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The Empirical Study of Quality Effect on Business Performance Based on the Manufacturing Enterprises in the Yangtze River Delta Region of China

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Abstract:

The improvement of China's overall quality level lags behind the growth of the economic scale. In production and use, resources and energy consumption is large, environmental pollution is severe, and quality and safety accidents occur from time to time. The deep-seated contradictions restricting quality innovation and development still exist. Therefore, to promote the transformation and upgrading of China's industrial structure, Chinese President Xi Jinping put forward the requirements of "three transformations". To promote the transformation of Chinese manufacturing to Chinese creation, China's speed to Chinese quality and the transformation of Chinese products to Chinese brands have pointed out the direction for the high-quality development of China's manufacturing industry. Based on the manufacturing enterprises in China's Yangtze River Delta, this study analyzes the current situation and level of quality management of Chinese manufacturing enterprises by paying attention to the fundamental problem of the relationship between quality management practice and business performance. By studying the impact mechanism of product quality management and manufacturing efficiency management on business performance of the manufacturing industry, this study explores the critical elements of quality management affecting Chinese manufacturing enterprises to establish a quality management model suitable for Chinese manufacturing enterprises to promote business performance improving quality management. This research demonstrates the influence of product quality management, manufacturing efficiency management and quality effect on business performance of manufacturing enterprises in China's Yangtze River Delta, which provides theoretical support for exploring quality management, efficiency management, performance improvement and maintaining market competitiveness.

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INTRODUCTION

This study studies the quality management model of manufacturing enterprises in China's Yangtze River Delta, analyzes the current level of quality management of Chinese manufacturing enterprises by paying attention to the basic problem of the relationship between quality management practice and business performance, and studies the influence mechanism of product quality management and manufacturing efficiency management on manufacturing business performance. This study explores the key elements of quality management affecting Chinese manufacturing enterprises, so as to establish a quality management model suitable for Chinese manufacturing enterprises to promote business performance by improving quality management, and provide theoretical and practical guidance for the overall improvement, transformation and upgrading of manufacturing enterprise performance. This study adopts the questionnaire survey method to conduct a questionnaire survey on the model, statistically process the data, and analyze the correlation between various factors. This study adopts the method of regression analysis. Through the analysis, it reflects the correlation between various factors and proves that hypotheses. Finally, the paper gives the conclusion of empirical analysis and some relevant suggestions. This study studies and demonstrates the impact of product quality management, manufacturing efficiency management and quality effect on business performance of manufacturing enterprises in China's Yangtze River Delta, which provides theoretical support for exploring quality management, efficiency management, performance improvement and maintaining market competitiveness. Since China's reform and opening up, China's manufacturing industry has developed vigorously. Now, China has become the world's largest exporter. In 2011, China surpassed Japan and became the world's second largest economy, of which the contribution of manufacturing industry is indispensable. By the end of 2020, the output of more than 220 kinds of industrial products in China ranks first in the world, and the added value of manufacturing industry is expected to rank first in the world for 11 consecutive years. After years of efforts, China has built the most complete industrial system in the world and is the only country in the world with all industrial categories in the United Nations Industrial Classification. A sudden COVID-19, China's manufacturing industry to play the industry chain advantages, rapid recovery of production, for the urgent needs of the material, rapid integration of production resources, whether it is the construction of hospitals, or medical supplies, all received rapid response and timely supply, and also verified the strength of China's manufacturing industry.

