EFFECTS OF ADMINISTRATOR'S ETHICAL LEADERSHIP
ON THE ADMINISTRATION EFFECTIVENESS IN DIGITAL ERA
OF ART UNIVERSITIES IN LIAONING PROVINCE

Ding Na

Educational Administration, Faculty of Education, Bangkokthonburi University

e-mail: 564329041@qq.com

Abstract

The objectives of this research were: (1). To explore the components and indicators of administrator's ethical leadership and administration effectiveness in digital era of art universities in Liaoning province. (2). To study the effects of administrator's ethical leadership on the administration effectiveness in digital era of art universities in Liaoning province.

The research was a mixed methodology, including qualitative and quantitative research. Total population of this study included 2111 art teachers from 15 art universities in Liaoning province. A stratified random sampling method was used to sample, totalling 399 samples which calculated from G*Power program. The instrument for collecting data was a questionnaire. Descriptive statistics and confirmatory Factor Analysis were used to perform data analysis by using statistical computer software.

The research findings revealed that; (1) there were 4 components and 14 indicators of effects of administrator's ethical leadership on the administration effectiveness in digital era of art universities in Liaoning province; which consisted of respect, fairness, critical and administration effectiveness; (2) the structural equation model of effects of administrator's ethical leadership on the administration effectiveness in digital era of art universities in Liaoning province was consistent with the empirical data. The value of relative chi-square ($\chi2/df$) = 1.87, degree of freedom (df) = 63, goodness of fit index (GFI) = 0.96, tucker-lewis index (TLI) = 0.963, root mean square error of approximation (RMSEA) = 0.047, comparative fit Index (CFI)=0.974, normed fit index (NFI)=0.947 and incremental fit index (IFI)=0.975, all in line with specified criteria. The conclusion of this study administrator's ethical leadership

has a significant effect on administration effectiveness in digital era of art universities in Liaoning province.

Keywords: Administrator's ethical leadership, Administration effectiveness, In digital era,
Art university in Liaoning province

---

1. Introduction

Higher education undertakes the major tasks of cultivating high-level specialized talents, developing scientific and technological culture, and promoting socialist modernization. As the carrier of higher education, the development and progress of universities across the country are holistic. In recent years, universities have acquired better teachers, sufficient financial resources, sufficient hardware and software equipment and excellent students on the original basis. However, at the same time, under the impact of the above superior resources, universities gradually realized that having a high-quality administrator with modern university concepts is an important part of the university's next stage from the improvement of quantity and scale to the improvement of quality. How to give full play to services and manage various high-quality resources in a more comprehensive and in-depth manner, so that teaching and scientific researchers can focus on their own work to the greatest extent, how to rationally and effectively utilize and manage sufficient financial resources and high-quality equipment, all require the professional quality of administrators.

Ethical leadership is a highly influential educational leadership thought in the current Western educational management academia. It was first proposed by Thomas J Sergiovanni (1990), an American educational management scientist, at the end of the 20th century. Since then, ethical leadership has quickly become a hot topic in the Western school leadership research literature and has attracted the attention of the Western educational leadership research community. In the following years of development, the theory has also had a relatively large impact around the world. In recent years, with the emphasis on management ethics in academic circles and in real situations, ethical leadership has been gradually applied to school cultural management, promoting the reform and development of school administration.

Ethical leadership has entered the public's field of vision under the current trend of the school environment, and has increasingly become a standard for measuring the development of teachers and even the development of the entire school. Administrators with ethical leadership can fully consider teachers' reasonable demands, understand thinking and changes, improve teachers' job satisfaction and work enthusiasm from their own perspective, and fundamentally enable teachers to experience what their profession brings to them. Sense of self-worth, gain a sense of self-identity, and improve work efficiency. The overall improvement can also enable teachers to devote themselves to education with great enthusiasm, cultivate each student with a fuller and more excellent state, and lay a foundation for the cultivation of talents.

In the digital age, modern technologies such as big data, cloud computing, Internet of Things, and artificial intelligence have been widely used in modern administration. In order to meet the development needs of the times, the modern administration of universities also needs to apply the modernization of education to administration work. Therefore, through these technologies, the administration effectiveness can be improved. The improvement of the administration effectiveness of the university will improve the service level of the university, which is conducive to the realization of modern teaching, and is more conducive to improving the service level of the university in many aspects such as scientific research, teaching and administration. Therefore, it is necessary to under the background of educational modernization, this paper studies the improvement of university administration effectiveness.

Through the retrieval of various articles in literature and databases, it is found that there are much fewer articles on administrator ethical leadership compared to administrator teaching leadership, distributed leadership and other leadership research, and compared with foreign countries, China's research started late, and its development system is relatively immature. Undoubtedly, these studies have carried out a preliminary discussion on the practice of ethical leadership in China, but there are some needs for the specific performance of ethical leadership in the context of Chinese characteristics, what factors it affects, and what role it can produce. In-depth study of the problem has rarely been involved in the article. To extend ethical leadership to the school field, it must be combined with the current teaching situation and teaching practice in our country, fully consider the characteristics of localized education, pay attention to the corresponding distinction

with foreign research, and conduct on-the-spot investigations. In art universities in Liaoning Province, whether administrators have ethical leadership and whether they have an impact on administration effectiveness are issues worthy of research.

