

Research on the Willingness and Influence Mechanism of Industrial Workers' Skill Training from the Perspective of Individuals----An Empirical Study Based on the Binhai Industrial Park in the South of Ningbo

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Abstract: Through the online data survey and field visit survey of industrial workers in Ningbo Binhai Industrial Park, based on the survey data, the relationship between different influencing factors and vocational skills training willingness and the underlying mechanism were analyzed and discussed. The research results show that: education level, monthly income, job position and skills training during work have a significant impact on the willingness of vocational skills training; gender, age, participation in induction training and other factors have no significant relationship with the willingness of industrial workers to vocational skills training. In terms of the direction of influence, the wage level is positively correlated with the willingness of industrial workers to receive vocational skills training, while the education level is positively correlated at first and then negatively correlated. The willingness of industrial workers to be trained in technical positions is significantly higher than that of other positions. In general, industrial workers agree with the policy of "improving vocational skills training". In the future, under the guidance of the "14th Five-Year Plan for Vocational Skills Training", we should vigorously carry out job skills upgrading training for industrial workers, further improve, implement, and integrate the tripartite resources of the government, the market (enterprises), and the society, and unblock communication channels, give full play to the power of trade unions, actively explore the practice of building characteristic colleges, and promote the healthy development of the vocational skills training system.

1. Introduction

At present, the deep integration of technological innovation and the real economy drives the transformation and upgrading of traditional industries, resulting in an increasing gap in the number of high-quality skilled talents. Industrial workers, as an indispensable part of the high-quality skilled personnel, are important participants in national economic activities, and also an important service object for us to expand middle-income groups to achieve common prosperity. By the end of 2020, the total number of skilled laborers in the country exceeded 200 million, accounting for 26.8% of the employed population; however, the proportion of highly skilled laborers was not high,

accounting for 7.5% of the total number of employees, only 58 million. (Data from the Ministry of Human Resources and Social Security in 2021) ^[1]. At the end of 2021, with the approval of the State Council, four ministries including the Ministry of Human Resources and Social Security jointly issued the "14th Five-Year Plan for Vocational Skills Training". The "Plan" expounds the basic principles of vocational skills training and proposes five key tasks for skills training in the next five years. It is the first special plan for vocational skills training compiled at the national level and will greatly promote the development of vocational skills training in our country.

2. Vocational Skills Training for Industrial Workers - Propositions and Demands

2.1 Vocational Skills Training and "Common Prosperity"

The report of the 19th National Congress of the Communist Party of China clearly stated that it is necessary to improve the quality of employment and the income level of the people, promote the equalization of basic public services, and expand the middle-income group. According to the previous experience of the distribution of national income in the "olive" society, industrial skilled workers should become an important part of the middle-income group. At present, China is in a period of transformation and upgrading of the real industry, which creates an opportunity and channel for some industrial workers to enter the middle-income class by improving their vocational skills. Vigorously promote the cultivation of technical industry workers in the new era, further increase talent training, provide vocational skills training that meets market demand, and continuously improve the skills of workers, not only to alleviate the mismatch between employment supply and demand, and to achieve more adequate and higher quality employment. It is an inevitable requirement for expanding the size of the middle-income group, and it is also a key focus for promoting common prosperity.

2.2 Vocational Skills Training from an Individual Perspective

The domestic academic circles have carried out a lot of discussions on the vocational skills training of industrial workers, which can be basically divided into three categories: one is the exploration of the policy construction of the skill society in the macro sense, the dilemma, the reasons and the path mechanism of the vocational skills training of industrial workers, such as Qu Liangui (2022) ^[2], Ji Li Zhe, Zhang Shuyong (2021) ^[3], Zhou Wenhui, Yuan Hongbo (2021) ^[4], Chen Dawei, Lu Yuxuan, Liu Jie, Li Ping (2021) ^[5], Yang Ping, Jinbo, Qi Hanmei (2020) ^[6] analyzed the current difficulties and reasons in the vocational skills training of industrial workers from multiple dimensions and levels, and proposed to purchase training services based on the government, establish long-term Implementation paths such as school-enterprise cooperation, improving the degree of organization and sense of belonging of industrial workers; policy recommendations for building skills and social security policies. The second category is to specifically study a certain aspect of industrial worker training, such as Wang Huirong and Liu Hongtao (2020) ^[7], Lang Di, Wu Wei (2021) ^[8]; Yu Yang (2021) ^[9]; Qian Sheng (2021) ^[10], etc. from establishing a control mechanism for industrial worker skills training, innovating vocational skills appraisal models, establishing vocational skills The training evaluation system and the training of skills training teachers have put forward new ideas for the skills training of industrial workers. The third category is comparative research, for example, the research group of the Institute of Social Development of the National Development and Reform Commission (2019-2020) ^{[11][12][13]}, Shao Chenglin, Yuan Min, Wang Shujing (2019) ^[14] studied Japan, the United States, Germany and other countries' industrial workers' skill formation system, vocational education, and vocational training enlightenment and reference for the improvement of industrial workers' skills in China.

