



## Empirical Study regarding On-the-Job Training in Japan

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### ABSTRACT

The purpose of this study was to explore new potential of On-the-Job Training (OJT) which has been defined in the context of hierarchical relationships such as superiors and subordinates or seniors and juniors through interviewing local officials who work for Community Development Promotion Division of ward offices of ordinance-designated cities in Japan. This study examined the training and learning processes at their workplace and analyzed the characteristics of the effective OJT. As a result, the analysis of OJT from the perspective of officials in the workplace clarified that the workplace provided interactive or self-directed OJT in addition to conventional instruction-based OJT. This suggested a wide variety of OJT. The results also supported the establishment of a comprehensive capability development system in Japan.

**Keywords:** On-the-Job Training (OJT), local government officials, training and learning process, self-directed learning, Japan.

### INTRODUCTION

#### Issues and Objectives

National and local governments and private sector in Japan have provided three major types of in-house training including On-the-Job Training (OJT), Off-the-Job Training (Off-JT) and self-development. Most companies in Japan tend to provide in-house training based on OJT, although how to introduce Off-JT and self-development varies depending on company scale, job categories and industrial sectors (Terada, 2009). However, OJT is still the popular type of in-house training due to its potential in developing long-term human resource development. As Koike (1997) argues that once focusing on OJT, it clarifies that the most important feature of human resource development in Japan is long-term development. Thus, OJT is regarded as a fundamental and critical training system in companies and public organizations in Japan. The importance of OJT is also evident in other countries (Rothwell & Kazanas, 1990, 1994; Jacobs & Jones, 1995; Lepak, David & Gowan, Mary, 2010).

In Japan, OJT has been established since the late 1940s through the introduction of regular group trainings such as Management Training Program (MTP), Training within Industry for Supervisors (TWI) and Jinjiin Supervisor Training (JST) (Terada, 2009). Initially, OJT was often employed as a training method at production sites. Since then, OJT has also been introduced into tertiary industries and gradually beyond production sites. In recent years, advances in IT-related technologies and the demand to satisfy the diversified needs of customers have brought about drastic changes in workplace environment as compared to that in 1950s. But the fundamental concept of OJT has remained unchanged. Nevertheless, Inuzuka (2009) pointed out that there is lack of empirical studies on OJT in Japan and that the theory of OJT has not been developed adequately yet. Hence, it is critical to conduct this study.

In addition, studies on in-company training have been led by private sector and that few empirical research have been done by public sector such as local governments. This is the second issue of OJT in Japan. With this background, it is essential to explore the new potential of OJT. As local governments have a broad range of job duties, it is of great significance in narrowing down the categories to be studied in discussing OJT within an organization (Kito, 2012). This study focuses on Community Development Promotion Division<sup>1)</sup> (hereinafter ‘CDP Division’) of ward offices of ordinance-designated major cities. CDP Division is responsible for promoting community activities in collaboration with local residents which is one of important measures for local government with the advancement of decentralization of authorities since 2000. The study also focuses on a variety of interpersonal relations such as superiors and subordinates in OJT and elucidates diversified actual situations and examines the shift in the concept of OJT in Japan empirically.

In this study, OJT has been defined as the following two types: A or B – depending on a subject and an object (Kito, 2014). A subject and an object have a one-to-one relationship in training and learning process. In types A, a superior gives a subordinate instruction and advice on knowledge, skills and attitudes required for the job. For type B, a senior (experienced) gives a junior (inexperienced) instruction and advice on knowledge, skills and attitudes required for the job. It is assumed that Type A or a combination of Type A and Type B have been employed in the OJT. The combination of these two types is called “conventional OJT” in this study.

The purpose of this study is to explore new potential of OJT which has been defined in the context of hierarchical relationships such as superiors and subordinates or seniors and juniors through interviewing local officials who work for CDP Division about training and learning processes in their workplace and analyzing the varied types of OJT.

## METHODOLOGY

### Subjects and Interview Process

The workplace for interview was the CDP Division of ward offices in ordinance-designated cities and the subjects were the general administrative officials (hereinafter “Officials”). Table 1 showed the breakdown and attributes. Officials were categorized into Group A or Group B depending on the interview period and frequency. Officials from Group B underwent two interviews because the interviews needed to be completed in the period from August 2012 to March 2013 – the end of the fiscal year.

