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# HOW ACCELERATE KNOWLEDGE ACQUISITION AND INFORMATION DISTRIBUTION IN THE ORGANIZATIONAL LEARNING FROM FAILURE

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# HOW ACCELERATE KNOWLEDGE ACQUISITION AND INFORMATION DISTRIBUTION IN THE ORGANIZATIONAL LEARNING FROM FAILURE

*Completed Research Paper*

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## **Abstract**

*Knowledge is recognized as a key for sustainable competitive advantage. Knowledge creation and knowledge management are consequently an essential way to win in market. Learning activity from failure as well as learning from successful case may mostly be recognized as an important knowledge creation activity, which aims at preventing from repeating same failure once you experience. Most organizations, however, do poor job at due to learning from failure due to inhibit factors such as disadvantage for promotion and reward, stigma, guilty feelings.*

*There is a unique company, which has succeeded in establishing their way to leaning from failure. Executing the learning activity, they have not repeated same failures which were once reviewed through their system. Eventually they have maintained good business performance.*

*Employing organization learning process in the previous study to define organizational failure leaning process and a unique case in a Japanese company in this paper, we explored keys for success in the organizational learning from failure. We particularly discussed how shame feeling as inhibit factor in the organizational learning from failure was reduced and system efficacy recognition as acceleratory factor was augmented by motivators such as intrinsic knowledge sharing motivation and Organization-based self-esteem (OBSE). We eventually found that altruism, personal growth intention and sympathy were motivators in the company. And we recognized that the OBSE enhanced the intrinsic knowledge sharing motivators. Moreover, we suggested that the intrinsic knowledge sharing motivators could mediate other intrinsic motivator toward knowledge sharing behavior although it should be carefully examined through further studies.*

**Keywords:** Learning from failure, Inhibit factor, Acceleratory factor, Organizational learning process, Knowledge acquisition, Information distribution

## **Introduction**

Knowledge is one of the key elements to acquire sustainable competitive advantage in current market, and knowledge creation and knowledge sharing among employees are consequently key activities to improve business performance in company (Nonaka and Takeuchi, 1995). Knowledge management is recognized to be an essential way to win in market (Del Giudice and Maggioni, 2014), but there is a practical issue to achieve. Knowledge sharing is, for instance, a key to success in knowledge management, and successful knowledge sharing needs motivation of knowledge holder to provide knowledge. Some may not have an intention to provide their own knowledge if sharing knowledge can lead them feel worse in organization. Sales person, for instance, could not share his/her customer information and sales skill since providing such knowledge can lead his/her colleague achieve better performance than the knowledge provider, which sometimes means less reward with short-sighted eye.

Being important to achieve successful knowledge creation and knowledge management, successful knowledge sharing with colleague in organization has been studied. There are a lot of respectful literatures which study knowledge sharing motivation on knowledge sharing behavior. It is claimed that intrinsic knowledge sharing motivation is more effective than extrinsic knowledge sharing motivation for successful knowledge sharing behavior (Brock, Zumd, Kim and Lee, 2005; Deci and Flaste, 1995).

Authors wonder that there are three aspects of information and/or knowledge. They are that what can lead knowledge provider better situation by sharing it, that what can lead knowledge provider worse situation, and that what can be neutral for knowledge provider. Knowledge which can lead information provider better situation contains, for instance, a happy data for him/her to be admired like performance improvement. Knowledge which can lead information provider worse situation contains, for instance, a negative data for him/her to be blamed like defect, mistake and fault.

Whether knowledge contains positive data or negative data for knowledge provider, they are often important for knowledge creation and knowledge management. Knowledge which contains positive data for provider can be helpful to create knowledge like a key for success, and ones which contain negative data for him/her can be useful to create knowledge like a countermeasure for avoiding defect, mistake and fault. But there seems to be not enough argument in existing literatures to distinguish positive knowledge sharing from negative knowledge sharing from the point of knowledge provider. Authors wonder that a negative knowledge provider has the same knowledge sharing motivation as a negative knowledge provider. A positive information provider can have an intention to be admired, but a negative information provider can be both admired with applause and blamed with stigma by providing the information. You are, in general, not fond of being blamed with stigma. If you have possibility to be blamed, you hesitate to share negative information. But you are sometimes supposed to share even negative information with your colleague although you may be blamed with stigma.

Negative knowledge sharing is important as well as positive knowledge sharing in order to improve business performance. It is therefore said that learning from failure is crucial not only for an individual person but also for an organization.

