博士論文

Group Communication's Influence on Individual
Thinking for Idea Generation in Innovation
Workshops
（イノベーションワークショップにおけるアイディ
ア発想に対するグループコミュニケーションの影響）

by

LU Yao

呂　垚

Graduate School of Engineering
THE UNIVERSITY OF TOKYO
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Supervisor

Professor   Hideyuki HORII

Advisors

Professor   Koichi HORI

Professor   Hironori KATO

Professor   Yu NAKAI

Assistant Professor   Shunsaku KOMATSUZAKI

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Abstract

This research investigated the influences of group communication towards individual thinking for idea generation in innovation workshops, the generation process of these influences, and the relationship between a high-level smile and these influences. Based on these findings suggestions for workshop facilitation were derived for improving individual idea generation performance in innovation workshops.

Innovation has become increasingly crucial not only for industries, but also education, and other social aspects. Innovation workshop was widely adopted for generating innovative ideas. Group-work was considered to be quite essential for creating ideas. Many researchers focused on input factors, such as group composition, task design, competition and so forth. However, the dynamic group-work process should influence the performance of idea generation as well. Few researchers studied from this perspective. Therefore a study was needed to identify the influences group-work process wields on individual idea generation performance. For investigating group-work process, group communication is a proper resource. Specifically, it includes verbal communication and non-verbal communication. In terms of verbal communication, communication content and utterance function seem to be essential for generating group communication's influences in face-to-face group work setting. Meanwhile, as for non-verbal communication, a plethora of works focused on positive emotion, such as positive group atmosphere or positive personal mood. For observing natural occurred positive emotion, high-level of smile was a frequently used. Meanwhile, currently most researchers treated it as a fixed input factor. Nevertheless, participants' mood fluctuates along the process in dynamic group communications. It is necessary to clarify the relationship between a high-level smile and the influence of group communication.

Moreover, despite the importance of facilitation for managing group work, few works were conducted for supporting it. Currently most studies for supporting management of group-work were concerning group supporting systems. However, research that focused on supporting facilitation was scarce. Therefore it is necessary to conduct research for supporting facilitation in innovation workshop as well.

For idea creation, analogical thinking is a crucial method. As a transposition of conceptual structure from one context to another, the superficial similarity and structural similarity were crucial for deciding the appropriateness of an analogy. This study adopted a method proposed by Kim (2015) to evaluate analogy appropriateness. And about analogical thinking based problem solving or idea generation, most researchers studied it from individual's perspective. Research about individual idea generation based on analogical thinking in a group setting is scarce.

Therefore following questions were raised for understanding the influence of group communication on individual idea generation based on analogical thinking, and for improving facilitation in innovation workshops: 1) What are the influences of group communication to individual thinking; 2) how the influences of group communication were generated during the discussion; and 3) whether high-level smile would co-occur with these influences of group communication; finally 4) what suggestion can be made for innovation workshop facilitation in order to improve individual idea generation performance. Accordingly, four research objectives were proposed to address these questions. 1) To identify influences of group communication on individual idea generation; 2) to clarify the realization process of influences of group communication; 3) to investigate the relationship between a high-level smile and the influences of group communication; 4) to present examples of possible improvement of workshop facilitation based on the findings of this study.

An experimental workshop was carefully designed for this study. First, in order to avoid the influence of personal ability difference, we designed a workshop process that contained two individual idea generation stages to find the change within one participant. Between the 2 stages, a group communication stage was arranged. Secondly, in order to acquire real-world data, based on Blanchette & Dunbar's work, we designed a task where participants can create analogies in a setting that is close to the real-world context.

4 experimental workshops were done with 3-person groups. They were instructed to create promoting statements as much as possible based on analogical thinking in 2 stages. In the group communication part, each participant selected 2 personal best statements. And participants in the same group would share, comment, and evaluate all

the 6 personal best statements, and finally chose one group best statement. After the workshop, interviews were conducted with every participant to identify their individual thinking process during idea generation.

For data process, we did two evaluations, statement evaluation, and individual evaluation. Firstly, all the statements created were evaluated from 2 aspects, superficial similarity and structural similarity (StSi). For measuring superficial similarity, the measurement of latent semantic distance (LaSeD) was used. By comparing with the average LaSeD, statements were separated into high and low LaSeD groups. Sentences with high LaSeD were defined as good sentences in this study. And moreover, if the relationship shown in the statement resembled the case issue (the target), the statement was defined as structurally similar with the target. Based on the statement evaluation results, we conducted individual evaluation. Firstly, the percentage of high LaSeD and structurally similar statement for each participant were calculated and compared with the average percentage. If the percentage is above average, participants perform well. In this way, we obtained evaluation result for the performance of every participant in two stages.

After compared the performance of the same participant between 1st stage and 2nd stage, we were able to identify the changes. Improvements were found in some participants who performed poorly in the 1st stage but well in the 2nd stage. And it is highly possible that influence from group communication between the two stages triggered the improvement. Therefore, an investigation was done with these group communications.

Before the investigation into group communication, firstly we compared the ideas created in 2 stages. In this way, we were able to find out the changes in participants after group communication. And based on this change, by further analyzing the interview and workshop records, we found influences of group communication on individual thinking that caused the changes from the improved participants. Next, we divided the continuous group conversation into several conversation clusters by the topics so that we could identify the change of conversation content. The clusters related with each of the group communication's influences were picked out and the conversation contents in these clusters were investigated. Mechanisms of influences

explaining how changes occurred were built. And by comparing all the mechanisms, some common crucial phases were identified. Based on these phases, we were able to extract generation processes for the influences of group communication.

Moreover, we used a software (Happiness Counter) to detect and calculate the smile faces from the workshop video record so that we were able to identify smile level during group communication. By comparing the smile level in each cluster with the average smile level during the entire group communication stage, we could identify clusters with high-level smiles. And by checking each influence's clusters, we were able to identify the influences of group communication with high-level smiles.

And lastly, we did a supplementary discussion on each participant's improvement process and analysis on those participants who received influences of group communication but failed to improve in this study. Based on these analyses we proposed additional conditions for the influences of group communication.

To sum up, in terms of superficial similarity, we found 5 influences might be helpful facilitating the retrieval of source objects. Regarding structure similarity, we found 2 influences. From the analyses of all the 7 different type of influences, we generalized 3 types of the generation process. And in this study, high-level smile was found related to 2 of the influences of group communication (Source Word Transfer and Domain Transfer).

And last but not lease, suggestions were discussed for facilitation in workshops so as to improve individual idea generation performance.

Table of Contents

List of Figures

List of Tables

1. Background

Innovation has become compelling across industry and across the world, because of its influence on economy and problem solving.

For economic benefit, its influence has expanded from new product development to many other upstream and downstream aspects, such as customer experience, service, promotion etc. Innovation acts as catalyst to growth, competitiveness in business field. Following the explosive success of Silicon Valley startups, technology and telecommunications companies are still investing heavily on innovation. According to 2014 Boston Consulting Group Global Innovators survey, 7 out of the top ten are occupied by companies from technology and telecommunication industry. Companies like Coca-Cola, Procter & Gamble, Fast Retailing, Wal-Mart, Nestle, Starbucks and Unilever from the customer industry rank highly as innovative companies as well. And across all industries, the investment on innovation increased around 61% in 2014 than 2013(Wagner, Taylor, & Foo, 2014).

Meanwhile many countries invested more in national innovation, announced innovation policies and are building innovation systems respectively to create innovation friendly environment. According to a recent evidence review, over the past few decades, developed countries has been positively investing in innovation, ranging from 20% to 75%(Hall, Mairesse, & Mohnen, 2010). For example, Australian government published Australian innovation system report to analyze the Australian national innovation system aimed at enhancing the national innovation capability so as to maximize national competitiveness(Australia. Department of Industry, 2014). And in 2003, American Federal Trade Commission published the report of To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy(United States. Federal Trade Commission, 2003).

And for solving social problems, many institutions and organizations are now conducting various social innovation problems. For example, EU has launched the employment and social innovation program aiming at promoting a high level of employment, guaranteeing social protecting, tackling with social exclusion and poverty, and improving working conditions. Institutes such as Cambridge Hub, Bristol Hub, and Kingston Hub are providing supports for students to solve local social problem with their research and ideas. Private companies such as Unilever, Hitachi and so like are

conducting social innovative business as part of their corporate social responsibility. And many national governments have conducted studies on innovation for social benefits as well. For example, Government of Canada published the Report of the Advisory Panel on Healthcare Innovation last year(Naylor et al., 2015).

Given the significance of innovation to the current economy and society, various programs were designed for improving innovation performance, and mainly were conducted in the form of creativity training, such as Brainstorming, Creativity Problem Solving, Synetics, Lateral and Vertical Thinking, Hemisphericity, Khatena Training Method, Packaged Educational Programs, Psychogenics and Psychosynthesis and Technology-Based Programs (Clapham, 2003). And currently, innovation workshop has been widely adopted for both educational and practical purpose (Kim, 2015). One of the reason is that group-work was thought to be beneficial for idea generation. And idea generation/creation is one of the most crucial components for innovation (Clapham, 2003; R. Keith Sawyer, 2011). However, the idea generation performance was not always satisfactory in practical workshops and many academic experiments. That is to say creativity demonstrated differently from group to group.

To explain these differences, factors like individual capacity were studied with the "input approach" from 1950s. Meanwhile "process approach" became gradually prevailing. For example, individual cognitive process for creation was studies. Individual thinking process is indeed essential for understanding idea creation. However, it is crucial to study the idea generation process in a group setting as well. And the individual thinking process was mainly influenced by group interaction in group-work. Among all the group interaction, group communication mainly influences. Therefore it is necessary to look at the group communication along the workshop and find out its relationship with individual idea generation process.

Meanwhile it is possible to design the group communication process. Therefore, based on the findings from such research, it is possible to find ways designing the process so as to improve the individual idea generation performance in innovation workshop. Therefore, we need a study to find how individual thinking is influenced by group communication for idea generation.

For innovation workshop, the purpose of idea generation is to come up with creative

ideas. And about creativity, several types of cognitive operations were summarized in the existing theories to explain it. According to Welling (2007), there are four mental operation accounting for creativity, including application, analogy, combination, and abstraction. And according to Boden (2004), there are three forms of creativity: combination, exploratory, and transformational. Analogy is a widely used form of combinational creativity. Among all method of creation, analogy was found to be essential for creation in both scientific and artistic fields. For academic purpose, analogy can be adopted for generating idea in experiment so to control the research condition and focus on how participants are influenced by group communication.

Therefore, in this research the main purpose is to find group communication's influences on individual thinking for idea generation under the condition of adopting analogical thinking as a main creation method.

2. Literature review

Before one could start to analyze the influence from group communication to analogical thinking based individual idea generation in innovation workshops, it was necessary to take a look at existing researches about analogical thinking for generating creative ideas as well as the relationship between group work and the generation of creative ideas. Therefore, this chapter provided an overview of the existing researches done in the field of idea generation, specifically focusing on the combination with analogical thinking and group communication.

The first part of this chapter discussed about the role group communication played for creating innovative ideas. The overall review about the studies concerning group-work and idea generation was conducted firstly. It was followed by a discussion on researches regarding group work's influence on individual thinking. Finally, an introduction of studies about group communication manage was provided.

The second part of this chapter discussed about analogical thinking in the field of creative idea generation. The review started with a general discussion about analogical thinking as a method for creation in various fields. The characteristics of using analogical thinking in creation were explicated in this part too. Finally current evaluation method regarding the output of analogical thinking was elaborated as well.

Moreover, a brief review about current studies on the relationship between smile and idea generation was provided. Both findings and method adopted for measuring were summarized.

And the final part of this chapter mainly explicated the location of this study in the field of idea generation and the relationship between existing findings. And furthermore the anticipated contribution of this research was provided as well.

2.1. Group-work and Creation

Group-work has been widely adopted for creative idea generation. Two waves of group creation research occurred. The fiCrst wave mainly focused on the "input" factors, such as individual IQ, group composition and leadership. However, since 1980s researchers started to find that only focusing on individual factors, which was the center topic of the first wave creativity research, could not explain many aspects of creation. Researchers such as Amabile (1979) started to investigate the social environment dimension(Amabile, 1979). This focus change called a second wave of creativity research about the dynamic process of creativity in collaboration and group setting(Bechtoldt, De Dreu, Nijstad, & Choi, 2010; Bond & Depaulo, 2006; De Dreu, Nijstad, Bechtoldt, & Baas, 2011; Paulus & Brown, 2007; Paulus & Yang, 2000; Rietzschel, Nijstad, & Stroebe, 2010, 2006; R. Keith Sawyer & DeZutter, 2009; Sawyer, 2012). Inspired by Osborn's brainstorming theory, abundant research effort has been devoted to check whether group work was really better than individual work for creation. Some researchers suggested that groups outperformed equal-sized non-interaction participants (Osborn, 1953; Paulus et al., 1993). And other researchers proposed counterintuitive findings, participants in nominal group work or individual work performed better than equal-sized group-works (Diehl & Stroebe, 1991). For explaining the productivity loss, which meant the group process hindered instead of stimulating the idea generation, researchers suggested that group work wielded a negative influence on individuals by free-ride effect, social comparison effect or production block effect. Specifically, the group members will decrease one's effort if a highly capable or lowly capable members existed. Production block happened if participants couldn't express immediately soon after they generated ideas because they had to wait for their turn. And normally no idea was generated while waiting (Diehl & Stroebe, 1987). Among all these studies, as suggested by Paulaus and Brown (2007) "the basic process of `coming up with` an idea falls under the domain of cognitive psychology", idea creation was considered as an individual thinking process. And a recent research focus of group creativity has been put on the influences of group-work on individuals.

6

Influence of Group-work on individual thinking for idea generation

Nijstad and Stroebe (2006) proposed a cognitive model of idea generation in groups so as to find out how individuals were influenced by group work. In the model, idea generation was composed of two stages, knowledge activation and idea product. By conducting several experiments, both positive group influences and group negative influences were found. They suggested production block interfered both the knowledge activation and idea production process for idea creation. Meanwhile group members' ideas aided the knowledge activation process.

Paulus and Brown (2007) supported the finding that sharing of ideas enhanced other group members' idea generation. But they suggested that two factors might increase the possibility of improvement, including cognitive diversity, meaning groups made up of members with more heterogeneous knowledge, and the degree of cognitive overlap among the members.

Management of group communication

For stimulating creative idea generation during group-work, several measures were proposed. As production block was found to be detrimental to idea generation in a group setting. As a way to solve the problem, many research efforts were devoted for stimulating electronic brainstorming. For example Nunamaker, Jr. et al. (1987) found comparing with manual brainstorming participants reported a high subjective rate on electronic brainstorming after using a group decision support system (GDSS) for idea generation. Gallupe et al. (1992) found larger groups benefited more from using the electronic brainstorming system. Sosik et al.(1998) found group working under higher levels of transformational leadership generated more original solutions and idea elaborations. Compared with identified groups, anonymous groups were more flexible.

However, as Santanen et al. (2004) argued, even within the environment of electronic brainstorming system (a group support systems), facilitation can be helpful solving several problems, such as fixation on some strong associations or traversing weaker associations to search for related knowledge, or the limited working memory capacity.

Regarding facilitations for group creation, Evans and Forbach (1983) investigated the outcome of a direct instruction of to "Be Creative". They argued males performed the best when instructed about the idea quality criteria and female performed the best without being instructed about the criteria. Chen et al.(2005) repeated the investigation

with different subjects and task. They found facilitation's effect varied with task domain but not across cultural and ethnic groups. Runco and Okuda (1991) argued that the explicit flexibility instruction and originality instruction respectively elected high performance in flexibility and originality.

A number of researchers have found groups with trained facilitators would be more effective in the sense of generating more ideas (Offner et al., 1996; Isaksen & Gaulin, 2005).

2.2. Analogical Thinking for Idea Generation

As one of the highest levels of human performance, creativity has been studied for over a century(R. Keith Sawyer, 2011; Welling, 2007). Amongst all the processes for creative problem solving, idea generation was viewed as a critical process in creativity(Reiter-Palmon, Herman, & Yammarino, 2007). And combining with creativity, they are central to today's economy(Cortright, 2001). In idea generation process, analogical thinking played important role for enhancing creativity(Scott, Lonergan, & Mumford, 2005; Welling, 2007; Wharton et al., 1994).

A mechanism for creation

Because of the important role idea generation played for creativity, many researches were done on finding out how to facilitate it. Welling (2007) summarized 4 mental operations in creative cognition, including application, analogy, combination and abstraction(Welling, 2007). Many researchers supported that analogical thinking is crucial and gathered empirical and experimental evidence on subject's analogical thinking in various task situations(Keane, Ledgewayand, & Duff, 1994).

Analogical transfer, as a result of analogical thinking, was found in many fields. Dunbar (1995) identified three types of analogical transfer while conducting research on scientific work. Based on the domain distance, analogies in Dunbar's work could be divided into local analogy, regional analogy and long-distance analogy, standing for the transfer within one domain, from a similar domain and from an entirely different domain respectively(Dunbar, 1995). Other examples such as the famous discovery of

the benzene model, Archimede's crown, and the planetary model of the atom can be considered as well in the field of scientific discovery(Davidson, 1995; Finke, 1995; Wotiz & Rudofsky, 1984). Analogical thinking was used in the field of design too. Cross (2011) discovered analogical thinking inspired designers through interview and observation(Cross, 2011). And Goldschmidt (2001) found analogical thinking improved design performance in an experiment done with architects(Goldschmidt, 2001). Similar examples could be found in other art forms, such as literature, visual arts, music, film and photography(Boden, 2004; Welling, 2007).

Furthermore, analogical thinking was found influential for education as well. Goldschmidt proposed that for various design domains, especially ill-structured problems, analogical thinking could be a very beneficial strategy for novices to learn(Goldschmidt, 2001). Gentner (1983) found evidences showing analogical thinking played an important role for learning as well(Gentner, 1983).

Superficial and Structural Similarity

For making an analogy, there are two types/levels of resemblance. They are superficial similarity and structural similarity. According to Blanchette and Dunbar's (2001) definition, superficial similarity stands for the "similarity in object features". And structure similarity refers to "the resemblance in the underlying relations between the objects in the source and the target". Many studies showed that people tended to retrieve source superficially similar to the target and use structural similarity for mapping and evaluation stage. (Gick & Holyoak, 1980; Gentner et al., 1993; Keane et al., 1994). To be specific, in the tasks of Gick and Holyoak's and Gentner et al.'s studies, participants were required to recall stories or solve the radiation problem. In both case high percentage of participants recalled the story with high superficial similarity (object attributes or first order relations). And in Keane's research, most participants easily retrieved analogs with common structural and superficial feature while analogs with only structural feature were seldom retrieved.

However, from a research result of Blanchette and Dunbar's (2000), it was found in a real-world setting, subjects used structural similarity to retrieve source and produce analogs. Different paradigms were found used in different settings. In laboratory experiments, the task was to recall the predetermined source. In this case, a "reception paradigm" was applied and superficial similarity was frequently used. When in subjects

were required to generate analogies for a given target in real world, a "production paradigm" was applied. In this situation, structural similarity was frequently used. Therefore, it was important to create a natural setting where participants can apply "production paradigm" in order to reveal how people thinks in real world when creating analogies.

Evaluation method for analogical thinking output

The output of analogical thinking can be evaluated quantitatively and qualitatively. Blanchette and Dunbar (2002) used both qualitative and quantitative evaluation. For evaluating the quantity of ideas created individually based on analogical thinking, they adopted two measures. One measure measured the initiatively created analogies. And the other one included initiatively created analogies and analogies created under group members' participation, such as adding a mapping or an element. For the qualitative evaluation, the structure and explicitness was subjectively evaluated.

Kim (2015) proposed another evaluation method for evaluating the appropriateness of the analogies. In this method, superficial similarity and structural similarity were evaluated. The evaluation of structural similarity was based on the extraction of structure. It was a result of cluster analysis based 3 raters' subjective rating. And if the self-reported structure matched with the raters' identified structure, the idea has structural similarity, or else not. Regarding the superficial similarity, latent semantic analysis was used to measure the latent semantic distance between two domains (idea domain and target domain). The far the distance is, the less superficially similar the target domain is with the source domain. And the appropriateness of analogies was a comprehensive concept including both superficial and structural similarity. Specifically, the lower superficially similar and the higher structurally similar the analogy is, the more appropriate it is for representing the target.

2.3. Smile and Idea Generation

Few research directly investigated smile and idea generation. Currently researchers have been studying the relationship between mood and idea generation.

Mood and idea generation

Positive mood was the main focus for studying the relationship between mood and idea generation within group setting. Several researchers argued positive mood could enhance creativity. One possible explanation was that positive mood was connected with more flexible thinking, which stimulated creation (Isen et al., 1987). As a result, more original ideas were generated (Murray et al., 1990). And Martin and Stoner (1996) suggested positive mood could influence the subjective judgment of present situation, which in turn leaded to persistence. Participants with positive mood in brainstorming session tended to persist and generate more ideas.

On the contrary, some researchers found negative influences of positive mood, such as demotivated participants and stoped the task sooner (Martin et al., 1993; Hirt et al., 1996).

De Dreu argued that activating moods, including happy, elated, angry and fearful, leaded to more creative fluency and originality when compared with deactivating mood, such as sad, depressed and relaxed.

Method for measurement

2 methods were mainly adopted for measuring mood, self-reporting and subjective rating. Questionnaire was mainly used for self-reporting (Jones & Kelly, 2009; Pronin & Jacobs, 2008; Weiss, Hoegl, & Gibbert, 2011) . And subjective rating was less frequently used but Mehu used it for observing group interactions in natural setting. (Mehu & Dunbar, 2008)

As a substitute of measurement, mood manipulation was conducted during experiment by playing music, video or requiring participants to recall a thing (positive or negative) happened recently (Eich & Metcalfe, 1989; Jones & Kelly, 2009; De Dreu et al, 2008; Baas et al., 2011).

11

2.4. Summary

Regarding group influence on idea creation

For the research of group creativity, a plethora of research has focused on the input of group-work, such as group member's knowledge, motivation, personality, task design, competition and system/tools. The process of how group influenced creation still needs more focus. Some researchers argued group influenced the creation by influencing personal motivation(De Dreu et al., 2011) and persistence(Nijstad, De Dreu, Rietzschel, & Baas, 2010). However a research investigating how individual thinking for idea creation was influenced by group-work is needed. Even though in the research of Paulus and Brown's, two possible influencing cognitive factors were proposed and discussed, the specific influence was still not clear. And from the work of Nijstad and Stroebe's, several specific influences were proposed. However only one positive influence regarding idea sharing was identified. Explorative research is needed to identify other positive influences. And about the positive influences in Nijstad and Stroebe's work, the two sides of influence were clarified. However, there still existed a gap for describing the realization process of these influences, which is necessary for improving our understanding towards the positive influence from group towards individual and utilizing the research findings for enhancing the possibility of individual idea generation improvement in a group setting.

And for realizing the goal of manage group-work so that expected influences could happen, current research mainly focused on the supportive function of electronic tools/systems. However since group-work is a dynamic process, especially group communication, the management of the process would directly influence the creation outcome. Existing research was conducted about some explicit instructions' function with different tasks and different subjects. However, a research trying to find out the facilitation content might further contribute for the practical purpose.

Regarding analogical thinking

Analogical thinking was found to be a crucial tool for idea creation (Kim, 2015). However most existing research was about individual idea generation. A research about group's influence on the idea generation process based on analogical thinking should add contribution to both the field of analogical thinking and idea creation.

Regarding smile & idea generation

Intuitively positive mood should lead to better group creation. However, studies found both negative and positive influences from a positive mood. Mood was mostly investigated as an influencing factor for creativity. A research about the relationship between positive mood and creation process would be very helpful for further understanding creation and why the different influences were exerted.

And in existing studies, the frequently used measurements of positive mood were subjective evolution (participants' and raters'). However, the change of mood along the process was not easy to catch with these methods. Moreover, manipulation of mood was proper for checking hypothesis in laboratories, but for exploring the dynamic group work it was less proper.

2.5. Objectives and the Structure of Research

2.5.1. Objectives

In order to respond to all the issues raised in Chapter 1 and Chapter 2, we focused on the investigation of group communication in innovation workshop, trying to clarify the dynamic development of individual thinking process in a group setting. And the final goal was to utilize the research findings to design the group communication within the innovation workshop and to optimize the individual idea generation flow.

Specifically, 4 research objectives were proposed.

Firstly, this study would find out the influences that group communication wielded on individual thinking for idea generation in innovation workshops.

Secondly, this study would clarify the generation process. To be specific, this research would analyze the related group conversations in each case and generalized generation processes based on it, meanwhile tried to identify how the communication contents and utterance function served for generating influences on individual thinking.

Thirdly, this study would investigate the relationship between smile and influences of group communication, trying to see which influences of group communication would relate with high-level smile during group communication.

And lastly, based on the findings, suggestions on group communication in innovation workshop would be derived for improving individual thinking performance and in this way idea generation process would be optimized. Specifically, examples of possible improvement of workshop facilitation based on the findings in this study would be presented.

2.5.2. Thesis Structure

In chapter 1, the practical and academic backgrounds were introduced for explaining why it was necessary to conduct research on this topic.

In chapter 2, the related studies were reviewed for making sure what was already known and important for solving the issues raised in this research. From literature review, we were able to narrow down the research object, find a reference for the preparing of experiment case material, and obtain an evaluation method for analogies.

In chapter 3, we explicated the reason why we need to design an experiment workshop for this study and how it was designed. Furthermore, we described the task topic, participant recruitment, process, and implementation of all workshops and tool used by participants during the workshop.

Chapter 4 mainly described evaluation methods and evaluation results with the obtained experiment data.

Chapter 5 was about the influences from group communication to individuals within the group. Specifically, the method for identifying investigation objects and influences was explained. Analysis and discussion were included.

Chapter 6 mainly covered the analysis method, discussion and findings for generation process, explained how the influences of group communication found in chapter 5 were realized along the group communication.

In chapter 7, the analysis regarding smile and group communication's influences was conducted. This chapter contained method for measuring smile and analysis. Findings from the analysis were explicated as well.

In chapter 8, an additional discussion was conducted in order to summarize the conditions under which participants in this study were able to improve.

Finally, chapter 9 summarized the discussions in this study. And a general discussion was conducted for deriving suggestions for workshop process management in this chapter. Limitation of this research and future possible research topics were covered in this chapter as well.

3. Experiment Workshop

3.1. Design of Experiment Workshop

This experiment workshop was carefully designed mainly in two aspects, process and task.

For the workshop process, a group discussion stage was designed between two individual idea generation stages in order to make sure personal differences were minimized. In this way, group communication's influences can be investigated with the same participants as in "before" (1st idea generation stage) and "after" (2nd idea generation stage) condition.

And for the task content, a common social issue was chosen in order to make sure everyone with no special knowledge could deal with the task.

Detail process and content will be explained in the later part in this chapter.

3.2. Overview of Experiment Workshop

In this study, in order to identify the influences group communication wields on individual idea generation process, we designed an experiment innovation workshop. Compared with normal innovation workshop, the experiment was a simplified 2 hours group-work. Specifically, instead of proposing a new idea or solution to a task, in our experiment, participants were required to generate analogical statements/sentences for a political promotion campaign, which was a hypothetical situation designed to have participants create ideas based on analogical thinking. By giving participants task and requiring them to find source and generate analogy, we were more likely to be able to simulate real world contexts (Blanchette &Dunbar, 2000), where participants generates idea in a similar way but in a simpler condition so that it was less complex to study.

The topic used in this innovation workshop was about a debate over the Japanese foreign worker issue. Japan is suffering from labor shortages based on data and anecdotal evidences[1]. Among all the other labor market active policies, foreign worker importation is a very important but controversial policy. To be specific, since current

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[1] Ganelli, Giovanni, and Naoko Miake. "Foreign Help Wanted: Easing Japan's Labor Shortages." (2015).

Japan is facing the problem caused by a rapidly aging society, impending population decline and a low-wage service sector[2], foreigner worker importation might become inevitable. However, some citizens have a hard time accepting foreign worker importation. There are concerns about possible increment in criminal activities, social problems, reduction of Japanese worker' competitiveness and so forth. Therefore, mainly there are two types of opinions, if the available attitudes can be extremely simplified. Some citizens supported the idea that importing foreign worker should be the first priority for government for solving the labor shortage problem, while some opposite voices went against the policy, holding the opinion that it was important to solve the problem of labor shortage but it should not be achieved at any cost.

Recruiting participants

4 experiment innovation workshops were conducted in the years of 2015 with 12 volunteers from the university of Tokyo. Participants were informed about the experiment via email and oral communication.

And all participants came from 4 countries, 9 Japanese, 1 French, 1 Korean, and 1 Mexican. Among all the participants, 2 were female and 10 were male. All experiments were arranged based on participants' availability.

Innovation workshop implementation

The first experiment was conducted as a pilot workshop in order to develop evaluation method and identify if there was any problem in the materials or process that might contaminate the result. In the first experiment, 3 participants formed an ad hoc group, 1 female and 2 males, all recruited from the civil engineering department, The University of Tokyo. The experiment was held in a laboratory meeting room equipped with chairs a shared screen and a desk with a camera on it. And the shared screen computer was for facilitation use. Reading materials were printed out and put on the desk for every participant respectively.

Participants were required to bring their own laptop with them to join the experiment.

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[2] Douglass, Mike, and Glenda Susan Roberts. "Japan and global migration."*Foreign workers and the advent of a multicultural society* (2000).

And their laptops were used for writing and reading ideas and comments. In the pilot experiment, since one of the participants forgot to bring laptop, the shared screen computer was lent to that participant. Because there was no overlap between idea generation stage and facilitation, lending shared screen computer to the participant didn't influence the result evidently. And workshop setting was like figure 3-1.

Figure 3-1 Workshop Setting 1
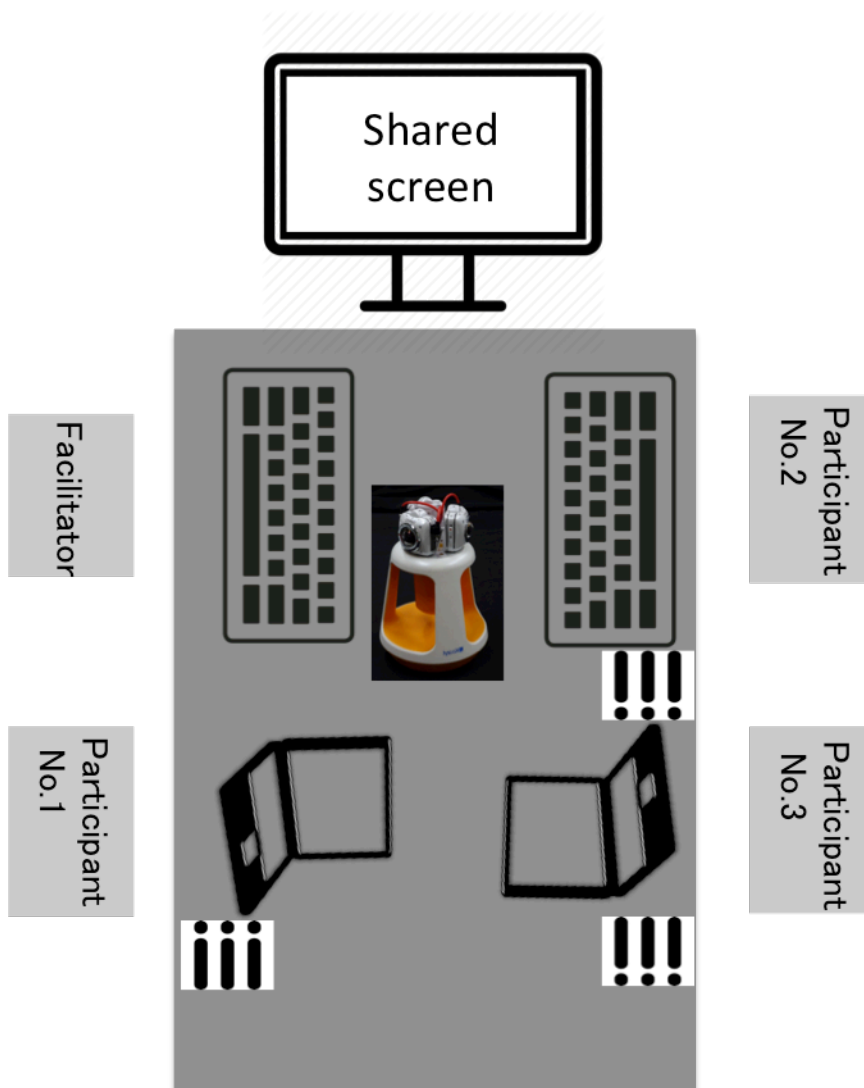
And after the pilot experiment, it was found using the word of "Slogan" in the task heavily influenced participants in the way that their attention was diverted from creating analogy to emphasizing the rhetoric of sentences, which is not the focus of our research. Therefore in the left workshops, we revised the reading materials and task by replacing the word "Slogan" with "Promotion statement".

The rest 3 workshops were all conducted with the same revised reading materials, task, process, and experiment room setting. The room setting was set according to Figure 3-2.

