THE ROLE OF TRAINING AND EDUCATION IN IMPROVING THE ORGANIZATIONAL PERFORMANCE: CASE STUDY IN GRAIN PROCESSING INDUSTRY

[1]ZHU BINGQING, [2]HAYATI HABIBAH ABDUL TALIB, [3]ZHANGYUE

[1]Razak Faculty of Technology and Informatics, UniversitiTeknologi Malaysia, Malaysia
College of Life Science, Hengshui University, China
[2]Razak Faculty of Technology and Informatics, UniversitiTeknologi Malaysia, Malaysia
[3]Hebei Pangu Food Co., Ltd., China
E-mail: [1]bingqing@graduate.utm.my, [2]hayati@utm.my, [3]1193866900@qq.com

Abstract - This study aims to investigate the impact of training and education on organizational performance in the grain processing industry in China. The research is conducted using quantitative methods, with data collected through interviews, questionnaires, and documentation from Hebei Pangu Food Co., Ltd. The study hypothesizes that training and education can positively influence organizational performance, specifically by reducing production costs, improving product quality, and increasing employee satisfaction. Results of the study are analyzed using Partial Least Square (PLS) technique. Findings can be useful for government and business leaders to encourage investment in employee training and education, leading to enhanced company performance and economic growth.

Keywords - Training and Education, Organizational Performance, Grain Processing Industry

I. INTRODUCTION

China is one of the world's largest producers and consumers of grain products. The grain processing industry is an important sector of the country's food industry, which is a significant contributor to the country's economy. As of 2021, the grain processing industry in China accounts for about 35% of the country's food processing industry and about 3% of its national economy. Moreover, the industry plays a vital role in China's food security and provides numerous job opportunities for its citizens.

In recent years, China's grain processing industry has shown steady growth, driven by factors such as rising demand for processed grain products, increased investment in technology and innovation, and government policies aimed at promoting the development of the industry. The industry has undergone significant consolidation, with larger companies dominating the market and smaller ones struggling to compete. The top players in the industry include COFCO, Wilmar, and GrainCorp, among others[1]. However, despite the growth and consolidation of the industry, it has faced some challenges on their organizational performance, such as high operating costs, low productivity and quality concerns. The government has implemented various policies to address these challenges and promote sustainable development in the industry.

Organizational performance is closely linked to the implementation of the performance process, meaning that factors such as leadership, training and education, customer focus and supplier management, cannot be separated from organizational performance. Training and education play a crucial role in improving the organizational performance of any industry. In the case of the Grain Processing Industry, where the competition is fierce and the margins are tight, it is essential for the industry to invest in the training and education of its employees to remain competitive.

The Grain Processing Industry is a complex industry that involves a range of processes, including milling, processing, and packaging of grains such as wheat, corn, and rice. These processes require skilled workers who have a thorough understanding of the machinery and equipment used in the industry, as well as knowledge of food safety regulations, quality control, and inventory management[2].

This study aims to describe and analyze the impact of training and education dimension on organizational performance in grain processing industry in China. The research seeks to provide additional knowledge and serve as a reference for the impact of training and education on organizational performance, particularly in the agro-industry sector. The findings of this study can be beneficial for government and business leaders to encourage training and education for their employees and improve the productivity of their workforce, leading to enhanced company performance and economic growth.

II. LITERATURE REVIEW AND HYPOTHESES

A. Training and Education

Training and education provide employees with the necessary professional knowledge, skills, and abilities to effectively perform their roles and responsibilities, diagnose and solve problems in their daily work, and

ultimately contribute to the achievement of the organization's goals, visions, and missions[3]. Above all it emphasized the importance of training in ensuring that workers have the abilities and information needed to do their jobs.

B. Organizational Performance

Organizational performance is a complex and multifaceted concept that has been studied extensively in the academic literature. It is generally defined as the degree to which an organization is able to achieve its goals and objectives, and is often measured by a variety of factors including financial performance, productivity, customer satisfaction, employee engagement, and innovation[4]. There is broad agreement that organizational performance is influenced by a range of factors, including organizational structure and culture, leadership, human resource management practices, and external factors such as market conditions and competition[5].