Table 1: Attributes of subjects and interview frequency/period

	Group A	Group B
Number of cities for interview	4	4
	3 officials in each city	3 officials in 3 cities 2 officials in a city
Total number of officials interviewed	12	11
Male	9	5
Female	3	6
Average tenure in a ward office	10.3 years	8.9 years
2 <sup>nd</sup> – 4 <sup>th</sup> year	5	5
5 <sup>th</sup> – 11 <sup>th</sup> year	4	3
12 <sup>th</sup> year or more	3	3
Average tenure in the current department	2.6 years	2.4 years
1 <sup>st</sup> – 2 <sup>nd</sup> year	4	5
2 <sup>nd</sup> – 4 <sup>th</sup> year	8	6
Average age	32.2 years old	33 years old
20’s	6	5
30’s	3	3
40’s	3	3
Interview frequency	Three times	Two times

	Group A	Group B
Study period	1 <sup>st</sup> : From mid-August to mid-September 2012 2 <sup>nd</sup> : From mid-October to early November 2012 3 <sup>rd</sup> : From late December to mid-January 2013	1 <sup>st</sup> : From mid-November to mid-December 2012 2 <sup>nd</sup> : From late February to mid-March 2013
Average time required for interviews	1 <sup>st</sup> : 46 minutes, 2 <sup>nd</sup> : 37 minutes, 3 <sup>rd</sup> : 56 minutes	1 <sup>st</sup> : 61 minutes, 2 <sup>nd</sup> : 58 minutes

### Interview Protocols

Semi-structured interviews were conducted from August 2012 to March 2013. The researcher visited the officials at their workplaces to arrange for the interviews. Each official underwent interviews twice or three times. The respondents had been informed of the questions before the interview. On the day of the interview, the researcher asked them mainly about the questions and made additional questions if necessary.

The questions in the first interview include (1) the respondent's current job contents, and (2) any events which brought about changes in the way of doing the jobs since the respondents had joined the city government office including ward office (such as instruction and advice from superiors and seniors, discussion with colleagues and local residents, staff training, and participation in many activities through jobs).

Group A received similar questions in the second and the third interview including (1) instructions and advice received directly from superiors, and (2) any events which brought about changes in the respondent way of doing jobs in the past two to three months. Group B, in the second interview, was asked about knowledge, skills, abilities and attitudes required for the job in the workplace including (1) three important things to accomplish a job in the workplace, (2) how to acquire these abilities and (3) experiences of success and failure in the acquisition process (in relation to Question (2)).

The interviews were recorded with an IC recorder. The researcher explained to the respondents to be interviewed and their superiors the details of the interview process and obtained their consent in advance. This study was conducted with an approval from the Research Ethical Review Board of Graduate School of Education and Human Development, Nagoya University.

### Analysis Method

A transcript of recorded interviews was made and parts in which interviewees talked about their training and learning processes (hereinafter "cases") were extracted. A case is a group of training and learning processes motivated by a factor. In this study, cases related to CDP Division were extracted to be analyzed. Cases extracted were classified into "learning" and "training." Cases of "learning" were further classified into (1) learning through "interactions with others" such as superiors and colleagues in a workplace and local residents (abbreviated as "others"), (2) "observational learning" by paying attention to others in a workplace, and observing their behaviors and attitudes (abbreviated as "observation"), (3) "experiential learning" by having a variety of experiences through jobs (abbreviated as "experience"), and (4) "learning by media" through manuals and internal materials (abbreviated as "media"). A classification of learning for acquiring practical knowledge suggested by Kusumi in his study (Kanai & Kusumi, 2012) was used as a reference for these four types of learning. When a case fell under several types of learning (1) to (4) mentioned above, one was selected based on the most influential factor in the learning process determined from stories and contexts of the relevant interview. KJ method <sup>2)</sup> (Kawakita, 1967) was employed for classification.

**RESULTS**

**Case Classification by Subject and Types of Learning**

A number of 189 cases were extracted as training and learning processes in CDP Division<sup>3)</sup> excluding 10 cases of Off-JT. In sum, only 179 cases were subjected to the analysis in the study. Table 2 showed the breakdown of the cases by types of learning. “others” accounts for more than 50% of the total, followed by “experience,” “observation” and “media” in descending order.