Problem Statement

It began in the early stage of reform and opening up that made in China really entered the fast lane of development and integrated into the global division of labor system. At that time, developed countries and regions such as Europe, America and Japan set off a wave of "de industrialization". China has vigorously implemented the reform and opening-up policy, opened the door to foreign capital, equipment, technology, management and other production factors, combined with relatively rich domestic labor, land and natural resources, and rapidly formed large-scale manufacturing capacity and industrial clusters in coastal areas by means of Sino foreign joint ventures, wholly foreign-owned enterprises, "three supplies and one compensation" and OEM production. At the same time, domestic private industry has also sprung up. Especially after China's accession to the WTO in 2002, China has adapted to the international trade rules, strengthened reform and opening up, continuously optimized the investment, financing and business environment, attracted global multinational giants to settle in China, and contributed to China's rapid becoming a "world factory" and made in China for global marketing. China became the world's largest

exporter in 2009; Then it became the world's largest manufacturing country in 2010. According to the data of the United Nations Industrial Development Organization, China is the only country in the world with all manufacturing categories, and the added value of 22 major manufacturing industries ranks among the top in the world; Among the world's 500 major industrial varieties, there are about 230 products, ranking first in the world. According to Chen Min (2020), by the end of 2018, the added value of China's manufacturing industry had reached US $4002.75 billion, accounting for about 29.4% of China's total GDP and 28.7% of the world's manufacturing industry. In China, the traditional manufacturing industry has always been an important part of China's economic system and occupies a pillar position of China's economic development. However, since the reform and opening up, the traditional manufacturing industry has been operating in a labor-intensive production mode. Although the cost is low, the consumption of energy and the damage to the ecological environment are immeasurable. Today, with science and technology as the primary productive force, this production mode lags far behind the market development demand. The development trend of global economic integration has promoted the rapid development of science and technology, the emergence of high-tech industries, and the Internet and informatization have become the theme of today's world. The rapid development of digital economy makes e-commerce occupy the main position of current trade. Wang et al. (2019) believes that in the era of e-commerce, the openness and transparency of information enable customers to compare the products and services of different manufacturers. The e-commerce platform also allows enterprises with cost advantages to quickly occupy the market by reducing prices. Enterprises with technological advantages can also occupy a place in the market through product advantages, and ultimately vulnerable enterprises will quickly compete Eliminated by the market, the market competition will become increasingly fierce. However, the lack of information and the backward level of science and technology have led to the serious problem of product homogenization among manufacturers in China's traditional manufacturing industry. Therefore, transformation and upgrading has become an inevitable trend of sustainable development.

Research Question and Objective

Combined with the requirements of national macro quality management and micro quality management, based on the above background analysis and problem statement, how to solve these problems has become the focus of this study. Manufacturing enterprises must rely on effective quality management tools and high-level quality standards, and constantly innovate the quality management mode suitable for their own enterprises, so as to promote the high-quality, sustained and stable growth of manufacturing business performance. This study focuses on the impact of product quality management and manufacturing efficiency management on business performance, and explores the impact of product quality management and manufacturing efficiency management on business performance through the mediating role of quality effect.

Research Objectives

China's manufacturing industry is in an important historical period of transformation and upgrading. By innovating the quality management mode suitable for its own enterprises, relying on effective product quality management methods and high-level manufacturing efficiency management, China's manufacturing industry continues to promote the high-quality, sustained and stable growth of business performance of the manufacturing industry. This study explores the role of innovative quality management model in business performance from theoretical analysis and empirical research.

Significance of Research

By studying the impact of quality management on business performance under the new situation, this study explores the general research framework for the impact of enterprise quality management practice on business performance, in order to improve the development of quality management theory. From the perspective of enterprise management, this study can understand the current situation of the enterprise, timely adjust the resource investment of key elements of quality management according to the internal characteristics and environment of the enterprise, and scientifically allocate effective enterprise resources, so as to obtain competitive advantage. The research on the impact of manufacturing enterprise quality management on business performance is of great theoretical and practical significance.