Figure 3-2 Workshop Setting 2
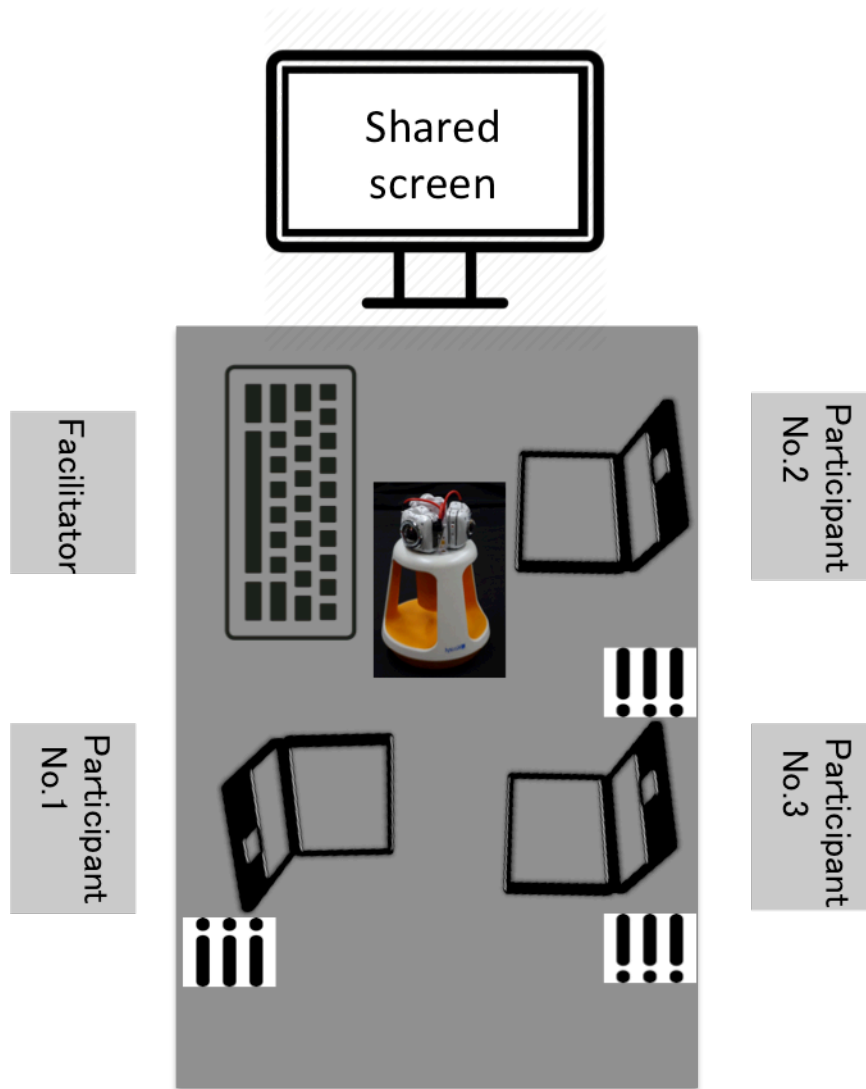
Innovation workshop process

Pre-task

Reading materials were sent to participants before the workshop through E-mail and they were required to read the materials. In the same E-mail, the experiment location, time and process were sent to them as well.

Introduction for the workshop

At the first 10 minutes, workshop facilitator started the workshop introduction with greeting participants. And the workshop process was introduced by showing the facilitation slides on the shared screen. After the process introduction, we instructed participants to login Apisnote[3], an online post it website, with the account we prepared, and to have self-introduction with each other so as to getting use to Apisnote at the same time.

After confirming that all participants had no problem with using Apisnote, we started to explain the issue and task in the reading materials. When finishing the introduction stage, we confirmed with all participants again to make sure they understood what they were required to do. After the confirmation, facilitator left the experiment room to have them work by themselves.

1st individual idea creation stage

Participants were instructed to write down anything that went across their mind regardless of how they thought about them. 20 minutes was given to them for the 1st idea generation. Participants were required to use white note and write down sentences on the worksheet with their own name on, i.e. in each workshop, participants wrote on individual worksheet for the idea generation stage. And one sentence should be written on one note. And it was instructed that participants should complete the 1st individual idea generation stage by themselves. Facilitator was not in the experiment room the whole time of this stage.

Group discussion: evaluation and selection

After 20 minutes idea generation, facilitator went back to the experiment room, and instructed participants to select 2 personal favorite from all the sentences they just created respectively, and rewrite them into a shared worksheet named "Evaluation". In the Evaluation worksheet, participants were instructed to post negative comments in green and positive comments in grey notes about all the 6 personal favorite sentences. And during the process, participants were instructed to talk with each other commenting the sentences as well. They could choose to talk while writing, or talk after writing. This process proceeded as participants preferred. 30 minutes were given to complete this

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[3] http://apisnote.com

21

stage. And as the goal and outcome of this stage, participants were instructed to make a consensus and select one sentence out of the 6 as the group sentence.

2nd individual idea generation stage

After selected out the group sentence, participants were instructed to create sentences for the second time. And like the 1st time, participants were instructed to complete the task individually and write down anything that went across their minds, regardless of how they thought about them. And the 2nd individual idea generation stage finished after 20 minutes as well. This time, participants were instructed to write down sentences on their own worksheets, the one with their names on, with yellow notes. One sentence should be written on one note.

In the pilot workshop, the time spent on instruction was calculated into the given time for each stags as well. However, in order to make sure every group have the same amount of time to use, in the following 3 workshops, the time spent on instruction was out of calculation. For example, in the pilot workshop, for evaluation and selection stage, the allocated 30 minutes actually including time spent on instruction by facilitator, selecting personal favorite, writing comments, and talking by participants. And in the following 3 workshops, the allocated 30 minutes was all spent on selecting personal favorite, writing comments, and talking by participants.

Group idea generation stage

After the 2nd individual idea generation stage, participants were instructed to talk with each other about what they have done newly, and work together to create something new more. This time, they wrote together in the same worksheet, "Evaluation" worksheet, with yellow notes. This stage lasted for 20 minutes. And when 20 minutes finished, the workshop ended. Facilitator thanked all participants for coming. And a follow-up interview appointment was decided right after workshop finished.

Since this stage was not related with this study, analysis on this stage was excluded.

Follow-up (Interview)

An interview was done within 24 hours after the workshop. The interview was mainly conduct based on an interview question list. However, depending on situation at the time, not all questions were asked and questions were not asked exactly in the same way.

The main purpose of the interview was to clarify personal thinking process when creating sentences. The recall was made as detailed as possible under the inquiries of interviewer. And participants' opinions about the task, group-work, and evaluation standards were asked briefly so as to have more angles to look at the individual thinking process of each participant. And after the interview, we explained briefly to the participants about the reason for conducting the workshop.

The tool used in the workshop/Apisnote

Apisnote is an on-line post-it website. Two main functions used in this research are sharing and history. The first one, sharing, is mainly for participants to write down ideas or comment and share with the other group members in a real time fashion. And researchers mainly use the other one, history function. All the movements done on worksheets can be replayed using this function. Therefore, we used it during the interview session helping participants recall their thinking process. Meanwhile, we used it to keep a chronological record of participants' ideas and comments.

Figure 3-3 The Main Page of Apisnote
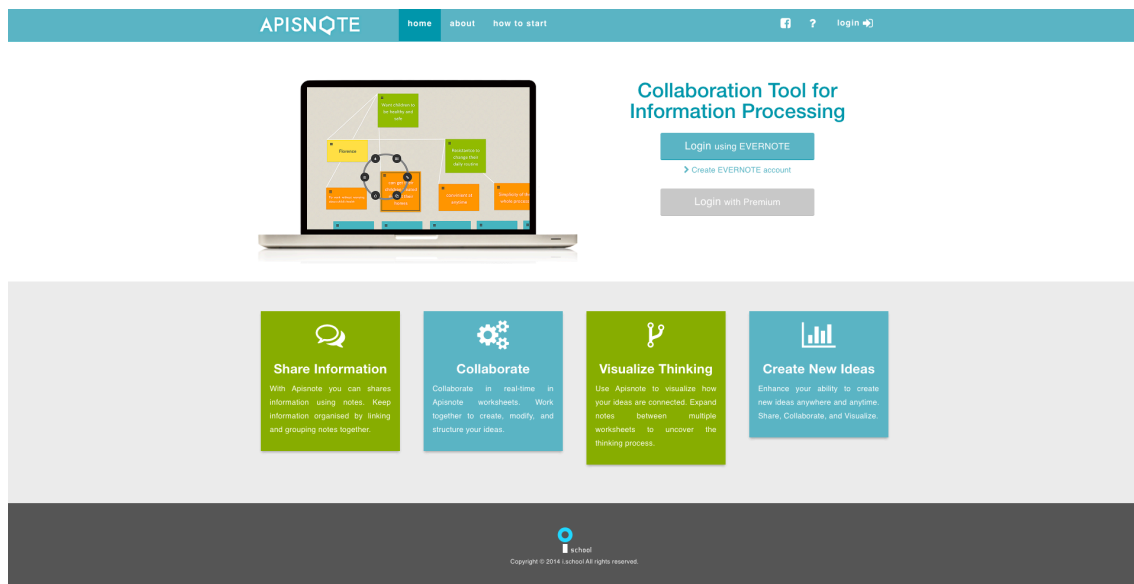
For all the workshops in this study, though every individual has individual worksheet respectively, all participants have access to all worksheets. And all users can post notes on the same worksheet.

3.3. Data Collection and Processing

In this research, data mainly came from three sources. Apisnote records, video records and interview records.

Apisnote records include data such as the content of all the notes, by who and when those notes were written in a chronological order. Figure 3-4 shows an example of individual worksheet when the 2nd individual idea generation finished.

Figure 3-4 A Individual Worksheet
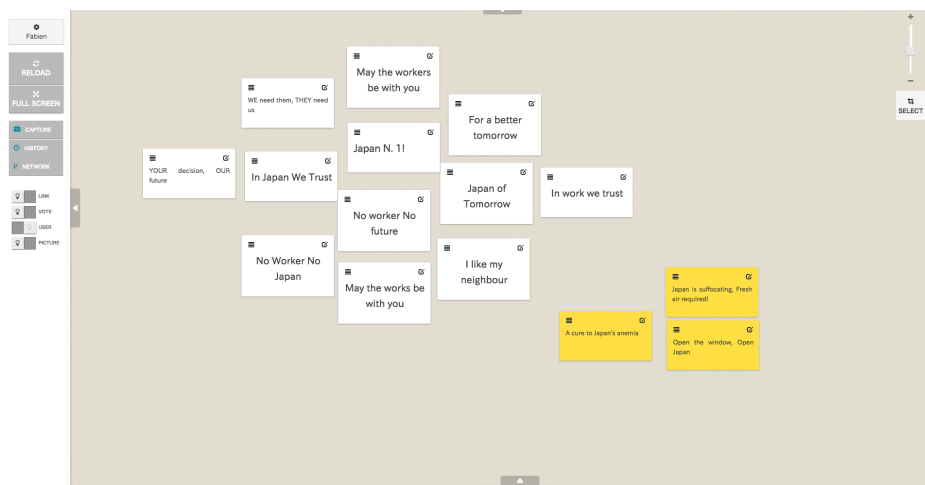
Figure 3-4 shows an example of Evaluation worksheet when evaluation and selected stage finished.

Figure 3-5 A Group Worksheet
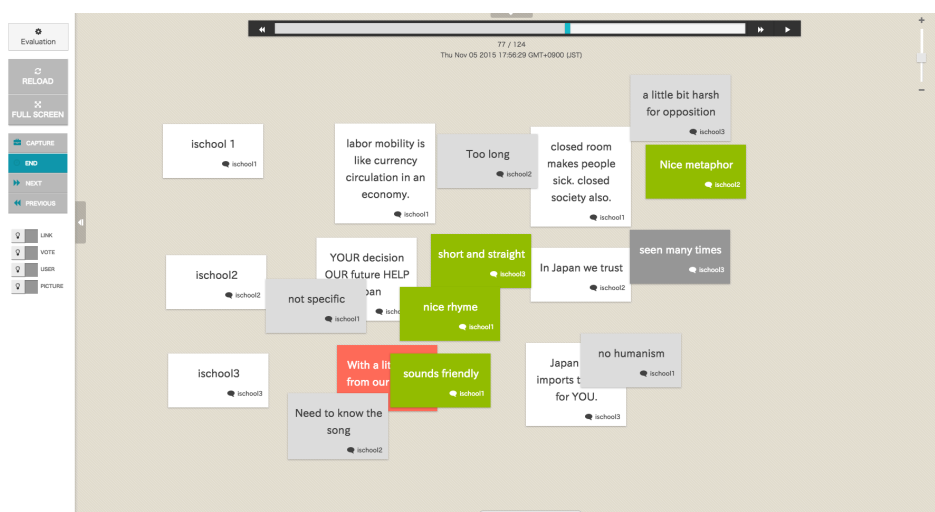
And the second data source is the video records. From video records, we were able to acquire two types of data. One type of data is video transcriptions recording all conversations during workshops.

Figure 3-6 Transcription of Video Record

No.	Starting T	Ending ti	Interval	Who s	To wh	Content
			...			
14	58:45.5	58:49.3	00:03.8	P3	All	And I like the first one "labor mobility..."
15	58:49.6	58:54.0	00:04.4	P2	P3	I like the idea too. But I think it is possible to make it shorter.
16	58:55.2	59:05.4	00:10.2	P2	P3	Actually I think the first two slogan can be combined as a shorter one.
17	59:09.5	59:13.3	00:03.8	P2	All	Like stagnant economy is dying the country. Or something like that
18	59:28.4	59:33.7	00:05.3	P2	All	So they want to win election. So..
19	59:34.9	59:45.7	00:10.8	P1	P2	Closed room... Closed society... People die···
20	59:47.2	59:49.4	00:02.2	P2	P1	I think write die in a slogan is···
21	59:49.9	59:51.7	00:01.9	P3	All	It is not really (a good idea).
22	00:03.4	00:05.0	00:01.6	P1	All	I like "Japan imports the best for you"
23	00:05.5	00:07.3	00:01.8	P2	P1	Yeah, I like also this one.
24	00:09.6	00:12.0	00:02.4	P1	P3	But Import worker?
25	00:12.4	00:13.7	00:01.3	P2	P3	It's like a...
26	00:14.3	00:16.4	00:02.2	P3	P2	Like a product? Treat them like a product?
27	00:16.5	00:19.2	00:02.7	P2	P3	Yeah, it is a bit harsh
28	00:27.9	00:30.6	00:02.7	P3	All	maybe change the words?
			...			

And the other type of data we were able to get from the video records was a file that shows how much participants had smile/laugh facial expressions during workshops. A software Happiness Counter detected and calculated the smile faces from the video record. An example of process results was shown in Figure 3-7.

In the first green row, one segment stands for data occurred in one second. And the green little squares within one segment in the first row stand for the number of smile/laugh expression detected and grey little squares within one segment in the first row stand for the faces detected. For example, in one segment from the first green row, if there are two green squares and one grey squares, it means among all three detected faces, two are smile/laugh faces. And all the data in the current first green row is an expansion of the light grey area shown in the second green row. The second green row is a summary of all the detected data during the workshop. In another word, face detection data during several minutes was shown in the first green row while the second

25

green row shows all face detection results.

And the last data source is interview records. Based on the interview records, transcriptions were made.

Figure 3-7 Video Processed by Happiness Counter
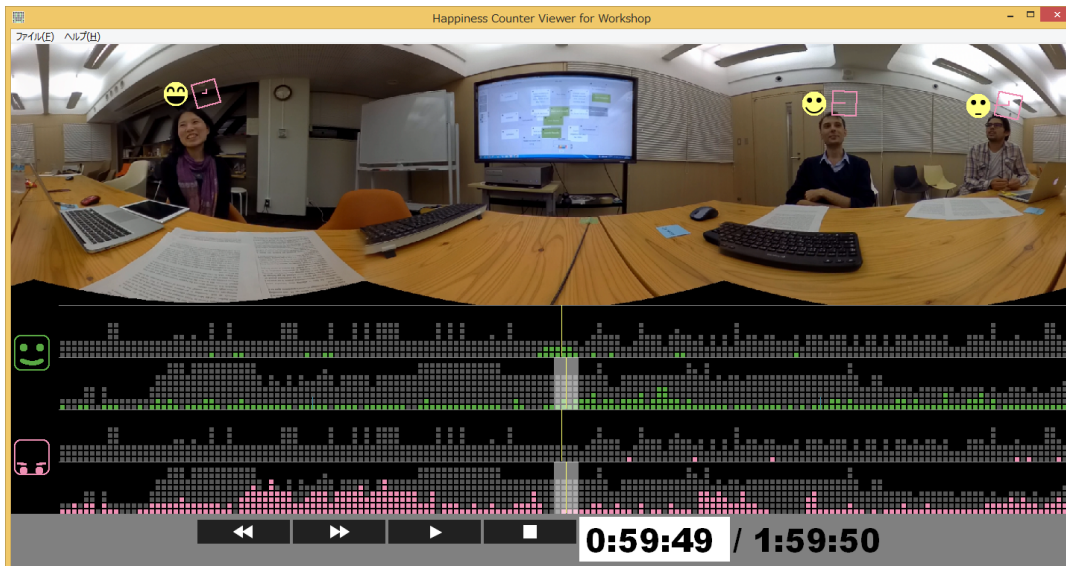
4. The Evaluation of Workshop Output

Since participants were instructed to utilize analogical thinking to generate analogies, evaluation on the analogies they generated during the workshop was necessary for judging individual idea generation performance.

About the overview of the sentences generated in experiment innovation workshops, the final output consists of analogies and non-analogies. For example, some participants simply wrote slogans that contain no analogy, metaphor or any similar form of comparison. In total, the percentage of analogy took 58% out of all workshop output. Among the 123 analogies created during the 1st stage and 2nd stage, 59.3% analogies were created in the 1st stage and the rest in the 2nd stage. The Figure 4-1 shows the numbers of analogies created by different groups. Evaluation was conducted with these analogies.

Figure 4-1 Analogies Created by 4 Groups in 2 Stages
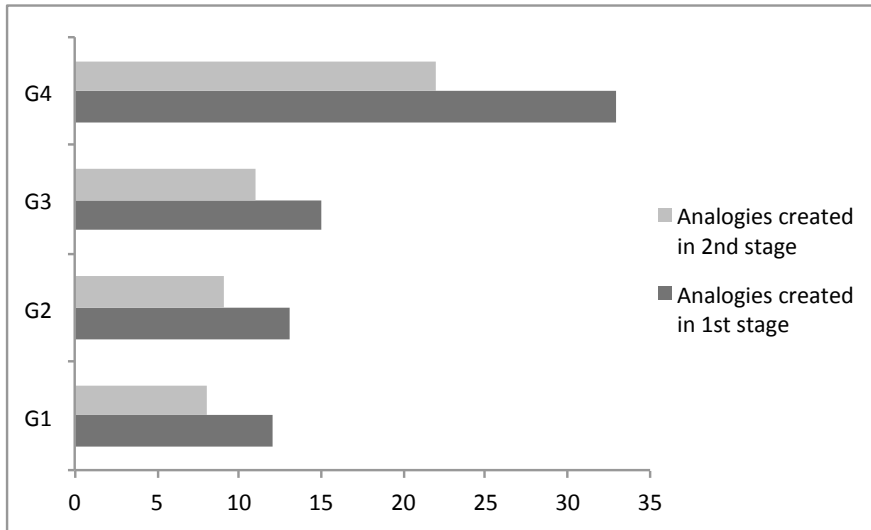
The evaluation was divided into 2 parts, evaluation on analogies and evaluation on individual participant's performance. Individual performance was evaluated based on the analogies evaluation result. We adopted the method proposed by Kim (2015), to evaluate analogical statements from two aspects, superficial similarity and structural similarity. Accordingly, the appropriate analogies should be those with high structural similarity and low superficial similarity. Therefore, the analogies fall into the yellow space are desirable analogies.

Figure 4-2 A Evaluation Method Proposed by Kim (2015)

High

Latent
Semantic
Distance

Low

Low High
Structural similarity
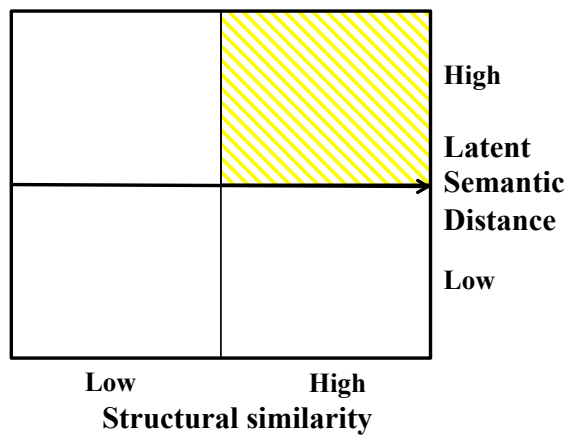
Adjusted based on Kim's(2015) research

In this study, it was adjusted for an easier understanding to high structural similarity and high LaSeD. Both evaluations for analogies and individual participants were conducted regarding these 2 aspects.

This chapter will mainly provide the description of evaluation method and evaluation results regarding superficial similarity (LaSeD) and structural similarity respectively.

4.1. Evaluation Regarding Superficial Similarity

We evaluated superficial similarity by Latent Semantic Analysis. It is a method designed to computes the similarity of contextual-usage meanings between words (Kim, 2015).

4.1.1. Evaluation of Workshop Output (Sentences)

From all the analogical statements, we were able to identify one or two pair of words (objects), target words and source words. Source words were retrieved and used by participants to describe target words in the fashion of analogy. Therefore, by measuring the Latent Semantic Distance (LaSeD) of the pair words, we can obtain a score showing the superficial similarity between these two objects. If we were able to extract two pair of words, we calculated the average score of the two pairs. The more similar the pair of words is to each other superficially, the closer the LaSeD is.

To be specific, using a website developed by the Science and applications of Latent Semantic Analysis Group (SALSA) Lab from University of Colorado Boulder, http://lsa.colorado.edu/, it is possible to conduct latent semantic analysis between words. Since the cosine of the angle made by word's vectors in a semantic space was computed, a number (LSA cosine) between -1 and 1 was generated as the result showing the similarity. Since in this research, the desirable outputs are those sentences that used superficially dissimilar source words to describe the target words. Therefore LaSeD score (1-LSA cosine) was adopted to measure the dissimilarity between source and target words.

All statements' pair words were computed. And an average LaSeD score was calculated based on all the computation results. The LaSeD score of each idea/statement was compared with the average LaSeD score. If the comparison result is no less than the average score, the statement was evaluated as high LaSeD, or else low.

After computation, an average score of 0.83 was found to be the threshold deciding the level of LaSeD score. Totally, around 60% of the analogies generated by all participants was high LaSeD analogies. Specifically, high LaSeD analogies generated in the 1st stage took 67.6% while 50% in the 2nd stage.

4.1.2. Evaluation of Individuals

For evaluating the participants, we used the result of statements evaluation, i.e. LaSeD score. We calculated the high LaSeD analogy percentage among all the analogies generated by each participant in one single stage, and used the high LaSeD percentage to indicate each participant's performance in different stages. With all the percentage in each stage, we were able to calculate an average percentage for each stage indicating the average performance. By comparing the individual participant's performance with the average performance, we could divide all the participants into good performance group and poor performance group for two stages respectively. In another word, participants who could generate more than average percent of high LaSeD analogies, he/she performed well in that stage.

According to the calculation, average percentage for the 1st stage was 64.7% and 61.3% for the 2nd stage. And the detailed individual evaluation result was shown in table 4-1.

Table 4-1 Performance Evaluation Result

	1st stage	2nd stage
P1	60.0%	50.0%
P2	N.A.	100.0%
P3	0.0%	100.0%
P4	N.A.	33.3%
P5	100.0%	50.0%
P6	50.0%	50.0%
P7	100.0%	100.0%
P8	100.0%	100.0%
P9	50.0%	75.0%
P10	53.3%	12.5%
P11	100.0%	40.0%
P12	33.3%	25.0%
Average	64.7%	61.3%

In terms of generating analogies with high LaSeD, P5, P7 and P8 were found performed well in the 1st stage. And P2, P3, P7, P8 and P9 performed well in the 2nd stage. The evaluation result comparison between two stages was shown in Figure 4-3.

Figure 4-3 Evaluation Result of Ideas Created in 2 Stages in Terms of LaSeD
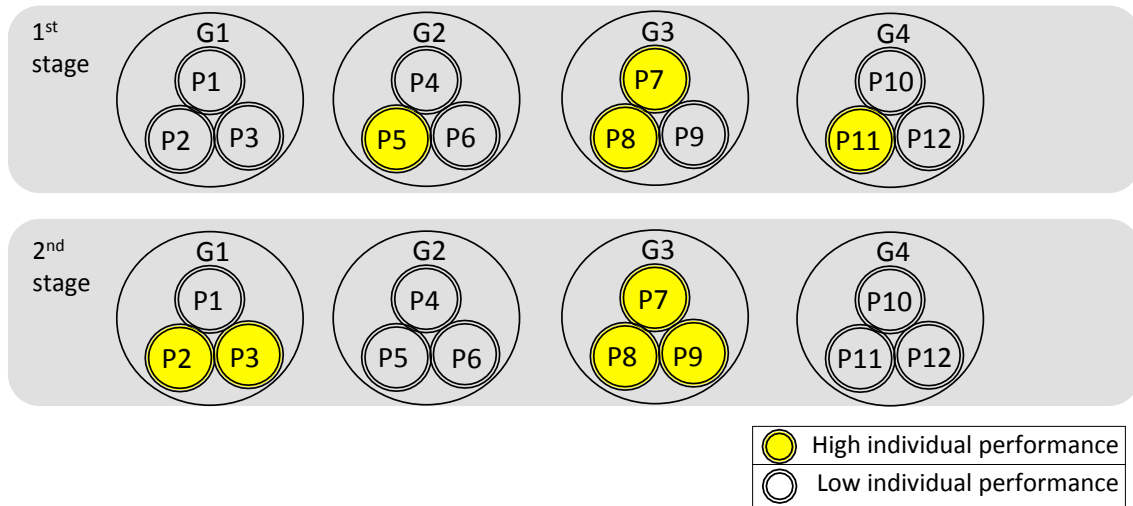
4.2. Evaluation Regarding Structural Similarity

Aside from using a source word or several source words to describe the target words, the underlying system relationship between objects in the statement was analyzed as well for evaluating the similarity of analogies. Since in some case, participants only wrote the single source words, the keywords, for describing, it is impossible to tell the structure from a single word. Additional information for making the structure complete might be available if taking interview or the workshop record into account, however analogies in this fashion were not included in the analysis object. In another word, the analysis object for structural similarity is the analogical sentences with explicit structures.

And among all the 123 analogies, 48 were proper for this analysis. All the 48 analogical sentences meets the conditions that 1) clear structure was shown in the sentence; 2) it was the final version if there existed minor changes of wording that did not change sentence structure.

4.2.1. Evaluation of Workshop Output (Sentence)

The relationship between objects in every statement was extracted first. If the relationship shown in the sentences showed resemblance with the case stated in the material, the sentences were evaluated as structurally similar with the situation of the task. If the relationship shown in the sentences was not written in the case material, they were evaluated as no structural similarity. Furthermore, if the participants failed to write a sentence out of the source word already retrieved, we considered it as not structural similar analogies.

To be specific, in the case material, the task was designed to emphasize that labor force in Japan is insufficient therefore foreign workers are needed. Therefore, any analogical sentences that show supplement of something have structural similarity. Meanwhile, since the case situation can be understood as providing a necessary solution to the current problem. Hence, if participants created sentences conveying the message that it is necessary to adopt the action as a solution to the current problem, we evaluated these sentences have structural similarity. Or since the purpose of this task can be understood

as persuading the citizens who are against taking foreign worker importation as a necessary solution, the situation can be described as telling those who are against this policy that their current behavior is problematic. Therefore, in the analogical statement, if the relationship of doing something is wrong was shown for making the opposite realize the fact of current problematic behavior, it was evaluated as structural similar too. Furthermore, for foreign labor importation, we created a situation where part of the public were against the situation because of something negative consequences might occur along with the importation. And in some analogical sentences we found participants created a structure that conveys this relationship of endurance. Specifically, participants tried to suggest that it is necessary/better to accept something even it might bring some negative influence/risk. In this case, the sentences contain this structure were evaluated as structural similar as well. In Table 4-2, we listed the abstract relationship and example from experiment of different structures that were structural similar to the target.

Table 4-2 Proper Structures

Structure	Relationship in the structure	Example
Supplement	A is in shortage, it is necessary to supply A	Japan's running out of fuel, workers are needed
Solution	Current problem should be solved by solution X	Workers are cure to Japan's anemia
Realization	Current behavior/conduct X is problematic	It will be too late if there is no gasoline in the fuel tank
Endurance	It is necessary to accept A even if risk/negative outcome might happen	Foreign workers are like vaccine. We might suffer at the beginning, but it will bring us huge benefit later on.

Among all the analogical sentences created from all the experiment workshops, around 54% of the analogical sentences generated by all participants showed structural similarity. Specifically, structurally similar analogical sentence generated in the 1st stage took 53.6% while 49.2% in the 2nd stage.

4.2.2. Evaluation of Individuals

For individual performance evaluation, we calculated the percentage of structurally similar statement out of all the sentences participants created. And an average percentage was calculated as well. If the individual structurally similar sentence percentage was no less than the average, the participants performed well, or else low. The individual evaluation result was list in Table 4-3.

Table 4-3 Proper Structures Used in Different Stages by Different Groups

	Group	Participant		Total number	
		1st stage	2nd stage	1st stage	2nd stage
Supplement	G1, G2, G3, G4	P1, P5, P6, P7, P9, P10, P11	P2, P11, P12	15	4
Solution	G1, G2, G4	P1, P6	P1, P10	4	4
Endurance	G2, G4	P6, P12	P5, P6, P10, P11	5	8
Realization	G1, G2, G3, G4	P1, P7	P5, P7, P11	5	3

And the individual performance evaluation result of structural similarity in 2 stages was shown in Figure 4-4. P6, P7, P9, P10 and P12 performed well in the 1st stage, and P2, P5, P7, P10, P11, and P12 performed well in the 2nd stage.

Figure 4-4 Evaluation Result of Ideas Created in 2 Stages in Terms of Structural Similarity
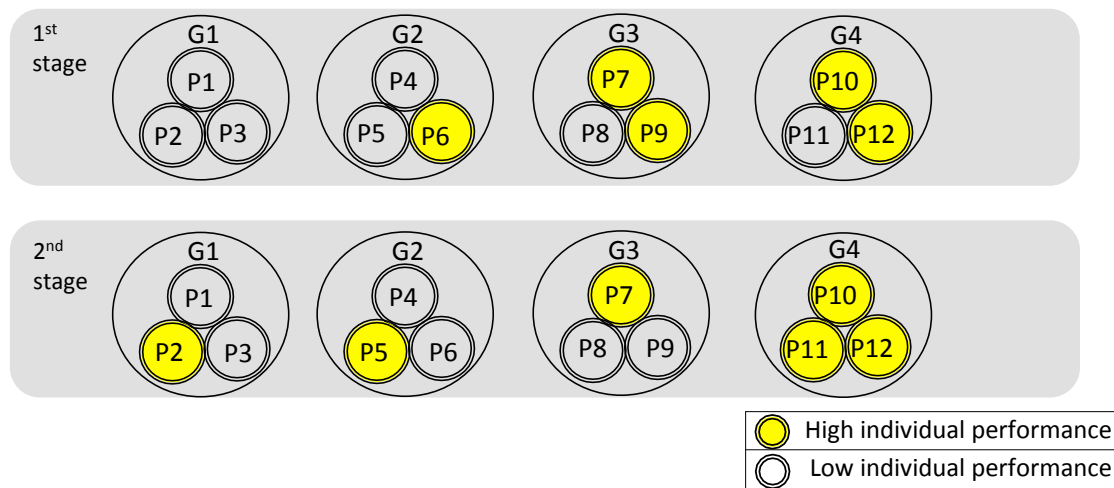
5. Influences of Group Communication on Individual Thinking

5.1. Analysis Method

In order to identify how group communication influences individual idea generation positively, we selected the improved participants, whose performance was poor in the 1st stage and good in the 2nd stage, for in-depth study. Based on the evaluation regarding performance on superficial similarity and structure similarity respectively, we identified five study subjects, P2, P3 & P9 for superficial similarity and P5 & P11 for structure similarity.

We applied three ways to find the influences of group communication. Regarding LaSeD, first we contrasted ideas generated in two stages by the same participant. Then the high LaSeD analogies created by improved participants were contrasted with the ideas created by the other group members. And lastly we check the self-report of thinking process for creation in the follow-up interview. For the contrast of ideas we did two comparisons, direct comparison of ideas and domain comparisons. Direct comparison refers to the comparison of source words used in each analogy. For domain comparison, we compared the analog's generation domain. Specifically we categorized every analogy into different domains based on its source word and checked the domains with self-report record. The categorization was corrected if the participant reported a different domain for creation.

Regarding structure similarity, we adopted similar means. Firstly, we analyzed and extracted the structure within every analogical sentence. Using these structures a comparison of structure used by the same participant for creation in two stages was conducted. And a cross comparison about using structures for creating analogical sentences among the entire group was conducted too. Moreover we used the self-report to refine the extraction of structures.

5.2. Influences of Group Communication in Superficial Similarity

Several group influences on individual thinking were identified from the improved participants. In this part, the change in individual output, the influence from group communication and the evidence will be presented.

Individual thinking process was depicted in a thinking flow chart based on the self-report about idea generation thinking process in the follow-up interview. The whole thinking flow in this chapter contains the thinking process in the 1st stage and 2nd stage.

In the flow chart, black dots stand for the allocation of focus. The black lines stand for the change of focus. The red dots stand for the focus during which high LaSeD source word was retrieved or new promoting statement using high LaSeD source word was made. And the red line stands for the processes where group communication wields influence positively during that time interval.

P2

By comparing the ideas generated by P2 in 2 stages, we found a notable difference. In the 1st stage, all sentences created by P2 were non-analogical sentences. However in the 2nd stage, all sentences created by P2 were analogical. This type of change was defined as Cognitive Shift towards Analogy Creation. It stemmed from changes in individual thinking.

The individual thinking process of P2 was depicted in Figure5-1.