Table 2: Summary of training by types of learning

		Others	Observation	Experience	Media	Grand Total
Group A	Case extracted	59	10	31	3	103
	%	57.3	9.7	30.1	2.9	100
Group B	Case extracted	42	11	21	2	76
	%	55.3	14.5	27.6	2.6	100
Total	Case extracted	101	21	52	5	179
	%	56.4	11.7	29.1	2.8	100

Note: “Others” means “interactions with others”, “observation” means “observational learning”, “experience” means “experiential learning”, and “media” means “learning by media”.

**i. Interactions with Others**

Table 3 illustrated the details of “interactions with others” in a matrix with relations in rows and actors in columns. In the interview, about 90 percent of subjects were the other officials in the same division and the remaining 10 percent were the local residents such as members of neighborhood associations. A number of 71 cases were instruction and advice from directors, chiefs and seniors to the officials interviewed. The proportion was 1:3:1 and the number of cases involving chiefs were three times as high as those of directors and seniors.

Table 3: Breakdown of cases interactions with others

	Subjects (O)	O → Official	O ↔ Official	Official → O	O → Colleague (*)	O ↔ Colleague (*)	Total
Same department	Directors	14	0	0	0	0	14
	Chiefs	42	3	1	0	1	47
	Seniors	15	0	0	1	0	16
	Juniors	1	1	4	0	0	6
	Colleagues	2	1	0	0	0	3
	Several colleagues	3	0	0	0	0	3
	Temporary staffs	1	0	0	0	0	1
Other department	Directors	1	0	0	0	0	1
Residents	Residents	7	3	0	0	0	10
	<b>TOTAL</b>	<b>86</b>	<b>8</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>101</b>

Note: (O → Official) means the official (interviewee) received instruction and advice from subjects (directors through residents). (O ↔ Official) means the subject and the Official interact as equals. “Colleague” (\*) means several colleagues including the “official” interviewed while “Several colleagues” does not include the “Official”.

## ii. Interactions with Chiefs

This section provided two cases of interactions with the chiefs. In the transcripts of the interviews, the sentences in quotation marks were comments by the interviewees, those in angle brackets were questions from the researcher and those in round brackets were the supplemental remarks by the researcher.

Case 1 showed an example of a personal interview with a chief.

Case 1 [Chief → Official]:

“In the third year (since I have moved to the Division), (chief) said to me, ‘You should have a broader perspective in doing jobs imagining your professional life in the ward office’ and ‘I hope you will suggest improvements in a more active manner’ because I could be transferred to a different Division in the next spring.” (*An omission*)

<What did you think about that?>

“I had thought little bit I should made the third year a pinnacle for my career in the Division. From the conversation with my chief, I thought I had to make suggestions when I found out anything.” (Official G)

The other case was an excerpt from discussion with a chief.

Case 2 [Chief ↔ Official]:

“Basically, I am committed (to my jobs) with conviction. My chief supports me because I am not always perfect. But, we sometimes have different opinions. (*An omission*) He sometimes has a different viewpoint from mine. (*An omission*) Sometimes, we have a conversation like (chief saying to me) ‘You should not do it in this manner?’ and I said ‘I don’t think so,’ leading to heated discussion. (*An omission*) Finally, we reach a conclusion like ‘Let’s do it in this manner.’” (Official B)

## iii. Interactions with Seniors and Juniors

In CDP Division, an official in the first year took over a job from his/her predecessor and then performed the duties in consultation with a job manual. This was a way of leading to do a job in the Division. The usage of the job manual has an important implication in the first place. When the official has any questions about his/her job even after reading the manual, he/she would ask the predecessor and check with his/her chief if the details and methods explained by the predecessor was acceptable.

Case 3 [Senior Official→ Official]:

“My predecessor had moved to a different department, so I sometimes asked him (about further questions or concerns) by e-mail. (*An omission*) I made questions with emphasis on what the predecessor had felt (in the field) because I thought it was important. Then, I checked with my superior for the way of doing a job, and if it had no problems, I performed the job in this way.” (Official C)

Some ward offices assigned a pair of officials, a main and an assistant staff to a single task. In the system, the officials would ask each other first when they had any questions. When a newly-hired official joined the Division, a senior was assigned as his/her mentor. Unlike the case where an official took over the job from a predecessor, the mentor was responsible for supporting the new official to adapt himself/herself to a workplace and got used to the job duties. The mentor examined what and how to instruct the official based on his/her experiences and carried it out. The new official learned through instructions by the mentor.

