Factors Affecting Training Production Workers at Enterprises in Vietnam

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Abstract:
Production workers are an important factor in creating the added value of businesses through direct production. Vietnam’s underdeveloped industry already has maintained productive labors with low productivity and inefficient working style. The current 4.0 revolution and international integration have created a significant change in management method and production process. It is expected to create a breaking by supplying chance for the development of each individual with support of information, knowledge and new technology. Technical innovation leads to new requirements of knowledge, skills and behavior of production workers. Therefore, enterprises have to change the method and especially the content of training courses for human resources taken part in production.
In this paper, we examine the impacts of five factors affecting training production workers including Training Program, Learning culture of the enterprise, Benefits, Abilities of workers by surveying with 212 respondents. Based on results, active building their own learning culture is the basic solution. Additionally, the reform of professional training system will provide quality production manpower output to meet the needs of businesses.

Keywords: Production worker, training, enterprise, Vietnam

1. Introduction
Production workers are very hands-on employees in a factory, working with machinery to fabricate or refine materials that are used to create and package products. Production workers are needed to create everything, from tiny medical instruments to cars or airplane engine parts. Production workers typically work full- or part-time shifts in a factory, plant, or manufacturing facility. These shifts may include days, nights, weekends, and overtime. This is also a very physical job, meaning that production workers may need to sit or stand for the duration of those shifts, depending on the task. There may also be protective gear involved (aprons, safety glasses, gloves, head coverings) as well, particularly if one is working with machinery.

Production worker responsibilities maybe contain: Feed raw materials into production machinery; Assemble goods on production lines; Monitor the production process; Carry out basic quality and testing checks; Store goods and raw materials properly in our warehouse; Use lifting equipment and forklift trucks to fulfill orders; Pack goods to be shipped; Maintain work areas and equipment. A production worker’s tasks may include: Operating machinery on a production line; Processing raw materials; Assembling and finishing a product; Refining and cleaning a product (like sanding, washing, or applying protective cover); Packing boxes or pallets for shipping.

According to statistics, as of the end of 2018, the total number of direct workers in enterprises of all economic sectors in Vietnam was over 13 million (accounting for 12.8% of the population, 22.6% of social labor force). Regarding to educational qualification, 70.2% of the workers had upper secondary education, 26.8% had lower secondary education and 3.1% had primary education. The workers with intermediate education accounted for 17.9%.
Most of the soft skills of Vietnamese workers are at average or weak levels, especially teamwork skills, and leadership skills. The World Bank considers that Vietnam is lack of skilled workers and high-level technical workers. The foreign language skills of Vietnamese workers are not high, so they face many difficulties in the integration process. The ability to work in groups, professionalism, the ability to use foreign languages as a communication and working tool of human resources is limited. The physical strength and stature of human resources have been improved and gradually improved, but in comparison with other countries in the region in general, they are lower in average height and endurance. The limitations and weaknesses of human resources are one of the main factors affecting the competitiveness of the economy.

The number of workers with professional and technical qualifications, even those with high qualifications, tends to understand the theory well, but is poor in their practical capacity and adaptability in an industrially competitive environment; Additional training or retraining is still needed for effective use.
However, the manufacturing and processing industry - a key industry in the process of industrialization and modernization accounts for only 9% of the total number of highly qualified workers, while in the developed countries this ratio is up to 40 - 60%.

Today’s education systems cannot be adapted to the rapid development of working life. For this reason, many employers do not have the technical staff with the application skills they are demanding. In addition to the multidimensional effects, industrial revolution 4.0 has been rapidly changing the labor structure and labor market. Automated systems will replace manual labor throughout the economy, robotic machinery, the number of employees will be reduced to 1/10 compared to today. Therefore, requirement of enterprises for production workers is quickly changing.

The knowledge and skills requirements for production workers need to be changed significantly. Effective training activities of enterprises will quickly solve this problem instead of slow transformation of the education system. Therefore, to implementing training programs effectively, each enterprise needs to analyse factors that affecting to this.

2. Literature Review

2.1. Human Resource Input

Training human resources in the past is to meet the immediate and long-term needs of each organization. However, with the development of human resource management, personal development for each employee is also a goal that enterprises aim for. For direct production workers, human resource input recruited carefully is an important step to carry out training activities later.