Figure 5-1 Individual Thinking of P2 for Idea Generation in Two Individual Work Stages

36
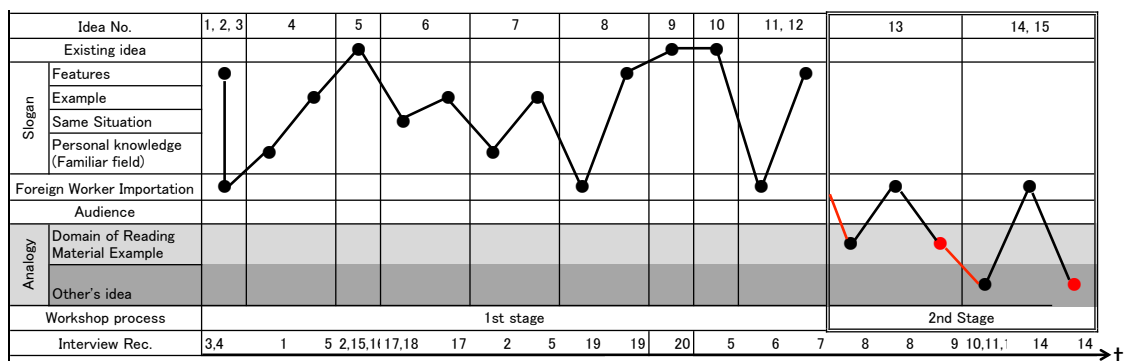
By comparing the two idea generation stages, it is notable to find a change in individual thinking related with the Cognitive Shift towards Analogy Creation. In the 1st stage, P2 did not spend any time thinking about creating analogy. However in the 2nd stage most of P2's focus was place on analogy related subject. This change of individual thinking under group communication's influence was shown in Figure 5-2. And the key information from self-report about this change was shown in Figure 5-3.

Figure 5-2 The Difference of Individual Thinking of P2 for Idea Generation between Two Individual Work Stages part 1
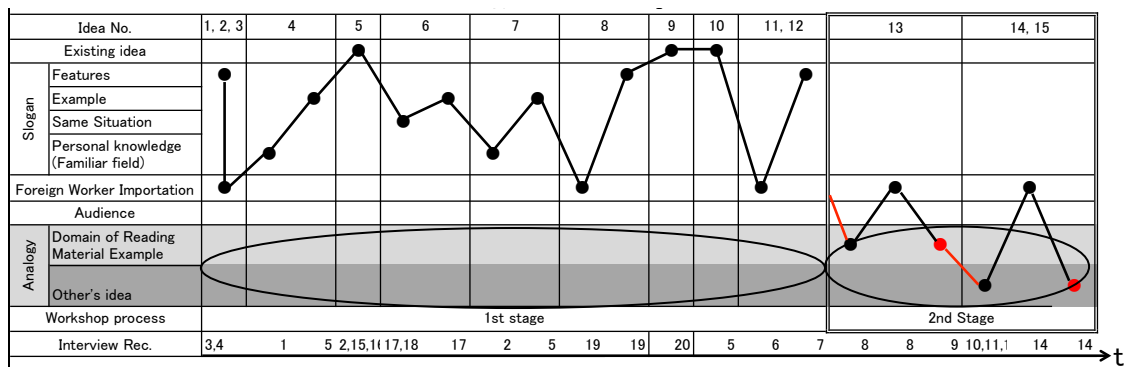
Figure 5-3 Interview about the Cognitive Shift towards Analogy Creation

Interviewer	Did you feel helped or inspired by working with the others?
P2	So, before discussion, almost all my idea were not related to analogy. And during the sharing stage, mine and P3's were not so related to analogy, but P1's two were analogical. Though these two are not slogan but analogical. So I understood better what the task was.

This type of group communication's influence stimulated P2 to focus on the requirement of task, causing a cognitive shift from focusing on creating non-analogical slogans to analogies. In this case, the group communication's influence was defined under the same name of Cognitive Shift towards Analogy Creation.

And meanwhile, by comparing two high LaSeD analogical sentences created by P2 in the 2nd stage and one analogical sentences created by P1 in the 1st stage, we found these three sentences shared the same source word. And related change in individual thinking can be found as well. As shown with the black circle in Figure 5-4, from the self-report we found P2 thought about the analogy created by P1 while he was creating idea No.14

37

and No.15 (both related to the source word of "air"). And the key information from self-report about this change was shown in Figure 5-5.

Figure 5-4 The Difference of Individual Thinking of P2 for Idea Generation between Two Individual Work Stages part 2

Idea No.	1, 2, 3	4	5	6	7	8	9	10	11, 12	13	14, 15
Existing idea											
Features											
Example											
Same Situation											
Personal knowledge (Familiar field)											
Foreign Worker Importation											
Audience											
Domain of Reading Material Example											
Other's idea											
Workshop process	1st stage									2nd Stage	
Interview Rec.	3,4	1	5 2,15,1(17,18	17	2 5	19 19	20	5 6	7	8 8 9 10,11,	14 14
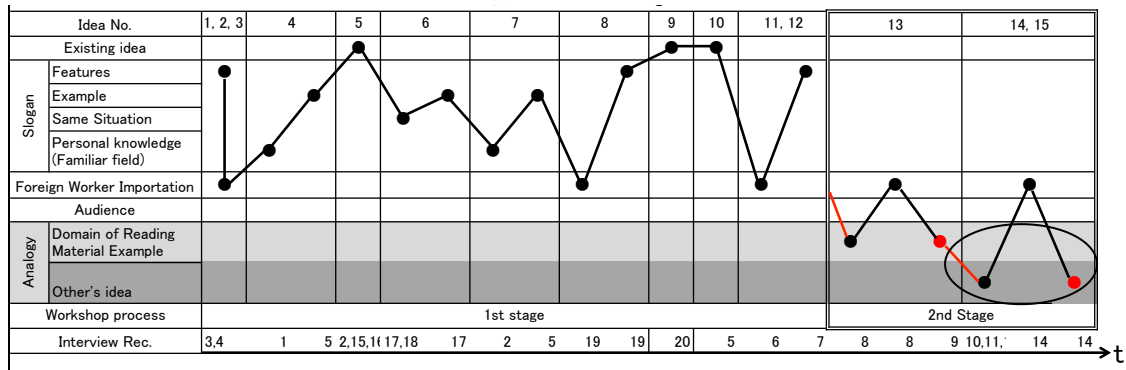
Figure 5-5 Interview about Source Word Transfer (P2)

P2	...And 14 and 15 are right after the discussion and we thought that P1's slogan about opening the window. Like the idea of opening the window in the house is something we need to do, to keep healthy life. So the analogy is to open the window open Japan.
P2	One is Open the window and the other one is about suffocating, needing some oxygen.Both are the same needing fresh air.
P2	The air is the workers in this case.

Group communication stimulated P2 to use high LaSeD source word generated by other group members. In this case, the influence of group communication was defined as Source Word Transfer.

To sum it up, from the improvement of P2, we found two positive influences of group communication, Focus on Analogy Creation and Source Word Transfer.

P3

By comparing the high LaSeD analogical sentence No.12 created by P3 in the 2nd stage and one analogical sentences created by P1 in the 1st stage, we found they shared the same source word ("air"). And related change of thinking process can be found as well. Based on the self-report individual thinking process of P3 was depicted as Figure 5-6. After group discussion, P3 thought about other's analogy for analogy creation in the 2nd

stage. And the key information from self-report about this influence was shown in Figure 5-7.

Figure 5-6 The Individual Thinking of P3 for Idea Generation in Two Individual Work Stages

Individual thinking process of P3 for Idea generation													
Idea No.	1, 2, 3	4	5	6	7	8	9	10		11		12	13

(Slogan: Existing idea / Features / Example / Same Situation / Personal knowledge; Foreign Worker Importation; Audience; Analogy: Other's Idea / one's own idea — Daily Life / Pop Culture)

Workshop process	1st stage												2nd Stage	
Interview Rec.	1,2	3	4	4	5,7	6	6	8	8	8,9	11	10	12	12	13	14	14	14
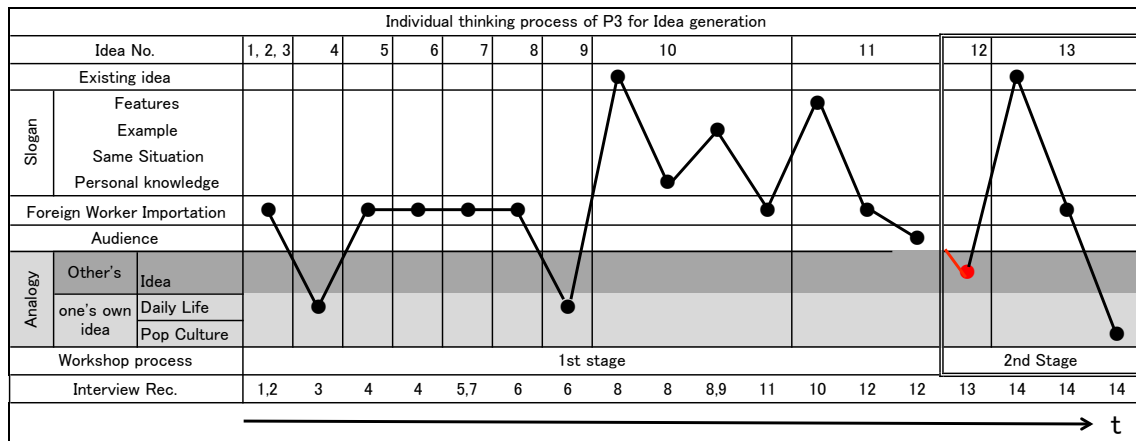
Figure 5-7 Self-report about Source Word Transfer (P3)

P3	We were talking about one of P1's phrases, it was something related to the opening the window. So we were creating ideas about fresh air. So I just wrote new air refresh Japan. Ventilate the closed room, is similar to that Japan should not be so close to solve the inside problem. Also let the outside thing help the inside issue.

In the improvement of P3, we found group communication stimulated P3 to use high LaSeD source word generated by other group members. In another word, Source Word Transfer was found in the case of P3.

P9

In the 2nd stage, 3 high LaSeD analogical sentences were created by P9. By comparing the sentences with the ideas generated by the other participants, we found a change of domain used for creation. In the 1st stage, analogies were generated from the domain of "daily life (eating)", "fable/character" or "sports". However after group discussion in the 2nd stage, analogies from the domain of "Pop-culture" was generated. P8 used the "Pop-culture" domain frequently in the 1st stage. And according to the self-report, similar change in individual thinking was found.

Firstly the individual thinking process of P9 was depicted in Figure 5-8.

39

Figure 5-8 The Individual Thinking of P9 for Idea Generation in Two Individual Work Stages
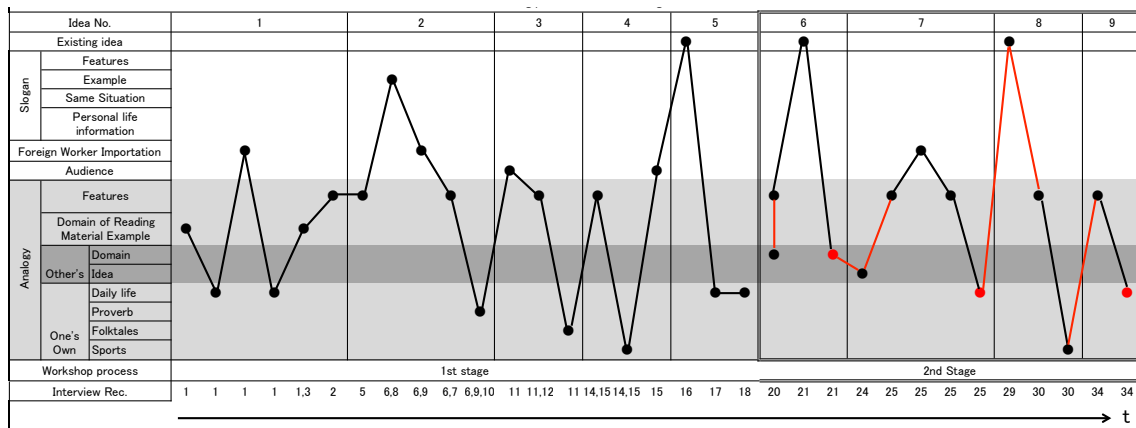
Specifically as shown in Figure 5-9, before group communication P9 did not pay attention to the domain of "Pop culture". But after group communication P9 shifted to the "Pop-culture" domain for creating idea No.6. This process was the area with black circle in Figure 5-9. Group communication provided P9 a domain and stimulated P9 to use it for retrieving high LaSeD source word. In this case, the influence of group communication was defined as Domain Transfer. And the key information from self-report about this influence was shown in Figure 5-10.

Figure 5-9 Individual Thinking Change for Domain Transfer
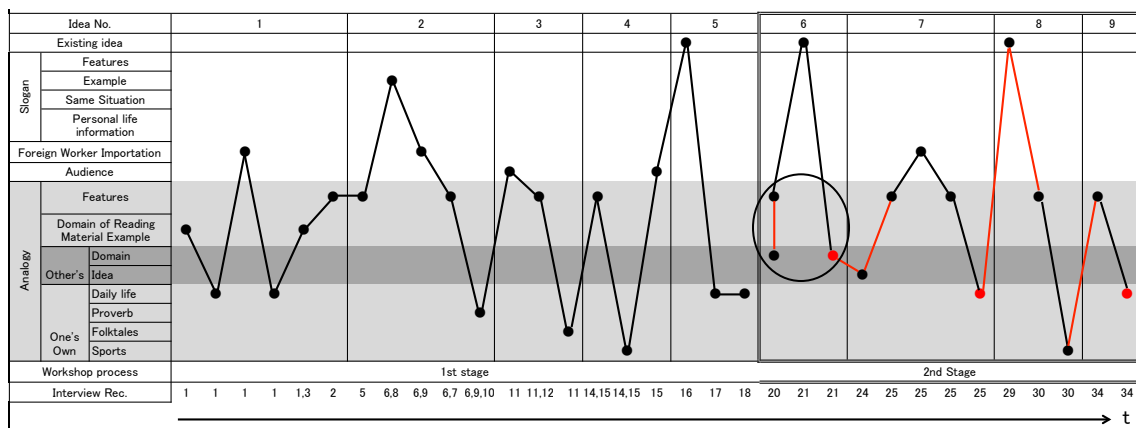
Figure 5-10 Self-report about Domain Transfer

P9	… P8 is good at creating based on recent trend, but I'm not good at it…
P9	After discussion, I found... And another thing impressed me is that P8 was focusing on a different aspect than me and P7. And he was trying to created something from far distance. Influenced by him, I tried and was able to find something with far distance that looks irrelavant at the first sight (but actually related).
P9	And at that time I was trying to find some far distance image that shows equal relationship.. the famous flower song came into my mind.

Meanwhile, more change of P9's individual thinking was found from his self-report. From the self-report, we found at the 1st stage P9 mainly used the relationship of "insufficient" for creation. To be specific P9 was trying to find source word that was necessary to something else, if shortage occurred negative outcome would occur. However after group discussion, P9 adopted a new perspective as a search cue for creation. To be specific, P9 tried to find a source word that obviously showed a lack of something. And consequently, P9 retrieved a new high LaSeD source word and created idea No.7. The change process from being aware of other's idea to creating a new analogy via extracting new feature (the new perspective) and mapping the target situation was shown in Figure 5-11.

Figure 5-11 Individual Thinking Change for SC- Perspective
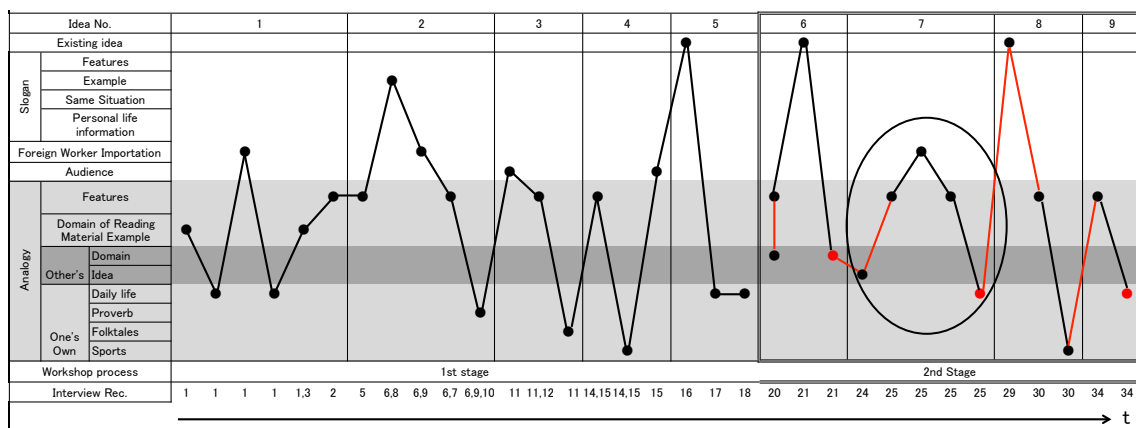
And according to P9's self-report, this change of individual thinking was stimulated by communicating with other group members. In this situation, the group influence that helped to build a search cue through providing the participant a new perspective was defined as SC _ Perspective. And the key information from self-report about this influence was shown in Figure 5-12.

41

Figure 5-12 Interview about the SC _ Perspective

P9	About hinomaru bento, when I was trying to create something, P8 said something about Exile, someone left the group. And because of it this group succeed after dramastic change. From here, I got an inspiration from the leaving. P8 talked about changes generated by it, trying to bring back the balance.
Interviewer	So it is good to leave? or not?
P9	The situation after leaving is not good. I felt it is an interesing perspective from P8's story. So similarly, Japan is now in a situation lack of peace because of lack of people, someone necessary. So I agreed with P8 from a different perspective, saying it matches with the situation in the task, which is short of something. The shortage will cause inconvinience, or loneliness, boring or tasteless. And this kind of loneliness, tasteless situation is what I want to show by this idea. And about the analogy, I tried to think but could not come up with good ideas. And then I noticed the taste in the tasteless, which reminded me of food, bento.

Meanwhile from the self-report, we found P9 was able to use the concepts of "equity" and "Team-work" to create two high LaSeD analogies. And these two concepts were extracted from an analogy P9 created in the 1st stage. According to P9 even though these two concepts already existed in his mind in the 1st stage, P9 was not able to emphasize these concepts and use them for creation. However during group communication P9 was able to obtain support and become confident with these concepts. And as a result, P9 used these concepts as search cue that assisted the process of source word retrieval. And finally, No.6 and No.9 were created. The change process from emphasizing the concept of majority preferred idea to creating a new analogy via extracting new feature (the two concepts) was shown in Figure 5-13.

Figure 5-13 Individual Thinking Change for SC- Confidence
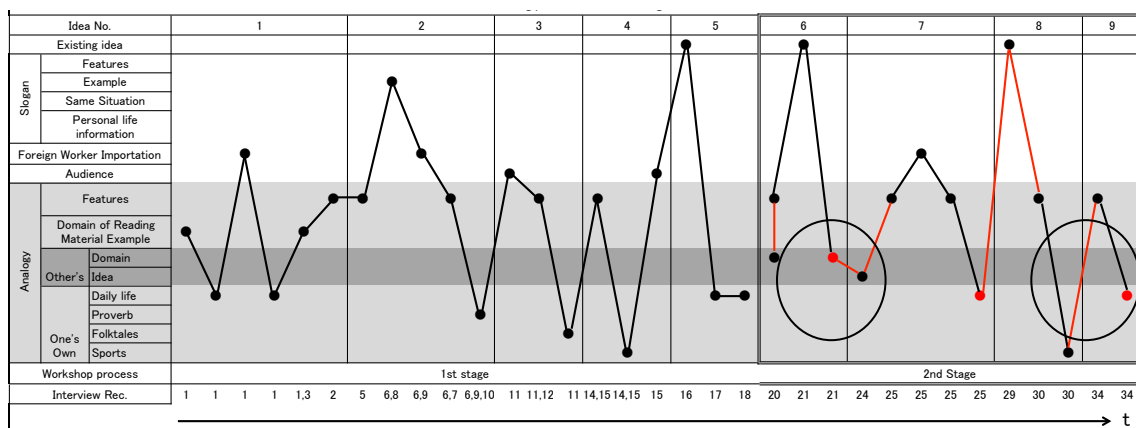
In this situation, the group influence that helped to build a search cue through enhancing the participant's confidence was defined as SC _ Confidence.

Figure 5-14 Interview about the SC _ Confidence

P9	After discussion, I found momotaro was quite accepted by the group. And the reason why it was accpeted, according to P7, is about equal relationship. Using and being used relationship is not so proper in a slogan according to her…
P9	And at that time I was trying to find some far distance image that shows equal relationship. And at that moment, I just turned back to the topic of plant. And when I was thinking about treating everyone equally, the famous flower song came into my mind.
Interviewer	So before group communication, equity didn't influence that much. But after group discussion, you realised the importance of equity and start to focus on it. And then because you were thinking about plant. so you thought about this famous song. Is it correct?
P9	To be more precise, because I had already created momotaro and rugby, the concept of equity already came into my mind. But after talking with the other two members, I realized that equity, which I proposed, was important, based on the positive feedback from the other two members. It is important and appropriate to consider equity.
Interviewer	After discussion, you focused on it.
P9	Yes, I became confident with it.

To sum it up, group communication directly influenced P2 by building new search cues in the forms of SC _ Perspective and SC _ Confidence, and provided P2 a new domain facilitating the retrieval of high LaSeD source word.

According to the analysis on ideas and interview, in terms of enhancing LaSeD we found the following 5 influences of group communication towards individual thinking for retrieving source words from P2, P3 and P9 as shown in Table 5-1.

Table 5-1 Influences of Group Communication Regarding Performance Improvement in LaSeD

	P2	P3	P9
Source Word Transfer	○	○	×
Domain Transfer	×	×	○
SC _ Confidence	×	×	○
SC _ Problem	×	×	○
Focus on Analogy	○	×	×

○: Direct Influence   ×:   No Influence

And the definition of these group communication influences might be summarized as Table 5-2.

Table 5-2 Definitions of Group Communication's Influences Regarding Performance Improvement in LaSeD

Influence	Definition
Source Word Transfer	After group communication, in the 2nd individual idea generation stage, a participant was able to utilize the source word that was initially used in the 1st individual idea generation stage by another participant from the same group. The Source Word Transferred possessed far semantic distance (high LaSeD) from the target word.
Domain Transfer	After group communication, in the 2nd individual idea generation stage, a participant was able to utilize the source domain that was initially used in the 1st individual idea generation stage by another participant from the same group. Source words generated from the transferred domain possessed high LaSeD from the target word.
SC _ Confidence	Participant was able to form a new search cue and use it in the 2nd individual idea generation stage to retrieve source words on one's own that possessed high LaSeD because the participant had more confidence in the way he/she originally interpreted/understood/dealt the task issue after group communication.
SC _ Problem	Participant was able to form a new search cue and use it in the 2nd individual idea generation stage to retrieve source words on one's own that possessed high LaSeD because the participant was able to view the task issue from a different perspective after group communication.
Cognitive shift to Analogy Creation	Participant became able to focus on creating analogical sentences in the 2nd individual idea generation stage that meet the task requirement after group communication.

5.3. Influences of Group Communication in Structural Similarity

It was found that the performance of P2, P5 and P11 improved in the 2nd individual idea generation stage in terms of StSi. In the case of P2, the group communication P2 participated most structure related comments were made by P2. And the structures suggested by P2 in his comments were proper. Therefore even though he was not able to create analogical sentences in the 1st stage but did it in the 2nd stage, the problem existed in retrieval of source word instead of finding proper relationship between objects. Therefore in this research, only P5 and P11 were the research objects for identifying the influence of group communication for improving the performance of St.Si.

P5

By comparing the group of analogical sentences before and after group communication, it was found that in the case of P5, most of the sentences generated by P5 belonged to the group of *Supplement*, and sentences in the 2nd individual idea generation stage fall mainly into the group of *Endurance*. And we found the structure of *Endurance* was used by P6 in the 1st stage. The structures used by each participant in the group 2 (to which P5 belonged) in 2 stages were summarized in Table 5-4. It was possible that the output change of P5 was stimulated by communication with P6.

Table 5-3 Proper Structures Used by Participants in Group 2

G2	P4	P5	P6
1st stage		Supplement	Endurance, Solution
2nd stage	Endurance	Endurance	Endurance

Figure 5-15 summarized P5's focus of characteristic during individual thinking for creation. "Structure" stands for the relationship (characteristic) that participants emphasized during idea generation. And S is short for the structure of *Supplement*. Likewise, E stands for the structure of *Endurance*. And if during the idea creation

45

process, structure wasn't emphasized or no evidence could be found from the interview record, it was shown with N.A. S+E means during the idea generation process, two type of structure were combined and emphasized simultaneously in one analogy. And the row of "StSi" contains the information that whether an analogy shows structural similarity. If proper structure was used and found from the analogical sentences, they have structural similarity, or else no. Circle means structure similarity was found, dash means that it shows no structural similarity. Interview Rec. stands for the utterance number in interview record transcript.

According to the self-report, P5 in the 1st stage mainly tried to find objects showing the characteristic of *Supplement,* and in the 2nd stage basically created all the sentences by trying to find objects that show the characteristic of *Endurance* under the influence of P6. Some analogical sentences were generated after trying to find objects with *Endurance* characteristic, some combined both *Endurance* and *Supplement* characteristic. In another word, the individual thinking process of P5 to create analogical sentences was influenced by P6 during the group communication in terms of structure. To be specific, P5 acquired from P6 a new structure original used by P6 during the group communication, and was able to utilize it in the 2nd stage for creating analogical sentences. This type of influence of group communication was defined as Structure Transfer in this study.

Figure 5-15 Search Cues Used by P5 according to Self-report

Stage	1st stage						2nd stage		
Idea No.	1	2	3	4	5	6	10	11	12
Structure	S	S	S	S	S	N.A.	S+E	E	S+E
StSi	◯	—	◯	◯	—	—	◯	◯	◯
Interview Rec.	1	1	1	1	1, 7	8, 10	23,25	19,21	27

◯: Structural similar — —: No structural similarity

S: Supplement E: Endurance

And the key information from self-report about this influence was shown in Figure 5-16.

46

Figure 5-16 Interview about Structure Transfer

P5	And then next, what we discussed. Before the discussion, I just thought about taking things foreigners from outside to supply domestic market was a good thing. And then from here, I was trying to sell the concept that accecpting foreigner might cause something unpleasent, but it was good for the future. I was trying to add this to the statement generation.
Interviewer	How did you change in this way?
P5	That is mainly because of P6

P11

And for P11, similarly we contrasted the analogical sentences P11 created in the 1st stage and 2nd stage, it was clear that most analogical sentences generated in the 1st stage had the characteristic of *Supplement*, and after group communication, most analogical sentences had the characteristic of *Endurance*. By comparing the relationships shown in sentences generated in two stages, it is obvious a change occurred. And after contrasted the structure P11 used with the structures used by other group members in the 1st stage, We found P12 used the characteristic of *Endurance.* Thus it was possible to propose P11 acquired a new structure from P12 during the group communication. A summary of the structures used by each participant in the group 4 in 2 stages was shown in Table 5-5.

Table 5-4 Proper Structures Used by Participants in Group 4

G4	P10	P11	P12
1st stage	Supplement	Supplement	Endurance
2nd stage	Endurance, Solution	Endurance, Realization, Supplement	Solution, Supplement

Figure 5-17 summarized P11's focus of characteristic during individual thinking for creation. "Structure" stands for the relationship (characteristic) that participants emphasized during idea generation.

According to the self-report, P11 in the 1st stage mainly tried to find objects showing the characteristic of *Supplement* and several less proper structure*,* and in the 2nd stage two

47

analogical sentences were created by trying to find objects that show the characteristic of *Endurance* under the influence of P12. In another word, the individual thinking process of P11 to create analogical sentences was influenced by P12 during the group communication in terms of structure. To be specific, P11 acquired from P12 a new structure original used by P12 during the group communication, and was able to utilize it in the 2nd stage for creating analogical sentences. That to say Structure Transfer was found in P11's change of individual thinking.

Figure 5-17 Search Cues Used by P11 according to Self-report

Stage	1st									2nd			
Idea No.	1	3	4	6	7	9	10	11	12	13	17	18	22
Structure	S	N.A.	N.A.	N.A.	N.A.	S	S	N.A.	S	N.A.	R	E	E
StSi	—	—	—	—	—	○	—	—	○	○	○	○	—
Interview Rec.	23,25	40,52	35,38	72,75	74,75	83–8	91	93	97	102	116,1	120	127–

○: Structural similar   —: No structural similarity

S: Supplement   E: Endurance   R: Realization

And the key information from self-report about this influence was shown in Figure 5-18.

Figure 5-18 Interview about the Structure Transfer

Interviewer	Were you helped or inspired by others during the workshop?
P11	I think the P10 and P12's idea about nutrition and body is good. It is easy to understand. And I defined the problem as people can not think in the long run, but P12 defined the task as how to experss advantage when there is disadvantage. What I was trying to do was to tell the others the disadvantage is not actually disadvantage if looked in a long run, but P12 was saying the advantage is bigger than disadvantage afterall. And I thought his definition for the problem is way better than mine. So I approached to his definition.

And meanwhile, as shown in Figure 5-19 among all the analogical sentences created by P11 the number of sentences with non-proper structure in the 2nd stage was smaller than the number in the 1st stage. In another word, P11 generated less analogical sentences showing no structural similarity with the target situation in the 2nd stage.

Figure 5-19 Structure of Analogical Sentences Created by P11 in Two Stages
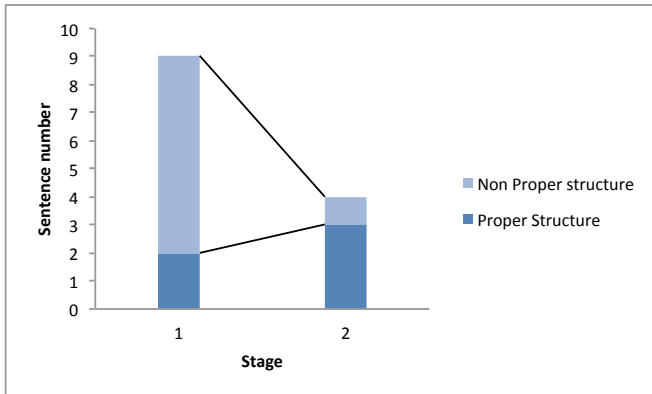
And from the self-report, we found change in individual thinking for idea generation. The reason why P11 generated more than 70% non-structure similar sentences was that P11 was fixated on the idea of emphasizing other problem features such as the problems in future society the current labor shortage might cause (such as unstable society) in the 1st stage. However, such features have no direct relationship with the importation of foreign worker importation. In this way, P11 made a lot of analogy with less proper structure. In another word, P11 was found being fixated on using a less proper structure. It was shown in Figure 5-17 as well. From the figure, it was clear that in the 1st stage P11 paid less attention to the proper structure when creating analogical sentences. However, after group discussion, P11 was able to concentrate creating most analogical sentences with proper structure. Therefore, from the analysis of P11's individual thinking, it was obvious that P11 received influences from group communication so that he could overcome fixating on using non-proper structures. This type of influence of group communication was defined as Cognitive Shift for overcoming fixation.

In summary, according to the analysis above, in terms of enhancing structural similarity we found the following 2 influences of group communication towards individual thinking from P5 and P11. They were summarized in Table 5-6.

Table 5-5 Influences of Group Communication Regarding Performance Improvement in Structural Similarity

	P5	P11
Structure Transfer	◯	◯
Cognitive Shift	✕	◯

◯: Direct Influence ✕: No Influence

And the definition of these two group communication influences was summarized in Table 5-7.

Table 5-6 Definitions of Group Communication's Influences Regarding Performance Improvement in Structural Similarity

Influence	Definition
Structure Transfer	After group communication, in the 2nd individual idea generation stage, a participant was able to utilize the structure that was initially used in the 1st individual idea generation stage by another participant from the same group. The structure transferred shows similarity with the structure in the issue problem.
Cognitive Shift	Participant became able to focus on creating analogical sentences in the 2nd individual idea generation stage emphasizing the resemblance towards issue problem structure after group communication.

5.4. Discussion

Group communication was found to be beneficial for individual thinking during idea generation process. Some participants were able to enhance their performance for creating analogy in individual work after discuss with group members. From them group communication were found positively influencing the analogy creation process in the aspect of superficial similarity or structure similarity.

For the aspect of superficial similarity, participants were able to create low superficial similar (high latent semantic distance) analogies by acquiring a high LaSeD source word from other members during group communication or retrieving one under the influences of group communication. To be specific, under the group influence of Source Word Transfer, participants were able to acquire a high LaSeD source word from other members. One the other hand, participants were able to find a high LaSeD source word by themselves if participants learnt to use a far latent semantic distance Domain, became confident with trying a search cue after group communication (SC _ Confidence), or became able to view the issue problem from another perspective after group communication (SC _ Problem). Moreover, group communication was beneficial to participants who had difficulty focusing on the retrieval and use of source word. Group communication helped them focus on analogy creation (Cognitive shift to Analogy Creation). In such way, participants could improve the performance in creating analogy with low superficial similarity.

And meanwhile during the group communication, participants benefited regarding structural similarity as well. That is to say, after group communication, participants were able to create more analogical sentences that show resemblance with the target problem. The positive group communication influence took place in the form of Structure Transfer and Cognitive Shift. To be specific, during the group communication, participants were able to learn and acquire from other members about new but proper problem structure and implement it in one's own analogy generation. Moreover, during group communication, the focus of creating analogy might be shifted on structure instead of less relevant problem features. In this way, participants were able to create analogies with more structural resemblance.

These influences of group communication wielded impact on different stage of idea creation. According to the SIAM model proposed by Nijstad and Stroebe (2006), the

process of idea generation is a repeated search for ideas in associative memory proceeding in 2 stages, including knowledge activation and idea production. Some influences of group communication found in this research stimulated these stages. To be specific, providing high LaSeD source word and domain activated related knowledge directly. And providing new perspective to solve the problem worked as a search cue for knowledge activation. Increasing of self-confidence within a search cue motivated participants to focus and supported the knowledge activation process. And cognitive shift to analogy creation (instead of creating unrelated ideas) supported the accomplishment of the task instead of directly influencing any of the idea generation stage. And for the influences of group communication found from structural similarity analysis, structure transfer mainly worked as a search cue that stimulated the knowledge stimulation stage. On the other hand, the influence of overcoming fixation worked as a deactivation to the idea generation process. The function of overcoming fixation was close to the influences of increasing confidence and cognitive shift to analogy creation, which directed the participants to focus on proper search cues or domains.

