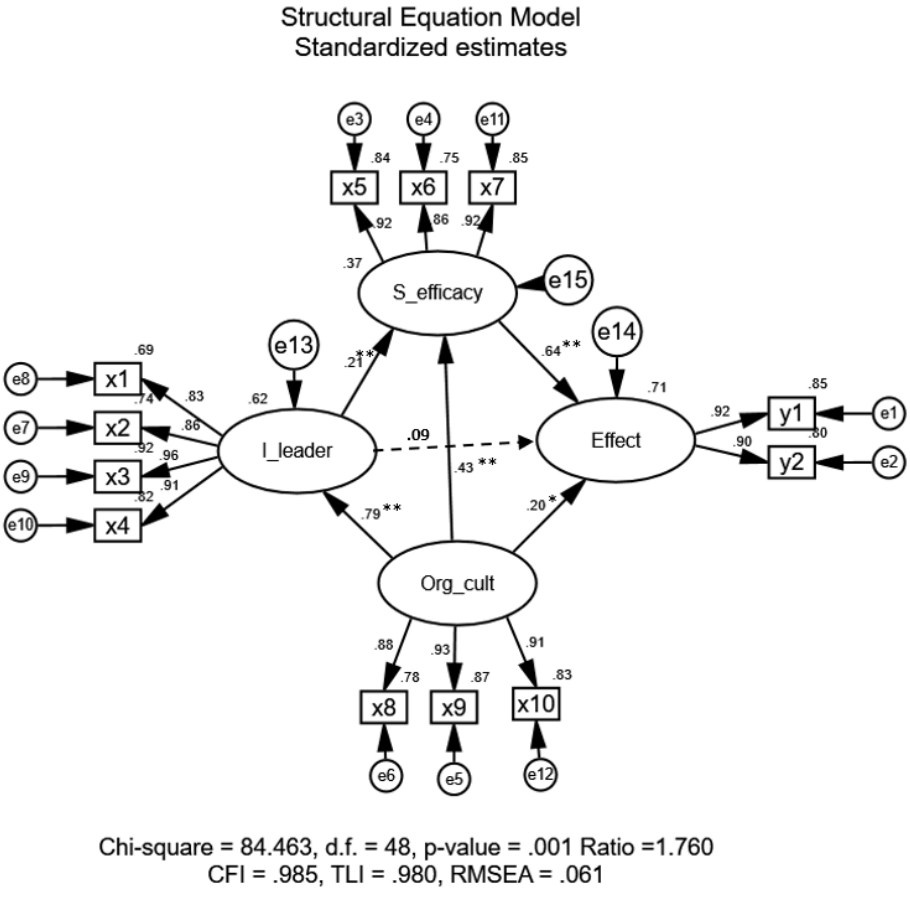


Figure 2. Structural Equation Model and Hypotheses testing

Direct effects

Table 3. Testing for direct effect hypothesis

effects	Estimate	Standardized	S.E.	z-test	P-value	Hypotheses
T-In-leadership→ Eff- AE-management	0.093	0.089	0.089	1.051	0.293	H1
Org-culture → Eff- Aemanagement	0.613	0.645	0.062	9.904	***	H2
T-self-efficacy →Eff- Aemanagement	0.235	0.199	0.105	2.237	0.025	H3
Org-culture → T-In-leadership	0.494	0.547	0.059	8.373	***	H4
T-In-leadership →T-self-efficacy	0.592	0.666	0.054	11.007	***	H5
Org-culture → T-self-efficacy	0.183	0.227	0.047	3.905	***	H6

Significance Indicators: †p < 0.100, * p < 0.050, ** p < 0.010, *** p < 0.001 (Gaskin & Lim, 2018)

According to the analysis results in Table 3, the significant results (P values) of the direct hypotheses of H2-H6 in this study were all less than 0.05, indicating that the five direct hypotheses of this study were all established. Suppose the normalized path coefficients for H1-H6 were 0.089, 0.645, 0.199, 0.547, 0.666, 0.227, respectively. The P value of H2, H4, H5, H6 was 3*(P<0.01). This showed that Org-culture was very important to Eff-AE-management has a very significant direct effect, Org-culture has a very significant direct effect on T-In-leadership, T-In-leadership has a very significant direct effect on T-self-efficacy, and Org-culture has a very significant direct effect on T-In-leadership T-self-efficacy has a very significant direct effect. The P value of H3 was 0.025<0.05, and the P value of Z-test was 2.237>2, indicating that T-self-efficacy had a significant impact on Eff-AE-management. The P value of H1 was 0.293>0.05, and the Z-test was 1.051<2, indicating that T-In-leadership had no significant effect on Eff-AE-management.