2.2. Abilities of Employees

Self-study capacity of employees can be understood as the ability to learn and train occupational skills through self-study, cultivating knowledge or observation, imitating experienced employees and improving their practical skills in specific production process. The ability of each individual employee is always an important factor determining the training needs, perceiving knowledge in the training process and the application of knowledge and skills into job. The capacity of individual employees and the ability to self-study depend on the positive and proactive attitude of each person. That strongly affects the practical performance in job, maturity and expertise of human resources. In addition, it creates a positive spreading effect to colleagues, contributes to building a collective with good learning culture, sharing and cooperation. The characteristics of trainees such as motivation and attitudes are more important to training success than are course's contents (Quinones, 1997). Enterprises need to spread to the department and all employees about this form of regular, continuous and useful learning.

Avram Tripon (2013) analyzed needs of employees' learning beyond the framework of classroom learning. Along with the technology development is the expansion of informal learning forms. That advanced technique in human resources development consists of three stages: self-study, lessons from the success of others and the path of self to success. The above technique will ensure sustainable human resources development. This form of learning is becoming increasingly popular and is required by each enterprise.

2.3. Training Program

Thus, training programs that are job- or career-related will influence employees’ training motivation (Mathieu and Martin, 1997). Noe and Wilk (1993) showed that the more benefits that employees feel they can obtain from participating in training activities, the higher their rates of participation in such activities. Pay attention to motivating in the learning environment for learners besides demanding the necessary skills. Learners will have more motivation to learn what makes sense to them. For effective learning, it is essential to transfer the skills and behaviors of the training environment to the work environment in order to direct the worker to the aspects of the job. The author also emphasizes lifelong learning within the enterprise to ensure the opportunity to learn the skills needed to work and to expand the career opportunities of individuals. It is also important to note when designing and evaluating the training of human resource development in enterprises. Learning requires both ability and motivation, and the training program’s design should consider both. Learners are more motivated to learn something that has meaning for them (Gary Dessler, 2016)

2.4. Learning Culture of the enterprise

Facts in enterprises show that learning culture has creating positive changes for the active learning behaviors of each member of the enterprise. With production workers, it is effective because the skills are directly trained through the job. Building and maintaining corporate culture is also a way to retain talents. Therefore, the cultural foundations of the enterprise must be expressed by the core values such as promoting openness, fairness in recruiting, evaluating and treating human resources to ensure that each individual can promote to the best ability; promote trust between managers and employees; building a healthy and positive working environment; promote the spirit of learning in the enterprise; implementing leadership and scientific work; implement diverse and flexible incentives. Building a learning culture of an enterprise means that every member of the business will think and act consciously and voluntarily on that culture in learning.

Therefore, superiors need to encourage self-studying and sharing, supporting, investing, giving equal development opportunities to employees. In addition, gradually improve the training process. Doing this, human resource development in enterprises will ensure the achievement of working in the short term, personal development of employees
and enterprise development in the long term. The learning culture of the enterprise should be started, built, spread and maintained by senior leaders in generations of leaders, managers and all employees. The leaders take an important role in process of forming, developing and maintaining the interest of learning and improving the level of all employees in the enterprise.

Informal learning is similar, yet unique, from other ways individuals learn in the workplace. Informal learning, continuous learning, workplace learning, deliberate practice and self-development all focus on individuals learning in anticipation of future needs and taking responsibility for learning (Orvis & Leffler, 2011; Raelin, 1997). Informal learning is more organic, continuous, and learner-driven than instructor-led training, the most prevalent type of formal training method used by organizations (Association for Talent Development, 2015). Informal learning typically occurs outside of a classroom context, the learning approach and duration is determined by the learner, and learning may extend beyond the boundaries of the organization itself (Van Noy et al., 2016). Further, the learner determines what and when to learn and evaluates whether or not learning has been successful.

In learning culture, self-studying is very important and it is a part of informal learning. We adopt Noe et al. (2013) definition of informal learning which is theoretically grounded and based on empirical studies that have shown that informal learning includes both self-focused and other-focused activities (Doornbos et al., 2008). Specifically, Noe et al. (2013) characterize informal learning as cognitive activities and behaviors that can be subsumed in three categories: learning from oneself, learning from others, and learning from non-interpersonal sources. Informal learning is both learner-driven and contextual in nature which means it is influenced by both individual differences and features of the work setting.