LITERATURE REVIEW

Business Performance

Business performance is an important embodiment of the good operation and management of enterprises. Its measurement method is an important means to measure the effective operation of the internal management mechanism of enterprises. It is very necessary to build a theoretically feasible and suitable business performance measurement system for Chinese manufacturing enterprises. This study systematically combs the literature on manufacturing business performance measurement in the field of performance evaluation and quality management, so as to provide a theoretical basis for the construction of manufacturing business performance measurement system. In 2006, the state owned assets supervision and Administration Commission of the State Council issued the Interim Measures for the administration of comprehensive performance evaluation of central enterprises and the detailed rules for the implementation of comprehensive performance evaluation of central enterprises, which standardized the specific contents of business performance evaluation, guided the direction of enterprise operation and provided theoretical support for the construction of comprehensive performance evaluation of enterprises. An et al. (2009) believe that business performance refers to the degree to which an enterprise reaches specific goals, is a sign to measure whether the enterprise's operation and management is in good condition, and is the final embodiment of the enterprise's business objectives and performance. Liu et al. (2013) believe that scholars mainly define business performance from the perspective of process and result. In the field of quality management, the following two methods are generally recognized and used to measure business performance: one is to measure business performance with a single financial dimension; The other is to decompose performance into multiple dimensions (financial performance, quality performance, operation performance and innovation performance, etc.), and comprehensively measure business performance with two or more combinations.

Financial performance

When studying business performance in the field of quality management, financial performance is the earliest and most used measure. The measurement indicators generally include sales growth, sales profit margin, asset return, etc. Jiang and Su (2010) comprehensively measured business performance from four aspects: profitability, sales growth rate, market share and market share growth rate. Song and Su (2011) selected five indicators to comprehensively measure business performance: asset return, sales profit margin, sales growth, market share and market growth. Xiong and Feng (2012) selected sales revenue, total profit, sales growth and profit growth to comprehensively measure business performance. Jiang (2013) selected four indicators to comprehensively measure

business performance: sales growth, return on investment, increase in market share and comprehensive ability.

Comprehensive performance

Recently, many scholars comprehensively measure business performance from multiple dimensions to improve the comprehensiveness and accuracy of measurement. Song and Su (2008) comprehensively measured business performance from financial performance (economic value added, total profit, return on net assets, return on total assets, sales profit, etc.) and market performance (market share, market growth rate, sales growth rate, service satisfaction). Jiang and Su (2009) comprehensively measured business performance from quality performance (acceptance rate, durability, reliability, on-time delivery and customer satisfaction) and innovation performance (quality of R & D results, R & D cycle, R & D capability and R & D expenses). Zhao (2014) selected five indicators from financial, market performance and quality performance to comprehensively measure business performance. Zhang (2015) comprehensively measured business performance from quality performance (reliability, durability, versatility), operation performance (scrap rate, productivity and production cycle) and business performance (market share, return on assets and competitive position). Zeng and Wang (2017) comprehensively measured business performance from quality performance (one-time production inspection qualification rate, quality stability, customer satisfaction), financial performance (sales growth rate, profit growth rate, return on investment) and innovation performance (taking the lead in launching new products, including first-class technology, better reflection of improvement and innovation).

Development of product quality management

Product quality management is collectively referred to as quality management in manufacturing enterprises. The development of quality management has experienced three stages, including early quality inspection stage, medium-term statistical process control stage and total quality management stage. Stage I: quality inspection stage. It covers the period from the beginning of the 20th century to the end of the 1930s. Before this stage, most of the products were produced in small handicraft workshops, and the product quality depended on the experience and ability of craftsmen, which could only meet the needs of small-scale production in small workshops. After the industrial revolution, the emergence of large-scale factory production makes it difficult to meet the demand for large quantities of products. In The Principles of Scientific Management, Taylor (1911) advocated the separation of planning and implementation, the division of labor for employees according to different work functions, and the establishment of full-time inspection links, which gradually evolved into quality control and quality assurance departments in the subsequent development process. This stage is the primary stage of quality management theory, which is mainly manifested in the control of product quality through inspection. In 1924, Shewhart of Bell Laboratories first proposed process control with control chart, which is recognized as the origin of the basic principle of quality. In 1931, Shewhart published the economic control of quality of manufactured product, believing that variation exists in the quality fluctuation of the production process. With the improvement of the quality requirements of American military enterprises in the process of World War II, the statistical process control method has been greatly applied and popularized, and gradually adopted in civil enterprises and other countries after the war. Zhang (2012) believes that the main performance of this stage is to change from the previous post-mortem inspection to the combination of preventive quality control and post-mortem inspection, and pay more attention to the application of statistical tools, which is an important stage for quality management to mature. Wang (2017) found that