Personal reflection of defect seems, in general, to be easier than organizational reflection of defect. Those who have common sense can review their behavior to avoid repeating defect, mistake and fault. Organizational review should, on the other hand, require multiple parties like those who make defect/mistake/fault, those who make decisions, those who make audit and so on. There is generally conflict among parties because someone must take responsibility for a negative result, which sometimes means less reward, demotion, castigation, and so on. Hence it is more difficult to make organizational learning from failure than individual learning from failure.

Indeed, most companies are very poor at organizational learning from failure (Kanno, 2014; Cannon and Edmondson, 2005), and similar serious organization failures have repeatedly happened. A manager in company, needless to say, knows the importance of organizational learning from failure (Edmondson, 2002). In fact, many companies have invested huge amount of money and made a lot of time and efforts on organizational learning from failure. In the reality, unfortunately, many of them are, however, still struggling with it (Edmondson, 2002).

Organizational learning from failure, in general, gets you reach an inconclusive impasse. Manager in company recognizes the importance of the organizational learning from failure so well that he/she is eager to encourage a faulting employee share his/her knowledge with colleague, aiming at improving organizational business performance. But the faulting employee is, on the other hand, firm in refusing

to disclose a defect knowledge since there is rather negative thought with him/her, like stigma, shame, punishment, demotion, reward cut, castigation and so on, than positive thought like admiration, honor, prize, promotion, bonus, sympathy and so on. Consequently, few organizations have succeeded in organizational learning from failure regardless its importance.

We seldom find an exception that a company has enjoyed successful organizational learning from failure. According to respectful existing studies, financial reward does not work well for organizational learning from failure but only psychological safety enables you to participate in organizational learning from failure (Carmeli, 2007). Our question, to the point, is how you can eliminate inhibit factors in organizational learning from failure in practice.

In this paper, we introduce a unique company in Japan, which has succeeded in establishing their own system for organizational learning from failure. According to the chairperson and the president in the company, they have never repeated same failures which were reviewed through their own system since they established it in 2005. And eventually they have maintained good business performance since the establishment.

Employing the case in the company, we explore keys to reduce inhibit factors in organizational learning from failure.

Shame feeling (Gausel, Vignoles and Brown,2012) and lack of rationality are parts of the inhibit factors for organizational learning from failure. Thus we explore factors for overcoming these inhibit factors in this paper.

These overcoming factors are hypothesized by employing existing literatures. According to the literatures, intrinsic knowledge sharing motivation enhances knowledge sharing behavior (Bock, Zumd, Kim and Lee,2005; Deci and Flaste, 1995). And organization based self-esteem has positive impact on the intrinsic knowledge sharing motivation (Mukahi, 2015). In this paper, employing these concepts, we set altruism and individual growth intention as intrinsic knowledge sharing motivation, and set sympathy as organization based self-esteem. Then we discuss relationships among these factors.

## **Related Study**

We here review related studies such as knowledge sharing motivation and learning from failure.

### ***Knowledge Sharing Motivation***

Knowledge is being increasingly recognized as the most important resource in organization and a key differentiating factor in business today, and it is increasingly accepted that knowledge management can lead innovation and improve business performance in organizations (Del Giudice & Maggioni, 2014).

It is necessary to share knowledge among colleague to achieve knowledge creation in organization. And knowledge sharing motivation leads you to knowledge sharing behavior.

Chang and Chuang (2011), Wang and Hou (2015) and Chung, Cooke, Fry and Hung (2015) suggest that reputation and altruism are extremely precious rewards for you to encourage to share your knowledge.

Lin (2007) examines the role of both extrinsic motivator, which means expected organizational rewards and reciprocal benefits, and intrinsic motivator, which means knowledge self-efficacy and enjoyment in helping others, in explaining employee knowledge sharing intentions. It shows that motivational factors such as reciprocal benefits, knowledge self-efficacy, and enjoyment in helping others are significantly associated with employee knowledge sharing attitudes and intentions. However, expected organizational rewards do not significantly influence employee attitudes and behavior intentions regarding knowledge sharing.

Bock, Zumd, Kim and Lee (2005) find that anticipated reciprocal relationships affect individuals' attitudes toward knowledge sharing while both sense of self-worth and organizational climate affect subjective norms. In addition, they find anticipated extrinsic rewards exert a negative effect on individuals' knowledge-sharing attitudes.

