

# Psychological Contracts in Business Process Transformation Effect: Structure of Psychological Contracts

Kayo Iizuka<sup>1,\*</sup> and Chihiro Suematsu<sup>2</sup>

<sup>1</sup>*School of Network and Information, Senshu University, Higashimita 2-1-1, Tama-ku, Kawasaki, Japan*

<sup>2</sup>*Graduate School of Business Management, Kyoto University, Yoshida-honmachi, Sakyo-ku, Kyoto, Japan*

**Keywords:** Business Process Transformation (BPT), Psychological Contract, Success Factor.

**Abstract:** This paper presents the result of analysis of the psychological contract structure in business process transformation (BPT) project. Much research has contributed to improving the effectiveness of BPT. As for cases in Japan, there are some unique issues around changing business processes, and the overall business processes, including the work of back offices throughout all industries, are not always efficient, as Japan's labor productivity was still the lowest among G7 members in 2018, according to the Japan Productivity Center. Therefore, besides the BPT methodologies used in Western countries, it is necessary to seek a counterpart for the unique issue of BPT in Japan. In this paper, the authors focus on the relationship between the psychological contract and BPT effect as one of the success factors of BPT based on a survey they conducted in 2019 and 2020.

## 1 INTRODUCTION

It has been said for some decades now that the overall quality and efficiency of production lines in Japan are superior to other countries. However, the overall business processes are not always efficient. According to the Japan Productivity Center, Japan's labor productivity was still the lowest among G7 members in 2018 (<https://www.japantimes.co.jp>). Firms in Japan are trying to make their business processes more efficient by using Information Technology (IT). Business process transformation (BPT) is one of the useful ways for companies or other organizations to sustain themselves in order to adapt to changes in the business environment. There are many methodologies for BPT, including business process re-engineering (BPR) or business process integration (BPI) (Khosravi, 2005). However, it is difficult to achieve effectiveness by conforming to an ideal or to picture-perfect models. In this paper, the authors focus on the relationship between the psychological contract and the BPT effect as one of the success factors of BPT through the survey conducted in 2019 and 2020.

## 2 RELATED WORK

The concept of the psychological contract was developed by Rousseau; it was defined as the employees' beliefs of their exchange agreement with their employer and the organization (Rousseau, 1989 or 1995). The psychological contract is developed within a dynamic environment in which the individual is often interacting with multiple organizational agents who may each be sending messages both verbal and non-verbal (Shore, 1994). It is impossible for employees to have a literal, official contract with their employer or organization for all possible scenarios. Therefore, considering the influence of the psychological contract is important in managing organizations, not only for managing ordinary working organizations, but for tentative organizing, such as for a project. A BPT project is important for companies or other organizations in order to realize change in their business processes and IT to match a business environment that is rapidly changing. BPT is an important factor for companies or other organizations to consider in order to sustain themselves during business environment changes. Much research has contributed to improving the effectiveness of BPT, including BPR, business

\* <https://www.senshu-u.ac.jp/english/learn/network/>

process modeling, etc. Hammer and Champy define BPR as the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed (Hammer and Champy, 1993). In past studies on this topic, Grover focused on the implementation problem (Grover, 1995), Earl analyzed the relationship between BPR and strategic planning (Earl, 1995), and Attaran explored the relationship between IT and BPR based on the capabilities and barriers to effective implementation (Attaran, 2004). There are also many studies that deal with BPR success and failure factors (Larsen, 1997; Al-Mashari, 1999). Therefore, focusing on the relationship between the psychological contract and the BPT effect as one of the success factors of BPT is appropriate for improving BPT effectiveness.

### 3 PREVIOUS STUDY

In order to clarify the relationship between the psychological contract and the BPT effect, the authors developed the research model shown in Figure 1.



Figure 1: Initial Research Model of Previous Study.

The hypotheses constructed for this survey (2019) were as follows:

- H1:** The BPT psychology contract has a positive impact on BPT effectiveness.
- H2:** The psychology contract of the ordinary work environment (Work Psychology Contract) has a positive impact on the BPT psychology contract.
- H3:** The work psychology contract has a positive impact on BPT effectiveness.