From the perspective of administration, using administration theory, supplemented by empirical research, this paper investigates and analyses the relationship between the ethical leadership and administration effectiveness of administrators in Liaoning Arts University, in order to achieve scientific administration of work. This research takes 15 art universities in Liaoning Province as an example, and intends to explore the two variables of administrator's ethical leadership and administration effectiveness through a mixed research method. The interview method is used to study the background of the digital era. The effects of administrator's ethical leadership on the administration effectiveness are explored, and the causes of problems are analysed. Finally, corresponding solutions are formulated according to the problems and causes, so as to ensure that the administration effectiveness of art universities can be effectively improved.

2. Research questions

2.1 What are the components and indicators of administrator's ethical leadership and administration effectiveness in digital era of art universities in Liaoning province?

2.2 What are the effects of administrator's ethical leadership on the administration effectiveness of in digital era of art universities in Liaoning province?

3. Research objectives

3.1 To explore the components and indicators of administrator's ethical leadership and administration effectiveness in digital era of art universities in Liaoning province.

3.2 To propose the effects of administrator's ethical leadership on the administration effectiveness in digital era of art universities in Liaoning province.

4. Research Hypothesis

Effects of administrators' ethical leadership on the administration effectiveness in digital era of art universities in Liaoning province consistent with the empirical data.

5. Research Method

5.2.1 Research Design

The study design used mixed methods, both qualitative and quantitative, first the qualitative to determine the components and indicators of administrator's ethical leadership and administration effectiveness through content analysis from 20 document and research related, included 9 high experience educational administrative key informants who were deans, teaching supervision, department directors and professors in administration more than seven years' work experience from China. After that quantitative method was employed to collected the empirical data from the respondents through questionnaire.

5.2.2 Population and Sample

The population and sample consist of art teachers in the 15 art universities in Liaoning province, totally 2,111 art teachers. The sample group will be selected respondents by using proportional stratified random sampling in the G*Power program version 3.1 to obtain (set as Chi-square test at: Df =51, α err prob = .05, effect size w = 0.3, power =0.8), totally at least 399 art teachers.

5.2.3 Research Instruments

Use the Chinese website "WJX.cn" to create a five-point rating scale questionnaire and manage on a professional online data collection platform. It consists of the following four parts.

Part I: Demographic variables, general information of the respondents, totaling 5 items, such as gender, age, educational level, years of working experience and professional title.

Part II: Rating scale questionnaire which asks about the Administrators' ethical leadership (50 Items).

Part III: Rating scale questionnaire which asks about Administration effectiveness of art universities in Liaoning province (25 Items).

Part IV. Suggestions and additional comments (Open Ended).

All type of questionnaires will be Likert's rating scale with 5 choices (Likert, R. 1932).

1 = Strongly Disagree   4 = Agree,

2 = Disagree   5 = Strongly Agree.

3 = Neutral,

Total of 83 items were found and prepared as research instrument, a five-point rating scale questionnaire. The quality of instruments has been verified by content validity and reliability.

The Item-Objective Congruence (IOC) was used to evaluate the items of the questionnaire based on the score range from -1 to +1. There were 75 items that had scores higher than or equal to 0.6 were reserved. For reliability of questionnaire is a way of assessing the quality of the measurement procedure used to collect data. The researcher has sent out 30 questionnaires to collect data from non-samples in order to consider a result of reliability. All items were higher than 0.90, indicating that the reliability of this questionnaire is very high.

5.2.4 Data Collection

In this study, questionnaire is applied in regarding to identify effects of administrators' ethical leadership on the administration effectiveness in digital era of art universities in Liaoning province in detail:

Step 1 Asked Bangkokthonburi University for permission and the letter of data collection was attached in the appendix.

Step 2 Asked permission from samples through contact. One thing to be noticed is that some samples were not willing to do as of the reasons illustrated above thus under this circumstance, resampling was necessary.

Step 3 Means of collecting data were chosen. Both online questionnaire method and in person. The software were Wen Juan Xing program and WeChat 8.0.32 program.

Step 4 As the above stages were done, questionnaire and Bangkokthonburi University letter was sent to samples in accordance with the authenticity of this study and for the assistance of collecting data.

5.2.5 Data Analysis

In this research, the researcher analysed the data by using a computer program to manipulate the data in order to find various statistical values as follows:

5.2.5.1 Data analysis for frequency and percentage in order to know the status of the sample group, i.e., gender, age, educational level, working experience and professional title.