Table 5-7 Categorization of Group Communication's Influences

	For idea generation process		Influence type	
	Knowledge Activation	Deactivation	Element Provision	Cognitive Shift
Source word transfer	◯		◯	
Domain transfer	◯		◯	
Cognitive shift to analogy creation				◯
SC _ Confidence				◯
SC _ Perspective	◯		◯	
Structure transfer	◯		◯	
Cognitive shift for overcoming fixation		◯		◯

Therefore as summarized in Table 5-7 all these influences of group communication could be separated into several groups based on their different impact on idea

generation. In the column of Knowledge Activation, all the influences worked directly to stimulate the participants to activate some personal knowledge for idea creation. Deactivation contains the influences that caused participants to deliberately suppress the willingness to use some concepts. And as for the influence type, group communication was possible to directly provide clues or elements for other participants to create new ideas while support the idea creation process by directing the subject cognitive focus. Therefore these influences could be divided into 2 types, elements provision and cognitive shift. All the influences of group communication fell into the group of elements provision mainly functioned to provide clues or elements for participants to utilize and stimulate the idea generation process directly. And the influences in the other group influenced the idea generation by affecting the judgment of the creation process. In another word, instead of directly providing the materials to use, group communication changed participants' understanding or judgment about the task thus influenced the final results.

And additionally, investigation on the non-improved participants was conducted likewise. And the result was shown in Table 5-8 and Table 5-9.

Table 5-8 Influences of Group Communication on Participants Who Had Low Performance in 2nd Stage regarding LaSeD

	P1	P4	P5*	P6	P10	P11*	P12
Image Transfer	✕	✕	✕	◯	✕	✕	✕
Domain Transfer	✕	✕	✕	✕	✕	✕	✕
SC _ Confidence	✕	✕	✕	✕	✕	✕	✕
SC _ Problem	✕	◯	✕	✕	✕	✕	✕
Cognitive shift to Analogy Creation	✕	✕	✕	✕	✕	✕	✕

◯: Influence   ✕: No Influence

Table 5-9 Influences of Group Communication on Participants Who Had Low Performance in 2nd Stage regarding Structural Similarity

	P1	P3	P4	P6	P8	P9
Structure Transfer	✕	✕	◯	✕	✕	✕
Cognitive Shift	✕	✕	✕	✕	✕	✕

◯: Influence   ✕: No Influence

From these participants, influences of group communication were found in 3 participants. For finding out why these two participants were not able to improve under the positive group communication influence, further analysis was conducted in chapter 8.

6. Influence Generation Process during Verbal Communication

A further investigation about the changes triggered by group communication was conducted to find how these influences took place. Verbal is very crucial for investigating the information exchange between group members, which influences individual thinking for idea generation. In this chapter, analysis would mainly focus on the verbal communication that positively influenced participants.

6.1. Analysis Method

The investigation subjects were the group communications after it participants improved individual performances. The investigations about group influences on superficial similarity and structure similarity were conducted separately.

For identifying the generation process of group influence, firstly a conversation flow was drawn based on the group communication transcripts. The group communication could be divided into clusters of utterances mainly based on the conversation topic. Specifically during the conversation, if the group was talking about the same thing through a period of time, the utterances made in this time interval were grouped into one cluster (one cluster of utterances). If the topic changed, the previous conversation cluster was terminated; meanwhile another conversation cluster was initiated. In this way, by connecting the clusters chronologically it was possible to draw a conversation flow depicting the group communication chronologically.

Based on the conversation flow and changes in individual thinking, we further probed the mechanism of influence by clarifying the influence process and identifying the specific main contents and utterance functions for wielding influences. In this sense, it was possible to see how individual thinking was influenced during group communication.

Furthermore a mechanism categorization was conducted based on the analysis result of each detailed mechanism analysis. As a result key phases were extracted. Generation process was built based on these key phases.

Finally a summary discussion was provided at the end of this chapter.

6.2. Group Communication's Influence Mechanism (Superficial Similarity)

P2

The group communication P2 participated could be depicted as Figure 6-1.

Figure 6-1 P2 in Group Conversations
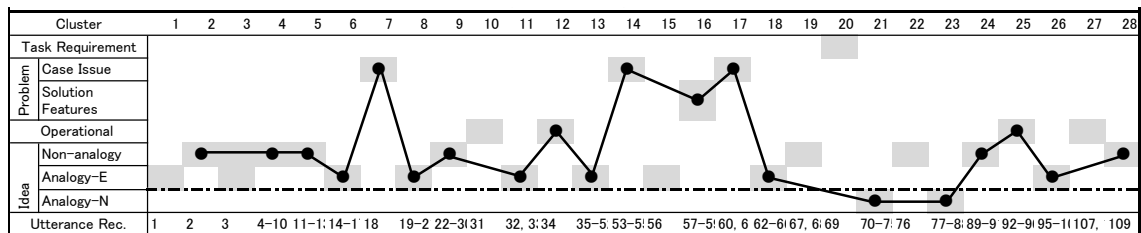
Grey boxes stand for the group conversation in a chronological order. Black dots stood for the conversations P2 participated. Therefore, the black line connecting the black dots shows P2's change of focus during group communication.

The conversation contents can generally be categorized into four groups, task requirement, problem related, idea related and operation. Task requirement refers to the conversation regarding the requirement of the task from the reading material. And problem related conversations are those discussions that tried to clarify the problem, and the expected features of solutions that could properly solve the problem. One the other hand, idea related conversations are mainly concerning the already-created sentences. It includes sharing, commenting, and improvement of the ideas. And for idea generation in group communication stage, sometimes participants would focus on some ideas that were not related with analogy, such as slogan, however it took a large part of conversation such as in Group 1, all were recorded and marked in the flow. And meanwhile, participants talked a lot about the analogies as well. For the already-created analogical sentences, they were represented by Analogy-E; and for the newly created analogical sentence, those created during the group communication, they belonged to Analogy-N.

And the last row, the Utterance Rec. contains the information of which line from the interview formed the conversation cluster.

For the 2 influences of group communication found from P2, following influence mechanisms were identified respectively from the communication flow.

Source Word Transfer

For the analysis of source word transfer effect, all the transferred word related conversations were identified and marked with red dots. And in the "2nd stage" space, the triangles stand for the action of creating new ideas. Red triangles were the analogical sentences using the transferred source word.

Figure 6-2 Clusters Related to Source Word Transfer (P2)
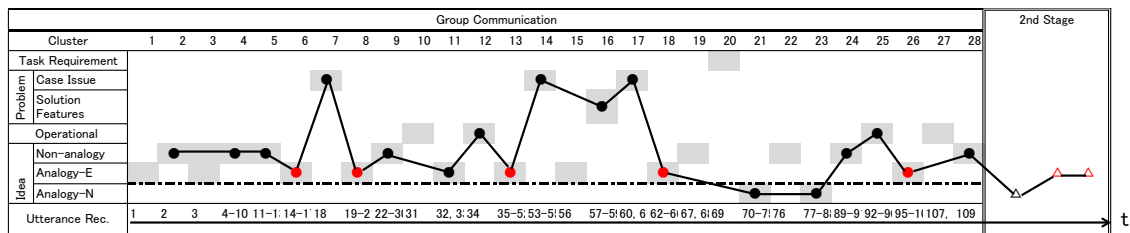
From Figure 6-2, it was clear that among all the analogy related conversations most were about the transferred source word. Therefore, it was possible that frequently talking about one source word might trigger the influence of Source Word Transfer.

And among all the transferred source word related conversation, it was found that P1 and P2 mainly contributed.

Figure 6-3 Utterance Percentage about the Transferred Source Word of Group 1
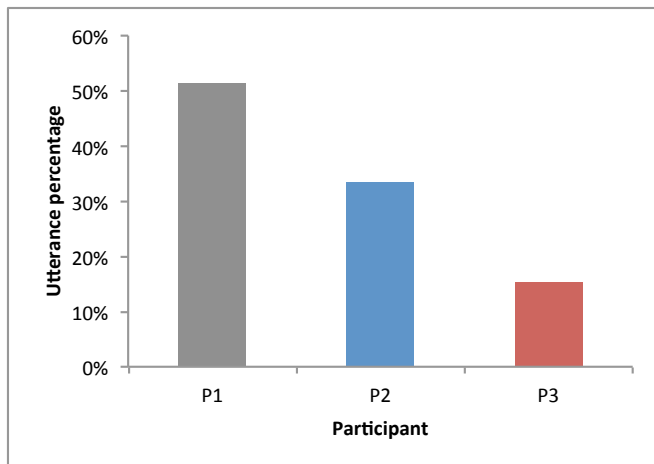
Furthermore the way discussion was made might be crucial for the forming of group communication's influence as well. Generally, based on the purpose of the conversation, all utterances could be coded as different functions. Utterance functions used for coding

57

were shown in the following table.

Table 6-1 Definition of Utterance Functions

Sharing	1. Purpose	Make participants, excluding the generator, know/understand what is the proposal, how and why it is proposed on purpose or naturally.
	2. Contents	Explanation about the origin of the proposal; Inquiries about the proposal.
	3. Example	"The Labor mobility is like currency circulation in economy. We invest in overseas market, and labor should also move like investment in them.", "What is sacrificed when it is vaccine?"
Meta	1. Purpose	To analyze the case situation or relationships in order to find out what kind of analogy should be created or the standards for a good statement. Or to find out a proper perspective or way to generate statements. To keep the process in the right direction.
	2. Contents	Analysis about the task, the feature of outcome or the comment or evaluation about conducts in the workshop using top-down method. Or propose a method to generate statements. Or underlying mechanism analysis (general situation analysis), or personal opinion on the feature of ideal statement. Or the evaluation on the process (if what was going on is right).
	3. Example	"And (the policy) it is quite resisted, right?", "What are the standards for defining the best?","But if agreement cannot be made on the emotion level, it is difficult to have logical discussion."
Comment	1. Purpose	To express the personal negative or positive opinions concerning the quality of ideas/statements directly or indirectly; Or to improve the statement by suggesting what to do; Or to compare the similarity or difference between different statements
	2. Contents	Evaluation, doubt, preferrence, judgment or suggestion or comparison and related explication
	3. Example	"But I'm not sure about the old man", "So as P10 said, the two of health and food is easy to understand."
Trying	1. Purpose	To make new statements or improve original statements by trying
	2. Contents	New/Improved sentences
	3. Example	"Something like 'it is bitter when swallowing it, but after taking it, it will be good for the body'", "Closed room... Closed society... People die…"
Other	1. Purpose	Utterance for keeping the process progressing or comments on participants instead of ideas/statements or any other utterance that cannot be grouped
	2. Contents	Question about what to do next, or evaluation/judgment comment on group members.
	3. Example	"But we have to do it from now right?", "Oh, it's typical P10."

And from the utterance of P1 and P2, the functions of comment and trying were frequently identified, as shown in the figures bellow. Hence, it was possible to suggest that trying to use a word or comment on the analogy containing the word might stimulate the occurrence of Source Word Transfer.

Figure 6-4 Composition of P1's and P2's Utterance Related to The Transferred Source Word
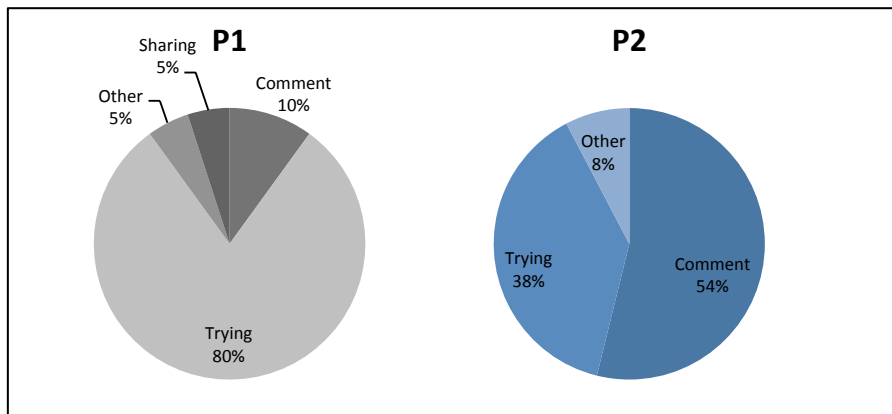
And all the above-mentioned conversation played roles in various sub-phases that formed the final influence. To be specific, as shown in Figure 6-5, the influence was realized with 4 steps.

Figure 6-5 4 Steps for Realizing Source Word Transfer (P2)
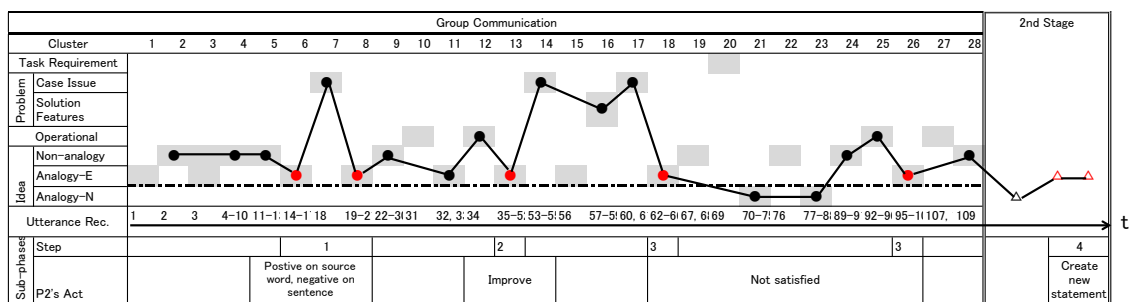
In the chronological order, at the early stage of group communication, P2 expressed positive comments on the transferred source word, showing that P2 was aware of the source word existence at the beginning of the group communication. And later working with the other members P2 tried to improve the analogical sentences using the same source word. However, at the end of the conversation, P2 expressed negative comments

on the already-created analogical sentences centering on the source word, showing dissatisfaction. Consequently, P2 created new statements using the same source word in the 2nd idea generation stage.

Therefore, by commenting on a source word of analogy positively but negatively on the analogical sentence P2 started to improve the analogical sentence by trying different sentence forms. Further dissatisfaction triggered the source word transfer.

Furthermore in the 1st step participants mainly adopted comment as the communication function (71%). Likewise trying was found highly adopted (78%) in the 2nd step. And in the 3rd step both comment and trying were mainly adopted (71%) for communication.

Focus on Analogy

Meanwhile the group communication's influence of Focus on Analogy was found in P2 as well. This influence involved a cognitive shift, specifically from slogan creation to analogy creation.

In Figure 6-6 all focus related conversations were identified and marked with green dots. And the connection showing the cognitive shift was marked red line. And a red arrow connecting the utterance that directly caused the shift and the red line was draw to show the direct influence.

Figure 6-6 Clusters Related to Focus on Analogy
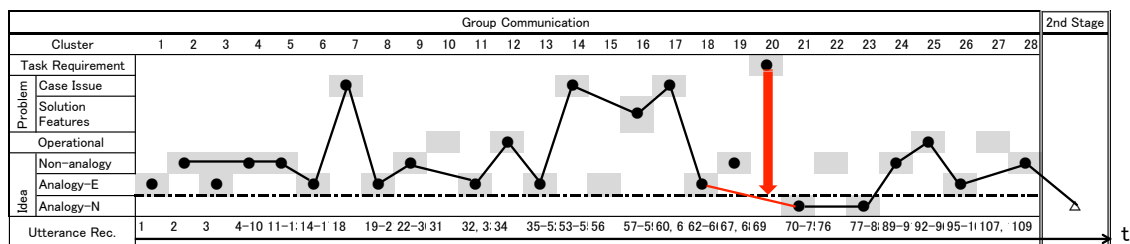
The most direct influence from the group communication to P2 regarding cognitive shift was the part marked red. From Figure 6-6, it was clear that P2 was influenced while observing the conversation (not talking with other group members but listening). And the utterance content was about the task requirement. The utterance worked as a meta-comment effecting participants' understanding of the anticipated outcome from idea generation.

Additionally, in order to show the more clearly the cognitive shift process, the related group conversation might be separated into several steps showing different focus of P2. To be specific, as shown in Figure 6-7, the influence process might be divided into 6 steps.

Figure 6-7 6 Steps Describing Focus on Analogy
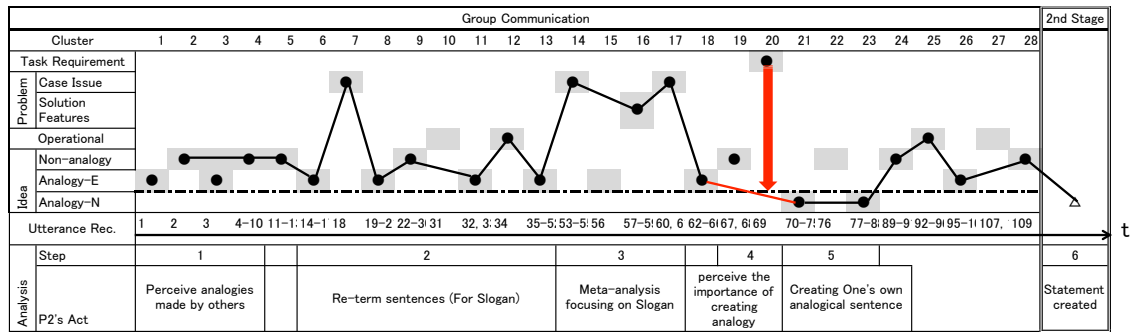
In the chronological order, at the early stage of group communication, P2 purely perceived the analogies created by other group members. And later P2 started to work with the other members trying to re-term the analogical sentences for the rhetoric purpose. In another word, P2 focused on making a slogan that sounds good instead of creating analogies. And after a meta-analysis of slogan, P2 perceived the fact that it is important to create analogy by observing the other's conversation. And additionally, this Meta-comment occurred because of cluster 19, another participant was trying to keep directing the future work averting from analogy creation. Consequently, P2 created new analogical statements during the group communication and improved it in the 2nd idea generation stage.

In P2's case observing the meta-discussion about task requirement helped P2 to shift the focus to analogy creation.

P3

The group conversations P3 participated could be depicted as Figure 6-8.

Figure 6-8 P3 in Group Conversations
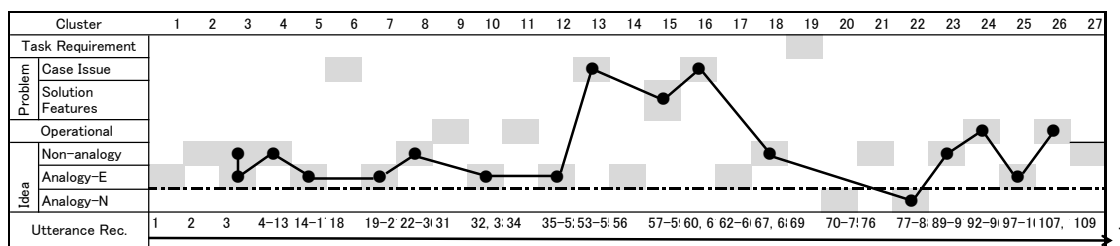
The group communication's influence of Source Word Transfer was found in P3. All conversations regarding the transfer process could be divided into 2 steps, P3 participated conversation and P3 observed conversation. In the following flow chart, among the conversations focusing on the transferred word, those P3 participated was marked with red dot and those P3 observed were marked as orange dots.

From Figure 6-9, it was obvious that different from the case of P2, only a small proportion of discussion focused on the analogy that contains the transferred word. Therefore, it was possible that observing frequently talked source word might trigger the influence of Source Word Transfer as well.

Figure 6-9 Clusters Related to Source Word Transfer (P3)
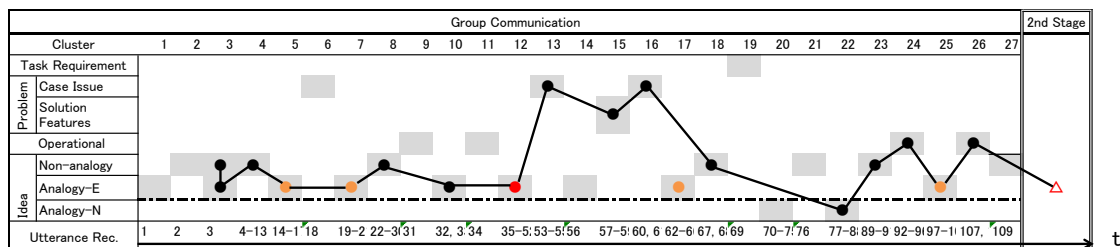
Specifically, different from P2, P3 did not participated in the group communication actively. The percentage of P3's total utterance concerning the transferred source word is less that 20% as shown in Figure 6-3. It showed that P3 mainly observed during the discussion.

Meanwhile though the utterance from P3 was few, it is necessary to check what utterances P3 made, and how they were made. In another word, the content and function of utterances were investigated.

It was found most of the utterances were comment. All comments were about the re-termed sentences.

Figure 6-10 Composition of P3's Utterance Related to The Transferred Source Word
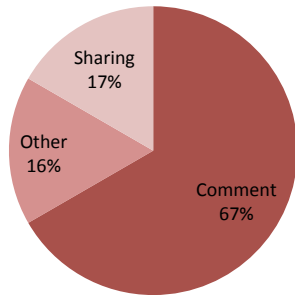
In order to better show the mechanism of source word transfer for P3, the process might be divided into 3 steps.

Figure 6-11 3 Steps for Realizing Source Word Transfer (P3)
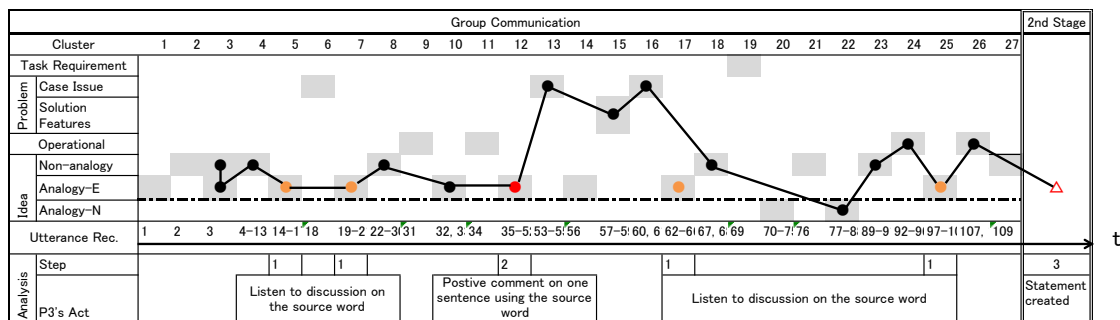
P3 mainly listened to the conversation between other members about the transferred source word and made positive comments about one re-termed analogical sentence. Consequently P3 created a new analogical sentence using the same source word in the 2nd idea generation stage.

Therefore, by observing frequent discussion on one source word, and commenting positively on the source word triggered the source word transfer. In another word, positively agreed on one source word might stimulate the source word transfer.

63

P9

The process of group communication P9 participated could be depicted as Figure 6-13.

Domain Transfer

The group communication's influence of Domain Transfer was found in P9. Specifically, the transferred domain was "Pop Culture", that contains the currently popular entities or items. Source words showing the feature of being popular were categorized into this group, such as idol group, items from a drama or a song.

And in the group conversation, we found two types of utterance that might stimulate this influence. One is direct discussion about the analogies within the domain and other one is discussion over things or topics that has the feature of being popular. Utterances about the topic of being popular or something popular were marked with red dots in the following flow chart. And red triangle was the idea created under the influence. From Figure 6-12, in the idea field it was notably that "Pop culture" related conversation recurred frequently.

Figure 6-12 Clusters Related to Domain Transfer

About the content of discussion, it included discussion about the current popular events/topics, analysis about the necessity of being popular and re-term of the already made analogies into sentences with popular features.

Concerning the specific utterances made, from Figure 6-14 it was easy to see that P7 contributed around 10%. And P8 and P9, the influencer and influence receiver, were the main actors for the related conversation.

64

Figure 6-13 P9 in Group Conversations

65

Figure 6-14 Utterance Percentage about the Domain among 3 Participants
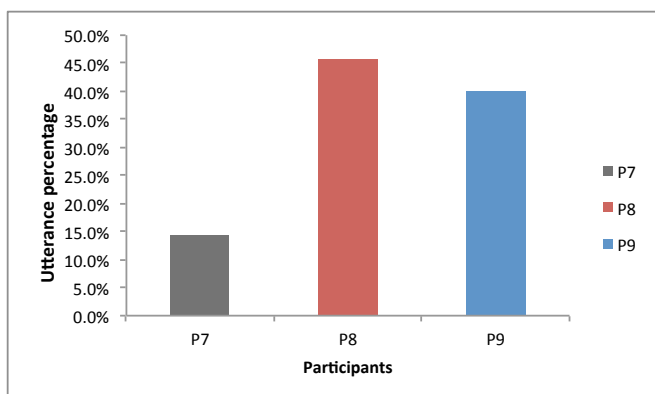
Through analysis on the two sides of influence respectively, different usage of utterance function was found. For P8, the one who influenced, around half of the utterance were sharing. And through the function of trying, P8 expressed his idea in the way of re-terming other source words into the sentences that matched with P8's preference. In this case it was to combine those source words with other popular sentence forms. And it was found that most meta-analysis P8 made was to directly express the personal preference and tendency to make sentences with the popular feature. Therefore, through the function of sharing, meta-analysis and trying P8 expressed personal opinion directly and indirectly.

Meanwhile, most of P9's utterance functions were comment, meta-analysis and other. The main idea of meta-analysis P9 participated was the conversation with P8 and it worked to help P9 understand P8's thinking. And most comment made by P9 was about what message should the sentences convey. And the utterances within the "other" function group were mainly about P9's opinion on the action of re-terming sentences into popular forms.

The percentage of utterance functions P8 and P9 used was shown in Figure 6-15.

Figure 6-15 Composition of P8's and P9's Utterance Related to The Transferred Domain

In order to better show the influence mechanism within group communication, related conversation might be divided into 4 steps for triggering the group communication's influences.

Figure 6-16 4 Steps for Realizing Domain Transfer

In the chronological order, at the early stage of group communication, P9 made inquiries to P8 about the sentences he wrote. Since the inquiries were made by P9 initiatively, it might be safe to suggest that P9 got interested into P8's idea at early phase. And later along with the evaluation of all the sentences, P9 referred to P8's idea for suggesting the necessity of making sentences that might become popular. Since this action was done by P9 initiatively as well, it might be possible that the P8's idea impressed P9. And later P8 tried several time to re-write sentences in the current popular sentence format, P9 made comment and perceived the method and purpose of

67

P8's creation. And after the group evaluation and selection stage, P9 generated one analogy with the same feature.

Therefore, by frequently discussing with others about the created ideas, expected solution features or creation method in the form of sharing, comment, or meta-analysis could help stimulate domain transfer.

SC _ Perspective

The group influence of SC _ Perspective found in P9 occurred during the discussion in 2nd idea generation stage.

The experiment was designed to encourage participants to talk in the evaluation and selection stage, and suggest individual work for idea generation stage. However, no intervene was conducted if the conversation took place spontaneously. Due to the same impact to idea generation, the conversations occurred in the 2nd stage were thought to be proper for analysis as well.

According to the self-report, P9 obtained inspiration from the idea of "Exile". All utterances were inspected and the cluster related with "Exile" was marked with red dot. And red triangle was the idea created under the influence.

From Figure 6-17, it was obvious that related conversation cluster only occurred once.

Figure 6-17 Clusters Related to SC _ Perspective

A further investigation was made about the cluster of utterance. It was found that the content of this cluster had more similar features with the case issue. As shown in the following table, all the sentences P8 created could be separated into 3 groups. U stands for the examples that described unusual things that had unexpected but good outcome; P emphasizes to use well-known sentence to hint and persuade the public; and lastly O tried to show that positive changes occurred after supplement the insufficient. And possibly since the relationship described with O was closer to the issue problem, it attracted P9. And this cluster mainly consisted of utterances with the function of

68

sharing.

Figure 6-18 Features of P8's Ideas

Stage	1st stage	Evaluation and Selection		2nd stage							
Utterance Rec.	13	25,26	31	130,131	132,133	137,138	141,142	145	150,151	154,155
Participants	P8	P8	P8	P8	P8	P8	P8	P8	P8	P8
Features	U	U	P	U	O	U	U	U	U	U

The influence mechanism was comparatively simple. Within group communication the influence took place with 2 steps..

Figure 6-19 2 Steps for Realizing SC _ Perspective

Firstly, P8 shared with P9 the idea of "Exile" and explained in the detail why it represented the issue problem. And P9 later made a comment on the outcome stated in this idea. And later in the 2nd stage an analogy was created based on this idea.

Therefore, the explanation of the way how various analogies match with the issue problem might help trigger other members to build a new perspective for solving the problem.

SC _ Confidence

According to the interview with P9, comments from the other members about the idea of "Momotaro" mainly triggered this influence. Therefore, except the sharing utterance made by P9 at the beginning, all the comments during discussion about this idea were marked with red dots in the communication flow. The reason excluding the firs sharing utterance was because the focus was place on the influence came from the others, the first introduction sharing was mandatory and thought to be less related to the change of

P9's thinking. And the red triangle in Figure 6-20 was the idea created under this influence.

Figure 6-20 Clusters Related to SC _ Confidence

From Figure 6-20, it was clear that the discussion about the target idea repeatedly occurred several times. And from Figure 6-21 we found P7 mainly used comments and P8 used comments and trying for sentence improvement during the group communication.

Figure 6-21 Utterance Function in Group Communication (P7 and P8)
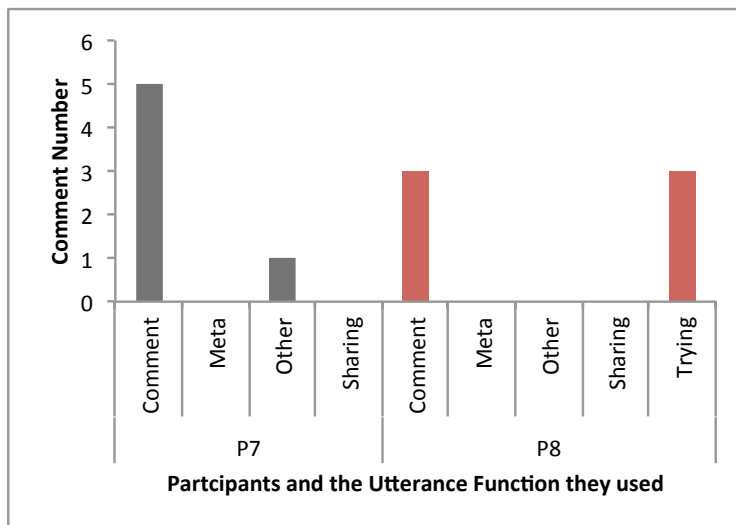
From a further investigation into the comments made by P7 and P8, we found few negative comments were made about this idea. And notably most comments made by P7 were positive ideas. And among the positive comments, though 75% was simple expression of personal preference, detailed arguments about why the idea of "Momotaro" was good were given as well. The notion of "teamwork" was emphasized, and later it helped to P9 to reach the concept of "Equal".

The influence mechanism within the group communication might be divided into 4

steps.

Figure 6-22 4 Steps for Realizing SC _ Confidence

Firstly, P9 received positive responses about the source word of "Momotaro". And later P9 had discussion with the other members, and did a detailed analysis about it. During this process, the feature of "teamwork" was extracted. And combing with the discussion result about "teamwork" from the other analogies, the notion of "equal" was found, and it later in the 2nd stage it became P9's new search cue for retrieving source words. And it was further followed by a discussion from where P9 found it would be difficult to use the source word. During the whole evaluation and selection stage, mostly P9 received positive comments. Consequently, in the 2nd stage with feeling confident with the newly generated search cue, P9 created two analogies.

Therefore, the positive detailed analysis and evaluation about how the analogies match with the problem issue might further generate a hint/search cue. Combined with the confidence obtained from group discussion, it helped to stimulate further source word retrieval.

6.3. Group Communication's Influence Mechanism (Structural Similarity)

P5 and P11 were studied for identifying the influence of group communication towards individual thinking for idea generation in terms of structural similarity.

P5

The group communication's influence of structure transfer was found in the case of P5. P5's participation in the group communication was shown in Figure 6-23. In this chart, all the transferred structure related conversation was coded and separated into clusters based on the conversation contents, and shown in grey. The conversations P5 participated, except when P5 expressed no specific personal opinion such as saying "um", were marked with black dots.

Figure 6-23 P5 in Group Conversations
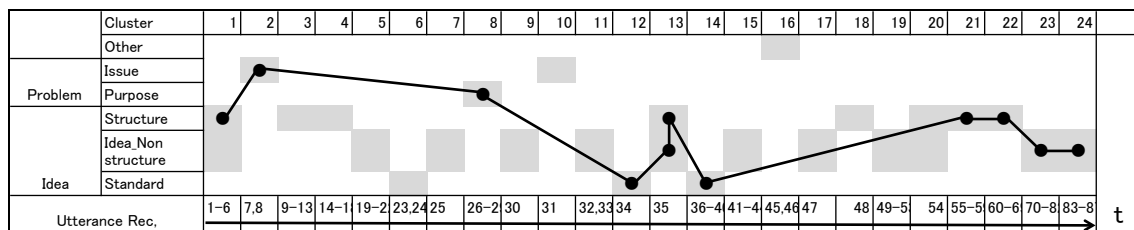
During the discussion, the change of P5's attitude regarding structure was obvious. As shown in the following chart, P5 changed from supporting one's own structure to the transferred structure during the conversation. And specifically, P5 first started with debating one's own structure as more proper by analyzing the purpose expressed in the task, and the corresponding evaluation criteria. However, after a re-study of the purpose of the task and compared some sentences, P5 started to doubt the evaluation criteria and the properness of the structure he proposed. After a further idea evaluation with the other group members, the transferred structure was evaluated as the most suitable structure for accomplishing this task.

