

# Analysis of the Determinants of Japanese Public Vocational Trainees' Self Development after Completing Training

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## Abstract

This paper focuses on a proxy indicator of the quality of the public vocational training, specifically trainees' implementation of self-development after training completion. We use data collected through our survey questionnaire on trainees of public vocational training schools in Osaka prefecture, and we find that education on the necessity of self-development during training motivates trainees' self-development after they leave schools. Such education has been conducted in some training courses, but it is not spread to the entirety of the public vocational training schools.

## Introduction

After the financial crisis of 2008, public vocational training played a great role in supporting jobseekers. In Japan, with the unemployment rate rising, public vocational training not only provided many training opportunities but also served as a safety net supplying training allowance with which trainees could sustain their livelihoods<sup>1)</sup>. As vocational training grows in size and becomes gradually recognized by more and more jobseekers, improvements in quality have become increasingly important.

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Keywords: Public vocational training, Quality of training, Self-development.

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この研究ノートを大学院生時代の指導教官である福原宏幸教授に捧げたい。

- 1) Japanese public vocational training for jobseekers provides job seekers with free training and a training allowance. The period of a standard training course is one year, or less. The training is operated by local governments' public vocational training schools, the "Japan Organization for Employment of the Elderly, Persons with Disabilities and Job Seekers", and private education and training organizations contracted to conduct the training.

In recent years, at the central level, the Japanese training administration has paid more attention to the quality of training. It formulated a “training service guideline” and set many quality indicators in assessment standard by which training providers are evaluated. At the local level, local training departments have introduced quality indicators for choosing training providers contracted to conduct training. Based on previous studies, we define the proxy indicators of the quality of training from three perspectives: input factors affecting training outcomes (e.g., class size, expenditure of per trainee), the actions implemented to produce better training outcomes (e.g., undertaking PDCA cycle, carrying out trainers’ further training), and outcomes. The outcomes include short-term outcomes (e.g., employment rate) and medium- or long-term outcomes (e.g., retention with the same employer in the fourth quarters after training, awareness of self-development in life, and transfer of learning).

This study focuses on medium- and long-term outcomes, i.e. trainees’ self-development behaviors and explores determinants of trainees’ self-development after completing training. We will provide a detailed explanation on the reasons for focusing on self-development below.

Although there are no studies on self-development of former trainees in Japan (certainly, within the last 15 years), several studies do examine the effect of ordinary people’s self-development. Hara (2014) verify that self-development has no effect on increasing wages. In contrast, Yoshida (2004) and Kurosawa (2010) show that the wages of female workers who undergo self-development will increase a few years later. Furthermore, Higuchi *et al.* (2012) prove that self-development can help female non-regular employees transfer from non-regular employment to regular employment. In addition, Hara (2014) analyzes the determinants of implementing self-development (see section 4.2 for more detail).

The remainder of the paper is organized as follows. In section 2, we describe theoretical background. In section 3, we explain the data used in this study. In section 4, we analyze the determinants of former trainee’s self-development after completing training. Lastly, section 5 discusses what should be done in public vocational training schools (PVT schools), based on our empirical results.

## 2. Theoretical Background

### 2.1. The proxy indicators on the quality of public vocational training

The quality of public vocational training is something important that ensures trainees

obtain necessary skills both for employment and for life (Gatt, S. & Faurschou, K. 2016, p. 36). It can be defined from three perspectives.

First, input factors, e.g., trainer experience, class size, expenditures per trainee, infrastructure, and equipment, affecting training outcomes can be deemed as proxies of the quality of training (Galdo, J. & Chong, A. 2012).

Second, actions, e.g. undertaking PDCA cycle (Plan, Do, Check Act), providing trainers further training, and enhancing trainers' job search support, implemented to produce better training outcomes can be considered indicators of the quality of training (Europe Training Foundation, 2014; Lu, G. 2014)

Third, the outcomes can be viewed indicators of the quality of training. In Japanese public vocational training schools (PVT schools), employment rate, type of employment, the satisfaction rate of trainees with their acquired skills, and the relation between the training courses and the jobs trainees obtain are usually summarized after the completion of training. The Japanese government evaluates the quality of PVT through such indicators. However, PVT creates short-, medium-, and long-term outcomes. For example, the employment rate after training completion can be considered as a short-term indicator of the quality of training, retention with the same employer in the fourth quarters after training, transfer of learning (the skills or knowledge learned from training used in different occupations in no close relation to the training courses), and awareness of self-development in life can be viewed as the medium- or long-term indexes of the quality of training (Kobayashi, 2018; Japan Institute for Labour Policy and Training, 2018).