3.2.5.2 Average data analysis, Standard deviations to determine the suitability of the indicators for the selection of indicators in the model. In the interpretation of the analysed, the criteria arithmetic mean for interpreting were as follows:

Mean score	Level
1.0-1.49	Lowest
1.50-2.49	Low
2.50-3.49	Moderate
3.50-4.49	High
4.50-5.00	Highest

(Best W. John, 1997)

5.2.5.3 Data analysis to take into account the suitability of variables to be analysed for further components by analysing the Pearson correlation coefficient. In order to determine the degree and direction of correlation, if the variables are not correlated then there is no common component. Correlation analysis between independent variables to study the relationship among variables for Multicollinearity check, the Pearson Correlation coefficient not more than 0.90 (Tabachnick and Fidell, 2001). Bartlett's test is, which is a statistical test of the correlation matrix hypothesis between variables and Identity Matrix, considering the Bartlett's test and the probability that an appropriate correlation to be used for further component analysis. By considering the statistical significance and analysis of the Kaiser-Myers-Allkil index. (Kaiser-Mayer-Olkin Measurers of Sampling Adequacy: MSA). Considering the criterion, a value greater than .80 indicates very good, less than .50 indicates invalid (Kim & Muclle,1978 cited in Somkiat Thanok, 1996)

5.2.5.4 Data analysis to answer research hypotheses. Researchers use inferential statistics to test research hypotheses. Values used to check the consistency and consistency of structural equation models with empirical data by analysing the structural equations include:

1) The chi-squared test indicates the difference between observed and expected covariance matrices. Values closer to zero indicate a better fit; smaller difference between expected and observed covariance matrices (Gatignon, H., 2010).

2) The goodness of fit index (GFI) is a measure of fit between the hypothesized model and the observed covariance matrix. The GFI range between 0 and 1, with a value of over .9 generally indicating acceptable model fit (Baumgartner, H., & Hombur, C. ,1996).

3) Root mean square error of approximation (RMSEA) indicates RMSEA values less than 0.05 are good, values between 0.05 and 0.08 are acceptable, values between 0.08 and 0.1 are marginal, and values greater than 0.1 are poor (Fabrigar L. R.,1994).

4) The normed fit index (NFI) analyses the discrepancy between the chi-squared value of the hypothesized model and the chi-squared value of the null model (Bentler, P. M. & Bonett, D. G., 1980). Values for the NFI should range between 0 and 1, with a cutoff of .95 or greater indicating a good model fit (Hu, L.& Bentler, P. M., 1999).

5) The comparative fit index (CFI) analyses the model fit by examining the discrepancy between the data and the hypothesized model, while adjusting for the issues of sample size inherent in the chi-squared test of model fit (Gatignon, H., 2010), and the normed fit index (Bentler, P. M. ,1990). CFI values range from 0 to 1, with larger values indicating better fit. CFI value of .95 or higher is presently accepted as an indicator of good fit.

6) The incremental fit index (IFI) adjusts the Normed Fit Index (NFI) for sample size and degrees of freedom (Bollen's, 1989). Over 0.90 is a good fit, but the index can exceed 1.

7) The average variance extracted (AVE) and the composite reliability coefficients are related to the quality of a measure. AVE is a measure of the amount of variance that is taken by a construct in relation to the amount of variance due to measurement error (Fornell, C., & Larcker, D.F.,1981). To be specific, AVE is a measure to assess convergent validity. Convergent validity is used to measure the level of correlation of multiple indicators of the same construct that are in agreement. The factor loading of the items, composite reliability and the average variance extracted have to be calculated to determine convergent validity (Hair J., 2014).

The value of AVE and CR ranges from 0 to 1, where a higher value indicates higher reliability level. AVE is more than or equal to 0.5 confirms the convergent validity. Composite reliability is a measure of internal consistency in scale items (Netemeyer, R. G.,2003). According to Fornell and Larcker (1981), composite reliability is an indicator of the shared variance among the observed variables used as an indicator of a latent construct. The values of composite reliability between 0.6 to 0.7are acceptable, while at more advanced stages, the value must be higher than 0.7.

8) The terms Maximum Share Variance (MSV) and Average Share Variance (ASV) do not often appear in discriminant validity, but in fact we have already reported it when reporting discriminant validity. MSV is greater than or equal to ASV, and in the discriminant validity

analysis, Fornell and Larcker (1981) suggested that the convergent validity (AVE) should be greater than the correlation square (Share Variance) between the facets. Therefore, the lower triangle is the facet the relevant square, and the proof of AVE discriminant validity on the diagonal is that the maximum value of the field or column must be smaller than the corresponding AVE, which means that AVE is greater than MSV, so AVE will naturally be greater than ASV.

6. Research Results

The research process consists of two steps:

Step one: Determining the components and indicators of administrator's ethical leadership and administration effectiveness in digital era of art universities in Liaoning province. This was a qualitative study. The researcher has studied related literature about the concept, principles, and theories, related research on administrators' ethical leadership and administration effectiveness about 20 documents as well as interview from 9 key informants who were deans, teaching supervision, and professors in administration from Chinese, with more than seven years' experience from Chinese. Sample size calculation by G*Power 3.1 program was used. Semi-structured interview form was used. Data collection was performed by the researcher. The collected data was analyzed by Content Analysis.