Strong culture leads to creating better feeling for employees and do better things. Also, a strong organizational culture increases commitment of employees to the organization and creating align between employee goals and objectives, and this factor is an important factor for increasing productivity (Hersey, P., Blanchard, K. 1983).

2.5. Benefits

In addition, the benefits that the enterprise gives during the training process help to increase motivation for employees. Compensation makes a great influence on the job choice, the performance status of workers, the production quality and operational efficiency of the organization. In Vietnam, wages are still the main income of workers, so it directly affects the life and labor behavior of workers in the enterprise. Striving to improve income is the common goal of every employee, this goal is the motivation to help employees strive to work and stay with the business. If workers know the true benefits from their activities in human resources development, they will participate voluntarily and actively. Learning motivation from the business is mainly through the design of useful courses, increasing the value of learners in career after learning. Some researchers indicated that if employees had no choice of participation, their training motivation would decrease (Guerrero and Sire, 2001; Quinones, 1997; Baldwin and Magjuka, 1991). So, they must know aim and content of each course before taking place. Clark et al. (1993) found that job utility and career utility have significant influences on employees’ training motivation.

3. Methodology

3.1. The Model

Base on literature review, factors influencing to the willingness to buy health insurance can be explained by the conceptual framework as Figure 1.

![Figure 1: Proposed Research Model](image)

To evaluation the impacts of proposed factors on the training of production workers in the enterprise, we implement the multivariate regression equation as belows:

\[ E = \beta_0 + \beta_1H + \beta_1A + \beta_2P + \beta_3C + \beta_4B \]

In which:

- **Effectiveness of Production Workers’ Training (E)**
3.2. Hypothesis

To determine, measure and estimate the impact of proposed factors affecting the student’s willingness to buy health insurance, we have used the multiple linear regression method including six independent variables: (1) Human Resources Input, (2) Training Program, (3) Benefits, (4) Learning Culture of the Enterprise, and (5) Abilities of Employees. The dependent variable is the Effectiveness of Production Workers’ Training. Our hypotheses are as follows:

- H1: Control the quality of human resource input will increase Effectiveness of Production Workers’ Training
- H2: Employees with abilities will increase Effectiveness of Production Workers’ Training
- H3: Implement Training Program effectively will increase Effectiveness of Production Workers’ Training
- H4: Strengthen Learning Culture of the Enterprise will increase Effectiveness of Production Workers’ Training
- H5: Guarantee Benefits for production workers will increase Effectiveness of Production Workers’ Training

3.3. Materials and Methods

The questionnaires were answered by 212 employees of 9 Vietnamese production enterprises in Thanhuyen province – the North Vietnam in 2018, including managers (25 votes), staffs (38 votes) and workers (149 votes). After collection and cleaning, 200 valid respond were used for analysis.

The questionnaire consisted of 36 questions, in which there are 25 quantitative questions and 11 close-ended questions to collect the respondent’s information. The survey collects the participants’ assessments of the observed variables of 5 factors affecting human resource training in enterprises by using a 1-5 point Likert scale. Respondents would be presented in the column corresponding to the Likert scale which has 5 ranges: 5: strongly agree; 4: agree; 3: Neutral; 2: Disagree; 1: strongly disagree. The questionnaire was designed and adjusted with the advice of 5 managers who are businessmen and professionals in the field of production.

Of the 200 valid samples after having been screened, demographic characteristics such as age, gender, wage, working time for the current company, education and position were aggregated in Table 1.