To sum up, we can see that domestic scholars have conducted multi-layered research on the difficulties, problems, paths and practices in industrial worker skills training; policy construction of industrial worker skills training and comparative research at home and abroad. From the perspective of industrial workers, this paper examines their willingness and attitude towards vocational skills training from the psychological level, as well as the influencing factors and mechanisms behind them. In the context of the accelerated transformation and upgrading of manufacturing in China and the vigorous promotion of vocational skills training for industrial workers at the national level, it is urgent to find out the real attitudes and demand preferences of front-line workers towards vocational skills training through on-the-spot investigation, so as to provide a realistic basis and policy reference for the implementation of the "14th Five-Year Plan for Vocational Skills Training".

3. Sample Introduction and Basic Statistical Analysis

3.1 Selection of Samples

This survey selects 6 enterprises in Ningbo Binhai Industrial Park as the scope of investigation, of which 3 are large scale enterprises, one is a listed company, and 3 are medium-sized enterprises. One of the reasons for choosing this research sample is that Ningbo's positioning for the development of the real economy makes it exemplary: to develop high-quality manufacturing, create new advantages for real enterprises, and improve the overall vocational skills of industrial workers. Ningbo City issued the "Implementation Opinions on Cultivating a New Era of Ningbo Craftsmen at a High Level" in 2021, proposing that by 2025, the overall goal of Ningbo's total number of skilled laborers and the number of high-skilled talents will be in the leading position in similar cities in the country, and to achieve The goal is to formulate "8 major actions, 25 measures". The second is that the author believes that industrial workers in large-scale enterprises should become the forerunners and demonstrators of entering the middle-income group through skill upgrading. Binhai Industrial Park is located in Yinzhou Economic Development Zone, Ningbo. It is a key industrial park built by Ningbo. There are traditional enterprises as well as high-tech enterprises. It brings together a large number of industrial functions and has a certain representativeness. From October 2021 to April 2022, the research group used a random sampling survey method to distribute online questionnaires, and a total of 493 valid questionnaires were recovered. Combined with field investigations, in-depth visits to enterprises, dialogues with workers, discussions and exchanges with relevant supervisors in charge of production and human resources at the base, mutual verification between quantitative research and qualitative research, to ensure the scientificity and rigor of the investigation and research.

3.2 General Descriptive Analysis

The basic situation of the survey shows that in terms of gender, there are 314 males, accounting for 63.49%, and 183 females, accounting for 36.51%. In terms of occupation type, there are 334 general employees, 75 technical personnel, and 88 management personnel, accounting for 66.94%, 15.21%, and 17.85% respectively. In terms of age distribution, those aged 26-35 were the most, accounting for 44.47%, followed by those aged 36-45, accounting for 27.36%. Employees under the age of 45 account for 92.35% of the total. It can be seen that the young people born in the 1980s and 1990s have become the main force of industrial workers in the park. In terms of educational level, 46.25% are junior high school and below, 25.15% are high school (secondary secondary school, vocational school), 17.24% are junior college, and 11.36% are undergraduate and above, which is the same as the national average for industrial workers (10.6%) roughly the same, but it does not match the industrial level and positioning of Ningbo. From the perspective of income,

66.53% of employees have a monthly income of 3,000-6,000 yuan, and 25.15% of employees with a monthly income of 6,000-9,000 yuan. It is lower than the national average income of manufacturing industry workers of 11,000 yuan. Considering the consumption level and housing prices in Ningbo, the income level of industrial workers is relatively low, which seriously limits the improvement of industrial workers' spending power. We found that part of the reason for this situation through the later field survey is that the national average income includes the total of other incomes such as "five insurances and one housing fund", and the data in the questionnaire survey was filled in by many people's net income.