Herzberg, Mausner and Snyderman (1959) proposes two factor theory, which is composed with hygiene or maintenance factors like salary, job security, working conditions, level and quality of supervision, company policy and administration, and interpersonal relations, and with motivators or growth factors like nature of work, sense of achievement, recognition, responsibility, personal growth

and advancement. The former one determines dissatisfaction of job, and the later one determines satisfaction of job. Foss, Minbaeva, Pedersen and Reinholt (2009) confirm that job characteristics, such as autonomy, task identity, and feedback, determine different motivations to share knowledge, which predict employees' knowledge sharing behaviors.

Regarding these respective previous achievements, we can, in general, summarize that it is claimed that intrinsic knowledge sharing motivation is more effective than extrinsic knowledge sharing motivation for successful knowledge sharing behavior (Brock, Zumd, Kim and Lee, 2005; Deci and Flaste, 1995).

Organization-based self-esteem (OBSE) represents employees' beliefs about their own value and competence as organizational members (Bowling, Eschleman, Wang, Kirkendall and Alarcon, 2010). OBSE is related to job satisfaction (Pierce and Gardner, 2003). Bowling, Eschleman, Wang, Kirkendall and Alarcon (2010) find OBSE generally yields stronger relationships with work-related variables than did general self-esteem.

Ardichvili, Page and Wentling (2003) argue motivation and barriers for knowledge sharing and suggest it is necessary to develop type of trust for removing the barriers. Li, Chang, Lin and Ma (2014) test previous studies and conclude strong tie in organization, trust and common cognition are influencing factors for knowledge sharing.

Gausel, Vignoles and Brown (2012) suggest that an appraisal of the in-group as suffering a moral defect best predicted felt shame, whereas an appraisal of concern for condemnation of the in-group best predicted felt rejection. And they suggest felt rejection best predicted self-defensive motivation, whereas felt shame best predicted pro-social motivation.

Mukahi (2015) find that trustworthy relationships and free atmosphere in an organization, and individual true self-esteem and contingent self-esteem enhance OBSE, OBSE enhances intrinsic knowledge sharing motivation, and intrinsic knowledge sharing motivation enhances knowledge sharing behaviour.

With regard to these respectful studies, they provide us with comprehensive view toward knowledge sharing motivation for knowledge sharing behaviour. There lacks, however, argument in terms of content to be shared. We, in this paper, focus on sharing knowledge learnt through failure study.

### ***Learning from Failure***

According to Hatamura (2005) who studies failure and its countermeasure from engineering point of view, failure is defined as "a human act of not reaching the defined goal," "an unfavorable and unexpected result of human act." And he also indicates that there are an invaluable failure and a non-valuable failure. An invaluable failure is defined as "an unavoidable failure even with extreme caution," which is excursion into unknown. A non-valuable failure is defined as "a failure other than invaluable failure."

It is not denied that you can fail and you have, more or less, failure experience. Organization as well as individual can fail, and most organizations may have failure experience. Failure, more or less, cannot be evitable. It is, therefore, important to learn from failure to avoid repeating failure you once experience. Learning from failure bring you improve your performance even if you are individual or organization.

Madsen and Desai (2010) say that organizations learn more effectively from failure than successes, that knowledge from failure depreciates more slowly than one from success, and that prior stocks of experience and the magnitude of failure influence how effectively organizations can learn from various forms of experience.

Edmondson (2011) says the wisdom of learning from failure is incontrovertible, but organizations that do it well are extraordinarily rare, and so few organizations have shifted to a culture of psychological safety in which the rewards of learning from failures can be fully realized. If we interpret Edmondson (2011) correctly, that learning from failures is enabled only when you feel psychologically safe (Carmeli, 2007).

Argiris and Schon (1978) suggest that legitimization of failure reduces the barriers in learning from failure.

Nagayoshi and Nakamura (2014, 2015a, 2015b, 2015c) introduce a unique company in Japan, which has succeeded in establishing their system for organizational learning from failure, and explore keys

for success in the learning activity based on qualitative studies. And they say the positive feedback loop is one of the keys for success. Nagayoshi and Nakamura (2016a, 2016b, 2016c, 2016d) explore factors to reduce inhibit factors in the learning from failure activity in the company, based on quantitative study. Nagayoshi and Nakamura (2016a) show that altruism and individual growth intention reduce feeling of shame which inhibits the participation motivation. Nagayoshi and Nakamura (2016b) show that altruism and individual growth intention augment employees' understanding of rationality in the learning from failure initiative. Nagayoshi and Nakamura (2016c, 2016d) show that colleague's sympathy is a key for participation and that concern for own defect is a key for generating the sympathy.

These previous studies can be beneficial for company manages who are eager to increase their organization's performance since they provide good curious examples to note, but they do not still reach a concrete finding with comprehensive argument. We, therefore, have to integrate these studies together to reach a coherent claim with a reasonable explanation.