C. Research Hypotheses

Investing in the training and education of employees can be a critical strategy for enhancing organizational performance[6]. Through training, employees can improve their skills and knowledge, leading to increased efficiency and productivity in the workplace which can result in better output, reduced costs, and increased profits for the organization. Furthermore, training and education can elevate the quality of products and services offered by the organization. By providing training on food safety regulations and quality control, the organization can ensure that its products meet the highest standards, thereby fostering customer loyalty and bolstering its reputation in the market. Importantly, investing in the training and education of employees can also have a positive impact on employee retention and morale. When employees feel valued and invested in, they are more likely to be engaged and committed to their work, leading to lower turnover rates, reduced recruitment costs, and a more positive workplace culture.

Based on the explanation above, several hypotheses to be tested in this study are as follows:

H1: Training and education has a positive impact on organizational performance

H1a: The training and education variable can reduce production costs.

H1b: The training and education variable can improve product quality.

H1c: The training and education variable can improve employee satisfaction.

III. METHODOLOGY

A. Data Collection

The research is quantitative research using hypothesis testing to test the independent variable which is training and education on organizational performance. Hebei Pangu Food Co., Ltd. is chosen because the company has the FSSC 22000 certification, and attaches great importance to training and education. The company conducts monthly training on food quality and safety as well as organizational culture.It's also the technology-based small and medium-sized enterprises (SMEs) in Hebei Province which is supported by national policies and is preparing to apply for high-tech enterprise certification. Research data are collected through interviews, questionnaires, and documentation. Respondents are thewhole employees of the company who answer the questions using a Likert scale of 1-7, ranging from strongly disagree (1) to strongly agree (7)[7]. Measurement of the variables and indicators can be seen in Table 1. Questionnaires are tested using the validity and reliability test and analyzed using Partial Least Square (PLS) technique.

Variables			Definition of Measurement	Scale
X	Training and Education(TE)	TE1	Food hygiene and safety	Likert
		TE2	Quality tools and techniques	
		TE3	Organizational culture	
Y	Organizational Performance(OP)	OP1	Reduced production costs	
		OP2	Improved product quality	
		OP3	Improved employee satisfaction	

Table 1
Measurement Variable Description

IV. RESULTS AND DISCUSSION

The questionnaire respondent data collected have represented the company from top to bottom management and from various gender, age, education, and length of work with 35 respondents. Regarding gender, the majority of the members are female at 74.29%, while male only represented 25.71%.As for the age, 31.43% aged less than 35 years old, 37.14% are 36-45 years, and the remaining 34.43% are more than 45 years old. For the length of work, 71.43% of employees have worked for 1-3 years, 11.43% have worked for 3-5 years, and 17.14% have worked for more than five years. Meanwhile, the highest level of education is 77.14% with a highschool graduates, 14.29% graduated from junior college, and 8.57% with a Master's degree or above.

A. Construct Reliability and Validity

Code	Cronbach Alpha	CR	AVE
TE	0.773	0.921	0.796
OP	0.873	0.866	0.685

Table 2
Cronbach Alpha CR and AVE

Based on Table 2 above, the Cronbach alpha value is above 0.7. This indicates that the values of TE and OP are reliable.

All of the reflective measures fulfill the recommended levels concerning composite reliability (CR) and average variance extracted (AVE). As shown in Table 2, all CR are higher than 0.70, AVE are higher than 0.50, as recommended by Fornell and Larcker (1981). AVE should be greater than 0.50 meaning that 50% or more variance of the indicators should be accounted for[8].All the values of CR and AVE are considered satisfactory, with CR at 0.866 or above and average variance extracted at 0.685 or above.

B. Convergent Validity

Code	Outer loading	Evaluation
TE1	0.730	Valid
TE2	0.913	Valid
TE3	0.830	Valid
OP1	0.921	Valid
OP2	0.828	Valid
OP3	0.924	Valid

Table 3
Outer loading

Table 3 is the process for measuring each of the indicators.An indicator is said to have good reliability if the outer loading value for each indicator is > 0.70[9]. The results of Table 3 show that the outer loading values are all above 0.70.