the existing research mainly focused on the relationship between quality management practice and performance by combing the literature on the relationship between product quality management and business performance. Zhu Wei and other scholars (2019) took the performance excellence model as the framework of quality management practice and studied the impact mechanism of performance excellence model on business performance. By combing the literature on the relationship between quality management practice and business performance, it is found that most scholars will classify quality management practice and performance, and generally divide quality management practice into basic practice and core practice. Among them, basic practice mainly refers to some non-technical behavior activities in enterprise quality management activities, such as leadership commitment, customer drive, strategic plan, employee relationship, etc. Core practice mainly refers to the technologies and processes directly related to enterprise production activities, such as product design and production, process management, supplier management, etc.

METHODOLOGY

Research methods

Empirical research pays attention to the universality of research objects, the objectivity of research questions and research data, and the scientific of research conclusions. Therefore, the research design of this study is as follows: Firstly, the research object is analyzed. According to the research theme and the essence of the research problem, the business performance of manufacturing enterprises is taken as the object of empirical research, so as to determine the approximate scope of research data collection. Using the literature research method, sort out the relevant literature of quality management, management quality, quality standards, standardized management, quality effect and manufacturing business performance, and put forward the research problems, objectives, significance, research framework and hypotheses. Secondly, the sample data required for the research are obtained by questionnaire research and analysis method. Finally, the hypotheses are tested by quantitative empirical research method. Literature research method mainly refers to the method of collecting, identifying and sorting literature, and forming a scientific understanding of facts through the study of literature. In reality, most studies are carried out on the basis of previous achievements, and this study is no exception. This study refers to a large number of relevant literature and works at home and abroad, and tracks and combs the relevant research literature on the relationship between manufacturing business performance evaluation, product quality management, manufacturing efficiency management and manufacturing business performance. Through the absorption and integration of the original literature, analysis and comment, understand the research status and deficiencies in relevant fields, and determine the theme of this research in combination with the urgent needs of quality improvement and quality power of Chinese manufacturing enterprises. Then, the key concepts, connotation and key elements of this study are deeply and systematically combed and studied. The focus is on the mechanism of product quality management and manufacturing efficiency management on business performance of manufacturing industry; Quality effect is the mediating role between product quality management, manufacturing efficiency management and manufacturing business performance; The mechanism of product quality management and manufacturing efficiency management on business performance of manufacturing industry.

Population/Sampling/Unit of Analysis

This study selects about 400 manufacturing enterprises in Wuxi, a city in the Yangtze River Delta, through multi-party data collection. All the questionnaires of this study were

obtained by anonymous means through Internet tools, and a total of 365 original data samples were obtained. Excluding the invalid questionnaires with incomplete or obvious errors, the effective questionnaire was 350, and the effective rate of the questionnaire was 95.8%. The survey questionnaire covers the grass-roots, middle-level and senior executives of enterprises. The survey involves state-owned enterprises, private enterprises and foreign (cooperative) enterprises. The age of enterprises ranges from half a year to more than 10 years. The design of this research questionnaire demonstrates the impact of manufacturing enterprise management on business performance through factor analysis, which is mainly based on the literature method. At the same time, it refers to the questionnaire in relevant research fields, and finally forms a complete questionnaire.

Instrumentation

In this study, the selection of variables and the determination of measurement scale mainly refer to the research literature at home and abroad to find the scale related to measurement variables. Based on the actual situation of Chinese high-tech enterprises in the digital economy environment, the measurement scale is adjusted and modified appropriately.