## **Research Question**

We, in the previous chapter, reviewed the related studies, and we found that we had insufficient studies about accelerator and inhibitor in organizational learning from failure from process point of view. Thus we have one research question here, as following;

**Research Question:** How can we activate organizational learning from failure in organization learning process?

## **Research Method**

We employ one case in an engineering company in Japan. In the company, they have established the system for learning from failure and have never repeated same failures once they reflected through the system. Eventually they have maintained good business performance in this competitive business environment. This may be a specific case, but we claim that it is significant to study a successful case of organizational learning from failure since most organizations struggle with it. And we anticipate to have a key for success in organizational learning from failure. In addition, we seldom find a company to show their own failure because it may lead them have negative impression from public. The president in the unique company, on the contrary, is willing to show us their failure experience and their learning from failure initiative. Thus we have decided to study the case carefully.

In addition, we also employ quantitative method. We conduct a questionnaire survey for managers and employees in the company and analyze the collected data through structural equation model with a statistic software. We build hypotheses, employing existing literatures, to answer the questions beforehand and verify the hypotheses with analysis of the collected data through the questionnaire survey in the company. Employing organizational learning process (Huber, 1991) and motivators such as intrinsic knowledge sharing motivation (Brock, Zumd, Kim and Lee, 2005; Deci and Flaste, 1995) and organization-based self-esteem (OBSE) (Bowling, Eschleman, Wang, Kirkendall and Alarcon, 2010; Pierce and Gardner, 2003; Kirkendall and Alarcon 2010), hypotheses are built along with the research question.

Hence we examine how intrinsic knowledge sharing motivation and organization-based self-esteem (OBSE) affect acceleratory and inhibit factors in the organizational learning from failure in the company, with regard to the Research Question (RQ).

## **Case**

The case data was collected through ten interviews, involving twenty employees, conducted by the authors. The interviews were conducted from July 2014 to January 2015 in Japan. We also conducted triangular and multiple interviews with open-ended question to ensure accuracy. And the manuscript was reviewed by a director in the company to have a confirmation from him that our understanding is correct.

We cannot introduce the full story of this case due to paper limitation, which is introduced in the previous papers (Nagayoshi and Nakamura, 2014; 2015a; 2015b; 2015c; 2016a; 2016b; 2016c; 2016d) in detail, and we, in this section, summarize the story for the sake of readers' better comprehension.

The name of the company is Sangikyo Corporation, which was founded in 1965 primarily as a company which dealt with engineering services for Over-Horizontal communication maintenance.

Soon, the company grew through subcontracting service and providing a number of engineering services to companies and then eventually primary contractors in larger projects. The number of employee is about 800, as of May 2016 (Sangikyo, 2017).

“Hansei-Juku” is the activity for the organizational learning from failure in Sangikyo Corporation, which was started in 2005 and aims at reviewing fault, mistake, defect which have led/have possibility to get the company failure, such as significant financial losses, risk to human life losses, stigma.

They build and deploy countermeasures to prevent them from same failures in the initiative. Once a task force team is organized for reviewing a fault, they begin with fact finding. Completing verification, cause analyses and creating countermeasures to avoid repeating the same failure, the leader of task force team describes a report and deploys it through their knowledge sharing repository to all employees in the company.

They have accumulated 41 cases and lessons learned since 2005. The president and a director in the company emphasize that they have never had the same failures they examined through the system.

## **Research Hypothesis**

### ***Process of Organization Learning from Failure***

There does not seem the concrete process definition of organizational learning from failure. We review knowledge creation process, experimental learning process and organizational learning process.

Learning from failure is a sort of knowledge creation activity since it generates a new finding to avoid repeating a same failure. SECI model (Nonaka and Takeuchi, 1995) focuses on knowledge creation, but the learning from failure in the company seems to include knowledge distribution and organizational memory as well knowledge creation.

We also see the learning from failure activity as experimental learning. Kolb, Boyatzis and Mainemelis (1999) shows four stages cycle composed of Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation as experimental learning cycle.

Huber (1991) reviews to evaluate literatures as to organizational learning and shows a comprehensive organizational learning process which is composed of four sub processes like Knowledge Acquisition, Information Distribution, Information Interpretation and Organizational Memory.