Hypotheses 1 and 2 will show the indirect relationship between the work psychological contract and BPT effectiveness. The authors thought there would be a direct relationship. The survey was conducted in February 2019 (182 valid responses, and the number of respondents who answered that they had the experience of engaging in more than one BPT projects excluding on-going project were 32). However, in the analysis results in 2019 (Figure2), the direct relationship between the work

psychological contract and the BPT effect was not significant (Table1). Following this, the authors tried to improve the model as shown in Figure 3 and 4.

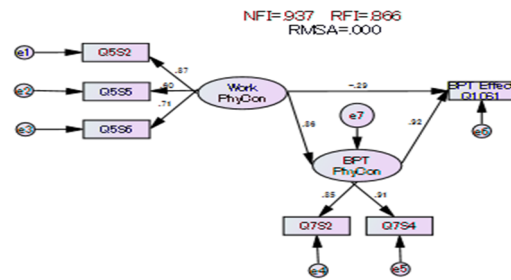


Figure 2: The Initial Path Coefficient Map of the Survey 2019 (Iizuka and Suematsu 2019).

Table 1: Regression Weight of Figure2 Model.

			Estimate	S.E.	C.R.	P
BPT_PsyCon	<---	Work_PsyCon	0.767	0.164	4.662	***
Q5S2	<---	Work_PsyCon	1.022	0.177	5.774	***
Q5S6	<---	Work_PsyCon	0.805	0.182	4.426	***
Q5S5	<---	Work_PsyCon	0.697	0.197	3.533	***
BPT_Effect	<---	Work_PsyCon	-0.295	0.464	-0.635	0.525
BPT_Effect	<---	BPT_PsyCon	1.039	0.525	1.98	0.048
Q7Q2	<---	BPT_PsyCon	1			
Q7Q4	<---	BPT_PsyCon	1.179	0.184	6.418	***

S.E.: Standard Error C.R.: Critical Ratio \*\*\* significant result (P value <1%)

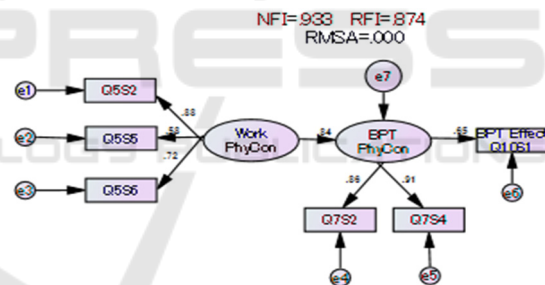


Figure 3: Revised Path Coefficient Map of the Survey 2019 (Iizuka and Suematsu 2019).



Figure 4: Revised Research Model of Previous Study.

Table 2: Regression Weight of Figure2 Model.

			Estimate	S.E.	C.R.	P
BPT_PsyCon	<---	Work_PsyCon	0.748	0.165	4.527	***
Q5S2	<---	Work_PsyCon	1.037	0.176	5.885	***
Q5S6	<---	Work_PsyCon	0.81	0.182	4.463	***
Q5S5	<---	Work_PsyCon	0.675	0.198	3.407	***
BPT_Effect	<---	BPT_PsyCon	0.738	0.18	4.097	***
Q7Q2	<---	BPT_PsyCon	1			

S.E.: Standard Error C.R.: Critical Ratio \*\*\* significant result (P value <1%)

The adopted variables in the revised model are as follows.

- **Psychological Contract of Usual Working Environment [Work\_Phy\_Con]**

-I believe that my employer gives me appropriate performance feedback for my work. [Q5S2]

-I believe that my employer assigns me suitable jobs

-I believe I can engage in work that I feel it is intriguing. [Q5S5]

-I believe that there are appropriate career options for me in my company. [Q5S6]

- **Psychological Contract of BPT [BPT\_Psy\_Con]**

-I believe that I can obtain feedbacks regarding the total BPT effect on the company. [Q7S2]

-I believe that I can obtain feedback regarding to my contribution. [Q7S4]

- **BPT Effect [BPT\_Effect]**

-BPT projects have succeeded in my company. [Q10S1]

From this analysis result, the existence of 1) direct relationship between the psychological contract of the usual working environment and BPT, 2) direct relationship between the psychological contract of BPT and BPT effects was clarified. However, the direct relationship between the psychological contract of the usual working environment and BPT effect was shown not to exist. This result shows the importance of the psychological contract both in the usual working environment and BPT projects.