Reliability Analysis

Reliability, also known as reliability, refers to the reliability of the questionnaire. It mainly shows the consistency, consistency, reproducibility and stability of the test results. Reliability analysis is used to understand and analyze the stability and consistency of the scale indicators. A good measurement tool measures the same thing repeatedly, and its results should always remain unchanged before they are credible. In order to ensure the reliability of data, reliability analysis is generally carried out before data is used for analysis. The commonly used reliability analysis method is Cronbach coefficient method. In general, we mainly consider the internal reliability of the scale - whether there is high internal consistency between items. It is generally considered that the reliability coefficient is between 0-1. Cronbach coefficient method uses alpha coefficient to measure the reliability of internal consistency. The higher the alpha coefficient, the better the internal consistency. A good scale, its alpha coefficient is above 0.8, and the reliability of the scale is very good; Between 0.7-0.8 indicates that the reliability of the scale is acceptable; If the alpha coefficient of the scale is below 0.7, it indicates that the scale needs to be revised. This study was conducted by spss19 0 to test the questionnaire data and obtain the reliability analysis of business performance system. The results are shown in table 3-1 and table 3-2. From the data in the table, it can be seen that the alpha coefficient of the total table of the business performance index system is 0.87, greater than 0.8, indicating that the scale has high internal consistency.

Table 3-1 Case processing summary

		N	%
Case	Effective	350	100.0
	Excluded [a]	0	.0
	Total	350	100.0

Table 3-2 Reliability statistics

Cronbach's Alpha	Number of items
.876	4

Validity Analysis

Validity is also called validity. A good empirical analysis and research must be based on efficiency. In order to make the validity of the scale better, the data of the scale must reflect the content of the measured object. The evaluation of validity is generally measured from two aspects: content validity and structural validity. From the perspective of content validity, because the scales of this study are from mature scales at home and abroad, and have been reasonably revised according to their own actual situation, they have better content validity. From the perspective of structural validity, this section will use the exploratory factor method to analyze and test the structural validity of each variable. In the hypotheses test research, KMO (Kaiser Meyer Olkin) test statistic is an index used to compare the simple correlation coefficient and partial correlation coefficient between variables. KMO statistics are values between 0 and 1. When the sum of squares of simple correlation coefficients among all variables is much greater than the sum of squares of partial correlation coefficients, the KMO value is close to 1. The closer the KMO value is to 1, the stronger the correlation between variables is, and the original variables are more suitable for factor analysis. When the sum of squares of simple correlation coefficients between all variables is close to 0, the KMO value is close to 0. The closer the KMO value is to 0, the weaker the correlation between variables, and the less suitable the original variables for factor analysis. To evaluate the KMO value, Kaiser gives the common KMO measurement standard: when the KMO value is greater than 0.9, it is very suitable; It is suitable between 0.8-0.9; It is acceptable between 0.7 and 0.8; It is not suitable between 0.6-0.7; Poor between 0.5-0.6; Below 0.5 is not appropriate. Therefore, KMO value greater than 0.7 indicates that it is suitable for factor analysis, and less than 0.5 indicates that it is not suitable for factor analysis.

FINDINGS AND DISCUSSIONS

Based on the validity and reliability test of the questionnaire in paper three, this paper further analyzes the data of the questionnaire to verify the accuracy of hypotheses.

First of all, the respondents to the questionnaire, including the job status of the respondents, the nature of the respondent's unit, the age distribution of the respondents, the gender of the respondents, the size of the respondent's unit, the establishment time of the respondent's enterprise, the introduction time of the respondent's enterprise quality management system, etc., and gives a general introduction to the process and results of the questionnaire.

Profile of Respondents

The questionnaire was distributed to enterprise managers in the Yangtze River Delta. 400 questionnaires were distributed, 365 were recovered and 350 were effective, with an effective recovery rate of 87.5%.

Distribution of respondents' organizations

In the survey sample, 93 enterprises are state-owned or state holding enterprises, accounting for 27%; 164 enterprises are private or private holding enterprises, accounting for 46%; The affiliated enterprises are foreign-funded or foreign holding enterprises, accounting for 72, accounting for 21%, and the others are 22, accounting for 6%. See table 4-1 and Figure 4-1 for details.