Employing Huber (1991), we can reach a clear view of the process of the learning from failure in the company. First, they do a task force activity, in which detail data of process resulting in a failure is shared among the task force team member, and analyze to figure out reasons and countermeasures. This is recognized as the Knowledge Acquisition. Second, they create a report to describe their leanings to deploy. This is the Information Distribution. Third, employees read the report disclosed through their knowledge sharing repository to learn something to avoid the failure. This is the Information Interpretation because they should develop something by combining their existing knowledge with new learnings from the report. Finally, employees employ the learnings to execute their own task when they do next. This is the Organizational Memory.

Employing Huber (1991) to define the process of the learning from failure in the company, we mainly analyze the first process and the second process. They should be argued separated from the rest of them because knowledge provider's behavior is mainly argued in the former two processes, and knowledge receiver's behavior is mainly argued in the rest. Since we, in this paper, mainly study accelerator and inhibitor in the learning from failure from the point of knowledge provider's perspective, we thereby select the Knowledge Acquisition process and Information Distribution process to study and we will discuss the rest processes in other papers.

### ***Factors to Accelerate and Inhibit***

Faulting employee begins with elaborating process and procedure, which is executed with his/her sentiment in the Knowledge Acquisition process. You, in general, dislike to disclose your failure experience because it may bring you negative result like blame, punishment, demotion, stigma and so on. Thereby the Knowledge Acquisition process in the learning from failure is one in which employee have such negative feelings. Gausel, Vignoles and Brown (2012) suggest that feeling of shame due to stigma for failure is an inhibit factor to set forward the learning from failure process.

The Information Distribution process, to the contrary, turns to be a positive process for knowledge provider since he/she may be admired to sharing a valuable knowledge for avoiding failure. With regard to occurrence of organizational learning, organizational components commonly develop new information by piecing together items of information that they obtain from other organizational units (Huber,1991). Information distribution leading to more broadly organizational learning, organizations, however, often do not know what they know (Huber,1991). Since providing learnings of the activity with employees can generate new information, system efficacy recognition of the learning from failure can be an acceleratory factor to set forward the process of the learning from failure.

### ***Augmenter and Reducer***

Intrinsic knowledge sharing motivation can, more or less, augment and reduce the acceleratory factors and the inhibitory factors, and organization-based self-esteem (OBSE) enhances intrinsic knowledge sharing motivation (Mukahi, 2015).

Chang and Chuang (2011), Wang and Hou (2015) and Chung, Cooke, Fry and Hung (2015) claim altruism are extremely precious rewards for people to encourage to share their knowledge. Employing these studies, we hypothesises that altruism as intrinsic knowledge sharing motivation reduces shame feeling and also augments system efficacy recognition in the organizational learning from failure.

Recognizing personal skill growth is a sort of self-efficacy, and personal skill growth intension is an intrinsic motivation. It can bring you a positive effect on knowledge sharing behavior (Bock, Zumd, Kim and Lee,2005). Employing the respectful study, we hypothesises that personal skill growth intension as an intrinsic knowledge sharing motivation reduces shame feeling and also augment system efficacy recognition in the organizational learning from failure.

Nagayoshi and Nakamura (2015c) suggest that when employees are engaged in and share a similar job with their colleague, they feel risk that they have possibility to make a same fault. Thus they have reciprocal benefit in sharing failure experience with colleague in order to avoid the same failure. On the other hand, the sympathy toward faulting colleague, may come from the feelings, "He/she make a mistake but I do not make a mistake." This can be organization-based self-esteem (OBSE). We, therefore, hypothesises that sympathy toward faulting colleague reduces shame feeling and also augments system efficacy recognition in the organizational learning from failure. Otherwise, we hypothesises sympathy toward faulting colleague augment the altruism and/or the personal skill growth intension as intrinsic knowledge sharing motivation.

### ***Hypothesis***

As discussed above, we summarize the arguments into the following research hypotheses for the Research Question (RQ).

In the Knowledge Acquisition process;

**H1-1:** Altruism reduces shame feeling.

**H1-2:** Personal growth intention reduces shame feeling.

**H1-3:** Sympathy toward faulting colleague reduces shame feeling.

In the Information Distribution process;

**H2-1:** Altruism augments system efficacy recognition.

**H2-2:** Personal growth intention augments system efficacy recognition.

**H2-3:** Sympathy toward faulting colleague augments system efficacy recognition.

## ***Analysis***

### ***Quantitative Data Collection***

We also conducted a questionnaire survey from September 14, 2015 to October 6, 2015 in the company. We asked 900 employees, which included contractors at that time, in the company to answer the questionnaire through designated secure webpages on the Internet. The questionnaire was composed with 78 questions for verifying the hypotheses mentioned in the previous chapter, in which participants selected a number from -3 (Strongly disagree) to +3 (Strongly agree) composed as Likert



scale. As a result, 829 employees in the company responded the questionnaire, which meant we achieved a response rate of above 92%.