However, the observed variables adapted to this model are quite limited because of the sample size of the data. In order to improve this situation, it was important to survey for collecting data with much more numbers of sample size and detail level, so the authors decided to conduct another survey in 2020.

## 4 RESEARCH METHOD

### 4.1 Purpose of the Research

The purpose of the research conducted in 2020 was to clarify the detailed structure of the psychological contract model in BPT. In order to form the detailed model of the psychological contract-BPT model, the number of observed variables must be increased to a significant level in statistical analysis. Therefore, the survey conducted in 2020 had to increase the number of respondents compare to the survey conducted in 2019. Also, some questionnaire items were added in order to variables in order to increase the number of the variables adapted for the model. Some interviews

with the researchers from the perspective of many research fields, such as psychology, management organization, and information systems, were organized to determine the adding variables.

### 4.2 About Survey 2020

An overview of the survey conducted in 2020 is as follows.

- Data collection: February 2020
- Survey method: Internet Survey
- Target of data collection: about 300 in number (about 150% of the survey in 2019)
- Questionnaire items: The major hypotheses are based on the authors' research model of 2019 (Figure 1). Questionnaire items are also based on the survey of 2019. In addition, some items as follows are included in the questionnaire.
  - Whether there is a labor union in your company/organization or not
  - Length of service
  - Industry
  - I cognize that I can gain a raise and promotion corresponding to my contribution. [BPT\_Psy\_Con]
  - The level of coordination and communication between the divisions has increased. [Q13S4]
  - The trust between divisions has increased. [Q13S5]
  - The trust within each division has increased. [Q13S6]
  - I think working conditions have become better. [Q13S7]
  - I want to keep working in this organization. [Q13S8]
  - I want to keep contributing to make this organization better. [Q13S9]

### 4.3 Process of the Analysis

After the data was collected, the analysis aimed to develop detail model of the psychological contract for BPT. At first, a multi-regression analysis conducted to examine the variable relationship between [Work\_Phy\_Con] and [BPT\_Psy\_Con], and the relationship between [BPT\_Psy\_Con] and [BPT\_Effect]. Variables include new items added in this survey. From the results of these multi-regression analyses, the a new and detail model would be formed. Based on this model, covariance structure analysis would be conducted. In addition, analysis to examine differences in the psychological contract according to the presence or absence of labor unions are conducted.

## 5 RESEARCH RESULT

### 5.1 Overall Model

Data was collected in February 2020 through the internet. The respondents were people working for companies or other organizations. There were 275 valid responses, and as for respondents who answered that they had experience engaging in BPT projects that had already ended, there were 52.

At first, the authors tried multi-regression analysis to examine the variable relationship between [Work\_Phy\_Con] and [BPT\_Psy\_Con], and the relationship between [BPT\_Psy\_Con] and [BPT\_Effect]. From the results of these multi-regression analyses, they found that both [BPT\_Psy\_Con] and [BPT\_Effect] can be formed into two groups. Therefore, they divided the variables of both categories into two groups as shown in figure 5.

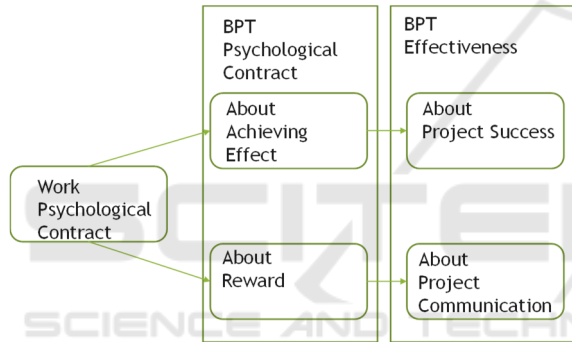


Figure 5: Research model of Study in 2020.

Based on this result, the researchers developed a structural equation model as shown in Figure 6.