4. Statistical Analysis

4.1 Over 90% of Industrial Workers have Participated in Skills Training

The results of the questionnaire analysis show that the positive attitudes of industrial workers towards skills training are highly consistent. More than 80% of them are willing to participate in education and vocational skills improvement training, while 13.18% of them are "it doesn't matter", and the two together reach 96.96%. 72.41% of industrial workers have participated in short-term pre-employment training, 60.24% of industrial workers have participated in vocational skills improvement training during the work process, and 32.45% of industrial workers have participated in training to improve cultural literacy. Both sets of data show that in the context of building a skilled society and an army of skilled workers, industrial workers, enterprises, governments, and society, as consumers and suppliers of vocational skills training services, have all recognized the importance and urgency of this work. From the perspective of industrial workers, with the economic transformation and industrial upgrading, the labor demand of enterprises has undergone structural changes, from recruiting a large number of general workers to a large demand for skilled workers with corresponding vocational skills. If workers do not charge their own vocational skills, it is difficult to get the ideal job again and even face the risk of unemployment.

4.2 More than 60% of Industrial Workers most want to Participate in Job Professional Skills Training

When asked "what kind of training do you most want to participate in", the top priority is to improve the professional skills of the job, 66.33% of industrial workers choose this; the next is "interpersonal and communication skills", "professional Management knowledge" was 48.07% and 46.2% respectively; followed by "on-the-job education improvement", "career planning policy interpretation" and other needs. This shows that in addition to job skills training, industrial workers born in the 1980s and 1990s also pay attention to the all-round development of "people". They don't regard themselves as a tool person, but make plans for the whole life cycle development of their careers, expecting themselves to have decent employment and decent work.

4.3 Social, Government and other Departments do not Really Play a Role in the Training of Industrial Workers

According to the survey on the training methods of industrial workers, 76.88% of industrial workers received training organized by their own units, and the second and third places were universities, vocational schools and other educational institutions accounting for 9.53%, and social training institutions and organizations accounting for 8.32% of the total, and the rest are trainings organized by government departments such as labor unions and trade unions. When we add up all the last three items, it is less than 30%. From this set of data, we can find that industrial workers

receive less training from the government. On the one hand, the government has invested a lot of manpower and material resources in the vocational training of industrial workers and has a first-class training base for high-skilled talents as a guarantee. In the later visit, it was found that the government of the development zone where the park is located has organized organizations including human resources, labor unions, training institutions and other organizations to provide vocational skills training, and equipped with supporting policies such as funds and venues. On the other hand, industrial workers have not received matching vocational skills training, which is far from the original intention of the government. This phenomenon may be caused by government departments or may be related to the indifference of industrial workers themselves, which needs to be further confirmed in later data analysis.

4.4 The Lack of Smooth Training Information is an Important Obstacle for Industrial Workers to Receive Skills Training

The results of the survey showed that when asked, "What difficulties do you encounter in learning and training?", 34.48% of the respondents chose "can't find a suitable training institution", 26.17% of the respondents chose "lack of convenient channels to obtain information on education and training programs". From this set of data, we can see that there is a big problem in the smoothness of the communication channel of training information. Only 6.69% of them were "not supported by their company", which further shows that enterprises have deeply realized the importance of vocational skills training for workers. There are also many factors of their own, 29.82% choose the study cost is too high, 37.5% choose "their own learning foundation is poor", and 22.92% choose "lack of motivation and perseverance to study". It can be seen that 59.4% of industrial workers choose too little time for training, which is the option with the highest ratio among all difficulties. The contradiction between work and study is the contradiction of all adult learning, and it is inevitable to a certain extent. Only by doing a good job in other channels can positively improve the internal driving force of industrial workers and enterprises for training, and provide education assistance measures, including economic and knowledge-based measures, and in the opposite direction, reduce industrial workers receiving training obstacles, such as the smooth flow of information and channels for training.