| Variable                      | Categories (N = 200) | Frequency | Percentage |
|-------------------------------|----------------------|-----------|------------|
| Age                           | Under 20 years old   | 21        | 10.5       |
|                               | From 20 to 25 years old | 67     | 33.5       |
|                               | From 25 to 30 years old | 89      | 44.5       |
|                               | From 30 years old     | 23        | 11.5       |
| Gender                        | Male                 | 56        | 28         |
|                               | Female               | 144       | 72         |
| Education background          | Normal labor         | 93        | 46.5       |
|                               | Intermediate graduate | 77      | 38.5       |
|                               | College graduate     | 11        | 5.5        |
|                               | Postgraduate         | 19        | 9.5        |
| Working time for the current company | Under 5 years    | 166       | 83         |
|                               | From 5 to below 10 years | 31    | 15.5       |
|                               | From 10 years        | 3         | 1.5        |
| Working position              | Worker               | 163       | 81.5       |
|                               | Official Employee    | 12        | 6          |
|                               | Engineer             | 16        | 8          |
|                               | Manager              | 9         | 4.5        |
| Salary                        | Under 7 mi. VND      | 14        | 7          |
|                               | From 7 to below 9 mi.VND | 95   | 47.5       |
|                               | From 9 mi.VND        | 91        | 45.5       |

Table 1: Respondents’ Profile and Characteristics

In this study, a questionnaire comprising 25 determinants was designed to measure employees’ agreement toward each determinant. The determinants pertaining to human resource development were developed from the theories and studies discusses above.

The Statistical Package for Social Science ver 20.0 (SPSS) is used for data analysis. First, simple frequencies were generated to display characteristics of employees in enterprises. Second, exploratory factor analysis with varimax rotation was employed to identify level of the agreeing with statement. Finally, regression analyses were conducted to investigate the impact of each factor to human resource development in their enterprise.
4. Empirical Results and Discussions

4.1. Factor Analysis

Of 200 samples collected from formal study, the independent factor-observation variables were rated differently by employees. Independent variables had an average value of 3.6, ranging from 3.18 to 3.94. Human resources input (H), Training Program (P), Learning Culture of the enterprise (C) and Abilities of employees (A) all had an average value of over 3.6, fluctuating from 3.46 to 3.84. Besides, all variables were tested to ensure the satisfied level of reliability basing on the Cronbach’s Alpha coefficient testing. As shown in Table 3, after testing the reliability of scales, all of the measurement scales had Cronbach’s Alpha coefficient ≥ 0.7 (Table 3). This result is a consequence of a well-designed, clear questionnaire, well-grouped, and satisfied samples (Hair et al., 1998).

| Items | The Observed Variables | Std. Deviation | Mean | Cronbach’s Alpha if delete variable |
|-------|------------------------|----------------|------|-----------------------------------|
| H1    | Local labor forces are now very abundant | .76078 | 3.6563 | 819 |
| H2    | Production workers are expanding regularly | .9404 | 3.505 | 819 |
| H3    | Recruit employees according to the standard of job position | .9787 | 3.630 | 804 |
| H4    | Workers get a thorough health checkup when hiring | .8267 | 3.745 | 818 |
| P1    | Training opportunities are fair for all workers | .8624 | 3.745 | 855 |
| P2    | Training content is suitable with objects | .74010 | 3.7005 | 801 |
| P3    | The training process is well designed and implemented | .9364 | 3.740 | 878 |
| P4    | Learning environment is hygienic and convenient | .9016 | 3.785 | 871 |
| P5    | Organizing the course interesting and effective | .8518 | 3.695 | 847 |
| B1    | Salary policy is fair | .8422 | 3.685 | 847 |
| B2    | Promotion opportunity is equal | .55150 | 3.4630 | 873 |
| B3    | Salary policy paid to the employees commensurate with the results of work | .7803 | 3.210 | 634 |
| B4    | Compensation policy stimulates the effort of employees | .8584 | 3.630 | 790 |
| B5    | Compensation policy for current employees is diversified and attractive in the enterprise | .7553 | 3.180 | 652 |
| C1    | Management levels are very interested in the culture of the enterprise | .6855 | 3.450 | 766 |
| C2    | Learning Culture of the enterprise is fostering and spreading continuously | .7166 | 3.845 | 782 |
| C3    | I expect to have a chance to learn more | .72231 | 3.8363 | 868 |
| C4    | The enterprise encourages self-learning | .8211 | 3.935 | 868 |
| A1    | I am conscious and proactive in learning knowledge and skills to tasks | .8642 | 3.870 | 789 |
| A2    | Learning will give me better opportunity in job | .8950 | 3.770 | 767 |
| A3    | I make effective use of the training opportunities of the enterprise | .9006 | 3.770 | 797 |
| E1    | Manufacturing workers take good job after training | .81702 | 3.7733 | 969 |
| E2    | I can apply the knowledge learned to work | .8296 | 3.735 | 969 |
| E3    | The working spirit and attachment of the workers to the enterprise increases after each training course | .8516 | 3.780 | 956 |
| Effectiveness of Production Workers’ Training (E) | .8309 | 3.805 | 962 |
| E1    | Manufacturing workers take good job after training | .77401 | 3.8875 | 822 |
| E2    | I can apply the knowledge learned to work | .9150 | 3.870 | 822 |
| E3    | The working spirit and attachment of the workers to the enterprise increases after each training course | .8492 | 4.050 | 847 |