## 2.2. Why does self-development matter?

Coupled with economic and technological development, skills demands are changing and increasing. All people, whether employed or jobless, need to update or upgrade their skills to keep up with changing work realities. In Japan, the Human Resources Development Promotion Act emphasizes that employees should endeavor to exercise self-development based on their vocational life design<sup>2)</sup> (Article 3, paragraph 3). Trainees of PVT schools are generally employed by small- and medium-sized companies where the implementation rate of on-the-job and off-the-job training are moderate<sup>3)</sup>, so they need to im-

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2) The definition of vocational life design is that the workers decide their goals in their career and plan their career paths, occupational skill development paths, etc. by themselves to achieve those goals (Article 2, item 2).

3) According to Health, Labour and Welfare Ministry (2019), in companies with 100-299 ↗

prove their current or future employability through self-development.

Moreover, recently, empirical studies have proved that self-development can improve incomes (Yoshida, 2004; Kurosawa, 2010). Lu (2017) calculated the annual incomes of jobs related to the subjects of public vocational training using data from the Japanese Health, Labour and Welfare Ministry's "Basic Survey on Wage Structure." Lu found that the annual income of some jobs was below the level of welfare payments. Self-development affords trainees an opportunity to escape from poverty.

Therefore, on the one hand, it is essential for the Japanese government to develop life-long learning systems continuously; on the other hand, motivating people to exercise self-development is also important.

### 3. Data

We conduct a survey questionnaire on trainees of PVT schools in Osaka prefecture in Japan. Osaka prefecture is a representative local government in Japan in the field of PVT for jobseekers. PVT schools<sup>4)</sup> offer subjects related to industry, as well as subjects related to services. The subjects offered by PVT schools in Osaka prefecture are shown in the Appendix. Trainees who enter one-year courses will graduate in March the following year<sup>5)</sup>. As six-month courses recruit trainees twice a year, those who take part in such courses in April or October finish their training in September or in March the following year, respectively. Because the date of graduation is September or March, the surveys were conducted twice, just before completion of training<sup>6)</sup>. In all, 553 valid responses were received from trainees who would complete training in the 2012 fiscal year<sup>7)</sup>. Then, a follow-up survey was conducted in 2014, a year or a year-and-a-half after trainees had

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\ employees, the rates of regular employees and non-regular employees accepting off-the-job training in the 2019 fiscal year were 39.2% and 20.5%, respectively. However, the rates of employees accepting systematic on-the-job training do not exist. We only know that among companies with 100-299 employees, companies that conducted systematic on-the-job training for regular and non-regular employees accounted for 67.0% and 25.1% in the 2019 fiscal year, respectively.

4) In Japan, PVT schools also provide employed people with training of 2-5 days. However, this study does not discuss this type of training.

5) Except for air conditioning training, which commences in October and end in September the following year.

6) one or two weeks before training completion.

7) The response rate was 79% (=553/701).

Table 1 Attributes of respondents

Gender	Survey(a)	Survey(b)	Age	Survey(a)	Survey(b)	Education	Survey(a)	Survey(b)
Female	39%	36%	15~24	14%	8%	Junior high school graduate	4%	2%
Male	61%	64%	25~34	27%	26%	High school graduate	36%	35%
			35~44	32%	27%	Technical school graduate	24%	26%
			45~54	19%	27%	College graduate	33%	35%
			above 55	8%	11%	Graduate college graduate	2%	2%

Note: Survey(a) means surveys conducted before trainees's graduation. Survey(b) denotes follow-up survey.