Indirect effects analysis

Table 4. The indirect effects of teachers' instructional leadership and organizational culture on effectiveness of art education management

Hypothesis	Indirect path	Estimate	Lower	Upper	P
H7	Org-culture → T-In-leadership→ Eff-AE-management	0.047	-0.054	0.211	0.265
H8	T-In-leadership →T-self-efficacy →Eff-AE-management	0.139	0.003	0.499	0.048
H9	Org-culture → T-In-leadership →T-self-efficacy →Eff- AE-management	0.068	0.001	0.243	0.049

The mediating effect of the model was tested using the Bootstrap method. As can be seen from Table 4, the significant results (P values) of H8 and H9 in this study were both less than 0.05, and the indirect effect of T-In-leadership on Eff-AE-management through T-self-efficacy was 0.139, And the 95% confidence interval [0.003,0.499] did not include 0. This showed that T-self-efficacy has a significant mediating effect on T-In-leadership and Eff-AE-management, so H8 was established.

The indirect effect of Org-culture on Eff-AE-management via T-In-leadership and T-self-efficacy was 0.068, 95% confidence interval [0.001, 0.243], excluding 0. This indicated that Org-culture played a significant regulatory role on Eff-AE-management through T-In-leadership and T-self-efficacy, thus H9 was established.

The indirect effect of Org-culture on Eff-AE-management via T-In-leadership was 0.047, 95% confidence interval [-0.054, 0.211] inclusive of 0. This indicates that Org-culture did not significantly regulate Eff-AE-management through T-In-leadership, so H7 wasn't established.

Comparative analysis of different groups

At a later stage of this study, the researcher wanted to determine whether the impact of the instructional leadership of art teachers in public universities and colleges in Shanghai on the effectiveness of art education management differed according to their educational attainment. Therefore, this study conducted a multi-group CFA test for Group A (Ph.D.) and Group B (Master/Bachelor). The degree of difference between the analytical models with and without parameter restrictions is shown in the table below.

Table 5. The Overall Model Comparison Test Between the Unconstrained and The Constrained Models

Models	χ^2	DF
Unconstrained	197.096	96
Constrained	218.288	102
Difference ($\triangle\chi^2$)	21.192	6
P-Value	0.002	

Table 5 showed the chi-square difference between the constrained model and the unconstrained model $\triangle\chi^2$=21.192, DF=6. The analysis results showed that the p-value of The Chi-square difference test ($\Delta\chi^2$) was significant (P=0.002), Indicated that the relationship Model of the two Groups were different, and the relationship between variables in model should be investigated. Table 6 showed the test of different relationship for each hypothesis.

Table 6. Testing the different effects between variables for Ph.D. group and Master/bachelor group showed in standardized

	Ph.D. Beta	Master\Bachelor Beta	Difference in Betas	P-Value for Difference	Hypothesis
T-In-leadership→ Eff- AE-management	0.029	0.28	-0.251	0.211	H1
Org-culture → Eff- AE-management	0.644***	0.651***	-0.007	0.903	H2
T-self-efficacy →Eff- AE-management	0.263*	-0.005	0.268	0.142	H3
Org-culture → T-In-leadership	0.378***	0.767***	-0.389	0.002	H4
T-In-leadership →T-self-efficacy	0.600***	0.720***	-0.121	0.079	H5
Org-culture → T-self-efficacy	0.188*	0.240**	-0.051	0.433	H6

The structural model differences between Ph.D. and Masters/Bachelors were analyzed, and the results were shown in Table 6. As can be seen from the table, in hypotheses H1, H2, H3, H5, H6, there was no significant difference between the two groups because their P values were all greater than 0.05. However, the P values of H4 were 0.002 and less than 0.05, indicating that there were differences between the two groups.