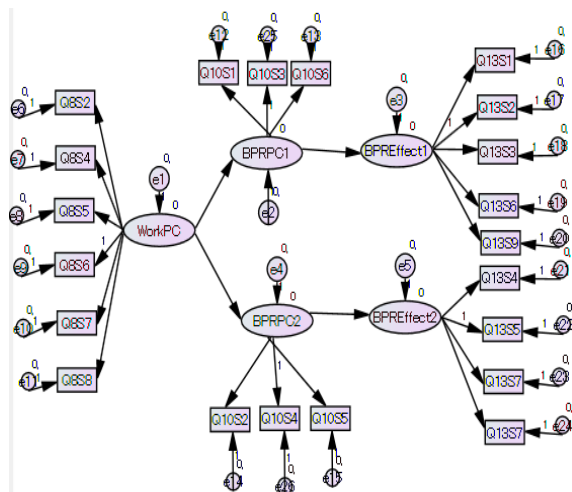


Figure 6: The Path Coefficient Map of Psychological Contract and BPT Effect.

Table 2: Regression Weight of the Model in Figure 5.

		Estimate	S.E.	C.R.	P
BPRPC2	<--- WorkPC	1.085	.068	15.881	***
BPRPC1	<--- WorkPC	1.076	.069	15.627	***
BPREffect1	<--- BPRPC1	.773	.121	6.403	***
BPREffect2	<--- BPRPC2	.613	.116	5.294	***
Q13S1	<--- BPREffect1	.969	.068	14.330	***
Q13S3	<--- BPREffect1	.794	.085	9.351	***
Q13S6	<--- BPREffect1	.623	.116	5.378	***
Q13S4	<--- BPREffect2	1.047	.206	5.072	***
Q13S5	<--- BPREffect2	1.000			
Q13S7	<--- BPREffect2	1.184	.197	6.020	***
Q13S8	<--- BPREffect2	1.131	.208	5.445	***
Q10S2	<--- BPRPC2	.959	.036	26.962	***
Q10S5	<--- BPRPC2	.953	.045	21.382	***
Q10S6	<--- BPRPC1	.937	.043	21.700	***
Q10S1	<--- BPRPC1	.918	.047	19.446	***
Q8S2	<--- WorkPC	1.021	.073	13.977	***
Q8S6	<--- WorkPC	1.000			
Q8S7	<--- WorkPC	1.074	.077	14.002	***
Q8S8	<--- WorkPC	1.025	.076	13.403	***
Q13S2	<--- BPREffect1	1.000			
Q8S4	<--- WorkPC	.825	.075	11.047	***
Q8S5	<--- WorkPC	.919	.077	11.869	***
Q13S9	<--- BPREffect1	.547	.115	4.753	***
Q10S3	<--- BPRPC1	1.000			
Q10S4	<--- BPRPC2	1.000			

S.E.: Standard Error C.R.: Critical Ratio \*\*\* significant result (P value <1%)

Table 3: Standardized Regression of the Model in Figure 4.

		Estimate
BPRPC2	<--- WorkPC	.940
BPRPC1	<--- WorkPC	.953
BPREffect1	<--- BPRPC1	.724
BPREffect2	<--- BPRPC2	.803
Q13S1	<--- BPREffect1	.961
Q13S3	<--- BPREffect1	.837
Q13S6	<--- BPREffect1	.625
Q13S4	<--- BPREffect2	.748
Q13S5	<--- BPREffect2	.713
Q13S7	<--- BPREffect2	.904
Q13S8	<--- BPREffect2	.811
Q10S2	<--- BPRPC2	.914
Q10S5	<--- BPRPC2	.842
Q10S6	<--- BPRPC1	.871
Q10S1	<--- BPRPC1	.829
Q8S2	<--- WorkPC	.795
Q8S6	<--- WorkPC	.761
Q8S7	<--- WorkPC	.798
Q8S8	<--- WorkPC	.768

Adopted variables in this study are as follows.