Table 2 Descriptive statistics

	Sample size	Mean	SD	Min	Max
Months of continuous employment <sup>a</sup>	126	9.006	4.570	0.25	17
Continuous employment dummy <sup>a</sup> (More than 13months=1)	126	0.143	0.351	0	1
Potential ability <sup>a</sup> (Achievement of 9th grade among students who were in the same year at school; upper=1,relatively upper=2,about in the middle=3,relatively low=4, low=5)	135	2.815	1.198	1	5
Marital status <sup>a</sup> (Single=1)	135	2.111	0.887	1	3
The date of graduation of training <sup>a</sup> (March 2013=1, September 2012=0)	135	0.689	0.465	0	1
whether accepting a job offer before graduation of training (Yes = 1)	533	0.332	0.471	0	1
Training period (1 year or longer=1)	553	0.273	0.446	0	1
Quality of teaching (Easy to understand=1, Somewhat easy to understand=2, No opinion/Somewhat hard to understand/Hard to understand=3)	358	1.885	0.844	1	3
Education (Under high school degree=1, Technical school/technical college/Jr. college=2, Bachelor's degree or above=3)	540	1.824	0.864	1	3
Age	533	37.711	11.483	19.5	65
Age-squared/100	533	15.537	9.016	3.803	42.25
Type of employment <sup>a</sup> (Regular employment=1)	126	0.476	0.501	0	1
Occupation <sup>a</sup> (Technician or Profession or Manager=1, Others=0)	126	0.468	0.501	0	1
Relation between training and job <sup>a</sup> (Relative=1,Somewhat relative=2, Somewhat not relative=3, Not relative=4)	126	2.095	1.127	1	4
Usefulness of training content to job <sup>a</sup> (Useful=1, Somewhat useful=2, Not useful=3)	126	1.968	0.779	1	3
Length of unemployment before training (Less than 3 months=1, 3 months or longer and less than 6 months=2, 6 months or longer=3)	482	1.880	0.812	1	3
Received on the job training <sup>a</sup> (Yes=1)	123	0.398	0.492	0	1
Workweek <sup>a</sup>	123	42.049	10.627	15	60
Financial situation of family <sup>a</sup> (Normal / Somewhat good / Good=1)	134	0.425	0.496	0	1
Sex (Man=1)	542	0.609	0.488	0	1
Overall job satisfaction <sup>a</sup> (Satisfied=5, Somewhat satisfied=4, No opinion=3, Somewhat dissatisfied=2, Dissatisfied=1)	126	2.944	1.346	1	5
Yearly income of previous job (10,000 yen)	444	287.047	154.525	48	1200
Single mother (Yes=1)	553	0.154	0.361	0	1
Implementation of self-development <sup>a</sup> (Yes=1)	132	0.591	0.494	0	1
Education on necessity of self-development from staff of PVT school <sup>a</sup> (Have not heard=1,Have heard just one time=2,Have heard more than two times=3)	134	2.209	0.918	1	3
The means for promotion or developing career (Know or Somewhat know=1)	536	0.646	0.479	0	1
Training subjects <sup>a</sup> (Manufacturing・Maintenance=1, Accountant・Clerk・Sales=2, IT・CAD・Others=3)	135	2.193	0.728	1	3

Note: Variables with "a" are made from the data of follow-up survey.

graduated, in order to obtain information on their implementation of self-development. In the follow-up survey, 135 of the 553 respondents responded<sup>8)</sup>.

Table 1 compares the two surveys in terms of respondents' attributes. With regard to

8) The response rate was 19.3%.

gender and education, the two groups have almost the same structure. Although the percentage of respondents to the follow-up survey who were above 45 years old is relatively high, we conclude that the two groups may have similar compositions of individual attributes. Table 2 shows the descriptive statistics.

## 4. Analysis

### 4.1. Cross-tab

Before conducting the regression, we use cross-tabs to check the relation between the explained variable and the key explanatory variables that we focus on in this study. Table 5 shows the relationship between education on the necessity of self-development (education is conducted by trainers or staff) during training and trainees' self-development after completion of training. We find that on the whole the more enlightenment on the necessity of self-development trainees received, the more self-development they implemented following completion of training. Our definition of self-development is quite similar to that of The Japan Institute for Labour Policy and Training (2013), that is, learning job-related knowledge or skills voluntarily during off-work periods in ways that include self-education, correspondence education, participating in a seminar, attending a course at a technical college, and so on<sup>9)</sup>. Additionally, we treat learning related to finding a job or beginning a business during the period of unemployment as self-development.

**Table 3 Education on necessity of self-development during training and trainees' implementation of self-development after the completion of training**

Education on necessity of self-development during training	Implementation of self-development after the graduation of training		Total
	No	Yes	
Have not received	20 (46.5%)	23 (53.5%)	43 (100.0%)
Have received just one time	11 (73.3%)	4 (26.7%)	15 (100.0%)
Have received some times	19 (33.9%)	37 (66.1%)	56 (100.0%)
Have received frequently	3 (17.7%)	14 (82.4%)	17 (100.0%)

### 4.2. Explanatory variables on implementation of self-development after completion of training

Hara (2014) precisely describes the factors that influence implementing self-

9) Because the definition of self-development is not same among previous studies, we cannot use unified definition and have to define it by ourselves.

development by analyzing aggregate data. According to Hara, the main obstacles to implement self-development are limitations of money and time, and information on what should be learned. Hara also indicates that individual attributes such as marital status, education, and age are related to self-development implementation. After analyzing the aggregate data, Hara employs a regression analysis using micro data, in which she introduces the dummy variable “to what degree you were informed by your supervisors about what you should learn” into the regression model.