### Quantitative Analysis

Verifying the Hypotheses, we conduct covariance structure analysis with the data with IBM SPSS Version 24. As the inhibit factor, we define the latent variable of feeling of “shame” toward defect disclosure is composed of three observed variables, which are “I am embarrassed that my colleague knows my fault through my confession as leader,” “My colleague’s realization of my fault makes me hesitate to be a member of ‘Hansei-juku’,” and “I dislike that my colleague read my failure report to know my fault.”

As the acceleratory factor, we define the latent variable of “system efficacy” recognition is composed of three observed variables, which are “It is well-analyzed,” “It reports something to the point,” and “It provides practical knowledge to execute.”

As the intrinsic knowledge sharing motivation, we define the latent variable of “altruism” in the learning-from-failure activity in the company is also composed of three observed variables, which are “My colleague can avoid failure,” “I am willing to contribute company capability enhancement,” and “My colleague shall study countermeasure to avoid failure.” We also define the latent variable of “personal growth intention” is composed of three observed variables, which are “I intend to improve my ability,” “I am eager to have deep insight,” and “It should help me to enhance my skill.”

As the organization-based self-esteem (OBSE), we define the latent variable of “sympathy” is composed with three observed variables, which are “I know his/her struggle,” “I regret my colleague’s same fault of mine,” and “It is my issue as well as his/hers.”

- How the Augmenter and Reducer affect the Accelerator and Inhibitor in the Knowledge Acquisition process (H1-1, H1-2, H1-3)

Verifying H1-1, H1-2 and H1-3, we conduct covariance structure analysis with Model1-1 for H1-1, with Model1-2 for H1-2 and with Model1-3 for H1-3.

The estimation result of Model1-1 indicates a very good level of fitness ( $\chi^2=12.960$ ;  $\chi^2/d=1.620$ ; CFI=.995; RESEA=.027). It shows “altruism” has a significant negative effect on “shame”, supporting H1-1. The estimation result of Model1-2 indicates a borderline level of fitness ( $\chi^2=49.217$ ;  $\chi^2/d=6.152$ ; CFI=.961; RESEA=.079). It shows “personal growth intention” has a significant negative effect on “shame”, not supporting H1-2. The estimation result of Model1-3 indicates a good level of fitness ( $\chi^2=23.983$ ;  $\chi^2/d=2.998$ ; CFI=.986; RESEA=.049). It shows “sympathy” has a significant negative effect on “shame”, supporting H1-3.

- How the Augmenter and reducer affect the Accelerator and Inhibitor in the Information Distribution process (H2-1, H2-2, H2-3)

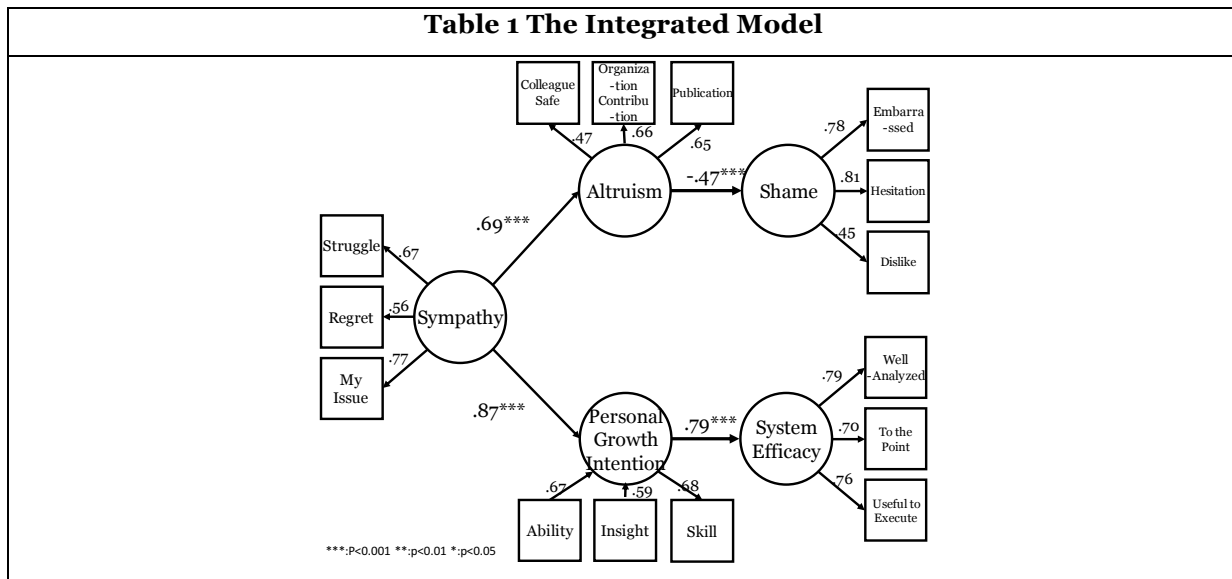
Verifying H2-1, H2-2 and H2-3, we conduct covariance structure analysis with Model2-1 for H2-1, with Model2-2 for H2-2 and with Model2-3 for H2-3.