Figure 6-24 The Clusters Related to Structure Transfer
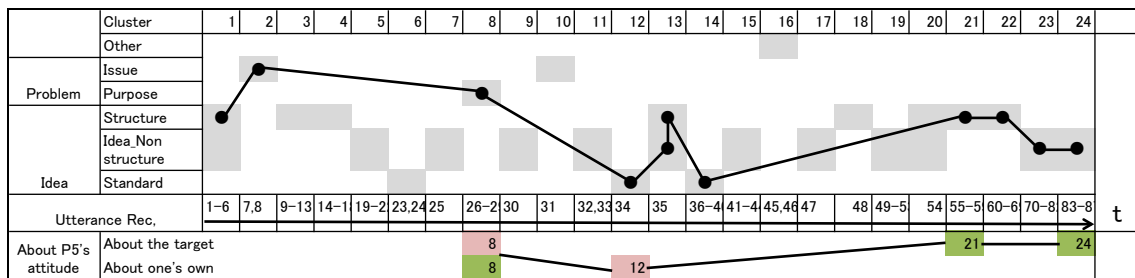
The structure related conversation involving attitude manifestation and attitude change could be summarized in the following table.

Table 6-2 Clusters Related to Structure Transfer and P5's Involvement

Cluster No.	P5's involvement	Conversation main contents
8	Participate	The purpose in the task; evaluation criteria
9-11	Observe	Characteristics of ideas and task issue; expected idea features
12	Participate	Evaluation criteria
13-20	Observe	Improvement of ideas; structure; possible outcome and characteristics of ideas
	Participate	Characteristics of ideas; evaluation criteria
21	Participate	Anticipated positive outcome from the structure feature
24	Participate	Group selection

One example of group communication related to the transferred structure was presented in Figure 6-25.

Figure 6-25 An Example of Group Communication Related to Structure Transfer (P5)

Start	End	Who	To who	Content
59:47.1	59:58.4	P5	All	The opposite's concern might be dispelled, but we cannot see the necessity from it. Instead, we can see it from the statement of vaccine.
00:00.8	00:01.6	P4	P5	Indeed
00:01.7	00:09.5	P6	P5	If it was vaccine, indeed it is clear that after injecting it, cold symptom will be mitigated.
00:13.7	00:15.6	P4	P6	What is sacrificed when it is vaccine?
00:15.8	00:18.9	P6	P4	To catch cold slightly
00:19.0	00:21.1	P4	P6	I know, it is the disadvantage, right?
00:21.5	00:38.6	P6	P4	Not disadvantage. The moment vaccine was injected, one will catch a light cold. And because of it, the antibody for immunity will be created. And next time, when one gets cold, it is possible to avoid heavy influence because of it. And the statement is similar to this.
00:37.4	00:40.3	P4	P6	Oh, I thought the sacrifice was the pain the moment when injected
00:40.4	00:42.5	P6	P4	It might be included as well
00:42.5	00:44.3	P4	P6	*Didn't expect it to be such a big influence
00:46.6	00:51.6	P6	P4	In fact, because of vaccine, some severe problem occured as well
00:51.9	00:54.9	P5	P4	occasionally, people die because of vaccine.
00:55.5	00:58.1	P4	All	Then I think the statement of vaccine is fine.
00:58.8	01:01.8	P5	All	And the analogy is clear in the case of vaccine

Therefore in the case of P5, conversation about the evaluation criteria based on the purpose of the task and comparison evaluation of the structure were crucial. Main utterance functions found were meta-analysis, comments and sharing of concept mapping. And final selection decision might be influential as well.

P11

Structure Transfer

The group communication's influence of structure transfer was found in P11 as well.

P11's participation in the group communication was shown in Figure 6-26. In this chart, all the transferred structure related conversation was coded and separated into clusters based on the conversation contents, and shown in grey. The conversations P11 participated, except when P11 expressed no specific personal opinion such as saying "um", were marked with black dots.

Figure 6-26 P11 in Group Conversations
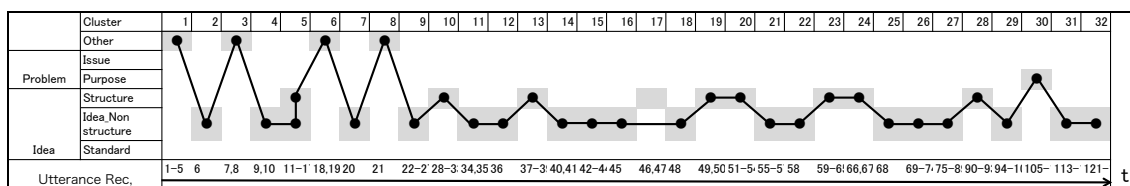
Different from P5, P11 started with a supportive attitude towards the transferred structure as shown in Figure 6-27. Along the discussion, P11's attitude alternated between support and doubt. And to be specific, P11 started with pure expressions of positive preference, no detailed reason explaining the preference was given at the beginning. And in the later stage, P11 discussed with the other members about different sentences structure and expressed positive and negative comments. And during the process, the expected features of ideas were proposed. Finally P11 agreed that the transferred structure should be adopted. Further creation and improvement was conducted based on it.

Figure 6-27 Clusters Related to Structure Transfer
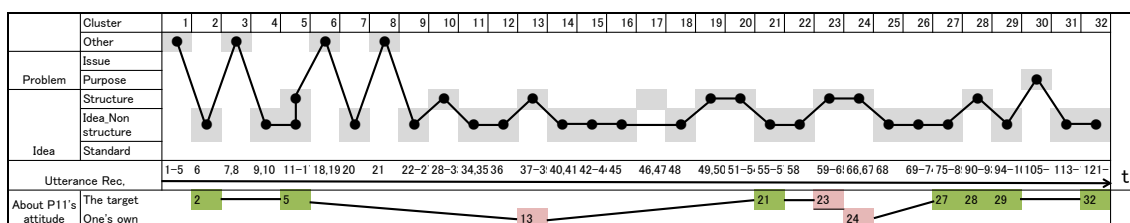
The structure related conversation involving attitude manifestation and attitude change could be summarized in Table 6-3.

Table 6-3 Clusters Related to Structure Transfer and P11's Involvement

Process No.	P11's involvement	Conversation main contents
2, 5	Participate	Positive judgment
13	Participate	The properness of the structure
15-20	Participate	The structures; purpose of sentence structures;
21	Participate	Evaluation criteria

22	Participate	Sentences improvement (adopting the same structure change the source word)
23	Participate	Impact of the source word
24	Participate	The comparison and evaluation of different structures
25, 26	Participate	The comparison and evaluation of different structures
27-29	Participate	Sentences improvement (adopting the same structure change the source word); comparison and evaluation of different structures
32	Participate	Group selection

Figure 6-28 An Example of Group Communication Related to Structure Transfer (P11)

Start	End	Who	To w	Content
58:48.2	58:52.3	P11	All	Seirogan might be the best
58:52.5	59:00.8	P11	All	But "one self is sick". It doesn't have to be seirogan, right?
59:01.1	59:02.6	P10	All	"Good medicine is bitter" is good
59:03.4	59:07.0	P12	P11	I was thinking about the image of bitter medicine, (that why seirogan was choosen)
59:07.7	59:10.5	P11	P12	Yes, understand. And there's nothing else can be a good example right? I tried to find though.
59:12.7	59:19.8	P11	All	Good medicine is bitter is indeed the case.
59:20.4	59:32.8	P11	All	But just like P10 said, future advantage might has nothing to do with the elderly. Then someone might think why bother to take the bitter medicine.
59:33.8	59:37.5	P11	All	If we can find something quite pushing, then that will be so nice.
59:40.5	59:42.2	P11	All	Something like cancer in the case
59:42.6	59:43.4	P10	P11	You are right

Therefore, in the case of P11, conversation about the target sentence could deepen members' understanding about the structure, comparison between structures regarding the properness helped P11 choose one structure for analogy creation, and after chose structure members tried to retrieve source words that better represent the problem, all might stimulate the transfer of proper structure. Main utterance functions found were meta-analysis, comments and sharing of concept mapping. And final selection decision might be influential as well

Overcoming Fixation

Another group communication's influence, Overcoming Fixation, was found in P11 as

well. As shown in the graph, after group discussion P11 was able to shift focus on the other aspects of the task that later triggered the creation of more proper structurally similar analogical sentences. Similar to Focus on Analogy, this influence involved cognitive shift as well. However instead of helping participants focus on something, this influence helped participants to overcome fixation.

For generating ideas, search cues were necessary. And in some case, different from source word domain, problem feature was adopted. Structure is one specific form of features. Specifically every structure describing the relationship in the problem could be a feature of that problem. However, not all features can be extended into a structure. In the case of P11, 5 features were used in the 2 individual stages. The feature of "Descendent", "Unstable Base", "Exclusiveness" and "Shortage" were generated by P11 in the 1st stage. "Descendent", "Unstable based" and "Exclusiveness" were three features showing no structural resemblance with the foreign labor importation issue. And from the "Shortage" feature, P11 generated analogies showing the structure of "Supplement". And P11 acquired the last feature of "advantage/disadvantage" from P12. The individual thinking process in the idea generation stages regarding analogy structure could be summarized in Figure 6-29 based on the interview record. All black lines and circles stand for P11's original perceptions and green lines and circles stand for perceptions of others. Ideas generated with the two black circles marked search cue were selected by P11 as personal favorite ideas and presented in the evaluation and selection stage. Therefore the search cues/features discussed during the evaluation and selection stages were "Unstable Base", "Exclusiveness" from P11. According to experiment record, "Shortage", "Advantage/Disadvantage", and "Diversity" were proposed to discuss from the other two members.

Figure 6-29 P11's Search Cue Development in 2 Stages

Individual thinking process

Proper structure

1st stage

Support for the future life — Descendent

Background Knowledge

Increasing old population — Unstable social structure — Unstable Base

The reason for rejection — Exclusiveness

The labor shortage problem — Shortage

Ideas generated

Supplement

2nd stage

Realization

Foreign labor importation — Advantage and disadvantage/ benefit and risk

Endurance

Figure 6-30 An Example of Group Communication Related to Overcoming Fixation

Interviewer	How about the injection to children
P11	So it is similar with the drug (proposed by P12), bitter but good for human. But I put children there to hint the future.
P11	This massage statement says about to stop using the traditional ways, like using massage to cure desease, go to hospital is better, is what I wanted to say in this sentence.
Interviewer	The traditional way didn't work. So stop it.
P11	Yes. To accept injection. So to accept to do something else by someone else, it is impossible to be on one's own.
P11	...And I defined the problem as people can not think in the long run, but P12 defined the task as how to experss advantage when there is disadvantage. What I was trying to do was to tell the others the disadvantage is not actually disadvantage if looked in a long run, but P12 was saying the advantage is bigger than disadvantage afterall. And I thought his definition for the problem is way better than mine. So I approached to his definition.

The discussion flow concerning the 5 features could be depicted as Figure 6-31. In this chart, circles stand for neutral comments or explanation; red question marks represent doubt was expressed; red crosses mean negative comment was made and the double circle stands for positive comments. Between conversation clusters, arrows stand for group communication with no less than 2 participants, while dash arrows stand for the situation that all utterances were made by the idea generator.

Figure 6-31 Clusters Related to Overcoming Fixation
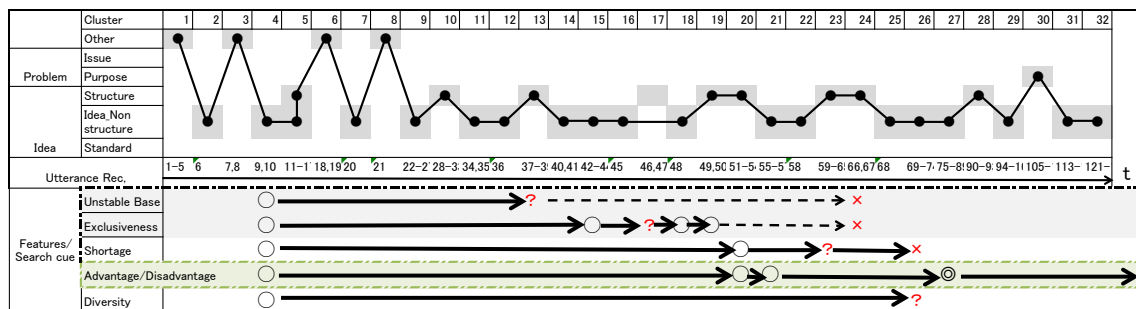
From the comparison between different features in the flow chart, it was easy to find that during the discussion participants mainly focused on features other members proposed. The "Advantage/Disadvantage" was relatively deeply discussed and finally chosen by the group. Meanwhile all the two proposed by P11 were doubted and finally negative evaluated by P11. After had a concentrated discussion on the other features and negative evaluation on the features proposed by oneself, P11 shifted focus from previous ones to the newly agreed feature.

At the early stage of group communication, most utterances were the sharing and commenting about the ideas, especially about the relationship in the analogies and its resemblance with the relationship shown in task problem. And later it was followed with by a meta-analysis about the audience and identification of standards for evaluating if the analogy would impact, or it was followed by a comparison of analogy features/structures, consequently the judgment about the preferred feature was carried out. In this way, P11 overcame previous fixation and shifted focus to a proper feature.

6.4. Generation Process

The influence of group communication to individual thinking can be shown as a change in individual thinking. For a change process, there were an initial point and a final point. The process between the initial point and final point was the change process. In this research, we focused on group communication's influences towards individual thinking, the change of individual cognitive position is a crucial factor. In this study, we compared the cognitive position change. Specifically concerning a same concept, whether a participant was activating in using it or not. In order to extract the generation process by analyzing the mechanisms, two processes were carried out. Firstly, based on the impact on position change, all group communication's influences were divided into 2 groups, including group A (stable group) and group B (changed group). And secondly, the common phases were identified by comparing mechanisms from the same group for explaining the key phases for generating the influences of group communication. Consequently we extracted common generation processes with these key phases.

The initial position of each participant can be categorized into activating and deactivating position. Activating position stands for being curious or positive about the concept. And deactivating position stands for being uninterested or uncertain about the concept. And the final positions can be evaluated in the same way. The analysis result of all the improved participants was summarized in Table 6-4. And the evaluation was based on discussion and interview record. In addition, P3 was less proper for this analysis since the change of thinking process was emphasized, evidence for P3's change process was scarce.

Table 6-4 Improved Participants' Position Change

Influence	Participant	Initial position	Final position	Group
Source Word Transfer	P2	Activating	Activating	A
Domain Transfer	P9	Activating	Activating	A
SC _ Confidence	P9	Deactivating	Activating	B
SC _ Perspective	P9	Activating	Activating	A
Focus on Analogy	P2	Deactivating	Activating	B

Structure Transfer	P5	Deactivating	Activating	B
	P11	Deactivating	Activating	B
Overcoming Fixation	P11	Activating	Deactivating	B

Analysis of A group

The mechanism of Source Word Transfer in P2, Domain Transfer and SC _ Perspective in P9 were analyzed.

The change process of P2 can be concluded as from "It needs improvement", via "This might be better", "I'm not satisfied" to created new ideas. "It needs improvement" came from group discussion, P2 said the sentence should be re-termed. And "This might better" stands for all the conversations of using trier and error. And "I'm not satisfied" stands for the situation that at the end of group communication, P2 still expressed negative comments on the improved ideas. The connection between the phase in generation process and the steps in mechanism was shown in Table 6-5.

Table 6-5 Generation Process Phases and Related Steps in Source Word Transfer

Phase	Step
"It needs improvement"	1
"This might be better"	2
"I'm not satisfied"	3
New idea created	4

The change process of P9 with Domain transfer can be concluded as from "I don't understand" via "I found something useful" to created new idea. "I don't understand" stands for P9's inquiries about the ideas proposed by P8. And "I found something useful" stands for the discussion about ideas' feature (domain feature). And finally the idea was created with this feature. The connection between the phase in generation process and the steps in mechanism was shown in Table 6-6.

Table 6-6 Generation Process Phases and Related Steps in Domain Transfer

Phase	Step
"I don't understand"	1

"I found something useful"	2, 3
New idea created	4

The change of P9 with SC _ perspective can be concluded as from "I don't understand" via "I found something useful" to created new idea. "I don't understand" stands for the fact that after P8 shared one idea, P9 firstly made comments on the unrelated aspects and then thought again about P8's explanation about why the idea was created. In another word, P9 at first didn't understand the resemblance between target and source. But later P9 rethought about P8's explanation of creation purpose in order to mapping the analogy, trying to understand the concept. Therefore this phase can be summarized as started from the status of "I don't understand (where is the resemblance)". And later during the recall of P8's explanation a new search cue was found. This phase was expressed as "I found something useful". The connection between the phase in generation process and the steps in mechanism was shown in Table 6-7.

Table 6-7 Generation Process Phases and Related Steps in SC _ Perspective

Phase	Step
"I don't understand"	1
"I found something useful"	1
New idea created	2

So as a short summary shown in Table 6-8, two types of generation process were identified.

Table 6-8 Influences of Group Communication and Generation Process Phases (1)

	Phase 1	Phase 2	Phase 3	Phase 4
Source Word Transfer	"It needs improvement"	"This might be better"	"I'm not satisfied"	New idea created
Domain Transfer	"I don't understand"	"I found something useful"	New idea created	
SC _ Problem				

Analysis of group B

The mechanism of SC _ Confidence in P9, Focus on Analogy in P2, Structure Transfer in P5 and P11, and Overcoming Fixation in P11 were analyzed.

The change process of P9 can be concluded as from "I'm not sure about this", via "I should do this" to created new ideas. "I'm not sure about this" stands for P9 received positive comments on a couple of ideas but he was not sure whether the positive commented ideas were proper. "I should do this" means after a discussion with other group members P9 extracted a feature that P9 decided to use it as a search cue in the later creation stage. Ideas were created based on it. The connection between the phase in generation process and the steps in mechanism was shown in Table 6-9.

Table 6-9 Generation Process Phases and Related Steps in SC _ Confidence

Phase	Step
"I'm not sure about this"	1
"I should do this"	2
New idea created	4

The change process of P2 can be concluded as from "I'm not sure about this", via "I should do this" to created new ideas. "I'm not sure about this" stands for the situation that at the beginning part of group communication, even though other group member emphasized analogy creation by keep using it, P2 tended to emphasize the importance of making a slogan instead of analogy creation. "I should do this" means after a meta-analysis about the based on the task requirement P2 started to recognize the necessity of analogy creation. In this way later P2 created several analogies. The connection between the phase in generation process and the steps in mechanism was shown in Table 6-10.

Table 6-10 Generation Process Phases and Related Steps in Focus on Analogy

Phase	Step
"I'm not sure about this"	1, 2
"I should do this"	3, 4
New idea created	5, 6

The change process of P5 can be concluded as from "I'm not sure about this", via "I should do this" to created new ideas. "I'm not sure about this" was P5's first reaction when he saw the later transferred structure first time. "I should do this" means after a discussion about evaluation criteria and evaluation on the presented ideas, P5 decided to the transferred structure was the most proper structure to use. In this way later P5 created several analogies. The connection between the phase in generation process and the clusters in the group communication was shown in Table 6-11.

Table 6-11 Generation Process Phases and Related Clusters in Structure Transfer (P5)

Phase	Cluster
"I'm not sure about this"	8, 12
"I should do this"	21, 24
New idea created	

The change process of P11 (under Structure Transfer) can be concluded as from "I'm not sure about this", via "I should do this" to created new ideas. "I'm not sure about this" stands for P11's attitude towards the idea with the transferred structure. P11 made several comments about this idea both positively and negatively. "I should do this" means after a discussion about evaluation criteria and evaluation on the presented ideas, P11 found the structure within the idea was a proper structure to use. In this way later P11 created several analogies later in the 2nd stage. The connection between the phase in generation process and the clusters in the group communication was shown in Table 6-12.

Table 6-12 Generation Process Phases and Related Clusters in Structure Transfer (P11)

Phase	Cluster
"I'm not sure about this"	2, 5, 21, 23
"I should do this"	27, 28, 29, 32
New idea created	

The change process of P11 (under Overcoming Fixation) can be concluded as from "I'm not sure about this", via "I should do this" to created new ideas. "I'm not sure about this" stands for the situation that at the beginning part of group communication, P11 was not sure about the evaluation criteria and which idea should be chosen. P11 evaluated his and other's ideas both positively and negatively from different aspects. "I should do this" means after a discussion comparing all the presented ideas, P11 realized some of the search cues he used in the 1st stage was not suitable for this task and found proper search cues for ideas creation. In this way later P11 created several analogies later in the 2nd stage. The connection between the phase in generation process and the clusters in the group communication was shown in Table 6-13.

Table 6-13 Generation Process Phases and Related Clusters in Overcoming Fixation

Phase	Cluster
"I'm not sure about this"	13, 17, 23, 26
"I should do this"	23, 26, 27
New idea created	

As a short summary shown in Table 6-14, the generation process of the influences of group communication in group B was identified.

Table 6-14 Influences of Group Communication and Generation Process Phases (2)

	Phase 1	Phase 2	Phase 3
SC _ Confidence			
Focus on Analogy	"I'm not sure about this"	"I should do this"	New idea created
Structure Transfer			
Overcoming Fixation			

85

6.5. Discussion

After a comparison of all the mechanisms, three different generation processes of influences of group communication were identified. A summery was shown in Table 6-16

Table 6-15 Generation Process of Group Communication's Influences

	Phase 1	Phase 2	Phase 3	Phase 4
Source Word Transfer	"It needs improvement"	"This might be better"	"I'm not satisfied"	New idea created
Domain Transfer	"I don't understand"	"I found something useful"	New idea created	
SC _ Problem				
SC _ Confidence	"I'm not sure about this"	"I should do this"	New idea created	
Focus on Analogy				
Structure Transfer				
Overcoming Fixation				

For the generation process of Source Word Transfer, a cognitive task was formed at the beginning to improve the sentences. The rest phases were carried out under this big object. Therefore the main conversation content in phase 1 was about which idea was good and the frequently used utterance function was comment (75%). In phase 2, for improving existing idea various adjustment was discussed and trying (68%) was mainly used. Finally after a serious of improvement tryout, discussion was carried out for judging if further effort was needed for generated good ideas. In this sense, participants mainly discussed about the appraisal of the newly adjusted sentences and tried to make a consensus on the final choice. As a result, Comment (40%), Trying (30) and Other (30%) were used.

For the generation process of Domain Transfer and SC _ Problem, a cognitive task was formed at the beginning to find new hints from the other group members. The rest phases were carried out under this big object. Therefore the main conversation content in phase 1 was about explanation about other participants' idea (creation purpose/relationship between source and target).

Therefore sharing was frequently adopted (83%/100%). In phase 2, the properness/evaluation criteria/expected features were discussed. Consequently comment (37%/100%)/meta-analysis (33%) was mainly used.

For the generation process of the rest 4 group communications' influences, there was no clear object at the beginning. In phase 1, participants were mainly trying to evaluate all possible concepts. Therefore comment (64%/100%/-/58%) was frequently adopted or meta analysis (46%,100%) in the case of Structure Transfer. In phase 2, participants mainly discussed on several concepts and even tried to develop them. Consequently comment (100%/-/100%,46%/43%)/meta-analysis (-/100%/-,42%/43%) was mainly used.

7. Relationship between Non-verbal Factor (Smile) and the Group Influences

7.1. Measurement of Smile

A software Happiness Counter was used to detect all the smile facial expressions with the experiment video. The processed video with smile data was shown in Figure 7-1. Two rows of smile data (green boxes) were obtained. The second row of the green boxes is the summary graph of the entire data. And detailed data was shown in the first row. To be specific, the first row shows the expanded data from the light grey area in the second row. And the grey boxes in every segment in the first row shows the face number detected in one second, and the number of green box is the number of smiling face detected. One segment in the second row shows the highest value within a sequential 40 seconds. Specifically the number of grey and green boxes shows the highest number of face and smiling face detected during around 40 seconds.

Figure 7-1 A Processed Video with Smile Data
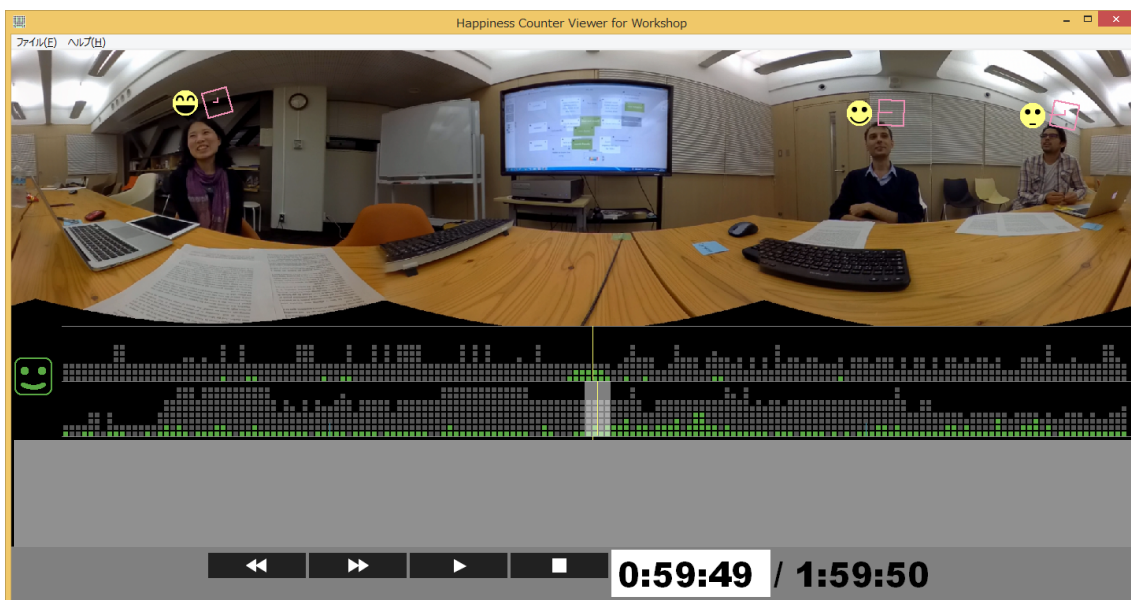
Since the discussion occurred between two individual work stages was mainly inspected in this research for explaining the changes took place in individual performance, the smile data within this period, such as the circled data in Figure 7-2, was mainly

analyzed. And the analysis purpose is to find if there is any relationship between high level smiling and group influences.

The high-level smiles data in this research was those segments where the number of detected smiling face was higher than the average number of smiling face among the discussion stage in the summary figure.

Figure 7-2 Smile Data from One Group
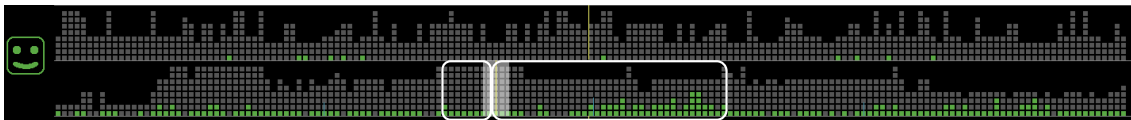
7.2. Analysis Method

First, the smile level in conversation was checked to identify high-level conversations. High-level smile conversation here means conversations that triggered high level smile. For the investigation, specifically several rules were built. Given to the fact that a segment in the summary graph contains conversation occurred in 40 second, several high-level smile conversation might be represented by the same data in the summary graph, all conversations were checked. And since it is natural to observe smile/laugh last for more than one second, if only one segment of high-level value was detected in a conversation cluster, it should not be considered as a high-level smile conversation. And high-level smile records can be long or short, and the length is highly dependent on conversation context. Lastly among all the records, only task related records were investigated. Other "Laugh" facial records such as participants joking with each other, or inquiring about the operational problems during the task, for example the color of notes, were excluded from the analysis.

The influential conversation clusters were identified from the analysis of chapter 6 for each influence of group communication. And based on the further investigation result, it was possible to tell if the clusters were high-level smile conversation or not. And the ratio of high-level smile influential conversation was investigated for telling if smile ratio has was related with group communication's influences. The ratio of high-level smile influential conversation has twofold meanings. Firstly, it checked the percentage of high-level smile influential conversation within the influential conversation clusters in order to find out how much participants smiled during the influence process. And secondly it checked the ratio of group communication's influence related high-level smile influential conversation within the entire high-level smile conversations. In this way, it provides better evidences suggesting the relationship between the high-level smile and the influences of group communication.

7.3. Relationship between Smile and the Influences of Group Communication

Among the seven influences of group communication, only two were found possibly related with high-level smile. They were Source Word Transfer and Domain Transfer.

Source Word Transfer

For the Source Word Transfer, taking the case of P2 as an example, smile level data was shown as Figure 7-3. In this figure, the red dots were the influential conversation clusters. Average smile calculated from the summary graph was 1; therefore if a concentration of 2 or more green boxes were identified in a conversation cluster, it was thought to be high-level smile conversation. And we found high-level smile data occurred in the last four clusters. In this sense, the ratio of high-level smile in the influential conversation clusters was a high 80%. And additionally, the smile level of the entire data was checked as well. Among all the 28 group conversation clusters, 8 high-level smile data were found, and among them 4 were related with the influential conversations. That is to say, the ratio of influential conversation within the high-level smile conversations was 50%.

Figure 7-3 Smile Level of Clusters Related to Source Word Transfer (P2)
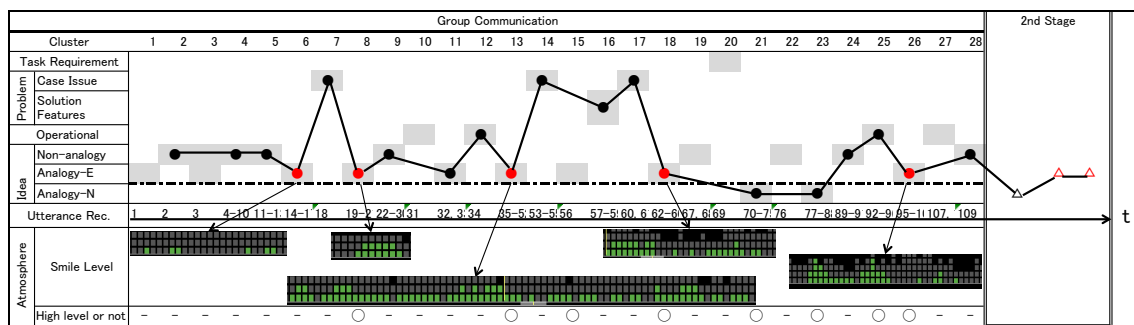
Therefore, it was obvious that the among all the transfer source word related conversation, most were found related with high-level smile. And among all the conversations where high-level smile occurred, half of them were related with the transferred source word. Therefore, it is safe to suggest a positive relationship between high-level smile and the conversation about transferred source word. And according to the analysis result of chapter 5 and 6, these transferred source word related conversation played different but meanwhile crucial roles in different phase for the group

communication's influences that explaining the change took place in individual thinking.

Source word transfer was found in P3 as well. Since P3 was in the same group with P2, they shared a similar group communication flow graph with smile level data. The slight difference was in the graph of P3 both red and orange dots were the influential conversation clusters. Similarly we found a high-level smile occurred during the transferred source word related communication. The ratio of high-level smile in the influential conversation clusters was a high 80%. And the ratio of influential conversation within the high-level smile conversations was 50%.

Figure 7-4 Smile Level of Clusters Related to Source Word Transfer (P3)
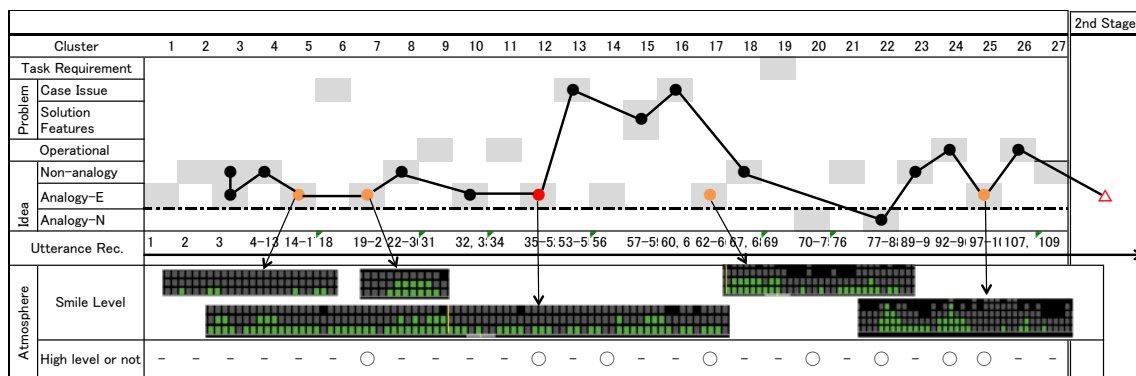
And the difference between P2 and P3 was concerning participation. Since P2 participated more than P3 during the group communication and consequently, had more share in the observed smile. However from this result, it might be possible to suggest that high-level smile group communication influenced not only those one who participated smiling but also those who participated less but observed.

Domain Transfer

Group communication's influence of Domain Transfer was found from the case of P9. P9's group discussion with smile level data was shown as Figure 7-5. In this figure, the red dots were the influential conversation clusters. Average smile calculated from the summary graph for this group was 2; therefore if a concentration of more than 2 green boxes were identified in a conversation cluster, it was thought to be high-level smile conversation. And we found high-level smile data from 5 influential group conversation

93

clusters. And the ratio of high-level smile in the influential conversation clusters was 70%. And additionally, the smile level of the entire data was checked as well. Among all the 36 group conversation clusters, 12 high-level smile data were found, and among them 5 were related with the influential conversations. That is to say, the ratio of influential conversation within the high-level smile conversations was 40%.