Table 2: Cronbach’s Alpha coefficient results

Exploratory Factor Analysis (EFA) of independent variables: The exploratory factor analysis (EFA) was conducted to test the validity of the measurement of four independent variables that met the requirements of Cronbach’s Alpha reliability testing. The exploratory factor analysis produced the results as presented in table 3 below. The results of EFA satisfied four elements: (1) Sig value. Bartlett’s test = 0.000 <0.05; (2) 0.5 <KMO coefficient = 0.805 <1;
Exploratory factor analysis (EFA) with varimax rotation was employed to determine the determinants of human resource development. The EFA analysis verified the five factors as predetermined in the questionnaire development as the table below:

| Variable | Component |
|----------|-----------|
| P3       | .811      |
| P5       | .808      |
| P4       | .784      |
| P1       | .742      |
| P2       | .675      |
| H3       | .805      |
| H2       | .792      |
| H4       | .781      |
| H1       | .760      |
| C3       | .871      |
| C2       | .818      |
| C4       | .728      |
| C1       | .604      |
| A1       | .876      |
| A2       | .864      |
| A3       | .852      |
| B1       | .937      |
| B3       | .913      |
| B4       | .643      |
| B5       | .543      |
| B2       | .542      |
| E1       | .880      |
| E2       | .862      |
| E3       | .843      |
| E4       | .830      |

Table 3: Exploratory Factor Analysis (EFA) with Varimax Rotation

Prior to multiple regression analysis, the 25 determinants were factor analyzed using principal component analyses with varimax rotation in order to identify the structure of determinants related to human resource management. Table 3 present the results relevant to the question of which determinants are important to explain the total variances in all the variables. The number of factors was determined by retaining only the factors with an eigenvalue of 1 or higher. As seen, all factor loading scores were higher than 0.50 and the five extracted factors accounted for 63.2% of the variation in this study.

In order to investigate whether the independent variables (five factors) had significant impacts on the dependent variables (human resource development), Pearson correlation and regression analyses were conducted. The samples of 200 valid questionnaires for existing customers were analyzed to measure the reliability of Cronbach’s alpha. The results of Cronbach Alpha helped to eliminate variables, including H, P, C, A and B. Other 25 variables are acceptable and considered to be adequate. The outputs of EFA with Promax rotation, forcing 5 factors produce 63.2% total variance extracted.

4.2. Pearson Correlation Analysis

| Correlations |
|--------------|
| E            | P      | A      | C      | H      | B      |
| Pearson Correlation | 1.000  | .680   | .621   | .661   | .479   | .207   |
| P            | .680   | 1.000  | .582   | .500   | .467   | .155   |
| A            | .621   | .582   | 1.000  | .541   | .463   | .063   |
| C            | .661   | .500   | .541   | 1.000  | .509   | .133   |
| H            | .479   | .467   | .463   | .509   | 1.000  | .161   |
| B            | .207   | .155   | .063   | .133   | .161   | 1.000  |
| Sig. (1-tailed) | .000   | .000   | .000   | .000   | .000   | .002   |
| P            | .000   | .000   | .000   | .000   | .000   | .014   |
| A            | .000   | .000   | .000   | .000   | .000   | .187   |
| C            | .000   | .000   | .000   | .000   | .000   | .300   |
| H            | .000   | .000   | .000   | .000   | .000   | .111   |
| B            | .002   | .014   | .187   | .030   | .011   | .020   |

Table 4: Pearson Correlation analysis
Based on the results of Pearson Correlation analysis in Table 4, the Sig. of all factors (H, P, C, A, B) > 0.05; therefore, there are correlations between them and the dependent variable (E).