Step two: Developing the model of effects of administrator's ethical leadership on the administration effectiveness in digital era of art universities in Liaoning province. This was a quantitative study. The researcher used the components and indicators of administrator's ethical leadership and administration effectiveness from step (1) to prepare an instrument as a questionnaire as to collect data from samples in order to develop the model of effects of administrator's ethical leadership on the administration effectiveness in digital era of art universities in Liaoning province. Population consisted of 2111 who were art teachers, they came from 15 art universities in Liaoning province. The sample size was approximate 399 samples, determined by the G*Power 3.1 program, with a proportional stratified random sampling technique. In order to make accuracy in Confirmatory Factor Analysis, the researcher has increased the sample size to be approximate 410 samples. The researcher used a questionnaire consisting of four parts; Part I: General information of the respondents, Part II: Questionnaire about the administrator's ethical leadership (five-level rating scale), totalling 50 items, Part III: Questionnaire about the administration effectiveness

of art university in Liaoning province, totalling 25 items, and Part **IV**: Suggestions and additional comments (Open Ended). Instrument was developed from step (1) as a questionnaire. The quality of questionnaires was assessed by content validity and reliability. For the content validity, it was checked by five experts and analysed by Item-Objective Congruence (IOC). The item value was ≥ 0.60. For the reliability, it was analysed by Cronbach alpha coefficient, the value all above 0.9. Questionnaires were sent through the E-mail, program of Weixin 8.0.32 , and researchers.

The data of demographic variables were analysed by descriptive statistics, frequency, and percentage. The data analysis with the statistics: arithmetic mean ($\overline{x}$), standard deviation (S.D.), and the data distribution by skewness (Sk.), kurtosis (Ku.) by comparing the derived arithmetic mean to the criteria based on Best' s concepts. Used Pearson Correlation Coefficient analysis to test the correlation between variables. Validity is a measure of the validity of the questionnaire and the validity of the measurement factors, include KMO (Kaiser-Meyer-Olkin) and Bartlett's Test. Effects of administrator's ethical leadership on the administration effectiveness in digital era of art universities in Liaoning province were analysed by Confirmatory Factor Analysis (CFA), using statistical SPSS programs and AMOS programs to analyse the models. The value of Relative Chi-square ($\chi 2/df$), Degree of Freedom (df), Statistical Significance (p), Goodness of Fit Index (GFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), Incremental Fit Index (IFI), Normed Fit Index (NFI) and Root Mean Square Error of Approximation (RMSEA), all meet the specified standards. AVE and CR to test the convergent validity of indicators, all indicators of measurement model have good combination reliability and convergent validity. Discriminant validity tests the measurement model for administrator's ethical leadership through MSV and ASV, the test results have very good discriminant validity. Finally, the structural equation model of the effects on administrator's ethical on administration effectiveness was established, the fitting index reached the standard value, and the fitting degree of the structural equation model is good. Statistics value of the full SEM model the effect of administrator's ethical leadership on the administration effectiveness, there was a significant positive effect between components and indicators. Hypotheses in this study have a direct impact on each other. From the above conclusion, it can be concluded that administrator's ethical leadership has significant effects on administration effectiveness in digital era of art universities in Liaoning province.

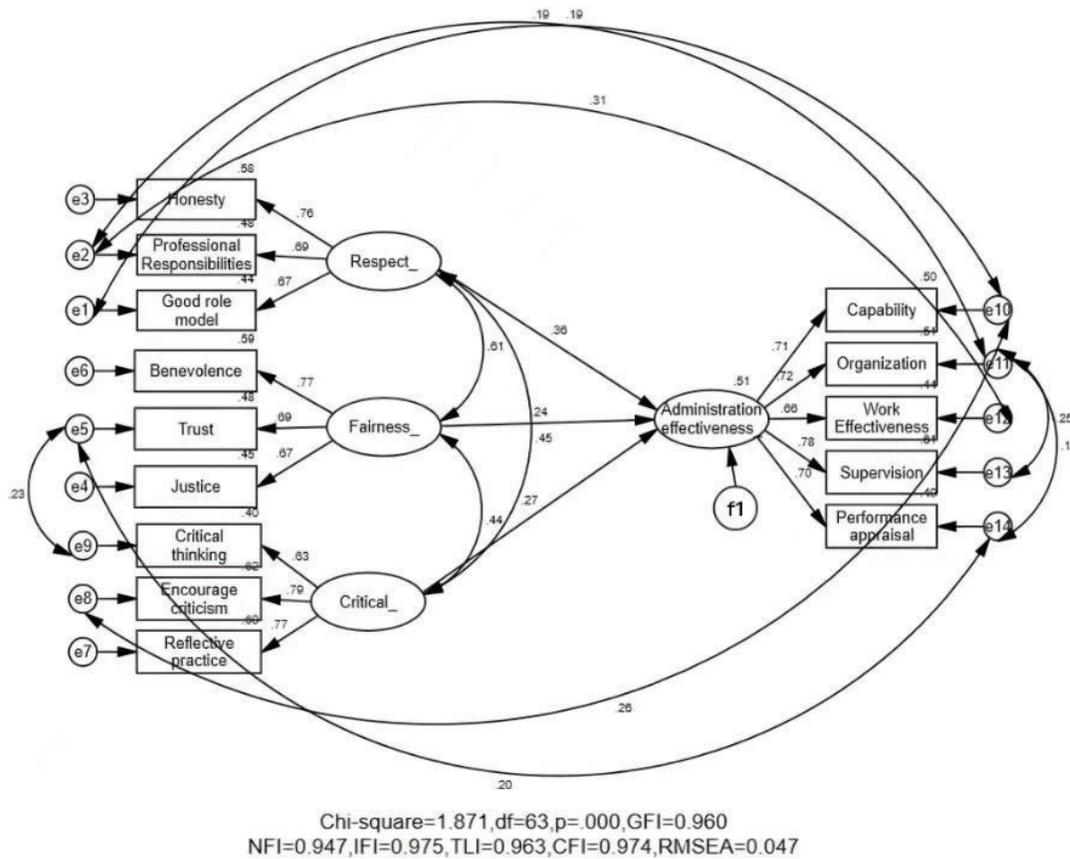From the research objectives, major findings were revealed as follows:

Chi-square=1.871,df=63,p=.000,GFI=0.960
NFI=0.947,IFI=0.975,TLI=0.963,CFI=0.974,RMSEA=0.047

Figure 1 Structural equation model of effects of administrator's ethical leadership
on the administration effectiveness

From the figure 1, the RMSEA value was 0.047, GFI value was 0.960, indicated acceptable model fit (Baumgartner, H., & Hombur, C. ,1996), CFI value was close to 0.974, which showed a relatively good fit (Bentler P. M.,1990), NFI value was 0.947, TLI value was 0.925 indicated a good model fit (Bentler P. M.,1990). IFI value was 0.963, which was over 0.9 for a good fit (Bollen's, 1989). Based on these indices, the structural equation model(SEM) fitting index of administrator's ethical leaderships effects on administration reach the standard value, and the fitting degree of the structural equation model was good.

Table 1 Statistics value of the full SEM model the effect of administrator's ethical leadership on the administration effectiveness

Components and Indicators			Unstandardized Regression Weights	S.E.	C.R.	P	Factor Loading	R^2
Administration effectiveness	<---	Fairness	0.24	0.074	3.234	0.001	0.235	
Administration effectiveness	<---	Respect	0.389	0.085	4.589	***	0.364	0.364
Administration effectiveness	<---	Critical	0.19	0.043	4.429	***	0.272	
V1	<---	Respect	1				0.665	0.443
V2	<---	Respect	0.931	0.089	10.447	***	0.694	0.482
V3	<---	Respect	1.18	0.101	11.66	***	0.762	0.58
V4	<---	Fairness	1				0.669	0.447
V5	<---	Fairness	0.894	0.084	10.586	***	0.691	0.477
V6	<---	Fairness	1.088	0.099	10.997	***	0.767	0.588
V7	<---	Critical	1				0.775	0.6
V8	<---	Critical	0.683	0.057	12.036	***	0.786	0.618
V9	<---	Critical	0.49	0.042	11.757	***	0.634	0.402
F1	<---	Administration effectiveness	1				0.707	0.5
F2	<---	Administration effectiveness	0.985	0.085	11.557	***	0.717	0.514
F3	<---	Administration effectiveness	0.805	0.067	11.934	***	0.663	0.439
F4	<---	Administration effectiveness	0.839	0.063	13.4	***	0.782	0.612
F5	<---	Administration effectiveness	0.903	0.073	12.33	***	0.702	0.492

***P-value < 0.001

Focus at the data analysis results in table 1, It were found that:

1) The factor loading value of Fairness to Administration effectiveness was 0.235 and P-value<0.001, the factor loading value of Respect to Administration effectiveness was 0.364 and P-value<0.001, the factor loading value of Critical to Administration effectiveness was 0.272 and P-value<0.001, indicated that there was a significant positive impact.

2) The factor loading value of Respect to V1-V3, Fairness to V4-V6, Critical to V7-V9 and Administration effectiveness to F1-F5 were all indicated a high convergent validity. All the p-value<0.001, showed that the study was statistically significant.

Table 2 Summary of results from hypothesis testing

Hypotheses	Result
1. Respect of administrator's ethical leadership directly effects on the administration effectiveness in digital era of art universities in Liaoning province.	Accepted
2. Fairness of administrator's ethical leadership directly effects on the administration effectiveness in digital era of art universities in Liaoning province.	Accepted
3. Critical of administrator's ethical leadership directly effects on the administration effectiveness in digital era of art universities in Liaoning province.	Accepted

It can be seen from the table 2, the three hypotheses in this study had a direct impact on each other. The hypotheses that have been proven administrator's ethical leadership effects on the administration effectiveness in digital era of art universities in Liaoning province.

From the research objectives, the main findings are as follows: There are 4 components of administrator's ethical leadership and administration effectiveness in digital era of art universities in Liaoning Province which consisted of: (1) Respect, (2) Fairness, (3) Critical, and (4) Administration effectiveness. There are 14 indicators of effects of administrator's ethical leadership on the administration effectiveness in digital era of art universities in Liaoning Province. Details were as follows:

Component 1: Respect, it's the latent variable that consisted of 3 indicators: Good role model, Professional Responsibilities and Honesty.

Component 2: Fairness, it's the latent variable that consisted of 3 indicators: Justice, Trust and Benevolence.

Component 3: Critical, it's the latent variable that consisted of 3 indicators: Reflective practice, Encourage criticism and Critical thinking.

Component 4: Administration effectiveness, it's the latent variable that consisted of 5 indicators: Capability, Organization, Work Effectiveness, Supervision and Performance appraisal.

This research draws conclusions from theory and related research: effects of administrator's ethical leadership on the administration effectiveness in digital era of art universities in Liaoning Province was consistent with the empirical data. It was based on research assumptions.