Table 4-1 Statistics of respondents (organizations)

Items	Respondents	Number
1	Number of state-owned enterprises	93
2	Number of private enterprises	163
3	Number of foreign-funded enterprises	72
4	Number of other types of enterprises	22

Position of respondents

In the survey sample, 52 respondents were senior managers, accounting for 15%; 159 respondents were middle managers, accounting for 45%; 95 respondents were grass-roots managers, accounting for 27%; 20 respondents were general managers, accounting for 6%; There were 24 respondents in other positions, accounting for 7%. See Table 4-2 and Figure 4-2 for details.

Table 4-2 Statistics of respondents (positions)

Items	Respondents	Number
1	Grass roots management personnel	95
2	Middle manager	159
3	Senior management	52
4	General manager	20
5	Other	24

Regression analysis results of manufacturing efficiency influencing factors on enterprise performance: The regression analysis between the influencing factors of manufacturing efficiency management and business performance is carried out by using minitab160 software. The results are as follows: Regression analysis results of influencing factors of manufacturing efficiency management on business performance.

Table 4-14 Regression analysis results

Independent variable	Coefficient	std. error	T	P
Constant	21.806	2.645	8.25	0.000
Innovative culture	-1.6662	0.6377	-2.61	0.009
Innovation system	0.4402	0.6354	0.69	0.489
Innovation management	1.7542	0.9425	1.86	0.064
Innovation investment	-1.0963	0.9076	-1.21	0.228
Draw up a plan	3.0478	0.8683	3.51	0.001
Technology upgrading	0.5570	0.1371	4.06	0.000
Theoretical model	-0.1571	0.2301	-0.68	0.495
Technical method	0.5012	0.3284	1.53	0.128
Mass innovation	0.96943	0.08599	11.27	0.000
Brand strategy	1.9577	0.6122	3.20	0.002
Brand planning	0.0632	0.5601	0.11	0.910
Brand communication	1.3064	0.3630	3.70	0.000
Brand maintenance	-0.1543	0.3237	-0.48	0.634
Brand evaluation	2.8029	0.7133	3.93	0.000

Variance analysis

Table 4-15 ANOVA results

Source	df	SS	MS	F	P
Regression	14	273598	19543	125.39	0.000
Residual error	335	52213	156		
Total	349	325811			

According to the previous description and research theory, the following hypotheses are set:
H2: relevance of manufacturing efficiency management to business performance.
H2a: manufacturing efficiency management is positively related to business performance. Manufacturing efficiency management has a significant effect on business performance, and its effect is positive.
H2b: manufacturing efficiency management is not related to business performance. Manufacturing efficiency management has no significant effect on business performance, and its effect is irrelevant.
H2c: manufacturing efficiency management is negatively related to business performance. Manufacturing efficiency management has a significant effect on business performance, and its effect is negative.

Through the regression analysis of the influencing factors of manufacturing efficiency on business performance, it is concluded that among the influencing factors of manufacturing efficiency, innovation culture, planning, technology improvement, mass innovation, brand strategy, brand communication and brand evaluation have significant correlation with business performance. Through the correlation analysis between manufacturing efficiency management and business performance, it is concluded that the p value is < 0.05 and the correlation coefficient is 0.848. Manufacturing efficiency management plays a significant role in business performance. From the regression analysis between manufacturing efficiency management and business performance, enterprise performance = 29.3 + 0.568 (manufacturing efficiency). Manufacturing efficiency management has a significant positive correlation with business performance. It can also be seen from the normal probability diagram and histogram in the regression analysis chart that manufacturing efficiency management has a significant positive correlation with business performance, and conforms to the normal distribution. H2a is verified. The concepts of product quality management and quality management first appeared in the 1930s. With the industrial revolution and large-scale industrial production, they have experienced the stages of quality inspection, statistical process control and total quality management. However, after the development from quality management theory to total quality management, the development of creative quality management theory has encountered a bottleneck. At present, in the field of quality management, we pay more attention to the quality management practice model. Developing an innovative quality management model suitable for enterprise quality management is the direction of governments and enterprises all over the world. Therefore, governments should actively promote the national quality award policy and encourage enterprises to actively innovate in order to promote the development of quality management theory. This study uses empirical methods to make a comprehensive statistical analysis of product quality management, manufacturing efficiency management and business performance of manufacturing enterprises in China's Yangtze River Delta through the quality management model, so as to verify the impact relationship between the quality management model and business performance of manufacturing enterprises in China's Yangtze River Delta.
On the basis of literature review, this study defines the definitions of product quality management and manufacturing efficiency management, defines the measurement indicators of business performance, and defines the definition of mediator quality effect. Through investigation and interview with manufacturing enterprises in China's Yangtze River Delta, this paper investigates the quality management and business performance of enterprises, analyzes the relevant concepts and components, and develops a measurement scale for measuring quality management. Through empirical analysis, it is verified that the