The estimation result of Model2-1 indicates an acceptable level of fitness ( $\chi^2=20.730$   $\chi^2/d=2.591$ ; CFI=.972; RESEA=.069). It shows “altruism” has a significant positive effect on “system efficacy” with insufficient fitness, supporting H2-1. The estimation result of Model2-2 indicates a very good level of fitness ( $\chi^2=15.645$ ;  $\chi^2/d=1.956$ ; CFI=.995; RESEA=.034). It shows “personal growth intention” has a significant positive effect on “system efficacy”, supporting H2-2. The estimation result of Model2-3 indicates a good level of fitness ( $\chi^2=24.444$ ;  $\chi^2/d=3.055$ ; CFI=.989; RESEA=.050). It shows “sympathy” has a significant positive effect on “system efficacy”, supporting H2-3.

Table1 shows result of the analysis.

		Feeling of Shame						System Efficacy						
		Coefficient	$\chi^2$	$\chi^2/d$	CFI	RESEA	Evaluation	Coefficient	$\chi^2$	$\chi^2/d$	CFI	RESEA	Evaluation	
Altruism	H1-1	-.57***	12.960	1.620	.995	.027	Supported	H2-1	.70***	20.730	2.591	.972	.069	Supported
Personal Growth Intention	H1-2	-.36***	49.217	6.152	.961	.079	Not Supported	H2-2	.80***	15.645	1.956	.995	.034	Supported
Sympathy	H1-3	-.37***	23.983	2.998	.986	.049	Supported	H2-3	.73***	24.444	3.055	.989	.050	Supported

We also hypothesize an integrated model to analyze. The integrated model is shown as Figure1 above. The estimation result of the integrated model indicates an acceptable level of fitness ( $\chi^2=304.142$   $x^2/d=4.335$ ; CFI=.933; RESEA=.063).



## Discussion

As analyzed in the previous chapter, both “H1-1: Altruism reduces shame feeling” and “H2-1: Altruism augments system efficacy recognition” are supported. Willingness to contribute to colleagues, like, for instance, preventing them from same failure by providing knowledge from learned lessons, can reduce feeling of shame and augment system efficacy recognition to participate in the learning from failure activity in the company. Hence employees in the company may have enough thought of altruism like willingness to organizational contribution (Barnard, 1968). We may say that altruism as intrinsic knowledge sharing motivation, reduces the inhibit factor like feeling of shame in the Knowledge Acquisition process and augments system efficacy recognition in the Information Distribution process of the learning from failure activity in the company.

Next, “H1-2: Personal skill growth intention reduces shame feeling” is not fully supported and “H2-2: Personal skill growth intention augments system efficacy recognition” is supported. Based on the result of the analysis, we may say, so far, that personal skill growth intention as intrinsic knowledge sharing motivation, also can reduce the inhibit factor like feeling of shame in the Knowledge Acquisition process and can augment system efficacy recognition in the Information Distribution process of the learning from failure activity in the company. But the H1-2 is not fully supported. We assume the reason the hypothesis is not fully supported. It is assumed to be particularly their appraisal system named skill based competency and rewarding system for them implemented in the company. Since Personal skill growth intension, in general, comes from employee’s thought, it seems to be reasonable that it is an intrinsic knowledge sharing motivation. In case of the company, since employee’s compensation is determined by their skill, personal skill enhancement closely relates with compensation increase. Thus it could be partially an extrinsic motivator in the company, so the hypothesis could not be fully supported.