Figure 2 Graphics of the effect model of administrator's ethical leadership on administrative efficiency in the digital era of Liaoning art colleges and universities

7. Discussion

7.1 Discussion about major findings from objective 1

There were 4 components and 14 indicators of effects of administrator's ethical leadership on the administration effectiveness in digital era of art universities in Liaoning Province which consisted of: (1) Respect, (2) Fairness, (3) Critical, and (4) Administration effectiveness. The major findings were revealed as such these components and corresponding indicators of administrator's ethical leadership can promote the administration effectiveness in digital era of art universities in Liaoning Province. Each of the

components of administrator's ethical leadership can have effect work capability, organizational capacity, work efficiency, supervisory control, and performance appraisal.

The research results reveal that the administrator's ethical leadership as perceived by the respondents was at high level. In this research, the dimension of Critical was at the high level ($\overline{X}$= 3.982, S.D. = 0.513), Respect was at the high level ($\overline{X}$= 3.889, S.D. = 0.487) and Fairness was at the high level ($\overline{X}$=3.883, S.D. = 0.489) respectively. It shows that all data in this study conform to the normal distribution as a whole.

The reason for the research results is that the respondents believes that administrator have shown a high level of ethical leadership in all dimensions, especially respect, fairness, and criticism. Details are as follows:

(1) Respect. Ethical leadership administrator respect others around them, regardless of their position or identifying characteristics. This means they listen to each stakeholder, foster inclusion, and value diversity.

(2) Fairness, Ethical leadership administrator indeed strive to be fair in their actions and decision-making processes. Fairness is a fundamental principle of ethics and is crucial for building trust, maintaining positive relationships, and promoting a healthy work environment.

(3) Critical. Ethical leadership administrator indeed encourage criticism and reflective practice within their teams and organizations. They understand that fostering an environment where employees feel comfortable expressing their opinions, providing constructive feedback, and engaging in reflective practices is crucial for personal and organizational growth.

All of these are consistent with the research results and concepts of many important scholars, such as Leithwood. K.A. (1994) put forward the concept of "reliable school". Through research, he pointed out the essential survival values of such schools, namely care, respect, full participation, and trust, justice, etc. These related studies speculate and analyze the value of administrator's ethical leadership. Brown et al. (2005) proposes honesty, fairness, respect for others, and support for others to listen; punish employees who violate ethics; maximize the interests of employees. Carmen Tanner et al. (2010) found that ethical leadership managers have to be successful; to be trusted; to set an example; to do things the right way, etc.

The research results reveal that the administration effectiveness as perceived by the respondents was at high level. In this research, the dimension of Capability was at the high level (= 3.886, S.D. = 0.623), Organization was at the high level ($\overline{X}$= 4.265, S.D. = 0.602),

Work Effectiveness was at the high level ($\overline{X}$ =4.029, S.D. = 0.533), Supervision was at the high level ($\overline{X}$=4.257, S.D. = 0.468) and Performance appraisal was at the high level ($\overline{X}$=3.991, S.D. = 0.561) respectively. It shows that all data in this study conform to the normal distribution as a whole.

Administrative effectiveness plays a crucial role in the overall functioning and success of universities. It refers to the ability of university administrators and staff to efficiently and competently manage various administrative tasks, processes, and functions. Here are some key aspects highlighting the importance of administrative effectiveness in universities. administration effectiveness is critical for universities to operate efficiently, fulfill their mission, and provide a conducive environment for learning, research, and innovation. It supports the core functions of the institution and helps create a positive impact on students, faculty, staff, and the wider community. Research has proved that administrator with ethical leadership show good working ability, strong organizational ability, high work efficiency, effective supervision and reasonable performance appraisal system in administrative effectiveness. Xin Shaoquan (2020) explored the "list-style" administration model of university administration, and pointed out that it is necessary to scientifically formulate administrative management, strengthen organizational management, improve work efficiency, pay attention to process monitoring, build a sound reward and punishment system, and assign specific responsibilities implement to the individual. Kirsten Bregn pointed out that public sector workers are more concerned about the fairness of bonus payments. In order to play the incentive role of salary, managers must be scientific, reasonable, fair and just in the standards and rules of bonus distribution, and be recognized by most people (Wu Jiang, 2009).

From the above discussion, the researchers believe that ethical leadership is a new era of leadership that university administrators at all levels should use in their organizations. In management, it can be proved that the leader has respect for others, fairness and trust, always sees his own shortcomings, encourages subordinates to criticize, and makes improvements at any time. Only such administrators can better organize and manage the administrative efficiency of the university, improve work efficiency, strengthen organizational capabilities, enhance vision, supervise management, and conduct reasonable performance appraisals, so that every teacher and staff is very satisfied.

7.2 Discussion about major findings of objective 2

The model of the effects of ethical of administrator's ethical leadership on the effectiveness administration in digital era of art university in Liaoning Provincial is consistent with the empirical data in theory and research. The main findings are that the administrator's ethical leadership model can make the administration effectiveness under certain conditions with strong working ability, clear administration goals, harmonious relationship between teachers in various departments, clear division of labore, high work efficiency, timely supervision and performance appraisal system Reasonable merit. The findings of this study are consistent with the following theories or related research:

Gary Yukl (1981) believes that ethical leadership is a leadership style that is closely related to the leader's own ethical development level and the leader's situation. An ethical leader should first be a leader of integrity, and then an ethical leader and his followers share a common vision and are able to develop their followers through extensive guidance, teaching, and training.