- **Psychology Contract of the Usual Working Environment [Work\_Phy\_Con]**
- I cognize that my employer gives me appropriate performance feedback on my work. [Q8S2]

- I cognize that my employer assigns me to an appropriate job. [Q8S3]
  - I cognize that my employer supports me in my job when necessary. [Q8S4]
  - I cognize that I can engage in the work that I feel is interesting. [Q8S5]
  - I cognize that there are appropriate career options for me in my company. [Q8S6]
  - I cognize that I can improve my skills and knowledge through my job. [Q8S7]
  - I cognize that I can construct human networks through my job. [Q8S8]
- **Psychological Contract of BPT [BPT\_Con1] ...Achieving Effect**
    - I cognize that I can achieve a BPT effect. [Q10S1]
    - I cognize that my division can gain feedback about the total BPT effect of the company. [Q10S3]
    - I cognize that the support system for BPT is well arranged. [Q10S6]
- **Psychological Contract of BPT [BPT\_Con2] ...Reward**
    - I cognize that I can gain feedback about the total BPT effect of the whole company. [Q10S2]
    - I cognize that I can gain feedback corresponding to my contribution. [Q10S4]
    - I cognize that I can gain a raise and promotion corresponding to my contribution. [Q10S5]
- **BPT Effect [BPT\_Effect1] ...Project Successes**
    - The BPT project succeeded. [Q13S1]
    - The BPT project gained effectiveness. [Q13S2]
    - Employees have improved their skills through BPT. [Q13S3]
    - The trust within each division has increased. [Q13S6]
    - I want to keep contributing to make this organization better. [Q13S9]
- **BPT Effect [BPT\_Effect2] ...Project Communication and Awareness of Belonging**
    - The level of coordination and communication between the divisions has increased. [Q13S4]
    - The trust between divisions has increased. [Q13S5]
    - I think working conditions have become better. [Q13S7]
    - I want to keep working in this organization. [Q13S8]

## 5.2 Difference Depending on Labor Union

As a result of this analysis described in the previous section, the importance of the psychological contract was revealed. Then the authors analyzed whether it was different or not considering the labor union (Appendix 1 and 2). As a rough trend, the score for the psychological contract of the employees in companies without labor union seems to be rather low both for the psychological contract in the usual working environment and BPT. That means that forming the psychological contract is even more important for the companies without labor unions.

## 6 CONCLUSIONS

The purpose of this paper was to examine in detail relationship between the psychological contract and the BPT effect as one of the success factors of BPT. There was a positive relationship between the work psychological contract and the BPT psychological contract, and the BPT psychological contract has a positive impact on BPT effectiveness. Further, there were two groups in both the BPT psychological contract and the BPT Effects, and therefore the authors formed two latent variables for each; [BPT\_Con1](achieving effect) and [BPT\_Con2] (reward) for the latent variables of the BPT psychological contract, [BPT\_Effect1](Project) and [BPT\_Effect2] (project communication and awareness of belonging) for the latent variables of the BPT effectiveness. From these results, it can be said that it is important to form psychological contracts both in the BPT project and the usual working environment, and the BPT PC in order to achieve BPT effectiveness, and those psychological contracts should be formed by the personal benefit such as raises or promotions as a result of total effectiveness of the organization. For future research, the authors will analyze the differences in psychological contracts by profiling the employees (based on occupation, position, years of continuous employment, etc.).

## ACKNOWLEDGMENTS

This work was supported in part by a Grant-in-Aid for Scientific Research (16K03819). The authors appreciate researchers, who gave advices from the perspectives of many research fields, such as psychology, management organization, and

information system. Also, the authors greatly appreciate the firms that cooperated in the questionnaire.

**REFERENCES**

Al-Mashari, M and Zairi, M. 1999, BPR implementation process: an analysis of key success and failure factors, *Business process management journal* 5 (1), 87-112.

Attaran. M. 2004. Exploring the relationship between information technology and business process re-engineering, *Information and Management*, 41(5), 585-596.

Earl. M. J., Sampler. J. L. and Short. J. E. 1995. Strategies for business process re-engineering: evidence from field studies, *Journal of Management Information Systems*, 12 (1),31 – 56.

Grover, V., Jeong, S. R., Kettinger, W. J. and Teng, J. T. C. 1995. The implementation of business process re-engineering, *Journal of Management Information Systems* 12(1), 109 – 144.

Hammer. M., and Champy, J. 1993. Re-engineering the Corporation: A Manifesto for Business Revolution, Harper business.

Iizuka. K. and Suematsu, C. 2019. Analysis of Psychological Contract Effectiveness in Business Process Transformation, *International Journal of Social Science and Humanity*, Vol. 9, No. 4, November 2019.