quality management measurement scale has good reliability and validity. According to the proposed hypotheses, the data are empirically analyzed by using the methods of correlation analysis, regression analysis and structural equation to verify the measurement scales of various concepts and the hypotheses involved in the research framework. Secondly, this study focuses on the mediating role in product quality management, manufacturing efficiency management and business performance. This study provides the hypotheses of product quality management, manufacturing efficiency management, quality effect and business performance of manufacturing enterprises in China's Yangtze River Delta. This study constructs a research framework for the role relationship of "enterprise management quality effect business performance", and makes an empirical study on the research framework and hypotheses through correlation analysis and structural equation model. Finally, combined with the above research and analysis, this paper summarizes the main conclusions and innovations, gives the management enlightenment of this research conclusion, and finally points out the shortcomings of this research and the future research direction. Based on the research results of quality effect on business performance of manufacturing enterprises in China's Yangtze River Delta, this study studies the influencing factors of quality effect on business performance of manufacturing enterprises, and the research purpose is achieved on the whole.

CONCLUSION

Through empirical analysis, this paper makes a comprehensive analysis on the relationship between product quality management, manufacturing efficiency management and business performance of manufacturing enterprises. In this process, the basic data were collected by questionnaire, and statistical analysis was carried out by spss19.0 software and minitab16.0. This study verifies the relationship between product quality management, manufacturing efficiency management and enterprise performance, and the mediating role of quality effect in product quality management, manufacturing efficiency management and business performance. Through research, product quality management has a positive correlation with business performance, and the hypothesis (H1a) has been verified. Manufacturing efficiency management has a positive correlation with business performance, and the hypothesis (H2a) has been verified. Quality effect plays a mediating role in product quality management, manufacturing efficiency management and business performance, and the hypothesis (H3a) has been verified.The questionnaire was distributed to different levels of management of manufacturing enterprises. A total of 365 original data samples were obtained. Excluding the invalid questionnaires with incomplete or obvious errors, there were 350 valid questionnaires, and the effective rate of the questionnaire was 95.8%. The people who fill in the questionnaire cover the grass-roots, middle-level and senior executives of enterprises. The survey involves state-owned enterprises, private enterprises and foreign (cooperative) enterprises, and the age of enterprises ranges from half a year to more than 10 years. The author mainly sends e-mail to the management of manufacturing enterprises and managers in the field of quality under the condition of consent. Firstly, based on the literature review, this study defines the definition of quality effect, and investigates the quality management and business performance of manufacturing enterprises by means of questionnaire and in-depth interview. Through the analysis of relevant concepts and components, the measurement scale of the impact of quality effect on business performance of manufacturing enterprise management is developed. Through empirical analysis, it is verified that the developed investigation scale of the impact of quality effect on business performance of enterprise management has good reliability and validity. According to the proposed hypotheses,

design and improve the quality effect of enterprise management on business performance evaluation survey scale, empirically analyze the data by using correlation analysis, regression analysis and structural equation methods, test and form the measurement scale of each concept, and verify the hypotheses involved in the research framework.

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