Case 4 [Official → Junior Official]:

“I looked back on the time when I joined the ward office and gave the junior instructions based on (my) experiences, thinking like ‘What were useful at that time?’ and ‘This would be what the junior needs to know in doing the job.’” (*An omission*) She was a main staff of a task

even in the first year, and I supported her as an assistant staff. I visited the field (in communities) together and showed my way of doing things. (*An omission*) Through the mentor system, I thought it was surprisingly difficult to teach others. I reviewed many things which I would tell the junior because I needed to understand that first. It was useful for me that I realized I had a vague understanding.” (Official S)

In recent years, some newly-hired officials have work experiences in private companies. A mentor can learn some skills, for example, how to treat people (“serving customers” in private companies) from such a junior official.

Some ward offices have jobs rotation on an annual basis. In some cases, a junior transferred his/her jobs to a senior and served as a mentor. In general, a senior and a junior interacted with each other for a year with the purpose of taking over jobs and providing guidance to a new official.

#### iv. Interactions with Local Residents

Officials in CDP Division have interactions with local residents, particularly members of the various organizations such as neighborhood associations, in addition to their superiors and colleagues in workplace. Officials learned many things through such interactions and obtained valuable information which cannot be learned in their workplace.

Case 5 [Residents → Official]:

“Many (residents) treat a new official with a feeling that they are willing to teach him/her anything. It might be a character of the locality. Officials learn more from residents than they from us. (*An omission*) For example, I heard a local history like ‘there were such things in this area’ and recent topics like ‘that land was cleared’ and ‘the residents in the area have a serious waste problem.’ Of course, we try to visit the field as frequently as possible, but do not always have the latest information. We appreciate that residents give us information. That encourages us ‘to visit the field again.’” (Official Q)

As relations with local residents deepen, officials not only learned from the residents but also provided suggestions through proactive communication.

Case 6 [Residents ↔ Official]

“I often work with craftsmen in the ward as part of manufacturing project. (*An omission*) I realized it was important to always have good communication not only in business but also in private talks. The key point is to get familiar to each other through having many conversations. Conversation goes smoothly with craftsmen who remember my face like ‘he is an official of the ward office,’ and I can make a request with less hesitation. I can also make suggestions before asked by them, for example, ‘I think you will need this.’” (Official K)

#### Experiential and Observational Learning

Interactions with local communities cannot often work out as intended. Officials learned that at firsthand through actual interactions with residents. They thought about what they should do without the help of superiors and seniors and carried it out until they received a good response. An official looked back on such experiences and felt appreciated by residents through the job.

Case 7 [Experience → Official]

“(In a project,) I had difficulties in making suggestions and obtaining understanding from residents. It is important to build relationship so that residents can enter into conversation with me. I felt a young official like me who visited residents suddenly could not change anything because all of them (residents) were much older than I. I needed to take time to build relationship. I have become happy through interacting with them. (*An omission*) I have increasingly had many conversations with residents face to face and I am sometimes appreciated by them.” (Official E)

Officials also learned through observation proactively as well as through experiences.

Case 8 [Observation → Official]

“Officials (of CDP Division) often do jobs outside the ward office. We met many people in local communities rather than having internal meetings in the office. (*An omission*) Formal and clerical aspects of the current job were the same as what I learned in the former workplace. In addition to that, service has great influence. I learned it through observing other officials who implemented it rather than just through reading the material. (*An omission*) I had the same attitude in the former workplace. (*An omission*) In this regard, it was of great importance to learn things from observing others. (*An omission*) We can obtain direct instructions (from superiors and seniors) for a limited period of time. It was a good lesson to observe (superiors and seniors) on their characteristics.” (Official Q)