Japan Productivity Center (JPC). 2016. Rodoseisansei no Koksai Hikaku 2016 Nenndoban (International Comparison of labor productivity 2016, in Japanese). Retrieved from [https://www.jpc-net.jp/intl\\_comparison/intl\\_comparison\\_2016R2.pdf](https://www.jpc-net.jp/intl_comparison/intl_comparison_2016R2.pdf)

Khosravi, A. 2005. Business process rearrangement and renaming: A new approach to process orientation and improvement, *Business Process Management Journal*, vol. 22 Issue 1, Emerald Group Publishing Limited, pp. 116-139.

Larsen, M. and Myers, M. 1997. BPR Success or Failure? A Business Process Reengineering Project in the Financial Services Industry, *International Conference on Information Systems (ICIS) 1997*, 367-382.

Lopes, R. O. A., Roberto, R. and Qualharini, E. L. 2016. The Psychological Contract and Project Management as a Core Competence of the Organization, *Procedia - Social and Behavioral Sciences*, 226, 14 July, 148-155.

Organisation for Economic Co-operation and Development (OECD) 2016, OECD Compendium of Productivity Indicators. Retrieved from [https://www.oecd-ilibrary.org/industry-and-services/oecd-compendium-of-productivity-indicators-2016\\_pdtvy-2016-en](https://www.oecd-ilibrary.org/industry-and-services/oecd-compendium-of-productivity-indicators-2016_pdtvy-2016-en)

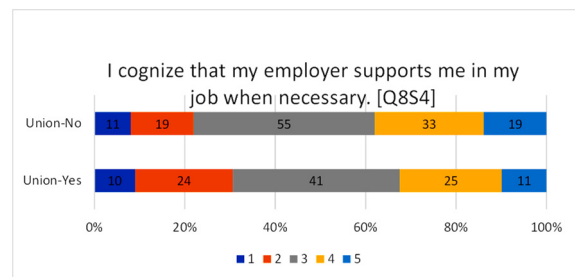
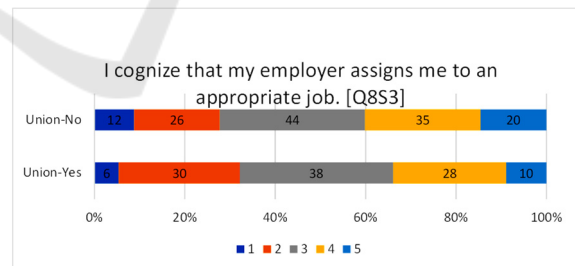
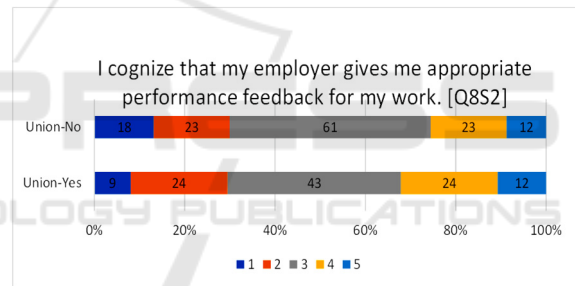
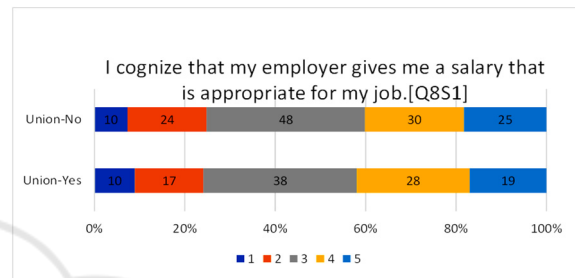
Rousseau, D. M., and Parks, J. M. 1989. Psychological and implied contracts in organizations, *Employee Responsibilities and Rights Journal* 2, 121-139.