Equation (1) is our estimation equation. Vector  $x_i$  includes many of variables that Hara (2014) mentions. For example, the limitation of money, marital status, and education are included. Furthermore, because the motivation for self-development might vary among former trainees of different subjects, we incorporate a dummy variable of subjects into vector  $x_i$  to control for the effect of different motivations. Moreover, we include a dummy variable  $d_i$  that denotes how often trainees have received education on the necessity of self-development from trainers or employment support staff of PVT schools. This question might be ambiguous, because it does not ask trainees whether they were told what they should learn after training. However, it would appear that majority of trainees are familiar with the higher levels of qualifications relating to their training, after receiving six months or more of training. According to our surveys just before completion of training, those who said they knew how to promote or develop their careers accounted for 71% of all trainees understanding what jobs they wanted to do.

$$y_i^* = \beta_0 + \mathbf{x}_i' \beta_1 + d_i \beta_2 + u_i \quad (1)$$

In the following, we utilize “implementation of self-development after completion of training” (have done=1, have not done=0) as an explained variable, and conduct a probit analysis. Because the sample size of the follow-up survey is small, we also carry out an OLS estimation.

#### 4.3. The determinants of implementing of self-development after training

Table 4 shows the results of the probit estimation and the OLS estimation. Compared with Model 1 and Model 3, we add the variable “the means for promotion or developing career” (know or somewhat know=1) into Model 2 and Model 4. Despite controlling for the effect of whether trainees know what they should learn after completion in Model 2 and Model 4, the outcome of all the models is same with regard to “education on necessity of self-development.” Trainees who have heard about the necessity of self-

Table 4 Determinants of implementation of self-development after completion of training

	Model 1 (Probit)	Model 2 (Probit)	Model 3(OLS)	Model 4(OLS)
Education on necessity of self-development from staff of PVT school (ref. Have not heard)				
Have heard just one time	-0.220 (0.442)	-0.216 (0.450)	-0.208 (0.168)	-0.204 (0.168)
Have heard more than two times	0.206 (0.288) **	0.193 (0.301) *	0.195 (0.102) *	0.18 (0.107) *
Training period (1 year or longer=1)	0.028 (0.653)	0.022 (0.657)	-0.046 (0.148)	-0.039 (0.147)
Training subjects(ref. Accountant ·Clerk ·Sales)				
Manufacturing ·Maintenance	-0.227 (0.776)	-0.189 (0.783)	-0.121 (0.198)	-0.098 (0.199)
IT ·CAD·Others	0.144 (0.355)	0.183 (0.370)	0.132 (0.120)	0.162 (0.123)
Sex(Man=1)	0.105 (0.363)	0.082 (0.372)	0.098 (0.132)	0.076 (0.141)
Marital status (Married=1)	0.133 (0.295)	0.121 (0.298)	0.109 (0.096)	0.097 (0.098)
Single mother	0.070 (0.426)	0.089 (0.437)	0.066 (0.169)	0.081 (0.177)
Financial situation of family (Normal or Somewhat good or Good=1)	0.090 (0.290)	0.096 (0.299)	0.097 (0.104)	0.101 (0.107)
Age	-0.002 (0.091)	-0.002 (0.092)	0.004 (0.028)	0.004 (0.028)
Age-squared/100	-0.001 (0.108)	-0.002 (0.109)	-0.008 (0.034)	-0.009 (0.034)
Potential ability (Achievement of 9th grade is "upper" among students who were in the same year at school=1)	0.094 (0.349)	0.127 (0.359)	0.075 (0.136)	0.109 (0.141)
Education(College or Graduate college=1)	-0.046 (0.280)	-0.037 (0.291)	-0.037 (0.093)	-0.031 (0.094)
The date of graduation of training (March 2013=1 , September 2012=0)	0.099 (0.277)	0.071 (0.284)	0.098 (0.096)	0.074 (0.096)
The means for promotion or developing career(Know or Somewhat know=1)		0.079 (0.297)		0.064 (0.106)
Constant			0.264 (0.606)	0.256 (0.608)
Log likelihood / R <sup>2</sup>	-70.969	-68.918	0.176	0.180
$\chi^2$ / F Value	23.58 *	23.840 *	2.59 ***	2.7 ***
Sample size	125	122	125	122

Note: \* denotes significance at 10% level, \*\* denotes significance at 5% level, \*\*\* denotes significance at 1% level. Standard errors are in parentheses.