4.3. Multiple Regression Analysis

To determine the importance of each factor to online reservation intention, a multiple regression analysis was conducted. Effectiveness of Production Workers’ Training (E) was the dependent variable, while the five determinant factors were the independent variables. All variables were entered at the same time. Table 5 reports the results of the multiple regression analysis.

|       | Std. β | Sig. | VIF |
|-------|--------|------|-----|
| P     | .378   | .000 | 1.717 |
| A     | .197   | .000 | 1.784 |
| C     | .367   | .000 | 1.674 |
| H     | .026   | .638 | 1.520 |
| B     | .124   | .048 | 1.042 |

Table 5: Multiple Regression Analysis

\[ R^2 = 0.632 \]

\[ Adjusted \ R^2 = 0.622 \]

According to above regression results, the content of regression analysis with selected reliability is 95%, corresponding to the independent variables that have Sig. <.05 and have a positive beta standardization except for Factor H (Human resource input). Thus, we eliminate factor H. The independent variables P, A, C and B are significantly correlated with the dependent variable E.

The result showed an adjusted R2 of 0.632, suggesting that about 63.2% of the variation in overall satisfaction was explained by the regression equation, and there is no multi-collinear phenomenon because the VIF of all factors < 10.

\[ E = -0.193 + 0.197 \ A + 0.378 \ P + 0.367 \ C + 0.124 \ B \]

Based on the coefficient of each independent variable, it is possible to assess the impact of each variable on the dependent variable. Table 6 reveals that Training Program (P) was the most important factor in explaining the Production Workers’ Training in enterprises. Learning Culture of the enterprise (C) and Abilities of employee (A) followed in importance. Besides, Benefits (B) has the least impact on the on training of production workers.

4.4. Discussion

With the fourth industrial revolution, labor qualification sin production sectors are expected to change. In particular, vocational training institutions should re-examine their course content, course descriptions, curricula and program outputs, focusing on trained human resources that Industry 4.0 already needs. Industry 4.0’s workforce expectations are technology use, knowledge competence, motivation for learning, problem solving, cooperation, team work, easy adaptation of change, agility etc. Therefore, we have to raise skills-based, software-driven, coding-aware, production-minded, creative, entrepreneurial young people. The factories of your future are now looking for more outcome-focused employees who know how to make assessments and solve problems.

- Firstly, renovating the requirements of education, improving the quality of human resources through promoting training in skills, practical capacity; Enhancing teaching and fostering foreign languages (especially English), world culture, adaptive skills in an international competitive environment for Vietnamese people.
- Innovating general curriculum and textbooks in vocational education in the direction of promoting creative thinking, self-study capacity, self-research, increasing practice time, focusing on human content and skills study, enterprises and society needs, ensuring the connecting between levels, between vocational education and higher education. Diversifying training methods and building output standards. Besides, the standards of facilities and training equipment are applied according to regional and international standards. Continuing to improve the quality and vocational skills of teachers and innovating policies for teachers
- Secondly, each enterprise should adjust factors affecting training of production workers such to improve the efficiency of production human resource development.
- Thirdly, proactive international integration to develop Vietnam’s human resources

The learning culture of an enterprise is the most important factor for an enterprise to achieve innovation in training. The training program is practical and attractive. Compensation policy should be taken to maintain good workers.

Establishing a national qualification framework suitable to the region and the world. Building contents, programs and methods in line with the international standards and characteristics of Vietnam; strengthening the linkage between training programs between Vietnamese and international educational institutions and training branches; implementing mutual recognition of training programs between educational and training institutions of Vietnam and the world; agreement on recognition of training degrees and certificates between Vietnam and other countries.
Participate in international accreditation of training programs. Conduct quality assessment and management according to international standards. Associate and exchange on undergraduate and graduate education and training and scientific and technological research projects and projects among institutions in Vietnam and the world.

Continue to cooperate with the governments of Korea, Germany, Italy and Japan in implementing ODA projects in the signed vocational training field; conducting negotiations with groups of countries in ASEAN towards recognition of diplomas, certificates and vocational skills among countries

Continue to implement supportive policies from the state budget and mobilize social resources, call for foreign investment to build a number of universities, colleges and vocational schools with international standards.

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