4.5 Educational Level, Job Position, Monthly Income, Study Status and Training Experience are the Main Factors Affecting the Willingness of Industrial Workers to Train

Attitude is a stable psychological tendency that an individual holds towards a specific object (person, idea, emotion or event, etc.). This psychological tendency contains the subjective evaluation of the individual and the resulting behavioral tendency, and the formation and change of attitudes are closely related to individual characteristics and experience in solving situational problems^[15]. The attitude of industrial workers towards vocational skills training is shown in the table below:

Table 1: Attitudes of industrial workers towards vocational skills training

Option	Subtotal	Ratio
willing	413	83.77%
unwilling	15	3.04%
It doesn't matter	65	13.18%
Number of valid fills in this question	493	

In order to further examine the influencing factors of employees' participation in skills training, the gender, age, education, monthly income, job position, current learning status, whether they have

participated in induction training and whether they have participated in skills improvement during the work process will represent the individual characteristics of industrial workers. Training and other aspects and the data in the above table use spss to conduct correlation analysis, and combine the content of fieldwork to explore the meaning behind it. The correlation data are shown in Table 2 below:

Table 2: Correlation analysis table of various factors of occupational training attitude of industrial workers

Correlation Analysis Work	Gender	Age	Education level	Monthly Income	Jobs	Study status	On-the-job training	On-the-job skills training
Significance coefficient	0.071	0.873	0.020*	0.017*	0.002**	0.001**	0.202	0.002**

*Significantly correlated at the .05 level (two-sided), **. Significantly correlated at the .01 level (two-sided)

According to the data analysis, we can conclude that the two-sided significance coefficient of educational level, monthly income, job position and training experience on the attitude of industrial workers to skill training is less than 0.05, which is significantly correlated. The induction training in the training experience has no correlation with the skills training attitude of industrial workers, and the influence factor of participating in the skill improvement in the work process has a strong correlation with the attitude, and its significance level is at 0.01. Combined with specific data for further analysis and explanation: In terms of gender, the willingness of 86.0% males to receive education and skill improvement training is slightly higher than that of females 80.3%, but there is no significant difference between the two directly. In terms of age, the proportion of industrial workers under the age of 45 who are willing to participate in skill upgrading training is above 80%. In particular, the willingness ratio at the age of 36-45 is close to 90%, and then with the increase of age, the willingness to learn drops to 73%, although there is no significant correlation between the analysis of various age groups. However, from the specific data, we can still see a relatively watershed time turning point.

The two influencing factors of educational background and monthly income are significantly correlated with the willingness of industrial workers to vocational training. From the specific data analysis, the training willingness increases with the increase of the educational level, until the college level reaches the maximum value of 92.9%, and then presents a reverse feedback as the educational level increases, falling to 85.7%. The income level and training willingness are positively correlated. The higher the income, the stronger the training willingness. When the monthly income is more than 10,000 yuan, the learning willingness reaches 100%. From these two sets of data, it is shown that 42% of industrial workers at the college and high school level have a strong willingness to learn. They are the largest potential group that can become a middle-income group through skill improvement. In skills training, their needs are the first consideration should be given.

In terms of jobs, technicians and managers above the middle level are more willing to improve vocational skills. We found from the discussion and survey that many grass-roots managers are promoted from ordinary employees. First, their working hours are similar to those of ordinary employees, and they are relatively busy. Second, their educational background is relatively low and they are also engaged in management work, so they are not very willing to improve their skills. Technicians can help them improve their work efficiency through skills training, which is related to their career development, so they have a strong willingness to improve skills training.

From the perspective of learning status, there is a very obvious linear trend. The stronger the

initiative in learning, the more willing to participate in vocational skills training, showing a strong positive correlation. Judging from the data, 41.0% of the industrial workers who are willing to participate in skill improvement training often actively learn, and only 1.0% have few thoughts of learning.

Judging from the influencing factor of training experience, there is no significant correlation between induction training and training willingness, but if you have participated in skill training at work, it has a strong positive correlation with training willingness. This may be explained by the fact that participation in induction training is organized by the enterprise and has little to do with the personal wishes of industrial workers, so it does not have much impact on his future vocational skills training willingness. Participating in vocational skills training during work is based on their own work practices, realizing that with the improvement of vocational skills, work efficiency and wages will be improved, so they are more inclined to improve their vocational skills for better returns. From the specific data, if he has vocational training experience in his work, his willingness to training will increase by 13.5 percentage points, showing a strong positive correlation.