## DISCUSSIONS

### Cases of “Others → Official”

A number of 71 cases of “Director, Chief or Senior → Official” were extracted from “Others” types of learning. This accounted for the largest portion, 70.3% of the total of “Others” (101 cases) and 40.0% of the entire cases extracted (179 cases). In this article, the cases of “Director, Chief or Senior → Official” fall under the categories of OJT (A) and (B). In this respect, OJT (A) and (B) made the greatest contribution for officials in acquiring knowledge and skills. Case (1) and Case (3) were conventional OJT. Seniors taught junior officials the specific and detailed procedures and things to keep in mind in doing jobs assigned. On the other hand, chiefs suggested improvements in jobs and checked with officials about how to do the job. The details of instruction often vary between chiefs and seniors. In Case (1), the official sent questions to his predecessor by e-mail. If the predecessor remained in the same workplace, not transferred to a different department, he could ask questions more frequently. In this case, therefore, a job manual has a greater importance than in the other cases. In addition, the official found out “what the predecessor felt (in the field)” was important and asked the predecessor about it. Then, he developed a plan by himself, asking his chief for opinions and caring it out. The process until the official developed a plan is known as self-directed learning.

In Table 3, more cases of “Chief → Official” were extracted than for “Senior → Official.” This is because the chiefs have more involvement with officials through receiving report, information and consultation and giving instructions and advice in planned manner or as necessary. On the other hand, officials interacted with their seniors mainly to ask questions about clerical works in their job duties. If officials have no questions, they have no need to ask their seniors. In general, officials have deep relations with their predecessors for a year after taking over the jobs and the communication have become less after the period (Kito, 2014). From these facts, chiefs are a key person in the workplace. These interactions between superiors/seniors and officials are seen on a daily basis. Conventional OJT serves as a fundamental and important training and learning process in the form of instructions and advice in the workplace. Thus, it is necessary to look at interactions with others except superiors and seniors. CDP Division needs to know the latest local information to carry out the jobs. In Case (5), the official obtains local information from residents, not a job manual and his senior. She obtains instructions from residents, not learning through conventional OJT. Official of CDP Division go to local communities outside an administrative organization of a ward office. They learn through a variety of social relations beyond their organization. Many people who they interact with have wealth of experiences not only in job but also in life. Officials learn various things from a way of life, attitude to how to chair meeting. In the interactions with residents, they not only obtain local information but also learn in a self-directed manner through communicating with them. Such instructions and advice from residents have not been regarded as OJT in previous studies.

### **Cases of “Others ↔ Official”**

“Superior → Official” is a hierarchical relation between a subject and an object. “Senior → Official” is a more gradual hierarchy. A subject and an object that have a horizontal relation tend to learn each other. In Case (6), the official communicated with residents more proactively and made suggestions as relations with the residents deepened.

In Case 2, the official has remained in the division for longer years than chief. He knows more and exchanges views with the chief as equals. However, the official also learns from the chief who has wealth of experiences. The field of CDP Division is local communities. When an official in charge of a community has detailed information, the official and chief have often heated discussion on equal footing beyond a hierarchical relation of superior and subordinate. Some interviewees pointed out the usefulness of small talks in the workplace. CDP Division needs to share firsthand information on local communities first. Many officials learn through communication in the workplace with each other.

### **Experiential Learning and Observational Learning**

This section looks at learning through experiences and observation. An official said that he had learned through carrying out a certain thing. In Case 7, the official had difficulties in explaining a project to the members of a neighborhood association. He felt that a young official like him who visited and told residents suddenly could not change anything and he was determined to make steadfast efforts for building relations with the community. He preferred to carry out the efforts step by step. This is a self-directed learning process in which the official reflects on experiences and comes up with the next step. Learning through observation is also an important process. For the official in Case (8), CDP Division was her second workplace. She said that learning through observation was important as in her previous workplace. Such a style of learning can be adopted on a routine basis, but officials may overlook or fail to listen to some hints if they lack awareness of learning by themselves. Learning through observation is also included in self-directed learning.

In many cases, the position of an official changes from “Senior → Official” to “Official → Junior,” meaning from “being taught” to “teaching”. In Case (4), the official was in a position to instruct junior. This was a reverse pattern of OJT (B). The relation of “Official → Junior” has three types of occasions. The first is a case where a mentor is assigned by superior like in Case (4). In this case, an official receives instructions from chief virtually and, in this regard, the Case falls under OJT (A). The second is the time when an official transfers jobs to junior. The third is the time when an official finds any problems through looking at junior and gives him/her instructions. In these three types of OJT, an official learns through experiences of teaching others and it is a kind of self-directed learning. The position of “being taught” and “teaching” may change depending on a circumstance of an official. In both positions, an official can learn in a self-directed manner.