Standard errors of OLS estimation are robust. In the case of Probit estimation, estimated coefficients are marginal effects.

We regard the education background of high school dropouts as Jr.high school, Technical school or technical college or Jr. college or college dropouts as high school, graduate college dropouts as college.

development from staff of PVT schools more than twice have a higher probability of implementing self-development after training than those who have not.

Furthermore, we conduct probit and OLS estimations to investigate the determinants



of self-development for those with work experience after completing training. We utilize almost all the explanatory variables of Table 4, and add job-related variables such as “on-the-job training”, “job content”, and “work week”. The estimated coefficient of “have heard more than twice” is positive, but non-significant. Incidentally, the probability of implementing self-development for those who have heard about its necessity just once is lower than that of trainees who had not heard about it at all. Since we use data from people with work experience after completing training, the sample size becomes much smaller. We consider that this is responsible for the aforementioned result. The outcome of the estimation is available upon request.

## 5. Discussion

We focus on a proxy indicator of the quality of the PVT, specifically trainees' implementation of self-development after completing PVT. As we state above, because trainees' self-development is associated with getting a decent income and obtaining current and future employability, this index should be treated seriously. In addition to the explanatory variables utilized in previous studies, we include training-related variables that suggest what kinds of policies and actions PVT schools should implement. We find that education on the necessity of self-development during training motivates trainees' self-development after they leave PVT schools.

According to our interview surveys with some vocational training instructors of Osaka PVT schools, we gained a general idea of how education on self-development is being conducted. Some training instructors regularly invite former trainees to make speeches to trainees on topics of getting better vocational qualifications, wage increases, and so on. However, such action is only conducted in some training courses and is not spread to the entirety of the PVT school.

This is a universal challenge for Osaka PVT schools. Many efforts, such as operating quality cycle, organizing meetings with employers and other stakeholders to grasp labor needs, using student questionnaires to evaluate training performance, inviting local companies to hold recruitment sessions for trainees, on improving the quality of training have been undertaken. Many actions are similar to the practices undertaken by EU countries under the European Quality Assurance Reference Framework (EQAVET). However, they are not necessarily conducted regularly or in all PVT schools.

Lastly, we must acknowledge that this study has limitations. Though we have made

every effort<sup>10)</sup> to increase the survey response rate, we could not obtain adequate data to analyze the determinants of implementing self-development in more detail. Furthermore, since the data we used is cross-sectional data, we cannot control for variables that cannot be observed, such as personality.

## Appendix

The subjects of public vocational training of A prefecture, 2012

W school	<b>Mechanical engineer</b> (2years, mainly for new junior high school graduate)	Y school	<b>Building maintenance</b> (6 months)
	<b>Metal working</b> (2years, mainly for new junior high school graduate)		<b>Buliding cleaning</b> (6 months)
	<b>Weld</b> (1year, for new junior high school graduate)		<b>Interior CAD</b> (6 months)
	<b>NC machine</b> (1year, under 34 years old)	Z school	<b>Accountant</b> (6months, for single mothers)
	<b>Electrical work</b> (1year, under 34 years old)		<b>Clerk</b> (6months, for single mothers)
	<b>CAD for machine</b> (6 months)		<b>Store staff</b> (6months, mainly for under 39 years old)
X school	<b>Information and communications</b> (1year, above high school graduate)		<b>Sales representative</b> (6months, mainly for under 39 years old)
	<b>Development of web system</b> (1year, under 34 years old)		<b>General affairs</b> (6months, mainly for above 40 years old)
	<b>Network security</b> (6 months)		<b>Knowledge on beginning bussiness</b> (6months, mainly for above 40 years old)
	<b>Automobile maintenance</b> (2years, above high school graduate)	K school	<b>Woodwork etc.</b>
	<b>Accident car repair</b> (1year)		
	<b>Environmental analyses</b> (1year)		
	<b>Air conditioning</b> (1year)		

Note: Some subjects have not age or education requirements.

Since K school was planned to close in April 2013, its trainees did not take part in our surveys.

Source: Public vocational traing schools guide, A prefecture 2012.

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10) For example, reducing the volume of questions in the follow-up survey, offering a 1000-yen reward, and sending reminders to people who did not respond to our questionnaire by the requested deadline.

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