In general, the vast majority of industrial workers are willing to receive vocational skills training, and enterprises and relevant state departments have fully realized the importance of vocational skills improvement. However, due to their own conditions and the current problems of vocational skills training in China, such as poor practicability, short training time and poor communication channels, their willingness to actively participate in vocational skills training is not strong.

5. Conclusions and Recommendations

5.1 Efforts should be Made to Improve the Policy Guarantee of Vocational Skills Training, Open Up Channels for Vocational Skills Training - Vocational Skills Recognition - Income Improvement, and Stimulate the Internal Drive of Industrial Workers to Participate in Vocational Skills Improvement

Based on the field investigation, the research team also learned that under the current form, basically, companies welcome and encourage industrial workers to participate in vocational skill improvement training, and some companies even have “CEO-level” leaders in charge of training matters. However, it is also found that the improvement of work skills brought by the participation of industrial workers in training is not naturally reflected in their income, but depends on the attitude of each enterprise. Our survey found that if there is a strong positive correlation between the skills improvement of workers in this industry and economic income, and workers have clear economic expectations for participating in skills training, then the willingness of workers in this enterprise to improve their skills will be very strong. This can not only promote the cultivation of the company's talent team, accelerate the transformation and upgrading of the company, but also play a positive role in promoting the construction of high-quality industrial workers. The government should do the supporting work of policies and improve the training mechanism, evaluation mechanism and incentive mechanism of skilled talents; as the main body of labor, enterprises should handle the dialectical relationship between immediate interests and long-term interests. On the one hand, it is necessary to strengthen the training of industrial workers to improve their skills. On the other hand, under the guidance of relevant policies, skill improvement should be linked to the wage level of industrial workers. Only by truly caring about the real needs of industrial skilled talents - an income system that can reflect its own skills and quality to reflect the economic and social value it creates, and is respected and recognized by the society, in order to better stimulate the development and creativity of industrial skilled talents.

5.2 Under the Basic Construction of the Supply Pattern of Vocational Skills Training Led by the Government, the Main Body of Enterprises, and the Participation of Trade Unions, Further Implement and Implement Training Policies, Smooth the Communication Channels between the Three, and Reduce Obstacles for Industrial Workers to Participate in Vocational Skills Improvement

The "14th Five-Year Plan for Vocational Skills Training" proposes five aspects: strengthening overall planning and organizational leadership, increasing training investment, strengthening management services and supervision, promoting international cooperation, and creating a good atmosphere for development. Implementing the guarantee work requirements has a positive guiding role in rationalizing the responsibilities of all participants, especially government departments, in the skills training system. During our investigation, we also found that there is a problem of multiple management in the specific implementation of the policy. There are many departments that organize training, and there is a relationship between enterprises and industrial workers as the recipients of skill improvement training and the organizers of training providers. It is a one-way process, and industrial workers often cannot end up finding the training information they need. Build a unified training information query platform for training recipients or a solution path, organizations participating in vocational skills training, including trade unions, other social organizations, and training institutions, can combine their own advantages to promote their own training programs to improve training quality and provide a unified platform for industrial workers to find suitable training information.

5.3 Give Full Play to the Role of Workers' Own Organizations - Trade Unions, Open Up the Last Mile of Industrial Workers' Professional Skills Improvement, and Explore Practical Paths that Conform to Local Conditions

As a mass organization endorsed by the government, the trade union should be responsible for the work of serving industrial workers. It is also one of the important goals of trade union work under the background of "common prosperity" to make industrial workers feel the sense of gain from hard work and innovation. Trade unions should actively seek to effectively improve the skills training of industrial workers and further play their role. This research group believes that the establishment of special colleges by trade unions and vocational adult colleges is a feasible practice path. The Ningbo Federation of Trade Unions has made meaningful explorations on this road. In 2022, the Ningbo Federation of Trade Unions and Ningbo Open University will jointly build and establish Ningbo Workers University. Its essence is a special college established by relying on Ningbo Open University. The college is positioned as an exclusive university for industrial workers that integrates the improvement of industrial workers' skills, literacy, and academic qualifications. Through the construction of characteristic colleges, Ningbo will cultivate a group of knowledge-based, skilled and innovative labor forces that meet the needs of the industry, promote the construction of high-quality industrial workers, and provide a practical path for creating a skilled society.

Acknowledgements

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