### **Three Patterns of Training and Learning**

Several cases were discussed in previous sections. From those discussions, learning is categorized into three patterns. The first is learning from instructions and advice in the relations of “Superior/Senior Official.” The second is learning through interactions in the relations of “Chief ↔ Official” and “Residents ↔ Official.” The third is self-directed learning in the relations of “Official → Official” and “Official ↔ Official.” In this article, each learning pattern is called “instructive,” “interactive” and “self-directed”, respectively.

### **Variety of OJT**

This article examined training and learning, particularly learning process in CDP Division of ward offices. Organizations such as companies and local governments have been regarded as the implementing bodies of OJT and Off-JT. OJT is part of routine work. However, it is often difficult to determine whether an activity is OJT or not.

Officials have little awareness of participating in OJT. Some officials noticed it for the first time in the interview, saying “that was OJT for me.” With advice from superiors and seniors, officials should think by themselves, leading to self-directed learning. In Case 3, for example, Official C took over jobs from the predecessor and thought about how to perform the job. Then, he noticed “what the predecessor felt (in the field) was important”. In this manner OJT did not complete by a single event



in the relation of “Senior → Official.” An event brings about the next step of learning. In the study, cases were categorized based on a learning process which was determined from the interviews. The data showed that self-directed learning accounts for a major part of all learning process in the workplace. Self-development is also a major human resources development in addition to OJT and Off-JT. Personal development is “an action which individuals take voluntarily to improve their vocational abilities” and “capability development not directed by an office, but done on their will at their own expense outside working hours if they have jobs” (Hara, 2014:23). Self-development is obviously different from self-directed learning in the workplace. Kaneko (1965:45) argued that “in-company training is a work which promotes and supports learning”. This means that in-company training and learning are two sides of the same coin. In this regard, it is possible to replace “Others” of a subject of training with “Official.” This is a concept that “Official” trains the “Official.” It is obvious that OJT is categorized into “instruction-based” training in which superiors and seniors teach subordinates and junior knowledge, skills and attitude required for fulfilling jobs; “interactive” training in which officials learn through interaction with each other; and “self-directed” training in which officials learn by themselves in a self-directed manner. This suggests a wide variety of OJT.

## CONCLUSIONS AND FUTURE ISSUES

In this study, training and learning processes were analyzed from the perspective of the officials (respondents) and achieved a result which suggested variety of OJT were implemented in the CDP Division. The results of the study are summarized as follows. Firstly, there are increasing opportunities for the officials to develop capabilities in the workplace by themselves. Supervisors have been regarded as primary actors in OJT, but a change in mindset is being promoted to encourage individual officials to actively participate in it. Consequently, it is expected that all members in the workplace will further utilize a variety of OJT and learning resources to be incorporated into the workplace. Secondly, it was found that training section in charge of OJT is required to develop training curriculum from the viewpoint of capability development in the workplace with the need to expand the scope of OJT to cover all domains. This will bring about enhancement of the holistic functions of training section. Thirdly, it is suggested the possibilities of coordination between OJT and Off-JT with the aim of establishing a comprehensive capability development system. More holistic empirical examination of OJT in the private sectors will be a subject of future studies.

### (Endnotes)

1) Ward offices of ordinance-designated major cities have divisions engaged in solving issues in local communities and promoting community development and specialized such as in family registration, municipal taxes, health insurance, welfare for the elderly, and welfare for persons with disabilities (Kito, 2012). This study covers the divisions engaged in local issues and designates the divisions studied as the “CDP division,” although the actual name might differ in each city.

2) KJ method is a thinking methodology developed and disseminated by cultural anthropologist Jiro Kawakita. It is a method to formulate a new idea by organizing various and large volumes of qualitative data in a comprehensive manner (Kohashi, 2002).

3) Among all the data collected, those of the three official who are in the third year since joining the ward office were not used as cases (qualitative data), but quantitatively only. The three data were compiled into a paper titled “Jichitai shokuin kyoiku ni okeru OJT ni kansuru shitsuteki kento: nyucyogo 3 nenkan no furikaeri no bunseki kara (A qualitative consideration of On-the-Job Training: An analysis of new employees’ experiences over three years in local governments)” (Bulletin of the Graduate School of Education and Human Development. Educational Sciences, 2014) and part of the paper was presented in the 54<sup>th</sup> Congress of The Japan Society for the study of In-Company Vocational and Technical Education.

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