Heifetz (1994) pointed out that at work, ethical leaders should help subordinates to cope with various situational changes, motivate subordinates to face difficulties, provide suggestions for subordinates to deal with value conflicts in the context of rapid economic development, and create a good environment for subordinates, trustworthy work environment.

Coppola (1998) believes that ethical leadership is a leader who must be able to share his spiritual and religious world views, practice a high degree of ethical rationality, inspire members to act for a common vision, attempt to build community and contract, and practice commitments for social justice.

Trevino, Hartman and Brown (2000) conducted a more in-depth discussion on ethical leadership, they believed that ethical leaders have two tasks, one is ethical person, the other is ethical administrator. In simple terms, an ethical person refers to an individual with integrity, honesty, and trustworthiness, who cares about his subordinates, and takes ethics and ethical as the criterion when making decisions, while an ethical administrator is more demanding and must regulate his own behavior. Set up a role model and take the lead, communicate and discuss with subordinates on ethics, values, and reward employees for their ethical behavior.

Brown, Trevino, and Harrison (2005) describe and define ethical leadership as a behavior that leaders demonstrate through interpersonal interactions, which are normative and appropriate, and which require two-way communication, reinforcement, and decision-

making. and eventually promote among its followers. In the definition, "normative behavior" refers to behaviors that ethical leaders can model, model, and guide their followers in practice, such as fairness, care, trustworthiness, Honesty etc.

Zhou Fei, Lin Chunpei, and Sun Rui (2015) believe that ethical leadership creates a harmonious ethical atmosphere and interpersonal environment, which helps to form a tolerant and free environment within the organization, thereby producing a positive sense of organizational justice, corporate innovation performance, and organizational harmony spirit.

Sun Liping (2008) defines ethical leadership as a process—leaders influence and motivate their subordinates through their own noble conduct and conduct, and promote them to better achieve organizational goals.

Yang Jiangding (2012) believed that my country's primary and secondary schools are gradually accepting the concept of "establishing schools with ethically", so they must pay attention to administration under the guidance of ethical principles. Administrator should pay more attention to fairness and justice, emotional care and value guidance, and emphasize correct educational values.

Zhou Fei, Lin Chunpei, and Sun Rui (2015) believe that ethical leadership creates a harmonious ethical atmosphere and interpersonal environment, which helps to form a tolerant and free environment within the organization, thereby producing a positive sense of organizational justice, corporate innovation performance, and organizational harmony spirit.

Numerous studies have shown that ethical leadership is a meaningful, valuable, rigorous and reliable research variable that can be effectively differentiated from similar concepts of transformational leadership, honesty, trust, and fairness in interactions (Kalshoven et al., 2011).

8 Recommendations

8.1 Research Review and Reflection

From the perspective of theoretical construction, the theoretical framework of the effects of administrator's ethical leadership on administration effectiveness constructed by this research is not mature enough. Strong scientific and theoretical significance. This research is only used as a "brick to attract jade", hoping to attract more people's attention to the practice of university administrators' ethical leadership effecting on administration effectiveness, and

gradually build a relatively complete theoretical framework of the effects of university administrators' ethical leadership in the Chinese context and use this to guides practice.

From the perspective of research samples, this study attempts to deeply explore the actual situation of administrators' ethical leadership on administrative effectiveness in 15 art universities in Liaoning Province under the Chinese context. The investigation is carried out on a case-by-case basis, so the investigation results are only of great significance to Liaoning City. If conditions permit, larger-scale research can be carried out. While exploring the actual situation of the impact of administrators' ethical leadership on administration effectiveness, the investigation can also be fully tested. The reliability and validity of the questionnaire is conducive to the formation of a scientific measurement tool for the impact of administrators' ethical leadership on administrative effectiveness.

From the perspective of research methods, this study chose a mixed method of quantitative and qualitative research to measure the impact of the ethical leadership of administrators in Liaoning Provincial University of Arts on administration effectiveness, but in fact there are still many things that need more in-depth research. Therefore, Future research can select administrators from several representative regions or universities to conduct qualitative research, and should be able to obtain some new realistic performances of ethical leadership.

In terms of research content, this study only studies the impact of administrators' ethical leadership on administration effectiveness, and has not yet covered, for example, the relationship between administrators' ethical leadership and teachers' job satisfaction or students' academic performance. From these aspects research on the effectiveness of administrators' ethical leadership in practice can play an important role and significance.

From the perspective of research variables, through combing the existing literature at home and abroad, it is found that administrators with ethical leadership can have a positive impact on employees' turnover intentions, organizational commitment, and various behaviors and attitudes. Due to limitations, this study only selects administration effectiveness as a research variable to explore the administrator's ethical leadership and the relationship between the two.

8.2 Suggestions for further study

In view of the deficiencies of existing research, some prospects for future research are proposed:

(1) Expand the sampling range of samples

Future research should try to expand the scope of sampling, not limited to sampling in one place or in a small area, collect as much sample data as conditions permit, improve sampling methods and channels, and make research conclusions more universal and applicable sex.