Figure 7-5 Smile Level of Clusters Related to Domain Transfer
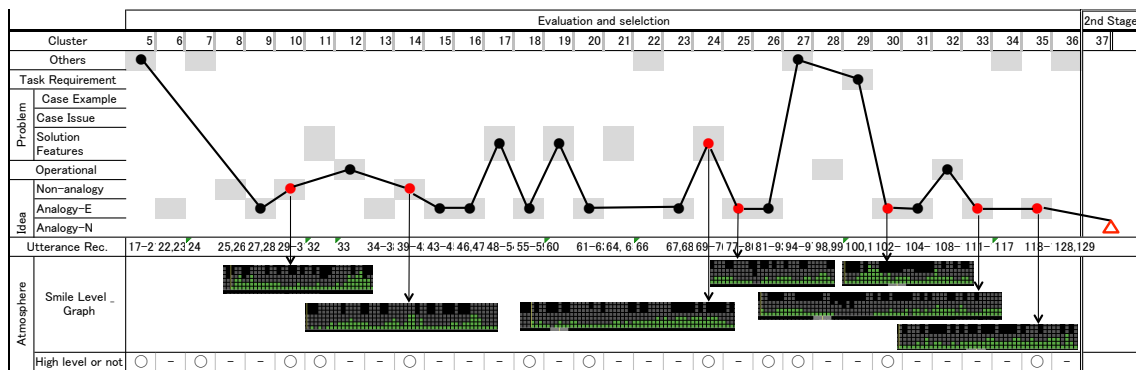
Therefore, most conversations regarding the transferred domain were observed with high-level smile (70%). And among all the conversations where high-level smile occurred, 40% of them were related with the transferred domain. Therefore, it is possible to suggest a positive relationship between high-level smile and the conversation about the transferred domain. And based on the analysis result of chapter 5 and 6, these high-level smile influential conversations were all contributive to the change took place in individual thinking. Therefore high-level smile has positive relationship with the group communication's influence of domain transfer as well.

7.4. Discussion

Among the 7 group communication's influences for improving the individual performance in analogy creation, high-level smile was found related with two, Source Word Transfer and Domain Transfer. Both influences were related with the performance improvement in superficial similarity.

For both influences, most of the conversations that contributed to form the influence of group communication had high-level smiles. It might be possible to suggest that smiling/laughing while discussion could stimulate the transfer of the image of things or the domains of things for creating analogy. And meanwhile, these effective high-level smile conversations took around half or close to half of the conversations that had the feature of high-level smiles. In another word, smiling/laughing was not just a characteristic of the atmosphere built within the group, but more related with the discussion content, which might further affect individual thinking.

About the discussion, it might be related with the utterance functions as well, for example intuitively making jokes during the process should trigger more laugh/smile. However, from the analysis of the two groups we found basically there was no such an utterance function that could obviously play main role for making people smile/laugh. Comment was found effective in both cases, however it was less conspicuously related with high-level smile. Respectively, the function of trying and meta-analysis were highly related with the high-level smile in the forming of Source Word Transfer and Domain Transfer in this study.

8. Discussion about Individual Improvement

In the previous chapters, we analyzed what group communication's influences existed and how these influences were formed through communication. In this chapter, the question of why the improvement was realized under group communication's influence was answered.

8.1. Analysis Method

Analysis was conducted with all participants from whom group influences were observed, including improved participants and participants with low 2nd stage performance. With the improved participants, the mechanism of improvement realization was analyzed. And with the low performance group, studies were conducted to clarify why they failed to improve.

For identifying the mechanism of performance improvement, firstly, the interview and the ideas generated were studied to identify the specific change that enhanced the evaluation result, i.e. to diagnose the problems in the 1st stage that were fixed during the group communication. And in order to explore the mechanism comprehensively a further analysis from both the influenced and influencing sides was conducted.

8.2. The Mechanism for Performance Improvement in Superficial Similarity

Under group communication's influences, P2, P3 and P9 improved their performance in terms of LaSeD. Within the low performance group, group influences were found in P4 and P6. Analysis was conducted with these 5 participants.

P2

A crucial problem that hindered P2 from creating analogy was that P2 misplaced focus exclusively on creating slogan. Based on the interview, it was found that putting emphasis exclusively on creating slogan affected P2's idea generation in two ways. Firstly, no analogy was generated. P2 expressed difficulty in combining analogy with slogan in the 1st stage according to the interview. As a result P2 was only able to focus on one side, creating slogans. And secondly in order to create slogans, P2 behaved strictly with rhetoric. All the sentences generated by P2 in the 1st stage showed this characteristic. And in the group communication, P2 mentioned several times that sentences should be concise.

Figure 8-1 Self-report about P2's Problem for Idea Generation in the 1st Stage

P2	It took me really long time to write one (statement). Because it is really difficult to relate slogan with analogy or anything else. Actually the first few slogans I wrote have no any analogy. And some slogan like No.4, "In Japan We Trust" is just based on "In god we trust" American slogan. Untill then, I didn't have any analogy. Even this one (No.4) has a little analogy but it is not related to the topic..
P2	In the beginning, it was difficult to find analogy. Then I did, No.7 or 10, "may the work be with you", that is from the game of wars, star wars, most famous sentence. I'm not sure if you have seen star wars, but in that movie, they said May the force be with you. It was just a joke. But I didn't share this one, actually I liked it a lot. This one was really fun. But I didn't share it in the group discussion because I think it is not serious. Political slogan is not something fun I think.

After group communication P2 was able to create analogies and improved the performance in retrieving high LaSeD source word. Two group communication's influences stimulated the performance improvement. They were Cognitive Shift to Analogy Creation and Source Word Transfer.

Combining the previous analyses based on both interview and experiment record, it was possible to depict the performance improvement process during group communication

as Figure 8-2.

Figure 8-2 P2's Performance Improvement Process
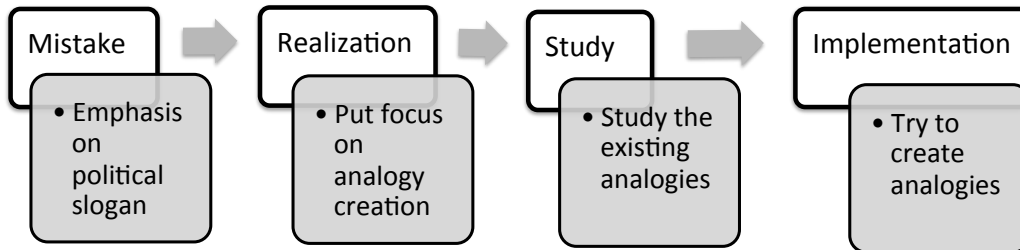
Figure 8-3 Self-report about individual Thinking during Group Discussion (P2)

P2	So, before discussion, almost all my idea were not related to analogy. And during the sharing stage, mine and P3's were not so related to analogy, but P1's two were analogical. Though these two are not slogan but analogical. So I understood better what the task was.
P2	So we had a discussion on P1's good analogy. And after that I read the materials again, especially the example of debt is cancer. So for creating analogy we have to decide which field to use. The example used the field of medicine or desease. So the basic first thing for creating analogy is to decide the field. That is why I came up with anemia, because I wanted to use medical field.

Regarding the interaction between P2 and the rest of the group, mainly P2 received 3 benefits from the group communication, including the adjusting the workshop direction, learning about how to create ideas and sharing of element for creation. Specifically as shown in Figure 8-4, during the process P2 was able to put focus on analogy creation because of the utterance about the task requirement from P1. And for learning what kind of analogical sentences were expected to create, P2 mainly did it by learning from group members, specifically P1 in this case. After had a clearer idea of analogy generation, P2 started to create analogies. During the generation process, P2 adopted an element, a source word, acquired from P1.

Figure 8-4 Group Input in P2's Performance Improvement Process
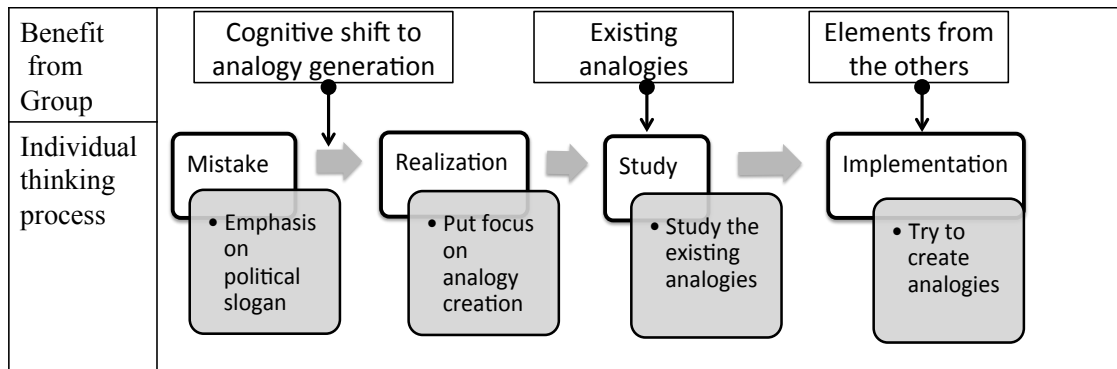
Benefit from Group	Cognitive shift to analogy generation		Existing analogies		Elements from the others	
Individual thinking process	Mistake • Emphasis on political slogan	→	Realization • Put focus on analogy creation	→	Study • Study the existing analogies	→	Implementation • Try to create analogies

Even with the benefits from group communication, there were still some difficulties needed to be overcome by individual participants. As shown in Figure 8-5, for P2 after realized the importance of creating analogy, learning how to create analogy was necessary for him. It was because P2 was not good at creating analogical statement according to the interview. And after learnt about how analogy should be generated, P2 needed to find elements for comparing the task issue to. Because we found from all the analogies P2 created in the 2nd stage, he acquired elements for creation from external resource, such as source word from another group member or a domain from the reading material. It might show that P2 was not good at retrieving source words by oneself. Therefore to overcome the difficulty of finding element so to complete the comparison was necessary as well.

Figure 8-5 Difficulty in P2's Performance Improvement Process

Benefit from Group	Cognitive shift to analogy generation		Existing analogies		Elements from the others	
Individual thinking process	Mistake • Emphasis on political slogan	→	Realization • Put focus on analogy creation	→	Study • Study the existing analogies	→	Implementation • Try to create analogies
Difficulty				How to create analogy?	Where to find the comparison?
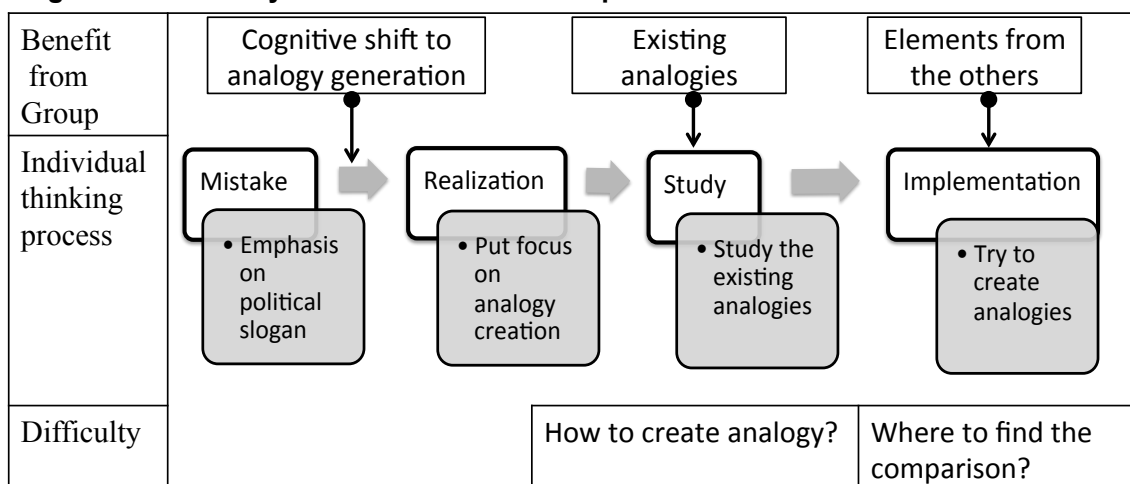
Figure 8-6 Self-report on Difficulties in Individual Thinking during Group Discussion

P2	It took me really long time to write one (statement). Because it is really difficult to relate slogan with analogy or anything else. Actually the first few slogans I wrote have no any analogy. And some slogan like No.4, "In Japan We Trust" is just based on "In god we trust" American slogan. Untill then, I didn't have any analogy. Even this one (No.4) has a little analogy but it is not related to the topic..

For learning how to create analogy, the ability to identify good examples was very important. Meanwhile the ability to extract the knowledge from the learning process was crucial for the later implementation as well. Another ability of using those extracted knowledge and information to create new analogy was indispensable too.

Figure 8-7 P2's Person Ability in Performance Improvement Process
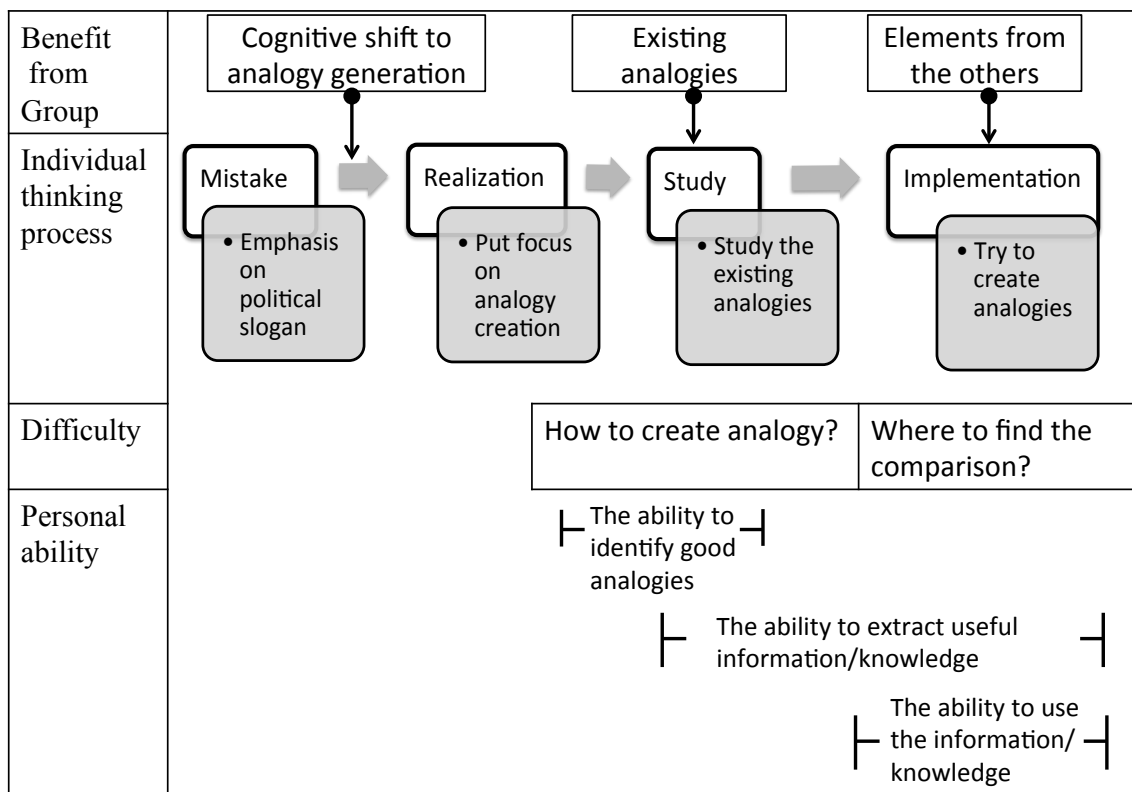
In the group discussion, no evidence was found that P2 surmounted these difficulties with external help. Since during group discussion P2 made the judgment about source word ("the second idea" mentioned in the conversation) quality independently, it might be safe to suggest that P2 possessed the first ability of identifying high LaSeD source word before group discussion. And about ability to extract useful

information/knowledge, we found P2 successfully found a search cue of shortage, a method of looking for comparison in domains and a domain independently. And about the last ability of using the information/knowledge in different ways, since P2 showed it in the 1st stage by using the form of popular catchphrases to illustrate the necessity of foreign worker importation (even thought they were not for analogy) and created another analogy independently during group discussion, it was safe to suggest that P2 possessed the ability initially as well.

Figure 8-8 Conversation regarding the Ability of Identifying Good Analogy

No.	Start Time	End time	Who s	Content
32	01:38.9	01:41.8	P3	For example, I like the first one.
33	01:42.5	01:46.9	P2	let's say if the first one or the second one, anyone of them are better retermed, they will be chosen
34	01:47.8	01:51.6	P2	Now we get the idea, maybe it is better to find a good way to write it.

Figure 8-9 Self-report regarding the Ability of Extracting Knowledge/Information

P2	…I found it is more related to analogy. So in the paper, the example was like debt is cancer. So I was thinking what type of decease can be related to the lack of workers
P2	And I came up with anemia that is a desease caused by lack of blood cell in the body. So I just said the same thing that debt is cancer but with anemia, like Japan suffers from anemia.
P2	…so for creating analogy we have to decide which field to use. The example used the field of medicine or desease. So the basic first thing for creating analogy is to decide the field. That is why I came up with anemia, because I wanted to use medical field.

Figure 8-10 Self-report Regarding the Ability of Using Knowledge/Information

P2	In the beginning, it was difficult to find analogy. Then I did, No.7 or 10, "may the work be with you", that is from the game of wars, star wars, most famous sentence. I'm not sure if you have seen star wars, but in that movie, they said May the force be with you. It was just a joke. But I didn't share this one, actually I liked it a lot. This one was really fun. But I didn't share it in the group discussion because I think it is not serious. Political slogan is not something fun I think.

In addition, the willingness to use the elements proposed by other members was crucial for the transfer of elements too. In the case of P2, we found during the group

communication, P2 participated deeply for improving sentences using the transferred source word. For example, using a word proposed by P1, P2 replaced the original sentence structure from "circulation" to a proper structure "supplement" thus created a new sentence during the discussion. Therefore it was possible that the deep participation in revising ideas increased the willingness to use the idea built during the discussion for later creation.

In summary, combined with personal abilities group influences improved the performance of P2. Specifically as a participant being able to identify good analogies, extract and use information and knowledge from task and group discussion, a group communication that provided monitoring over the group-work direction, ideas for learning and creation element could enhance the percipient's performance regarding LaSeD.

P3

From group communication, P3 acquired a high LaSeD source word from P1 and created an analogical sentence based on it. This influence mainly enhanced the performance.

The problem with P3 in the 1st stage was that P3 could not retrieve high LaSeD source words. A possible reason was that P3 felt it was difficult to relate something else with the task issue, hence thought few about analogy creation. From figure 8-11, it was clear to see that a large proportion of thinking process was related with problem analysis. Therefore for generating solutions, few focuses were placed on analogy creation. As a result few analogies was created. And all the analogies were created based on one concept "eating to improve human health", which was evaluated as low LaSeD. Consequently the performance of P3 was low in terms of LaSeD.

Figure 8-11 P3's Problem for Idea Generation in the 1st Stage

	1st Stage													
Focus Rec.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Problem														
Slogan														
Analogy														
Interview Rec.	1,2	3	4	4	5,7	6	6	8	8	8,9	11	10	12	12
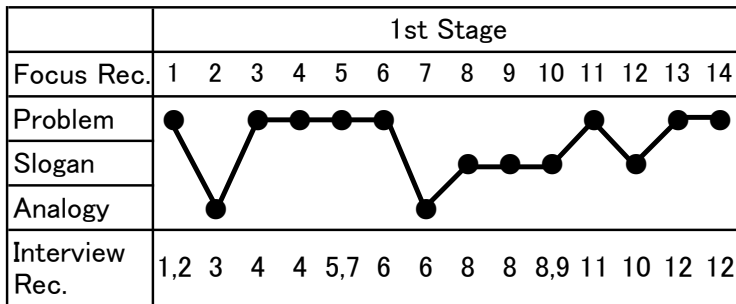
Figure 8-12 Self-report About P3's Problem for Idea Generation in the 1st Stage

P3	... Then I was thinking, I already had the three main ideas from the reading, so I can try to get some slogans, which was a little difficult for me. And it was really not easy to find something related with the problem, the issue…

After group communication P3 acquired a source word "Air" that showed a high LaSeD. During group communication, this influence occurred in a process that contained two sub-phase, listening and comment. After these two sub-phases within group communication, P3 could write an analogical sentence based on the transferred source word "Air". The process was shown in Figure 8-13.

Figure 8-13 P3's Performance Improvement Process
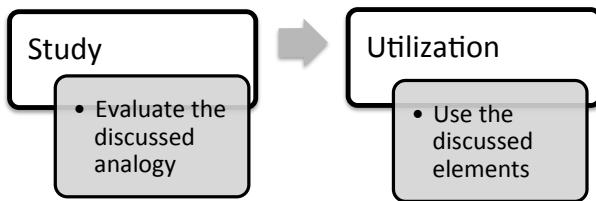
Figure 8-14 Interview for Individual Thinking during Group Discussion (P3)

P3	We were talking about one of P1's phrases, it was something related to the opening the window. So we were creating ideas about fresh air. So I just wrote new air refresh Japan. Ventilate the closed room, is similar to that Japan should not be so close to solve the inside problem. Also let the outside thing help the inside issue.

P3 received benefits from group communication mainly in the way of acquiring elements for making analogical sentences, including a structure and a source word.

Figure 8-15 Group Input in P3's Performance Improvement Process
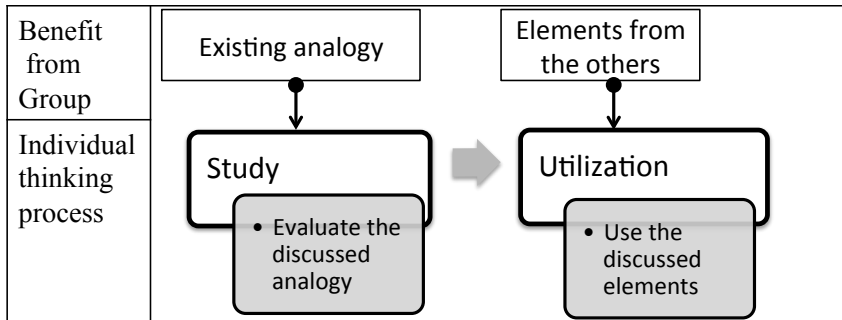
Benefit from Group	Existing analogy		Elements from the others
Individual thinking process	**Study** • Evaluate the discussed analogy	→	**Utilization** • Use the discussed elements

Even with the benefits from group communication, there were still some difficulties needed to be overcome by individual participants. For the case of P3, whether P3 was able to evaluate an analogical sentence properly decided if the acquisition of elements could be successful. And for improving the performance in LaSeD, P3 should be able to evaluate the source word properly.

Figure 8-16 Difficulty in P3's Performance Improvement Process

Benefit from Group	Existing analogy		Elements from the others
Individual thinking process	**Study** • Evaluate the discussed analogy	→	**Utilization** • Use the discussed elements
Difficulty	How to Evaluate?		
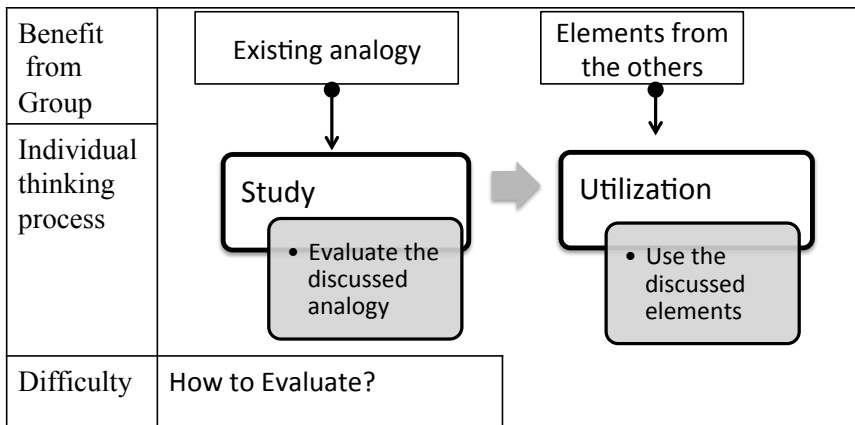
As a solution to overcome this difficulty, it was found from the group conversation and interview that the other members instead of P3 initiated the discussions about the transferred word. And P3 did give a positive comment on it as well. The reason why the analogical sentence was positively commented by P3 was because of the structure not the source word. Therefore in this case other group members found the source word and presented to P3.

Figure 8-17 Solution for P3's Difficulty in Performance Improvement Process

Benefit from Group		
Individual thinking process	Existing analogy → Study • Evaluate the discussed analogy	Elements from the others → Utilization • Use the discussed elements
Difficulty	How to Evaluate?	
Solution	Other group member found the high LaSeD source word	
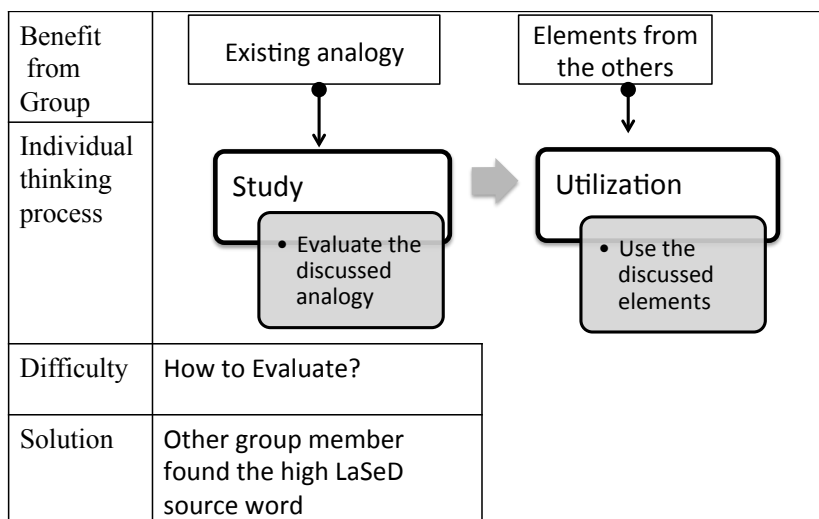
In summary, group influences improved the performance of P3. Specifically in order to create high LaSeD analogies, a group communication that provided sharing of high LaSeD analogical sentences in different structures could enhance the percipient's performance.

P9

A crucial problem that hindered P9 from creating analogies was his uncertainty about the evaluation standards of analogies. And later in the 1st stage, it was found that P9 set many constraints for judging whether an analogy was subjectively good, for example the analogy created should not similar elements (source word or domain) used in the material example, or the comparison should be something well known. And with high self-censorship few analogies generated by P9, and among them few were high LaSaD analogies.

And in P9, there was another problem hindering the analogy generation process. P9 used only one search cue during the 1st stage. Using only one search cue might increase the possibility that only limited source word would be retrieved.

Combining the previous analyses based on both interview and experiment record, it was possible to depict the individual thinking process during group communication regarding analogy creation as Figure 8-18.

Figure 8-18 P9's Performance Improvement Process
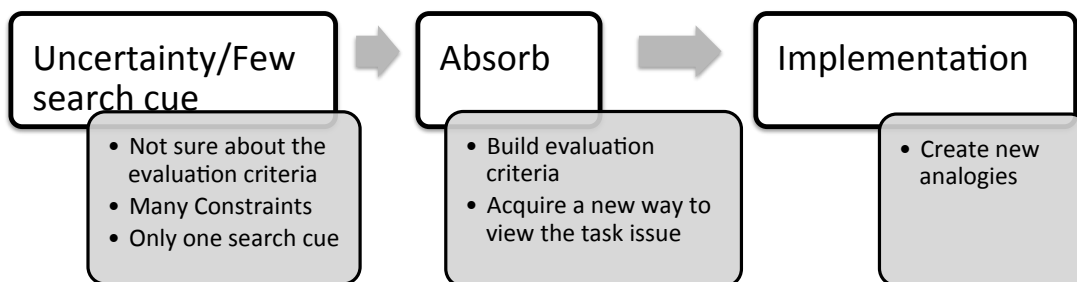
Figure 8-19 Self-report about P9's Problem for Idea Generation in the 1st Stage

P9	During the eluvation, I was able to know what kind of idea to propose and what knid of ideas would be accepted. I found the direction for generation ideas.

P9	...At the begining, you showed us a table for analogy. Government and human were written in that table, so I started to try to use something esle, rather than human. ... So for the solution, at first I was thinking about injection. But it doesn't have too much difference with cancer, so something related to human being. I don't think it is good, so.. .
P9	Because it is quite similar with the example, it includes human and medical tratement. If it doesn't have anything to do with medical tratement, maybe I would write. But because it is too similar to the example, and I don't want to be influenced by the example too much, I didn't write it. So I think it is better to think more aspect, to create more idea. So I came up with the idea of plant first.
P9	When I was using old sayings, in my mind, I was trying to create idea from somewhere, from something that already exists for long time.... Even though I gave up on old saying, I still was trying to look for something that already exists for long time, and everybody knows.... anyway, something that existed for long time and was well known is good...
P9	... At first I was thinking about using and being used, Japanese and foreigner. In this sense, Japanese is superior than foreigner, which is something not good. And when I thought about momotaro, I found it was a team, and more persuasive to use team... I felt it was a nice idea, so I wrote.

P9	... I constantly focused on 3 things. There is a problem, to import something from outside and solve the problem. I think we were expected to create something like this.

After group communication, P9 improved the performance in retrieving high LaSeD source word under the influence of SC _ Confidence, SC _ Perspective and Domain Transfer by absorbing the opinions and perspectives of other members.

Regarding the interaction between P9 and the rest of the group, mainly P9 received 3 benefits from the group communication, including building confidence, formation of search cues and acquiring elements for analogy creation. As a result, P9 was able to create several high LaSeD analogies. Specifically during the process P9 was able to

form 2 search cues because of the group communication. The concept of one search cue was clarified during the discussion and another search cue was developed after P9 learnt a new perspective to deal with the task issue based on P8's ideas. Meanwhile, P9 became confidence with the search cues of "teamwork" and "equity" built from his original idea. During the generation process, an element, which is the domain of "pop-culture", used by P8 was found in one analogy generated by P9, and P9 stated about the influence in the group conversation and interview.

Figure 8-20 Group Input in P9's Performance Improvement Process

Benefit from Group	• Evaluation Discussion • Search Cues Information	Elements from the others	
Individual thinking process	Uncertainty/Few search cue • Not sure about the evaluation criteria • Many Constraints • Only one search cue	Absorb • Build evaluation criteria • Acquire a new way to view the task issue	Implementation • Create new analogies
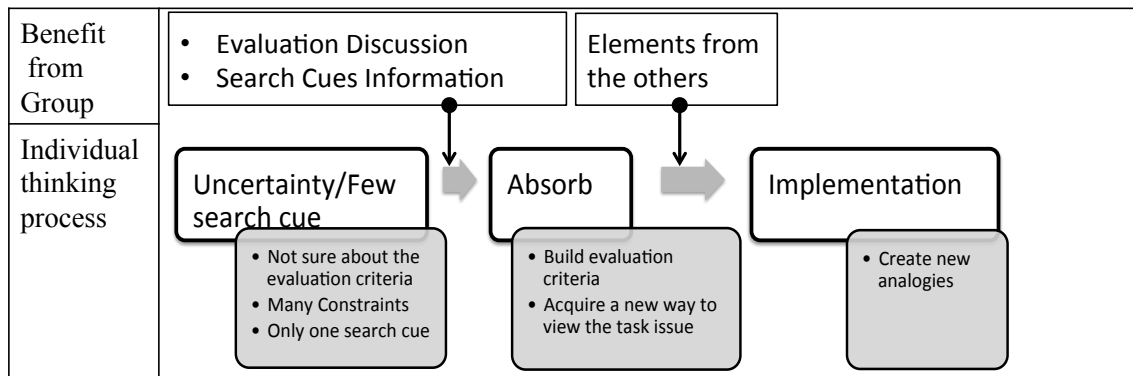
Figure 8-21 Group Discussion Showing Group Input

14:53.4	14:55.4	P9	My ideas are now like P8's

Figure 8-22 Self-report about Group Input

P9	… P8 is good at creating based on recent trend, but I'm not good at it…
P9	After discussion, I found... And another thing impressed me is that P8 was focusing on a different aspect than me and P7. And he was trying to created something from far distance. Influenced by him, I tried and was able to find something with far distance that looks irrelavant at the first sight (but actually related).
P9	And at that time I was trying to find some far distance image that shows equal relationship.. the famous flower song came into my mind.

Even with the benefits from group communication, there were still some difficulties needed to be overcome by individual participants. For the case of P9, after received the comments from other members or perceived other ideas, P9 should face the problem of how to develop them into search cues.

Additionally, to find a proper domain for using these search cues for completing the

retrieval process was necessary generally. However in P9's case, no evidence was found showing P9 struggled to find domains and use them for searching words. In another word, P9 faced no difficulty when tried to retrieve source word in this situation.