Moreover, we studied from the point of sympathy toward faulting colleague, as organization-based self-esteem (OBSE). Both “H1-3: Sympathy toward faulting colleague reduces shame feeling” and “H2-3: Sympathy toward faulting colleague augments system efficacy recognition” are supported. This means that those who feel sympathy toward colleague have lower feeling of shame to disclose their defect in the learning from failure in the company (Nagayoshi and Nakamura, 2016c). In this company, employees execute their job as a group work, and they are repeatedly assigned to a similar job. And their colleagues may be engaged in the similar job some time. Even though an employee successfully achieves his/her task today, he/she can tomorrow make a same defect which his/her colleague makes. There seems to be reciprocal benefit to share their job experience, even which is a failure experience, in order to prevent himself/herself from failure. We may say, so far, sympathy as organization-based self-esteem (OBSE), can also reduce the inhibit factors like feeling of shame and can augment system

efficacy recognition in the Information Distribution process of the learning from failure in the company.

Table2 shows the result of the analysis.

Process		Knowledge Acquisition	Information Distribution
Learning from Failure Process		<ul style="list-style-type: none"> <li>● Detail process data gathering</li> <li>● Analysis</li> </ul>	<ul style="list-style-type: none"> <li>● Reporting of fault, countermeasure</li> <li>● Deployment of information</li> </ul>
Positive/Negative Knowledge Sharing		Negative Knowledge	Positive Knowledge
Factors to Accelerate and Inhibit		Provider's Shame Feeling (Inhibitory)	System Efficacy Recognition (Acceleratory)
Augmenter / Eliminator	Intrinsic Knowledge Sharing Motivation	Altruism reduces (H1-1: Supported)	Altruism augments (H2-1: Supported)
		Personal Growth Intention reduces (H1-2: Not supported)	Personal Growth Intention Augments (H2-2: supported)
	Organization-based self-esteem (OBSE)	Sympathy reduces (H1-3: Supported)	Sympathy augments (H2-3: Supported)

The integrated model shows that "Sympathy" has significant positive effects on both "Altruism" and "Personal Growth Intention." It is interpreted that employees have sympathy toward faulting employee, and that it gets them contribute for preventing their colleague from same fault and gets them enhance skill for preventing themselves from same fault simultaneously. And "Altruism" reduces feeling of "Shame", which means that faulting employee rationalizes their negative impacting behavior by organizational contribution. And "Personal Growth Intention" augments recognition of "System Efficacy", which means a faulting employee has intention to grow through the learning from failure.

Self-determination theory claims that both intrinsic and extrinsic motivators can directly affect knowledge sharing behavior (Deci and Ryan,2010; Gagne,2009; Lin,2007). This analysis, however, suggest that the intrinsic knowledge sharing motivators and knowledge sharing behavior could be fully mediated by shame feeling and system efficacy recognition in the learning from failure in the company. It should be examined carefully through further studies.

## Conclusion

Knowledge is recognized as a key for sustainable competitive advantage. Knowledge creation (Nonaka and Takeuchi,1995) and knowledge management are consequently an essential way to win in market (Del Giudice and Maggioni, 2014). Learning from failure activity may mostly be recognized as an important knowledge creation activity. Most organizations, however, do poor job at learning from failure due to inhibit factors.

Employing organization learning process (Huber,1991) and a unique case in a Japanese company in this paper, we explored keys for success in organizational learning from failure. We particularly discussed how shame feeling as inhibit factor in the organizational learning from failure was reduced and system efficacy recognition as acceleratory factor was augmented by motivators such as intrinsic knowledge sharing motivation and Organization-based self-esteem (OBSE). We eventually found that altruism, personal growth intention and sympathy were motivators in the company. And we recognized that the OBSE enhanced the intrinsic knowledge sharing motivators. Moreover, we suggested that the intrinsic knowledge sharing motivators could mediate other intrinsic motivator toward knowledge sharing behavior although it should be carefully examined through further studies.

We briefly mention contribution of this paper. First, there is not enough argument on organizational learning from failure because it is generally handled as secret in organization. Consequently, those who eager to learn a key for success from reference could not access it. The successful case introduced in this paper is hopefully a good example for them. Second, this paper focus on knowledge sharing motivation in organizational learning from failure although there has been accumulated studies on

general knowledge sharing motivation. Hence you can reach a substantial perception focusing on organizational learning from failure.

There is, needless to say, limitation in this paper. First, the study in this paper depends on a single case in the company. We need further study employing multiple cases, including anonymous cases. Second, the study depends on the qualitative and quantitative data collected by ourselves. The data may include bias distortion although we did our best to eliminate it with triangulation.

Furthermore, we extend this study to the following studies in our future research. First of all, we conduct extensive study with not only multi-case data but also time-series data to generalize the findings in this paper. Second, we conduct comparative study in terms of organizational culture difference. Third, we conduct multi-national study in terms of national mindset characteristics.

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