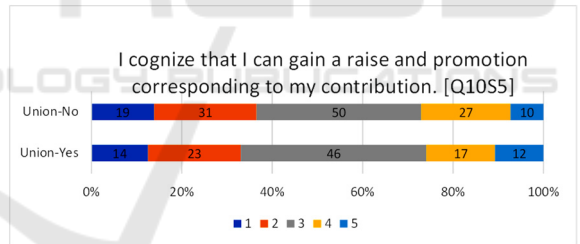
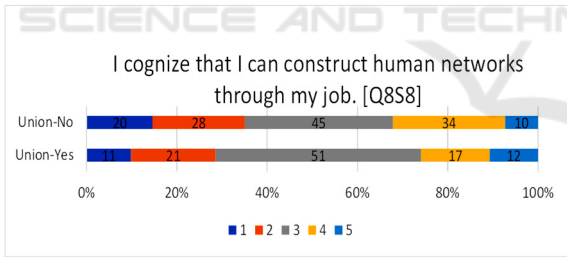
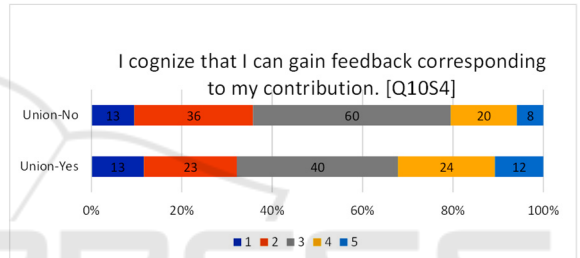
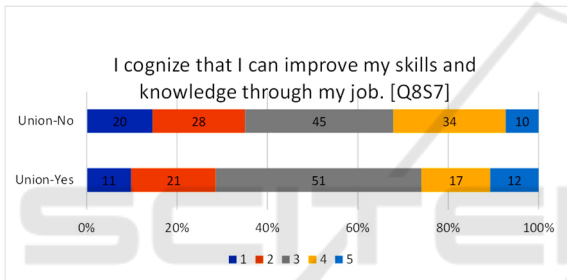
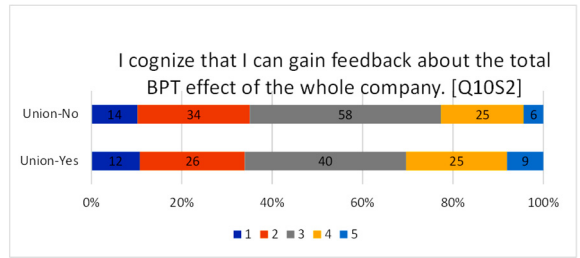
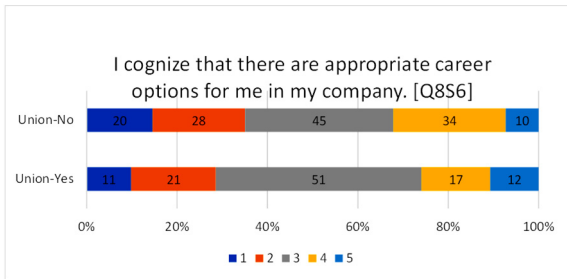
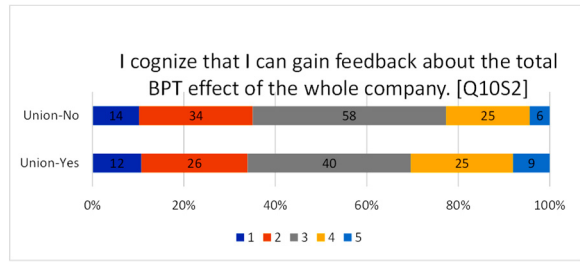
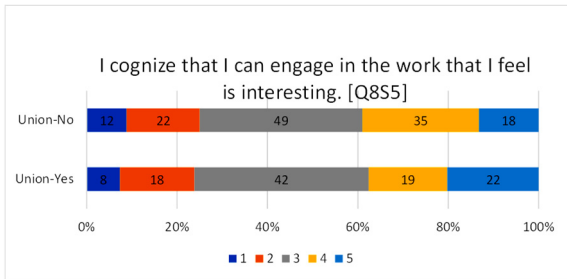
Rousseau, D. M. 1995. Psychological contracts in organizations: Understanding written and unwritten agreements. Thousand Oaks, CA: Sage.

Shore, L. M. and Tetrick, L. 1994. The Psychological Contract as an Explanatory Framework in the Employment Relationship, *Trends in Organizational Behavior* (1) ,91-109.

**APPENDIX**

**1 Work Psychological Contract (5point Scale)**





## 2 Work Psychological Contract (5point Scale)