Discussion

The relationship between teachers' instructional leadership and the effectiveness of art education management

Prior research suggested that there was strong positive relationship between teachers' instructional leadership and the effectiveness of art education management (Shao, 2016 : 6 ; Shang, 2019; Huang R. , 2018 : 2) which was not consistent with this studying that specified in hypothesis 1: there was a positive effect of teachers' instructional leadership on the effectiveness of art education management, but the finding revealed the hypotheses was not supported and leaded to the inconsistent with the previous theories. Nevertheless, in this study we still found that there were indirect effect of teachers' instructional leadership on the effectiveness of art education management via teachers' self-efficacy, since we found that there was a direct effect of teachers' instructional leadership on teachers' self-efficacy the consistent with the founding in previous time (Shao, 2016 : 6 ; Liu & Xu, 2015 : 80-84 ; Chen & Zhou, 2020 : 51 ; Xu, Wang, & Yang, 2020 : 3) and direct effect of teachers' self-efficacy on the effectiveness of art education management (Zhang, 2017; Xu, Wang, & Yang, 2020; Ren, 2019), that meant the teachers' self-efficacy was playing a significant role as the mediating effects of the relationship between teachers' instructional leadership and the effectiveness of art education management (Hay, A. F., 2022 : 26).

The different of this finding and the previous theories may be caused by differ factors, for example may be cause by the different field of study, scope of population, sample size, or scope of time of study research design and etc. (Shao, 2016 : 6 ; Shao, 2016; Wu & Zhu, 2015 : 71). The most significant cause of different could be from the research design. In this study we have controlled the self-efficacy constant while we studying the relationship between teachers' instructional leadership and the effectiveness of art education management meanwhile, in literature they didn't control this mediator. Obviously, the self-efficacy could be interfered with this relationship (Hay, A. F., 2022 : 26). In this case if we do not control this

mediator constant, we still found the significant between the teachers' instructional leadership and the effectiveness of art education management same way as the previous findings.

The relationship between organizational culture and the effectiveness of art education management

We have reexamined the relationship between organizational culture and the effectiveness of art education management both direct and indirect effect we found that both of these effects were supported the hypotheses consistent with previous findings (Shao, 2016 : 6 ; Zhao & Ma, 2016 : 11 ; Chen & Zhou, 2020 : 51; Huang R. , 2016 : 2), especially the indirect effected via the teachers' self-efficacy showed that the teachers' self-efficacy could be the most important factors that mediating the effects of both teachers' instructional leadership and organizational culture.

Another important thing was the finding of organizational culture could affect both the teachers' instructional leadership which represented the independent variables and the effectiveness of art education management as dependent variable so the organizational culture could be acting as moderator variable that caused the moderation effect (Hay, A. F., 2022 : 26). This finding showed that the relationship between teachers' instruction leadership and the effectiveness of art education management could have only indirect effect not the direct effects, and the most important effect could be explained by through the teachers' self-efficacy and could be moderated by the organizational culture as well.

The comparison between groups of academic ranks

As finding in data analyses that the relationship between organization culture and the teachers' instructional leadership was significantly different between Ph.D. group and Master/bachelor group and the group of Master/bachelor group was higher effect than the Ph.D. group. Both of two groups had both direct effect and indirect effect of teachers' instructional leadership and effectiveness of art education management which consistent with the previous findings (Shao, 2016 : 6 ; Shang, 2019; Xiao & Hu, 2019 : 144 ; Wu & Zhu, 2015 : 71). These findings pointed out that the theory of effectiveness of art education management can be explained by organizational culture was very strong and could be applied even in case of Shanghai colleges and universities, and in other words organizational culture could played a very significant role in teachers' effectiveness of art education management.

Recommendations

According to the findings in this study, the researcher had the recommendation as follow:

The development and growth of art teachers is inseparable from the formulation and support of national policies, as well as the training from university leaders and the accumulation of art teachers' own teaching experience. Therefore, the improvement of teachers' instructional leadership is also a long process, and it also requires some methods of professional training and teaching training in the country and colleges. In this way, the progress of art education is achieved, and the development of teachers' instructional leadership is implemented through the support of various educational policies.

The teachers' instructional leadership model of art majors in Shanghai colleges and universities comes from empirical research, and should eventually be applied to practical teaching work. Through the development and training of the instructional leadership of art teachers in colleges and universities, the evaluation of the instructional leadership ability of art teachers in colleges and universities, and the improvement of the construction of the

management system of art education in colleges and universities, it will lay a foundation for the development of the instructional leadership model of art teachers in colleges and universities in Shanghai in the later period, so that it can make validated by practical application. As a result, the reliability of the relationship model between the instructional leadership of art teachers in colleges and universities and the effectiveness of art education management is improved.

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