Figure 8-23 Difficulty in P9's Performance Improvement Process

Benefit from Group	• Evaluation Discussion • Search Cues Information	Elements from the others	
Individual thinking process	Uncertainty/Few search cue • Not sure about the evaluation criteria • Many Constraints • Only one search cue	Absorb • Build evaluation criteria • Acquire a new way to view the task issue	Implementation • Create new analogies
Difficulty		How to build search cues?	
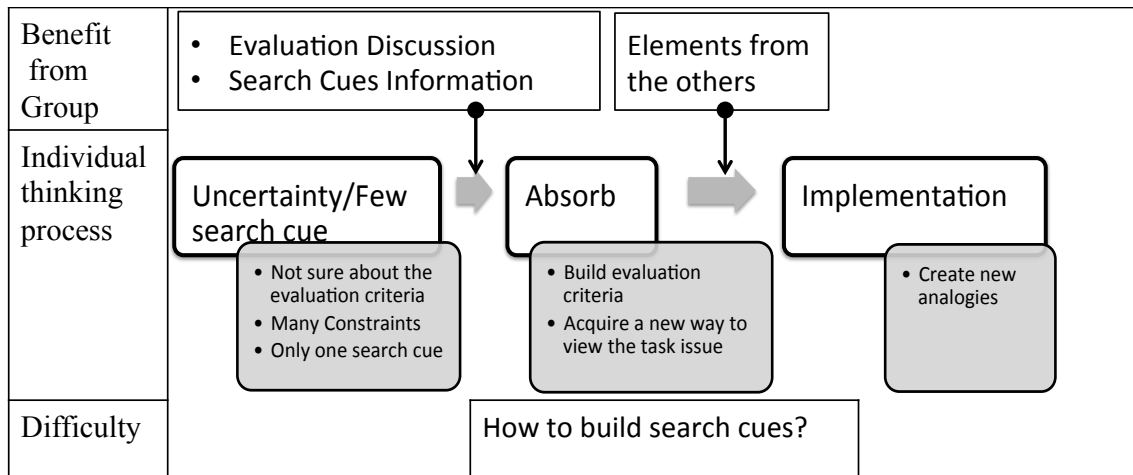
Therefore, for building search cues, after discussed with the other members, the ability to clarify and abstract concepts and develop them into search cue was important.

Figure 8-24 P9's Person Ability in Performance Improvement Process

Benefit from Group	• Evaluation Discussion • Search Cues Information	Elements from the others	
Individual thinking process	Uncertainty/Few search cue • Not sure about the evaluation criteria • Many Constraints • Only one search cue	Absorb • Build evaluation criteria • Acquire a new way to view the task issue	Implementation • Create new analogies
Difficulty		How to build search cues?	
Personal ability		The ability to abstract concepts	

From the interview we found both search cues used by P9 in the 2nd stage were derived from the discussion over issue analysis by P9. Specifically after the discussion, P9 was able to focus on using one search cue because of the positive comments received from the other members. According to the interview and experiment record, not only positive comments were made, but also the specific concepts that later was used as search cue were discussed and evaluated as appropriate for the task issue. The evidence supporting the fact that P9 generated the other search cue was found from the interview. According to the recall of P9, after perceiving the idea of P8's, P9 was able to map it with task issue features. During the mapping process, a search cue was clarified and built. Therefore it was safe to propose that P9 has the ability.

Figure 8-25 Group Discussion Regarding Search Cue with Confidence

01:25.0	01:30.6	P9	But here we have someone wrote, it might not be a good idea to compare people to food.
01:43.5	01:49.2	P9	And I agree with it. So for me momotaro is better than RedBull.
01:51.7	01:54.4	P7	And it is a good analogy for teammate as well.
01:54.6	01:56.6	P9	And it fits the theme.

Figure 8-26 Interview Regarding Search Cue with Confidence

P9	To be more precise, because I had already created momotaro and rugby, the concept of equity already came into my mind. But after talking with the other two members, I realized that equity, which I proposed, was important, based on the positive feedback from the other two members. It is important and appropriate to consider equity.
Interviewer	After discussion, you focused on it.
P9	Yes, I became confident with it.

Figure 8-27 Self-report Regarding Search Cue with Another Perspective

P9	About hinomaru bento, when I was trying to create something, P8 said something about Exile, someone left the group. And because of it this group succeed after dramastic change. From here, I got an inspiration from the leaving. P8 talked about changes generated by it, trying to bring back the balance.

In summary, combined with personal abilities group influences improved the performance of P9. Specifically in order to create high LaSeD analogies, as a participant being able to build search cues based on the analogical mapping analysis, a group communication that provided detailed evaluation into the relationship between analogy

and the task issue, task issue analysis from different perspectives and unusual creation element could enhance the percipient's performance regarding LaSeD.

Analysis about low performance participants

In some low performance participants, several group influences were found. Specifically, Source Word Transfer was found in P6 and SC _ Perspective in P4. Investigation was conducted to find out why participants couldn't improve even under group communication's influence.

P4

From the ideas created by P4, it was found that P4 did not create analogies in the 1st stage. All sentences P4 created were cases or facts listed for showing the necessity that Japan should help the other countries. And after group discussion P4 was able to create several analogies.

Figure 8-28 P4's Performance Improvement Process
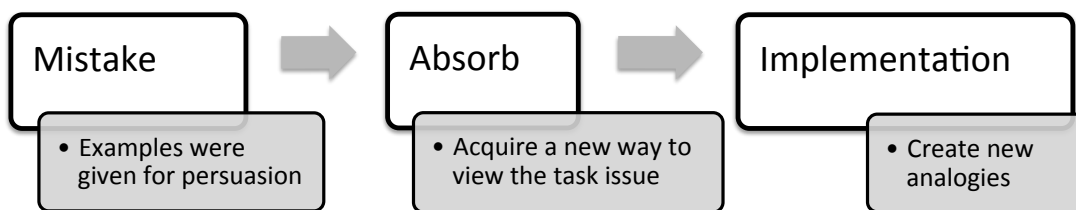
Figure 8-29 Ideas Created in 2 Stages by P4

Ideas created in the 1st stage	Ideas created in the 2nd stage
1. ODA	5. Japanese national Football Team
2. International aid just after WW2	6. Foreign players are doing good job in Japanese national rugby team
3. Singapore and Netherland (only central part of workplace are compose of natives	7. Immigrants are like pepper-kun
4. Collapsing Japanese pension system	

Based on the interview, it was found during group discussion, P4 was able to accept another perspective regarding how to deal with the problem and use it as a search cue to retrieve a high LaSeD source word, and consequently created a high LaSeD analogical sentence. However the other two analogical sentences were created as a result of finding

111

examples. In another word, P4 failed to put cognitive emphasis on analogy creation.

Figure 8-30 Group Input in P4's Performance Improvement Process
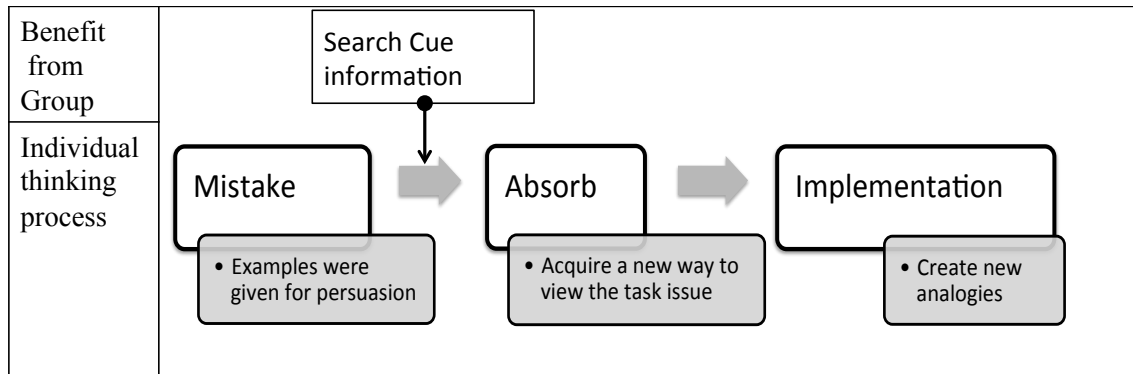
Figure 8-31 Interview about Group Input

Interviewer	...you proposed Mr. Pepper. So what reminded you of this idea?
P4	During the discussion, I think we chose (discussed) the idea of "adapt to the new wind, you will feel good", which means when we welcome something new, even if firstly people might react it is something strange or something they don't like, they are going to accustomed to it and they are going to cooperate with them. So I think that can be applied to Mr. Pepper. Cause Mr. Pepper is a symbol. It is kind like a robot, and some shop actually introduced. And at first, customers to shops thought Mr. Pepper is not something they wanted to talk to, but since the promotion of Mr. Pepper works, so people realised it has a lot of datas and information which is relevant or helpful to the customers. So the customers actually use it. So I think that can be analogous to the situation of how people is going to get accustomed to the new emergence. So that is why I came up with the idea of Mr. Pepper.

Interviewer	After group discussion, how did you come up with the idea of Japanese football team?
P4	So during the discussion with my partners, I think the it was about whether to cooperate with foreigners. I tried to find some example in which the Japanese really did a good job in cooperating with foreigners. That is why I came up with this idea.
Interviewer	Then how did you change the football team into rugby team?
P4	It is almost the same. But Japanese football team is composed of only Japanese or those who changed their nationality. But in the case of Japanese rugby team, it is composed of people from Japan, Newzealand, Tonga and other countries. So I think the rugby team can be a good example to show cooperation with foreigners.

The difficulty for P4 to create analogy was analyzed. Specifically further discussion was conducted for identifying what caused P4 failed to focus on analogy creation.

For creating ideas in the 2nd stage, the problem of how to create or what kind of sentence should be created was a question to be answered.

Figure 8-32 Difficulty in P4's Performance Improvement Process

Benefit from Group	Search Cue information		
Individual thinking process	Mistake • Examples were given for persuasion	Absorb • Acquire a new way to view the task issue	Implementation • Create new analogies
Difficulty			What kind of sentence should be created?
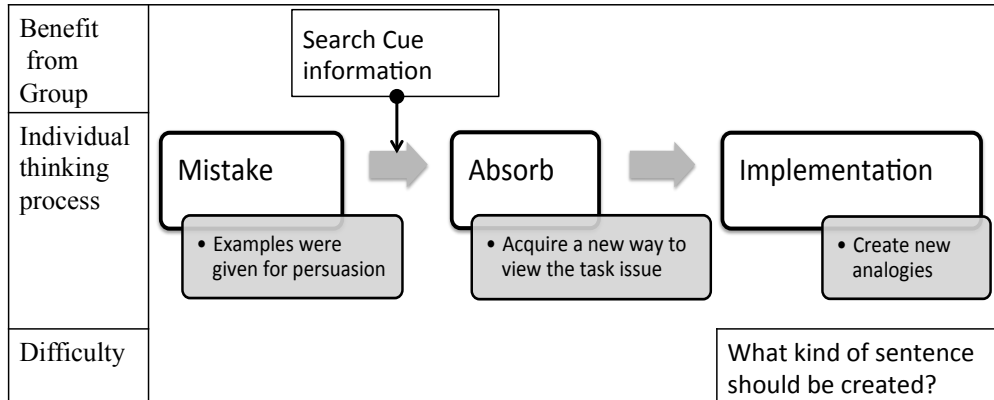
Normally participants should have acquired several different information/opinions. And during the idea generation process, it was possible those information/opinions would be used. However based on the previous analysis, we found P4's problem existing in creating analogy. Though P4 created one analogy in the 2nd stage, it was not enough for achieving performance improvement in this study. That is to say more high LaSeD analogies should be created. Therefore, we propose that the personal ability to stay focus on the task requirement, creating analogy, was crucial for completing the task successfully.

Figure 8-33 P4's Person Ability in Performance Improvement Process

Benefit from Group	Search Cue information		
Individual thinking process	Mistake • Examples were given for persuasion	Absorb • Acquire a new way to view the task issue	Implementation • Create new analogies
Difficulty			What kind of sentence should be created?
Personal ability			The ability to stay focus on the task
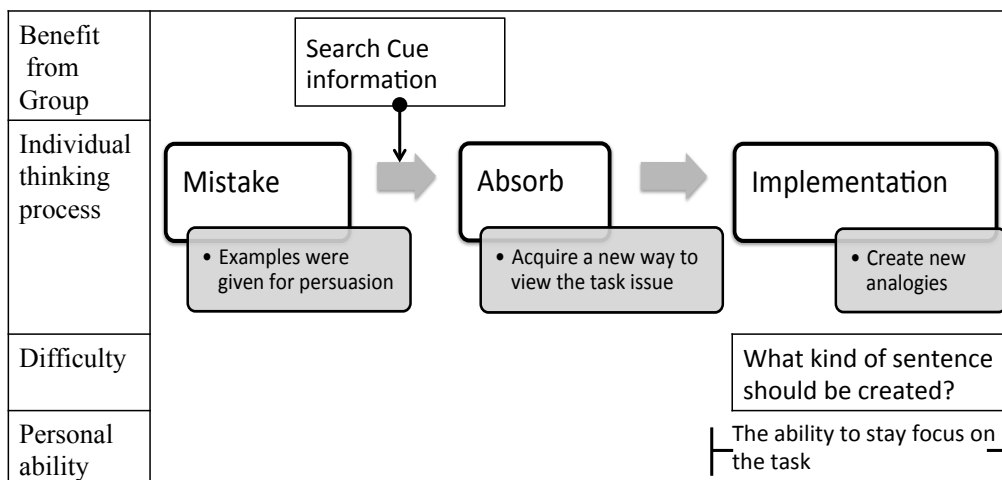
From the ideas created in the 2nd stage, it was clear that low LaSeD analogies were created as a result of trying to find typical examples. Hence we suggested that P4 failed to put cognitive emphasis on analogy creation. It might be the reason explaining why P4 was not able to perform well in the 2nd stage.

P6

From all the 6 ideas P6 created in the 2nd stage, it was found most of them were slogans. From the interview, P6 reported a cognitive shift to slogan creation or rhetorical improvement. In another word, P6 was not able to stay focus on analogy creation in the 2nd stage. Therefore even though the Source Word Transfer influence helped P6 create a high LaSeD analogical sentence, P6 could not perform well since the lack of ability to stay focus on analogy creation.

Figure 8-34 Ideas Created in 2 Stages by P6

Ideas created in the 1st stage	Ideas created in the 2nd stage
1. 沈みかかった船には漕ぎ手が必要だ	10. みんなつがってみんないい
2. 電池切れの日本に外部電源を	11. 飛翔の前の準備。今のがんばりが後で効く
3. 瀕死の日本に特効薬を	12. 日本は現在給水地点
4. 猫の手じゃなく外人の手も借りよう	13. ニッポンを、立て直す
5. 車輪が取れかかっている。早く修理をせねば	14. 受容の先には明るい未来
6. 日本は風邪を引いています。外の空気を吸いましょう	15. ちょっと席替えをしましょう。大丈夫、すぐに仲良くなります。
7. 少しの変化で大きな成果	
8. 外国労働者はワクチンのようなもの。はじめに頑張れば大きな効果！	
9. 新しい風、慣れれば心地よい	

Figure 8-35 Interview of P6 regarding the Focus on Slogan Creation

P6	About No.10, um, this is after the group discussion. And then I focused more on rhetoric.
P6	About No.12, during the group discussion, P5 said something about marathon runner...Something should be added into the sentence. And I wrote this after giving a deep thought on how to make it a better statement.
P6	About No.14, I went back to analogy again, and trying to say that welcoming foreigner might be hard at the beginning, but it is a good thing for the future. I made this kind of...
Interviewer	About No.14 did you think about creating an analogy or just some beautiful sentence?
P6	I think I was trying to make a beautiful sentence

In summary, both P4 and P6 received positive influence from group communication and created one high LaSeD analogical sentence respectively. However since both of them lacked the ability to stay focus on task requirement, and compared with the improved participants, the improvement process lacked of realization and study stage, they failed to perform well in the 2nd stage.

8.3. The Mechanism for Performance Improvement in Structural Similarity

Performance improvement regarding structure similarity was found in 2 participants, including P5 and P11. For P5, only one group influence of Structure Transfer was found, and from P11 both Structure Transfer and Cognitive shift for overcoming fixation were found. In this part, a further investigation was conducted for identifying why they could improve under the group communication's influences.

P5

From the case of P5, by a comparison of the analogies generated in 2 stages we could find that sentences created in the 1st stage without proper structure (2, 5, 6) outnumbered it in the 2nd stage (7, 9). As a result, the percentage of analogical sentences with proper structure increased.

Figure 8-36 Ideas Created in 2 Stages by P5

Ideas created in the 1st stage	Ideas created in the 2nd stage
1. 労働力は国の栄養、外から取り入れて国を元気に	7. 雨降って地固まる。議論も心配も将来の日本の糧に
2. 国という車の燃料は人。今こそ未来へ前進を。〜沢山の労働力を日本へ	8. つらい練習の向こうには輝く舞台が
3. マラソンランナーに水分補給は必須。日本が走り続けるために、労働力を補おう	9. 投資をしなければリターンは期待できない、投資が多いほどリターンも大きい
4. 追い風が吹かなければ帆船は進まない。私たちと世界の人で日本を前へ	10. 忘れ物は、勇気をたして隣の人に借りてみよう
5. いま、日本は倒産寸前の会社だ。大転換するのはいま。	11. 聞くのは一時の恥、聞かぬは一生の恥
6. 薬には必ず用量がある。労働力にも適切な量がある。	

Based on the interview, we found P5 generated most of the analogical sentences (1-5) with the structure of "supplement". However from sentence 2 and 5, one of the necessary features forming "supplement" structure, "insufficient", was missing. And for 6, the structure was not proper. The reason why P5 started to use the improper structure was because subjectively P5 felt it might be difficult to create more analogies from the

previous structure according to the interview. Specifically regarding the improper structure it was found the "insufficient" was considered; however emphasis in the sentence was place on the amount of drug, which mismatched with the main task issue. Both problems involved with structure mapping, the clarification of relationship resemblance between the task issue and the analogy.

Figure 8-37 Interview of P5 regarding the Utilization of Structures in the 1st Stage

P5	... At the beginning, I was thinking how to make the situation straight. In another word, how to abstract the sitution of accepting foreign workers. Then I was thinking about bringing in something from the outside to supply the insufficient, to abstract the situation a bit. So the first one, I was thinking about to reflect the abstraction into some other fields. At first, I was thinking about how about reflect it into human or food. And then the second one is about vehicle and fuel. The lackage of fuel should be supplied from outside, so I found it is something similar. And then, about the third one. Because my interest is marathon, I was recall my daily life so as to find how to supply. And from No.4, I was really trying to create something that looks like a slogan. So I thought about what was writen in real election campaign.
P5	at that time, I was thinking about the mayor … he said Osaka is now a broken boat. And then I was thinking it was close (to the situation).
P5	No.5 is something similar.
Interviewer	But what reminded you of the image of company?
P5	That is because I was thinking the place lacking money, lacking labor that is close to lacking of money, capital. And then I was trying to think what uses capital. Then I found company.
P5	After No.5, I got stuck with idea generation in the same way. I felt maybe it was impossible to keep doing this. So I tried to use another completely different perspective. I tried to think what happened one week ago, and I realized this episode.
P5	No.6 is about medicine. I heard from my friend in pharmaceutical department, when taking medicine, if the dose is not enough, the medicine is not going to work.

After group discussion, P5 acquired a new proper structure of "endurance" and was able to create more analogies with it. Concerning the 2 sentences without proper structure, one set a wrong target (7) and the other one was not showing a proper structure. Based on the interview, it was found both sentences were generated based on "endurance" structure. The reason for final mismatch could be the insufficient mapping. P5 failed to check thoroughly if the analogical sentences matched with the issue needed to solve. Therefore, it was possible to explain the case of P5 in the way that because utilization of

improper structure was terminated, slight improvement was achieved.

Figure 8-38 Interview of P5 regarding the Utilization of Structures in the 2nd Stage

P5	And then next, what we discussed. Before the discussion, I just thought about taking things foreigners from outside to supply domestic market was a good thing. And then from here, I was trying to sell the concept that accecpting foreigner might cause something unpleasent, but it was good for the future. I was trying to add this to the statement generation.
Interviewer	How did you change in this way?
P5	That is mainly because of P6
P5	(about 7) So rain in this case is something making people unpleasant, similar to fighting with someone. So after the happening, the soild will be more solid, better. So for analogy, it might be the same with our case. At the beginning, when importing foreigners, someone might get worried about safety and such things, but after talking with others, it will become better later on.
P5	The rest statements are similar. For creating a good stage play, it is necessary to practice hardly before the stage...
P5	No.9 is something similar to 7 and 8. But this is about investment, something like stock market. At the beginning, we have to pay the money, which is painful, but the more you buy the more you will gain later on…
P5	No.10 might be a little bit difficult to understand. To borrow things that you don't have or don't have enough amount from the others, and borrowing things is a bit embarrassed... It is embarrassed at present, but it will be good for the future is one pointview I wanted to show..
Interviewer	From No.10 to No.11?
P5	No.10 and No.11, I feel they share something in common. There is a saying "it is one moment embarrassment to ask, but it will be lifetime embarrassment if one didn't ask. So No.11 is based on No.10, I was trying to make something more like a slogan out of No.10.

So the improvement process can be depicted as Figure 8-39.

Figure 8-39 P5's Performance Improvement Process
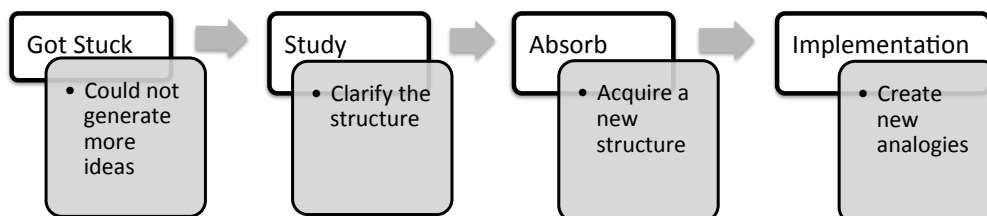
During the process, group communication mainly helped P5 with providing other structures. For adopting a proper structure an evaluation for the structures was necessary. After absorbed a proper structure, whether P5 could focus on it and come up with various analogies directly affects the performance as well.

Figure 8-40 Group Input and Difficulty in P5's Performance Improvement Process

Benefit from Group				
	Other structures			
Individual thinking process	**Got Stuck** • Could not generate more ideas	**Study** • Clarify the structure	**Absorb** • Acquire a new structure	**Implementation** • Create new analogies
Difficulty		Distinguish proper structure	Focus on using proper structure	
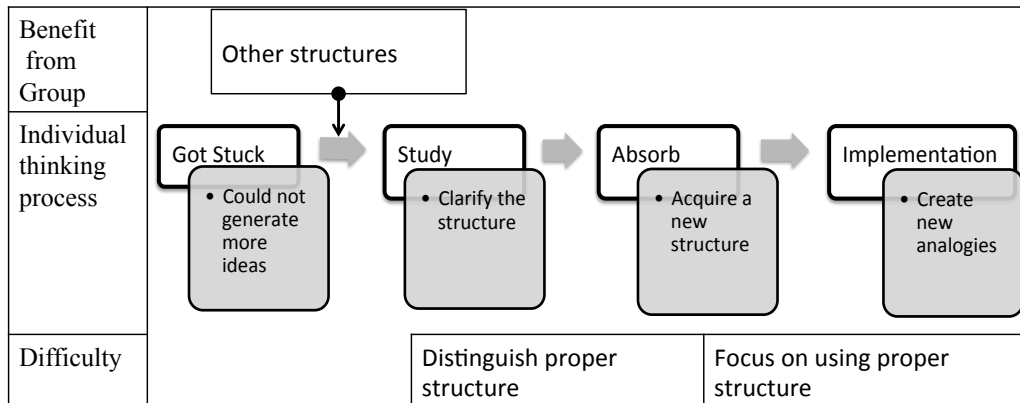
In order to recognize the proper structure for the task, the ability to evaluate the properness of structures was crucial. In the case of P5, from the group conversation record it was found P5 played an important role evaluating and judging the properness of structures. Therefore it was safe to suggest that P5 had the ability to distinguish proper structure. After acquired a proper structure, the ability to stay focus on the structure was necessary for keeping generating analogies with structural similarity. In this case, as analyzed previously, P5 was able to use structures creating several analogies from different domains. It suggested P5 had the ability of staying focus on using one proper structure to generate various analogies.

Figure 8-41 P5's Person Ability in Performance Improvement Process

Benefit from Group				
	Other structures			
Individual thinking process	**Got Stuck** • Could not generate more ideas	**Study** • Clarify the structure	**Absorb** • Acquire a new structure	**Implementation** • Create new analogies
Difficulty		Distinguish proper structures	Focus on using proper structure	
Personal ability		The ability to evaluate the properness of structures	The ability to stay focus on using the structure	

Figure 8-42 Group Discussion regarding P5's Contribution in Structure Evaluation

Start	End	Who	To who	Content
54:44.6	54:47.7	P5	All	What are the standards for defining the best?
54:55.3	55:07.3	P6	P5	The one that is most possibly able to call for the most support in a election campaign
55:09.5	55:15.4	P5	P6	The one which can win the most votes should be the precise standard
				…
59:16.7	59:23.9	P4	All	It is not so good because it doesn't involve the opposite. But it is an analogy that shows the shortage.
59:37.0	59:43.4	P5	All	If it is the case, the top statement of P6' shows no necessity.
				…
59:47.1	59:58.4	P5	All	The opposite's concern might be dispelled, but we cannot see the necessity from it. Instead, we can see it from the statement of vaccine.
00:00.8	00:01.6	P4	P5	Indeed

In summary, combined with personal abilities group influences improved the performance of P5. Specifically in order to create structural similar analogies, as a participant being able to evaluate the properness of structures and stay focus on fully using a structure, a group communication that provided different structures and detailed discussion about evaluation of the relationship between analogy and the task issue enhanced the percipient's performance regarding structural similarity.

P11

From the case of P11, by a comparison of the structurally similar analogies generated from the 2 stages, we found that out of 8 sentences created in the 1st stage, only three sentences were with proper structure (2, 5, 8). Meanwhile among the 4 sentences generated in the 2nd stage, three of them were with proper structure except sentence 12. As a result, the percentage of analogical sentences with proper structure increased.

120

Figure 8-43 Ideas Created in 2 Stages by P11

Ideas created in the 1st stage	Ideas created in the 2nd stage
1. ピッチンングは下半身が大事。増やそう労働力、受入れよう外国人	9. 肝油ドロップ、次の世代を健康に
2. あなたの老後はおもりのないやじろべえ、受入れよう外国人、支えよう日本	10. 乾布摩擦は効きません、辞めよう自己流
3. おじいさんは独りが大好き、誰も家の中に入れようとしません。急に病気になったらどうするの？それが日本です。受入れよう、次の世代を	11. 痛いが効くよ、この注射、次の世代を健康に
4. 先発ピッチャーは9回まで投げられません。中継ぎと抑えは任せよう、次の世代に	12. 子供たちと笑おう、飲もう正露丸、お腹でよく効きます。
5. ガス欠です！ガソリンを入れてください！！	
6. 充電しなくて大丈夫？もう次の世代が待っている。	
7. 三脚は一本でもかけては行けません。安全保障、教育、そして外国人労働者です。	
8. 前に進めません！櫂の漕ぎ手は足りません！	

Among all the sentences created with less proper structure in the 1st stage, mainly two problems were found, including insufficient mapping and improper structure. In the sentence 1, the relationship was "the more the better". However in the target issue the focus is to supple something that is necessary but insufficient. According to the interview, it was created under the feature of "Unstable base". Based on the task issue's background knowledge of increasing old population and decreasing birth rate, P11 extracted the concept of unstable social structure. And labor shortage was taken as the lack of base to support in the social structure. However in sentence 1 we could not find such relationship. Therefore the less structural similarity was caused by the problem of insufficient mapping. And sentence 7 was proposed under this feature as well. However it was hard to identify the current problem from it. Only the necessity of foreign labor was stated. In this case the structure mapping was not enough as well. And another feature of "exclusiveness", mainly meaning the unwillingness to accept help from outside, was used to generate sentence 3 and sentence 4. In this case, the relationship was different from the target relationship. To be specific, both showed the feature of preparing for future risk. Hence the problem here existed in the adoption of improper relationship. And the similar problem was found for creating sentence 6.

Figure 8-44 Interview about the Utilization of Structures in the 1ˢᵗ Stage

P11	And this balancing toy is something analogical.
P11	At the first I was thinking with the increasing of elderly people, the population structure will become unbalanced. Then I was trying to think of something which is unbalanced, I found this balancing toy.
P11	And in order to keep balance, the base is needed. This is just like the case of young generation and labor force, if the young and labor foce are in shortage, nobody will support the other.
Interviewer	So you were trying to deal with the problem of unbalance.
P11	Yes, and when I tried to think about unbalance stuff, the toy came to me.
Interviewer	About the pitching statement. The lower body is foreign workers?
P11	So it was similar with the previous statement. For balance toy the base is important, and for the pitcher, the lower body is important.
P11	And the reason why I thought about baseball is because I was trying to think about images to which base is important.
Interviewer	So you created the idea of "old man"?
P11	When I was trying to think of some image of this exclusiveness, it is easy to come up with this kind of "old man" story. "Old man in the rural area"
Interviewer	How did you come up with the next idea of pitcher? Cause before this statement, you were talking about exclusiveness.
P11	Cause in baseball, there are some pitchers, who don't want to exchange with somebody else. It is kind of exclusive too. So I compared it with this..
Interviewer	So the two ideas are the same because they all like being alone.
P11	They don't want to accept help from the others.
Interviewer	And about the charge?
P11	So this is similar to the idea of gas. And I added "the next generation is waiting" trying to emphasize the future.
Interviewer	And about the tripod?
P11	This, I went back to unstable again. Maybe I checked the idea of balance toy once more and trying to find something else that can be related with unstable, I found tripod. The other two options, education and safety are casually chosen, but the point I was trying to say here is that foreign labor importation is important.

After group discussion, the problem of using improper structure was fixed. However sentence with the problem of insufficient mapping still existed. Since in the sentence 12, two relationships were available. One is "solution to the problem", and the other one is "possible benefit from the successful problem solving". In this task, only the former one was stated. Based on the interview, it was found the sentence was generated based on "endurance" structure. Since the structure of endurance in some case included the structure of solution, part of the structure was described in the sentence. However since another less proper structure was found and it was deliberately created by P11, it suggested P11 failed to check thoroughly if the analogical sentences matched with the

task issue. Therefore the performance improvement was due to the better utilization of proper structures.

Figure 8-45 Interview about the Utilization of Structures in the 2ⁿᵈ Stage

P11	And in the next statement, the foreign workers are medicine (for the old man).
Interviewer	And medicine has the image
P11	Image of negative feeling.
Interviewer	But at the same time
P11	It is good for the body.
...	
P11	So I took the idea of seirogan, to be specific of what is the drug.
P11	I tried kinds of sentence (with the same concept)
P11	Like the next one, laughing with children, happy in the future.

So the process can be depicted as Figure 8-46.

Figure 8-46 P11's Performance Improvement Process
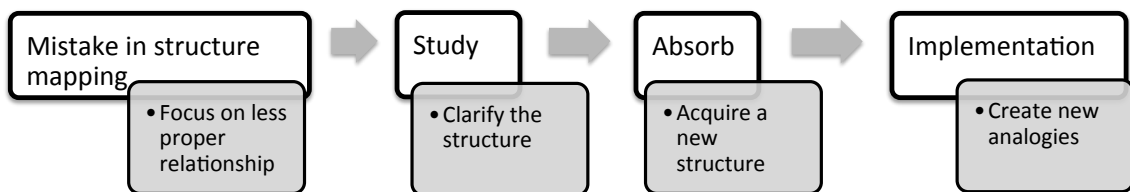
P11 acquired a proper structure from another member during group communication. In order to realize the performance improvement, an evaluation to distinguish proper structure was necessary. During group communication an evaluation discussion concerning the structure properness was conducted. Relationship, the purpose for using the structure, evaluation criteria and impact of structures were discussed. And P11 in the 2ⁿᵈ stage used an element, specifically a domain used by another group member, for creation.

Figure 8-47 Group Input in P11's Performance Improvement Process
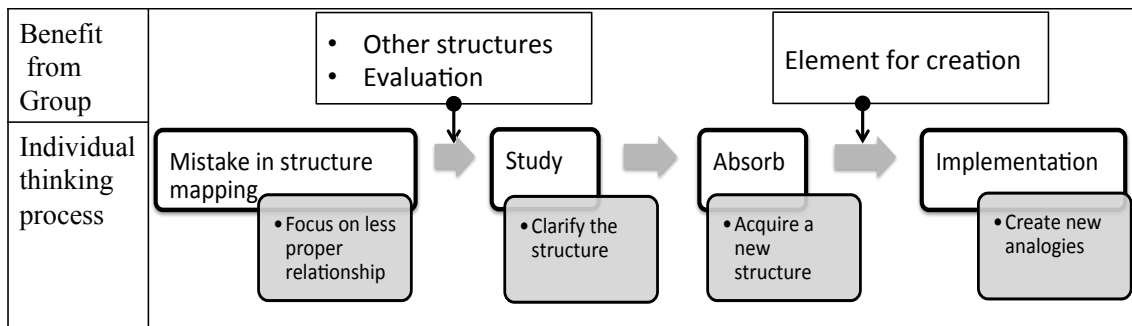
And for creating structurally similar analogies, it was crucial to stay focus on using proper structures as well. It could happen in the way of using one structure generating several different analogies or use several proper structures to create sentences.

Figure 8-48 Difficulty in P11's Performance Improvement Process
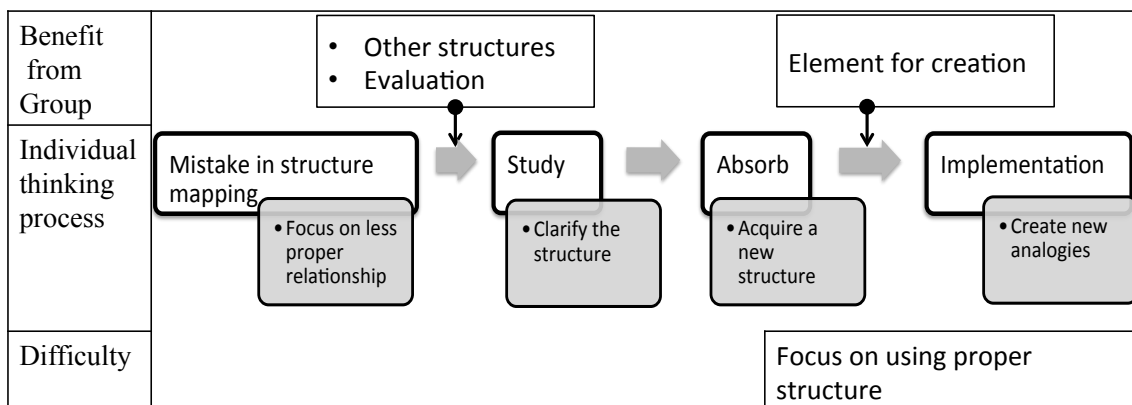
In the case of P11, from the interview record and the idea generation outcome, it was found that P11 had the ability to stay focus on using proper structures creating analogies.