C. Discriminant Validity

1) Fornell and Larcker Criterion

Code	OP	TE
OP	0.892	
TE	0.470	0.828

Table 4
Fornell and Larcker Criterion

The Fornell-Larcker criterion is a method for assessing the construct validity of a structural equation model (SEM)[10]. It evaluates the adequacy of the measurement model of an SEM by calculating the Average Variance Extracted (AVE) for each latent variable and its correlations with other latent variables. If the AVE for each latent variable is greater than its correlations with other latent variables, then the measurement model for that latent variable is considered to have good construct validity. According to Table 4, the measurement model has a good construct validity.

2) Cross Loading

Code	TE	OP
TE1	0.730	0.253
TE2	0.913	0.469
TE3	0.830	0.400
OP1	0.504	0.921
OP2	0.339	0.828
OP3	0.385	0.924

Table 5
Cross loading

Table 5 is used for checking discriminant validity other than the above criteria. If an indicator has a higher correlation with other latent variables than with its own latent variable, then the fit of the model must be reconsidered[10]. Table 5 shows that the indicator is suitable, because there is no higher indicator with other latent variables.

3) HTMT

Heterotrait-Monotrait Ratio of Correlations (HTMT) is a ratio of the average correlation between the indicators of one construct (the heterotrait correlations) to the average correlation between the indicators and the other constructs in the model. The HTMT value ranges from 0 to 1, with a value less than 0.85 indicating good discriminant validity between the constructs[10].

The HTMT values is 0.534 which is below the level of 0.85, thereby providing evidence of discriminant validity.

D. Result

1) Coefficient of determination (R square)

Construct	R square
OP	0.321

Table 6
R square

An R^2 value greater than 0.67 for endogenous latent variables is considered to have practical value. An R^2 value of around 0.33 indicates moderate explanatory power, while an R^2 value of around 0.19 indicates weak explanatory power[11]. The R^2 is 0.321 which means moderate explanatory power.

2) Path Coefficients

The individual path coefficients of the PLS structural model can be interpreted as standardized beta coefficients of ordinary least squares regressions[12]. Just as with the indicators' weights and loadings, each path coefficient's significance can be assessed

by means of a bootstrapping procedure. The result shows <0.001 from TE to OP which showing the hypothesized direction empirically support the proposed causal relationship, which means TE has a positive relationship to the OP and is significant.

3) Effect Size (f square)

An f^2 value greater than 0.35 for variables is considered to have strong effects. An f^2 value of around 0.15 indicates moderate effect, while an f^2 value of around 0.02 indicates weak effect[13]. The f^2 is 0.283 which shows a nearly strong effect.

4) Construct Cross-validated Redundancy(Q^2)

Another assessment of the structural model involves themodel's capability to predict. The predominant measure of predictive relevance is the Stone–Geisser's Q^2, which postulates that the model must be able to adequately predict each endogenous latent construct's indicators. The Q^2 value is obtained by using a blindfolding procedure. Q^2 comes in two forms − the cross-validated redundancy and communality.

The cross-validated redundancy is recommended. If an endogenous construct's cross-validated redundancy measure value (Q^2) for a certain endogenous latent variable is larger than zero, its explanatory latent constructs exhibit predictive relevance. For this study the Q^2 is 0.148 which is larger than zero[14]. So, it means the model is able to adequately predict each endogenous latent construct's indicators.

V. CONCLUSION

This research has succeeded in contributing variables that affect the operational performance of grain food industry. Training and education was defined at the beginning, Based on the research, the findings of the research suggest that strengthening training and educationis key factor in promoting the organizational performance. The study shows that training on food hygiene and safety, quality tools and techniques and organizational culture has a direct effect on reducing production costs, improving product quality and Improving employee satisfaction.

Based on these findings, it is recommended that companies in the grain processing industry in China invest in the training and education of their employees to improve their skills and knowledge, and ultimately enhance organizational performance. Additionally, the government can play a role in promoting training and education in the industry by providing incentives and support for companies that prioritize employee training and education. Finally, further research is needed to explore the specific training and education programs that are most effective in enhancing organizational performance in the grain processing industry in China.

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