(2) Direct research method

For the research on ethical leadership of managers, it can be considered to directly explore from the perspective of administrators, rather than using other evaluation methods, although to a certain extent increases the difficulty of sampling, but can largely

Avoid the influence of personal subjective factors in his evaluation. The object of the interview can also directly choose the dean, and study the moral leadership of managers in detail from his own perspective, so as to improve people's understanding of moral leadership.

(3) Try to explore from a multivariate perspective

This study only selects administration effectiveness as a relevant variable. In the future, multiple variables related to ethical leadership can be selected for research, and intermediary variables or adjustment variables can be added to explore the mechanism of ethical leadership, and the research angle can be carried out from multiple levels, not only from the individual level of managers and teachers, but also from the level of the school as a whole and society, so as to conduct in-depth exploration of the research content from multiple angles.

References

Baumgartner, H., & Hombur, C. (1996). Applications of structural equation modelling in marketing and consumer research: A review. **International Journal of Research in Marketing, 13**, 139-161.

Bentler, P. M. (1990). Comparative fit indexes in structural models. **Psychological Bulletin, 107**(2), 238–46.

John, B. W. (1997). **Research in Education**. Boston: Allyn and Bacon.

Bollen, K. A. (1989). **Structural equations with latent variables**. New York: Wiley.

Brown, M. E., Trevino, L. K., & Harrison, D. A. (2005). Ethical leadership: A Social Learning Perspective for Construct Development and Testing. **Organizational Behavior and Human Decision Processes, 97**(2), 117-134.

Carmen Tanner, et al. (2010). Zeitschrift für Psychologie. **Journal of Psychology, 218**(4), 225.

Coppola, D. L. (1998). Ethical leadership: A proposed theory illustrated by select Catholic
    secondary school principals. **ETD Collection for Fordham University,** AAI9839504.

Fabrigar, L. R., MacCallum, R. C., Wegener D. T., Strahan, E. J. (1999). Evaluating the use of
    exploratory factor analysis in psychological research. **Psychological Methods, 4**(3),
    272–299.

Fornell, C., and Larcker, D. F. (1981). Evaluating structural equation models with
    unobservable variables and measurement error. **Journal of Marketing Research,
    18**(1), 39-50.

Gatignon, H. (2010). Confirmatory Factor Analysis. **In statistical analysis of management
    data,** 59–122.

Heifetz, R. A. (1994). **Leadership without Easy Answers**. Cambridge: Harvard University Press.

Hinton, P. R., Brownlow, C., Mcmurray, I. & Cozens, B. (2004). **SPSS explained**. East Sussex:
    Routledge Inc.

Kalshoven, K., De Hartog, D. N., & DeHoogh, A. H. B. (2011). Ethical Leader Behavior and
    Big Five Factors of Personality. **Journal of Business Ethics, 100**(2), 349-366.

Kim, J. O., & Mueller, C. W. (1978). **Factor Analysis: Statistical Methods and Practical
    Issues**. Beverly Hills: Sage.

Leithwood, K. A. (1994). Leadership for School Restructuring. **The Journal of leadership
    for effective and equitable organizations, 30**(4), 498-518.

Likert, R. (1932). A technique for measurement of attitudes. **Archives of Psychology, 140**,
    5-55.

Miao, Q, et al. (2013). The Relationship Between Ethical Leadership and Unethical
    Pro-Organizational Behaviour: Linear or Curvilinear Effects. **Journal of Business
    Ethics, 116**(3), 641-653.

Nunnally J. C. & Bernstein I. H. (1994). **Psychometric theory**. New York: McGraw- Hill.

Rovinelli, R. J. & Hambleton, R. K. (1977). On the Use of Content Specialists in the
    Assessment of Criterion-Referenced Test Item Validity. **Tijdschrift Voor Onderwijs
    Research, 2**, 49-60.

Sergiovanni, T. J. (1990). Adding value to leadership gets extraordinary results. **Educational
    Leadership, 47**(8), 23-27.

Sun, Liping. (2008). **The Content Structure of Ethical Leadership in Enterprise Organizations and Related Research**. Guangdong: Jinan University.

Tabachnick, B. G. & Fidell, L. S. (2001). Principal Components and Factor Analysis**. In Tabachnick. B.G. and Fidell, L.S. Eds. Using Multivariate Statistics, 4th Ed. Allyn & Bacon., Boston**, 607-675.

Trevino, L. K., Brown, M., & Hartman, L. P. (2003). A Qualitative Investigation of Perceived Executive Ethical Leadership: Perceptions from Inside and Outside the Executive Suite. **Human Relations, 56**(1), 5-37.

Shaoquan, X. (2020). Research on the "list-style" management mode of university administration. **Theoretical Research and Practice of Innovation and Entrepreneurship,6**, 88-89.

Yang, Jiangding. (2012). Connotation Construction: Strengthening the Realistic Perspective of Ethical Education Thinking about the Integration of Urban Value Orientation into Ethical Education in Primary and Secondary Schools. **Ideological and Theoretical Education, 10**, 4-8.

Yukl, G. (1981). **Leadership in Organizations**. New Jersey: Prentice Hall.

Zhou, Fei, Lin, Chunpei, & Sun, Rui. (2015). Research on the relationship between ethical leadership and organizational management innovation: the mediating role of informal knowledge sharing. **Management Review, 27**(5), 169-177.