Figure 8-49 P11's Person Ability in Performance Improvement Process

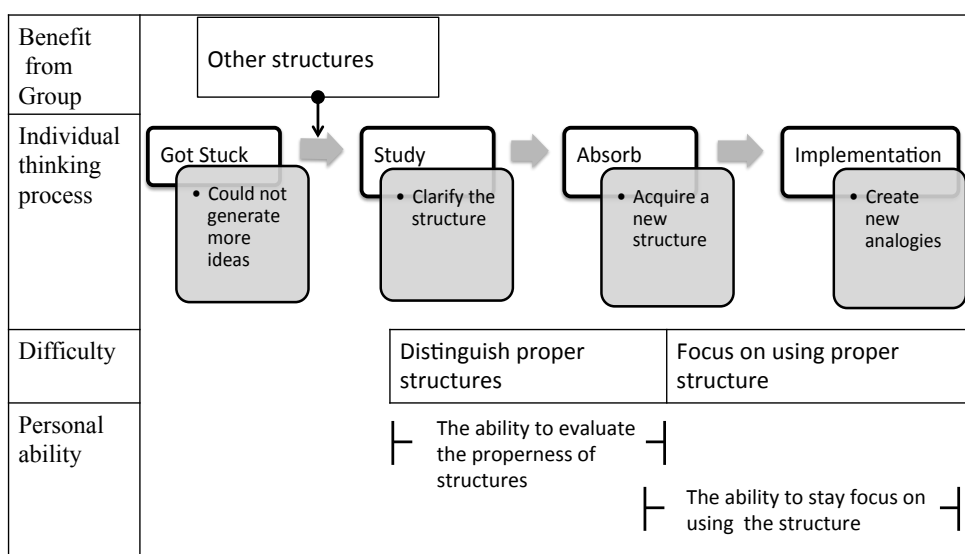| Benefit from Group	• Other structures • Evaluation		Element for creation	
Individual thinking process	Mistake in structure mapping • Focus on less proper relationship	Study • Clarify the structure	Absorb • Acquire a new structure	Implementation • Create new analogies
Difficulty			Focus on using proper structure	
Personal ability			The ability to stay focus on using proper structures	
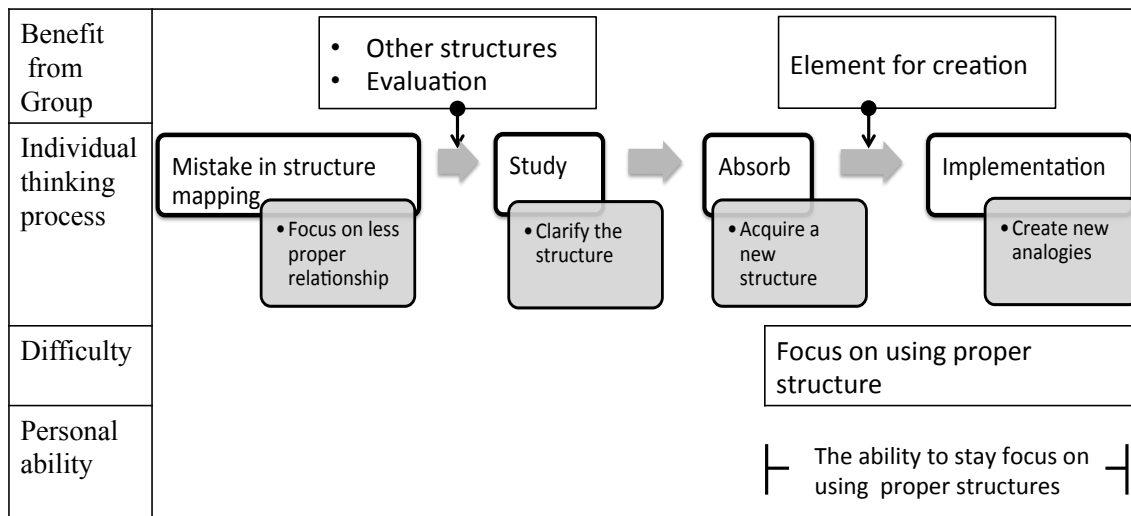
Figure 8-50 Interview about P11's Idea Generation with Proper Structures

Interviewer	The traditional way didn't work. So stop it.
P11	Yes. To accept injection. So to accept to do something else by someone else, it is impossible to be on one's own.
	…
Interviewer	How about the injection to children
P11	So it is similar with the drug, bitter but good for human. But I put children there to hint the future.
P11	And I added the bitter but better part in the original statement, emphasize the pain from injection. Because I think it is an important element, the painful part.
P11	And in the next statement, the foreign workers are medicine (for the old man).
Interviewer	And medicine has the image
P11	Image of negative feeling.
Interviewer	But at the same time
P11	It is good for the body.

In summary, combined with personal ability, group communication's influences improved the performance of P11. Specifically in order to create structural similar analogies, as a participant being able to stay focus on using proper structures, a group communication that provided different structures and detailed discussion regarding structure evaluation enhanced the percipient's performance regarding structural similarity.

8.4. Discussion

The improvement of performance in both superficial similarity and structure similarity resulted from fixing problems that originally existed in participants. And group communication's influences played important roles in the process. However, the participants should possess some abilities so that the group communication can wield influences.

Specifically in term of improving the performance in superficial similarity retrieving source words with high LaSeD score, several problems in creation process could be fixed by group communication, such as emphasize creating slogans or typical cases instead of analogies, be uncertain about what to do and identify few search cues. In terms of improving performance in creating analogical sentences with structural similarity, problems such as insufficient structure mapping and got stuck during idea generation were fixed in the experiments.

For solving the problem of emphasizing slogan or typical cases instead of analogy creation, a whole process including realization, study and implementation stimulated improvement. With the participant being able to identify good analogies, extract useful information/knowledge and use them, the group influence of Cognitive Shift and Source Word Transfer can jointly function to facilitate the improvement. However if participants lacked the ability staying focus on task and the individual change process lacked of realization and study, participants might be less possible to perform well.

For the problem of being uncertain about what to do and identifying few search cue, an improvement process mainly including absorbing and implementation helped to solve it and stimulated improvement. With the participant being able to extract useful information/knowledge and use them as search cue, the group influence of SC _ Confidence, SC _ Perspective and Domain Transfer can jointly function to facilitate the improvement.

And in some case, if few analogies were proposed and no specific reason could be identified, sharing and trying to use analogy elements generated in the previous stages might trigger Source Word Transfer and help to enhance participants' performance.

For solving the problem of being stuck during idea generation, a change in the thinking

process including study, absorb and implementation stimulated improvement. With the participant being able to evaluate the properness of structure and stay focus on using the transferred structure, the group influence of Structure Transfer can function to facilitate the improvement.

For solving the problem of using less proper structure, a change in the thinking process including study, absorb and implementation stimulated improvement. With the participant being able to stay focus on using proper structures, the group influence of Cognitive Shift for Overcoming Fixation and Structure Transfer can jointly function to facilitate the improvement.

9. General Discussion and Conclusion

9.1. Conclusion and Suggestion

Group-work was thought to be beneficial for creative idea generation. Many factors were studied as input that wielded influences. However, the process of group work was not well studied, yet it obviously played crucial roles in influencing creation. Group Communication was a proper resource to unveil the influences of group work process to idea generation. In an attempt to clarify the influences and their mechanisms, an experiment was designed and conducted.

Since analogical thinking was found to have deep relation with idea generation and creativity, in this study we required participants to use analogical thinking for idea generation.

A couple of participants were found improved after group communication. These participants were selected for further in-depth study.

From these participants, we were able to identify group communication's influences on individual thinking regarding both two aspects of analogical idea generation, including superficial similarity and structural similarity. In order to create appropriate analogical idea, it is ideal to retrieve source object with low superficial similarity and high structural similarity. In terms of superficial similarity, we found 5 influences might be helpful facilitating retrieval of source words. Regarding structural similarity, we found 2 influences as well. These influences wielded impact on participants in different aspects. Every influence was triggered differently during the group communication process. Communication content and utterance function play important roles causing the influences. Based on the categorization of influences mechanisms, influence generation process was generalized. Meanwhile the interaction between influencer and influence receiver, and the final majority position affected the occurrence of some group influences as well. Additionally, the research results show that smile frequency in the workshop had relationship with the occurrence of some influences.

Overall due to 7 group communication's influences, participants were able to improve performances on idea generation in this study. Based on the analysis about the verbal group communication, several features were found in terms of the conversation content

and utterance functions. For triggering different group communication's influences, evaluation of existing ideas was crucial. However the conversation focus was different. For example for the Cognitive Shift to Analogy Creation, the evaluation criterion was about task requirement. Meanwhile for SC _ Confidence, SC _ Perspective, Structure Transfer and Cognitive Shift for Overcoming Fixation, the discussion about the structure mapping regarding relationship between the source and target, i.e. analogies and issue in this study, was central. Furthermore in the groups where influences such as Domain Transfer, SC _ Confidence, Structure Transfer and Cognitive Shift for Overcoming Fixation were produced, discussion about the possible impact of analogical sentences (source word, domain, other related supporting elements, and their relationships) played important roles. And the conversation to adjust sentences from different perspectives through which participants contributed to creation might trigger the occurrence of Source Word Transfer and Domain Transfer.

Corresponding utterance functions were applied, for example trying was used for idea adjustment and sharing for presenting ideas. However it is worthwhile to mention that the two the sides of influence, influencing and influenced side, do not necessarily have to participate in the conversation using the same utterance functions. From the experiments in the study, we found in some cases, such as Structure Transfer and Cognitive Shift for Overcoming Fixation, both two sides basically were involved with similar utterance functions. However for other cases such the group influence of Source Word Transfer, the influenced side can participate by making comments or trying to adjust the sentence into a subjectively better form, meanwhile the influence took place in the situation as well where receiver mainly observed the communication between the other two members.

In addition, the situation of conversation interaction and majority preference differed from case to case. In some case such as Domain transfer, SC _ Confidence, Structure Transfer and Cognitive Shift for Overcoming fixation interactive conversation between the two sides of influence was important. It was less important in the case of Cognitive Shift to Analogy Creation and SC _ Perspective. In the case of Source Word Transfer the importance varies depending on the participants' involvement. Moreover if majority preference concentrated on one idea, it might stimulate the influence of Source Word Transfer, SC _ Confidence, Structure Transfer and Cognitive Shift for Overcoming Fixation.

In addition, the level of smile was found positively related with the influence of Source Word Transfer and Domain Transfer during the group communication.

Therefore, for monitoring the group conversation, these might work as indicators. Based on the predicted information of possible consequence of discussion, facilitator might work out measures to design the communication and guide group members towards a performance improvement.

Based on the impact analysis of these influences, it was possible to categorize them into 2 categories, including cognitive shift and element provision. For the first category, cognitive shift, the impact of group influences was to guide participants to pay attention to fields that was crucial for creating analogy and was neglected previously. The second category, element provision, including providing source words, domain, and most importantly search cues, helped participants to find analogies directly. It is worth mentioning that in terms of structures, different value can be produced. If the structure was used as a search cue to look for analogies, it was as a hint for creation and produced a new source word. On the other hand, if it worked as an element creation, participants mainly used it to create different sentences with the same source words.

Moreover, 3 different types of generation process were identified. All included realizing, thinking and creation parts. However, the purpose and consequent cognition/behavior differed.

Due to these group communication's influences, several problems for creating analogies were solved. Participants realized performance improvement.

Before the group communication, P2 put emphasis on creating slogan for idea generation. In the 2nd stage under the group communication's influences of Cognitive Shift to Analogy Creation, the problem of purely emphasizing slogan creation was fixed and meanwhile under the group communication's influence of Source Word Transfer, a high LaSeD source word was transferred to P2. Jointly functioning with P2's abilities, being able to extract and apply useful information, group communication's influences improved the performance of P2.

In the case of P3, no specific problem was found fixed by the group communication. However, under the group communication's influence of Source Word Transfer, a high

LaSeD source word was transferred from another group member to P3. Consequently P3's performance improved.

Before the group communication, P9 was not sure about what should be created and few search cues were found by P9. In the 2nd stage under the group communication's influences of SC _ Confidence and SC _ Perspective, the problems of uncertainty and few search cues were fixed and meanwhile under the group communication's influence of domain transfer P9 acquired a new domain to probe. Jointly functioning with P9's ability, being able to extract concepts, group communication's influences improved the performance of P9.

P5 reported he ran out of idea using a proper structure at the end of the 1st stage. In the 2nd stage under the group communication's influence of Structure Transfer, the problem of being stuck was fixed. Jointly functioning with P5's abilities, being able to evaluate structure properness and apply structures with various source words, group communication's influence improved the performance of P5.

Before the group communication, P11 focused on trivial aspects of the task issue for forming search cues. In the 2nd stage, under the group communication's influences of Cognitive Shift for Overcoming Fixation and Structure Transfer, P11 started to shift concentration on the proper structures, which facilitated participants to generate ideas properly. Jointly functioning with P11's ability of being able to apply structures with various source words, group communication's influence improved P11's performance.

Therefore, in the order of idea generation process, the problems that were solved under group communication's influences were concentrated into less suitable aspects, felt uncertain of what to do, failed to build search cues, and failed to find (various) domains. All these problems were possible to hinder the individual thinking process for idea creation. However, through effective group communication participants might be guided to overcome these difficulties. In this study, several helpful group communication's influences were found. For preventing some of these problems it was possible to design the workshop process so that participants understood well about the task. However it was still possible that prevention procedure did not work well. More likely, facilitator can advise and help participants to achieve a fruitful creative idea generation workshop. Therefore, based on the findings from this research it was possible to derive some suggestion for the facilitators. Generally in a workshop for creating ideas applying analogical thinking, it was normal that the creation and

discussion process would take place alternatively. And facilitator can try to monitor the creation process checking the ideas that were generated. Meanwhile during the group communication stages it would be easier for facilitator to identify the personal thinking and to intervene. For realizing effective facilitation, facilitator should be aware of when to intervene and how to intervene. Based on the findings from this research, it was possible to make several suggestions for both aspects.

Firstly, for monitoring the creation process, facilitators can check the problems listed above both from evaluating the ideas created by participants and the communication took place between participants. By evaluating the ideas, it was possible for facilitators to recognize if participants were concentrated into less suitable aspects, failed to find various domains, and got stuck for further creation. From the group communication content, facilitators have chances to confirm these problems and further to find out if it was caused by felt uncertain of what to do or failed to build search cues.

Moreover if these problems were identified, facilitators need to decide if it is necessary to, and how to intervene. In order to realize the two-fold purpose, Table 9-1 was summarized to show the relationship between possible problems and group communication's influences that might help to solve these problems. For identifying the problems, facilitator might refer to the Observe Object to find where to check.

Table 9-1 Possible Problem and Observe Object for Influences of Group Communication

Possible problems	Influence	Observe Object
Concentrated into less suitable aspects	Analogy Creation	Conversation/ Ideas
	Overcome Fixation	
Felt uncertain of what to do	SC _ Confidence	Conversation
	Domain Transfer	
	SC _ Perspective	
Failed to build search cues	SC _ Perspective	Conversation
	Structure Transfer	
Failed to find (various) domains	Domain Transfer	Conversation/ Ideas
	Source Word Transfer	

After identified the possible problems, facilitator might monitor the conversation and decide if intervention was necessary. Since abovementioned problems all might be solved by group discussion if the participants were equipped with related abilities. Therefore it might be better for the facilitator to check for both the going on conversation and participants' abilities for solving the observed problems. If the conversation did not seem to bear positive outcome, it was possible for facilitators to guide a group communication in the way summarized in this research. And based on the finding regarding generation process, facilitator can give some advice guiding the discussion phase by phase. However the personal abilities should be checked as well to increase the improvement possibility.

For example, if the problem of failed to find (various) domains was identified, and if there existed group discussion about various domains regarding impact evaluation, feature analysis, and a very positive group atmosphere (high-level smile frequency), meanwhile participants seem to have the ability to extract use full concept, it was highly possible that natural group discussion might solve the problem, further intervention might not be necessary. And for the problem of felt uncertain of what to do, if after interactively group discussion ideas (including the structure) were analyzed and evaluated, a proper consensus was made, and participants were able to extract useful concepts/information, no further intervention was needed. However if these discussions did not occur, facilitators might consider guiding participants to deal with these topics. For example, if participants were not able to retrieve high LaSeD words, facilitator could choose to instruct participants to find a domain that is far from the task issue, and try to stimulate source word retrieval.

9.2. Discussion for Future Study and Limitation

In this study, smile was found related with some influences of group communication. However what role smile/laugh played during the process was not checked. It would be very meaningful for understanding individual idea creation in a group if the function or meaning of smile was found. Naturally we could assume that the smile could be stimulated by some utterances, and the facial expression of smile can be one expression of that cognitive reaction. It could be caused by a long searched for answer. It could also be caused by unexpected comment. Under these answers or comments, there should be something deeper that is related with the individual thinking process. Therefore checking the deep meaning of smile, the cause of smile can give us clues for better understanding the influences of group communication to individual thinking.

During the analysis of superficial similarity and structural similarity, a very interesting finding was found. P5 and P11 were able to improve in terms of structural similarity. However, their performance in superficial similarity dropped after group communication. That is to say the same group communication that aided participants enhance the performance in structural similarity, had negative influence for superficial similarity. Several possible reasons can be considered. Firstly and intuitively, it could be cause by a conversation mainly focusing on the discussion about structure and neglecting about deceasing the surface resemblance. However by a general check at the group communication P11 participated, objects features such as resemblance were discussed as well. The main negative impact might come from the group discussion deciding which domain to use. Instead of choosing a far distance domain, group members decided to use a comparatively close domain. And the reason for this decision was the consideration of impact, audiences' reaction towards ideas. However it was not clear how the discussion about structure would influence superficial similarity in other ways. Therefore a comprehensive study regarding the balance of discussion about these two aspects would improve the understanding of analogical based idea generation in a group setting and provide implications for practical purposes.

Even though this study had contributed to the academic and practical field to some extent, there are some limitations. Future study should improve in these aspects.
The number of research subject was limited; so more experiments should be conducted for further investigation. In this research because it was proper to use a detailed investigation, analysis over a large number of samples was difficult. But it would be very helpful to explore more cases in order to have a comprehensive understanding of the group communication's

influences.

Most participants paid attention to the rhetoric aspect; further refinement on the experiment design is needed to avoid this unwanted noise. Due to the nature of the task used in this study, it was natural for the participants to focus on making concise catchphrases. However, this behavior was detrimental for idea generation process, thus hindered the observation for influences of group communication on individual thinking. In future research, it might be possible to consider designing a dummy extra stage (actually subjects don't participate) for rhetoric improvement, and avoid unwanted deviation.

Subjective rating was conducted for evaluating structural similarity in this study. However in the future study, it would be more proper if several trained raters can jointly rate the ideas. Or in the future work, an objective evaluation method should be proposed.

More workshops should be conducted to test the findings. This study mainly contributed to the understanding of the research topic, and provided new insight into the ways in which group communication could enhance individual idea generation performance. However more workshops should be conduct to test the findings and clarify the conditions for using the findings of this study.

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Appendix

Appendix 1 Workshop Reading Material 1

<div align="center">Introduction to the Issue of foreign workers in Japan</div>

Japan now is facing a serious labor shortage. Because of its low birth rates and ageing population, domestic manpower cannot support Japan's economic development. According to Japanese Health Ministry, the total population was project to fall from 127.8 million in 2005 to 95.2 million by 2050[1]. Moreover in 2014, it was found that 26% of the nation's population was above age 65, and according to the estimation from Pardee center, the percentage of nation's population aged 65 or above will increase to 38% by 2050[2].

The shortage for labor is affecting many industries severely. For example, in construction industry, the reconstruction projects in the areas hit by the 2011 Great East Japan Earthquake and tsunami, and the construction project of venues for the 2020 Summer Olympic Games in Tokyo enlarged the gap between demand and supply in labor market. And the labor shortage affects the industry of nursing care for the elderly seriously as well. According to government estimation, in 2025 700,000 more nursing-care workers are needed[3]. But because of current low-payment, the shortage problem might be more chronic.

Therefore, it is obviously necessary for Japanese Government to import workers from abroad. However, this is where the disagreement begins. Although there are some different positions, two main basic points of view exist overall standing opposite to each other in terms of this topic. One view is that importing foreign worker should be the first priority while the other view believe that it is necessary to import foreign workers, but not at any cost.

Currently, the Japanese government and Keidanren have adopted the first view. Specifically, a couple of programs and policies were released by the government, which includes the foreign trainee internship program, extending the maximum visa period from 3 years to 5 years, a fast track to permanent residency, working visa status for their spouses and the right to bring along their parents and housekeepers. And Keidanren will restart regular dialogues with South Korean and China trying to open a path towards better bilateral relations to attract more foreign workers. And more perks, for example foreigner voting right, and longer visa period, are under discussion.

However, an increasing number of voices are opposing the idea of taking importing foreign workers as first priority. Only 12% of respondent in a recent government survey feel the needs of importing more foreign workers[4]. Voters are concerning that the low wages foreign workers might reduce Japanese workers' competitiveness. Moreover, there is a prevailing

fear that foreign workers might cause increment in criminal activities or social problems. Relying on foreign labor not only negatively impact Japanese, but also affect foreign workers as well. About 80% of 2,300 companies employing trainees violated labor regulations, exploiting them as cheap labor, abusing trainees' rights[3].

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2. http://www.ifs.du.edu/ifs/frm_GraphicalDisplay.aspx?ListNames=%22Population+65+or+More+as+Percent+of+Total%22&HistFor=False&GrpOp=0&Dim1=81&File=0

3. http://www.japantimes.co.jp/opinion/2015/02/10/editorials/wrong-way-to-import-workers/#.ViC-kGQrKql

4. http://www.cnbc.com/2014/12/10/japan-needs-foreigners-but-will-they-come.html

Appendix 2 Workshop Reading Material 2

Japan is facing 2016 election deciding which party is going to be the ruling party next year. And currently the labor shortage is an emergent issue to be solved, and most citizens pay attention to this issue.

You are a consultant group. The current ruling party (Liberal Democratic Party and Komeito) in Japan hired you for creating great promotion statements for their nationwide election campaign. The ruling party wants to persuade citizens to support them with these promotion statements.

It is found that analogies are very effective for persuasion based on psychological studies. Analogy here means comparing one thing to another. There is an example of using analogy to create promotion statement. In order to describe the necessity of reducing national debts immediately, the promotion statement of "Debt is like cancer, so the surgery to remove it is emergent" can be created using analogy.[1]

The ruling party now hired you to create promotion statements in order to convince the citizens the necessity of importing foreign worker for solving labor shortage. And you should use analogy to create promotion statements. The ruling party thinks that government does not have a choice and that citizens have to make some scarifies. They want you to come up with a list of promotion statements to illustrate this position.

You will have 20 minutes to complete the task. You will be video taped. And you should think and come up with as many promotion statements as possible. And please write down all the promotion statements briefly on Apisnote regardless of how good you think they are during the workshop.

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1 Example comes from Blanchette, I., & Dunbar, K. (2000). How analogies are generated: The roles of structural and superficial similarity. Memory & cognition, 28(1), 108-124.

Appendix 3 Statements generated in workshops

Group 1

Idea No.	Participant No.	Idea	Phase
1	P1	Immigrant workers are like blood donation	1st individual work
2	P1	The lack of labors is like no child in farming families	1st individual work
3	P1	Labor mobility is like currency circulation in the economy	1st individual work
4	P1	Workers from another country is like the birds who move for better environments	1st individual work
5	P1	various kinds of goods to sell makes customer happier, various backgrounds of workers make working site happier	1st individual work
6	P1	closed room make people sick. Closed society also.	1st individual work
7	P1	human cannot survive if they take one kind of nutrition	1st individual work
8	P1	working bees of another hive is welcomed in my hive	1st individual work
9	P1	even our hair color a mixture of many different color if you look into it carefully. Nothing is pure in real	1st individual work
10	P1	where many things come and go make a city prosperious	1st individual work
11	P1	network where we benefit from, is consist of diversity	1st individual work
12	P1	It's time to open window	2nd individual work
13	P1	Old cells issues can be solved by implanting fresh working cells	2nd individual work
14	P1	Mayflower boats came to Japan	2nd individual work
15	P1	Who are running in the European football matches?	2nd individual work
16	P1	Strong counties are prosper thanks to them	2nd time individual work

146

17	P1	Sun rises, it's time to open the window	Group work
18	P1	Working cells helps the old and stucked cells	Group work
19	P1	Family that has more children always crops more	Group work
20	P1	We built a lot of pipes, let them pump those	Group work
21	P1	Though we have many gold mines, it's useless if there's no miners.	Group work
22	P2	No worker No future	1st time individual work
23	P2	Japan of Tomorrow	1st time individual work
24	P2	Japan N.1!	1st time individual work
25	P2	In Japan We Trust	1st time individual work
26	P2	No worker No Japan	1st time individual work
27	P2	I like my neighbour	1st time individual work
28	P2	May the works be with you	1st time individual work
29	P2	May the workers be with you	1st time individual work
30	P2	We need them, They need us	1st time individual work
31	P2	YOUR decision, OUR futures	1st time individual work
32	P2	A cure to Japan's anemia	2nd individual work
33	P2	Japan is suffocating, Fresh air required	2nd individual work
34	P2	Open the window, Open Japan	2nd individual work
35	P2	Open the window, Open Japan	Group work
36	P2	Japan is suffocating, Fresh air required	Group work
37	P2	Workers are cure to Japan's anemia	Group work
38	P2	Workers: a cure to Japan's anemia	Group work
39	P2	Workers are cure to Japan's suffering	Group work

Idea	Participant	Idea	Phase
40	P2	Japan's running out of fuel, workers are needed	Group work
41	P2	We import fuel why not workers?	Group work
42	P2	People need water Japan needs workers	Group work
43	P3	Help is temporal	1st time individual work
44	P3	It is necessary	1st time individual work
45	P3	foreign workers will strengthen us	1st time individual work
46	P3	Vitamins strenghthen your weaknesses	1st individual work
47	P3	a little support for a better future	1st time individual work
48	P3	a better future learning from abroad	1st time individual work
49	P3	will bring selected labor force	1st time individual work
50	P3	we only import the best for you	1st individual work
51	P3	It's expensive but it's healthy	1st time individual work
52	P3	with a little help from my friends	1st time individual work
53	P3	Japan needs help. So you do	1st time individual work
54	P3	New air refreshes Japan	2nd individual work
55	P3	A push from the hill makes the snowball grow	2nd individual work
56	P3	New air refreshes Japan	Group work
57	P3	A push from the hill makes the snowball grow	Group work
58	P3	We only import what we need	Group work
59	P3	External vitamins makes Japan stronger	Group work

Group 2

Idea No.	Participant No.	Idea	Phase
1	P4	ODA	1st individual

			stage
2	P4	International aid just after WW2	1st individual stage
3	P4	saving those who seek to be better off is within the obligation of Japanese government as a international actor	1st individual stage
4	P4	We use to be developing countries, and it is our time to save who are suffering	1st individual stage
5	P4	Collapsing Japanese pension system	1st individual stage
6	P4	Singapore and Netherland (only central part of workplace are compose of natives	1st individual stage
7	P4	Japanese national Football Team	2nd individual stage
8	P4	Foreign players are doing good job in Japanese national rugby team	2nd individual stage
9	P4	Immigrants are like pepper-kun	2nd individual stage
10	P5	労働力は国の栄養、外から取り入れて国を元気に	1st individual stage
11	P5	国という車の燃料は人。今こそ未来へ前進を。〜沢山の労働力を日本へ	1st individual stage
12	P5	マラソンランナーに水分補給は必須。日本が走り続けるために、労働力を補おう	1st individual stage
13	P5	追い風が吹かなければ帆船は進まない。私たちと世界の人で日本を前へ	1st individual stage
14	P5	いま、日本は倒産寸前の会社だ。大転換するのはいま。	1st individual stage
15	P5	薬には必ず用量がある。労働力にも適切な量がある。	1st individual stage
16	P5	雨降って地固まる。結論も心配も将来の日本の糧に	2nd individual stage
17	P5	つらい練習の向こうには輝く舞台が	2nd individual stage
18	P5	投資をしなければリターンは期待できない	2nd individual stage

19	P5	忘れ物は、勇気をたして隣の人に借りてみよう	2nd individual stage
20	P5	投資をしなければリターンは期待できない、投資が多いほどリターンも大きい	2nd individual stage
21	P5	聞くのは一時の恥、聞かぬは一生の恥	2nd individual stage
22	P5	リターンが欲しければ投資を	Group work stagae
23	P5	聞くのは一時の損、聞かぬは一生の損	Group work stagae
24	P5	聞くのは一時の傷、聞かぬは一生の傷	Group work stagae
25	P6	沈みかかった船には漕ぎ手が必要だ	1st individual stage
26	P6	電池切れの日本に外部電源を	1st individual stage
27	P6	瀕死の日本に特効薬を	1st individual stage
28	P6	猫の手じゃなく外人の手も借りよう	1st individual stage
29	P6	車輪が取れかかっている。早く修理をせねば	1st individual stage
30	P6	日本は風邪を引いています。外の空気を吸いましょう	1st individual stage
31	P6	少しの変化で大きな成果	1st individual stage
32	P6	外国労働者はワクチンのようなもの。はじめに頑張れば大きな効果！	1st individual stage
33	P6	新しい風、慣れれば心地よい	1st individual stage
34	P6	みんなちがってみんないい	2nd individual stage
35	P6	飛翔の前の準備。今のがんばりが後で効く	2nd individual stage
36	P6	日本は現在給水地点	2nd individual stage

37	P6	ニッポンを、立て直す	2nd individual stage
38	P6	受容の先には明るい未来	2nd individual stage
39	P6	ちょっと席替えをしましょう。大丈夫、すぐに仲良くなります。	2nd individual stage

Group 3

Idea No.	Participant No.	Idea	Phase
1	P7	It's not impossible, it's necessary	1st individual stage
2	P7	動力不足では国は動かない	1st individual stage
3	P7	食糧自給率 40%。人材自給率は？	1st individual stage
4	P7	重い荷物はみんなで運ぼう	1st individual stage
5	P7	足りない資源は輸入で補う	1st individual stage
6	P7	食糧が足りない→輸入　人材が足りない→?	1st individual stage
7	P7	日本という乗り物のガソリンは満タン?	1st individual stage
8	P7	ガス欠を起こしてからでは遅い	1st individual stage
9	P7	エネルギーなしでは生きられない	1st individual stage
10	P7	To import or not to import, that is the problem	1st individual stage
11	P7	チームプレーに国籍なし	2nd individual stage
12	P7	フュージョン	2nd individual stage
13	P7	ストップ自転車操業	2nd individual stage

14	P7	1+1>2	Group work
15	P8	値段吊り上げるの根源である商社をなくせば、価格が安くなる	1st individual stage
16	P8	仲間はずれをなくせばみんな仲良くなる	1st individual stage
17	P8	歩きスマホをやめれば交通事故が減る	1st individual stage
18	P8	研究室のおしゃべりをやめれば、研究が捗る	1st individual stage
19	P8	Facebook での投稿障壁に対する偏見をなくせばビッグデータが集まる	1st individual stage
20	P8	ジェットストリームを皆に配れば研究が捗る	1st individual stage
21	P8	カジノ方案を適用すれば治安が悪くなる	1st individual stage
22	P8	警固公園を作れば治安が良くなる	1st individual stage
23	P8	電通が広告を打てば、ハロウィン文化が生まれる	1st individual stage
24	P8	美人な女の人にはカッコイイ男の人が寄ってくる	1st individual stage
25	P8	サンフランシスコで一つ脇道にそれれば治安が一変する	1st individual stage
26	P8	インドでは騙された方が悪い	1st individual stage
27	P8	最低労働賃金が低い地域が必ずしも治安が悪いとは限らない	1st individual stage
28	P8	陸上競技では黒人選手が強い	1st individual stage
29	P8	シンガポールは人工のるつぼと言われている	1st individual stage
30	P8	動物園は種類が多いほうが人気が出る	1st individual stage
31	P8	表参道にはおしゃれな人が多い	1st individual stage
32	P8	サッカーは国境を越える	1st individual

			stage
33	P8	飲み会は国境を越える	1st individual stage
34	P8	日本人は英語を話すのが苦手である	1st individual stage
35	P8	猿も木から落ちる	1st individual stage
36	P8	そうだ、京都に行こう	1st individual stage
37	P8	行列ができているお店は更に混雑する	1st individual stage
38	P8	アフリカでは急速にスマートフォンが普及した	1st individual stage
39	P8	転校生は人気者になることが多い	1st individual stage
40	P8	外国では日本人に対して親近感が湧く	1st individual stage
41	P8	ウォークマンは iPod に負けた	1st individual stage
42	P8	ボールは投げるより蹴るほうが難しい	1st individual stage
43	P8	習うより慣れる	1st individual stage
44	P8	コンビニ弁当より彼女の手料理のほうが美味しい	1st individual stage
45	P8	日本人は勤勉である	1st individual stage
46	P8	インドの電車はなかなか来ない	1st individual stage
47	P8	日本語には敬語があるため、完璧に話すのは難しい	1st individual stage
48	P8	良いノートを買うと研究が捗る	1st individual stage
49	P8	下町ロケット	2nd individual stage
50	P8	Exile の清木場の脱退	2nd individual

			stage
51	P8	ルオーのカレー	2nd individual stage
52	P8	ディズニーシーでのビール販売	2nd individual stage
53	P8	社会基盤における国際プロジェクト研究室の設立	2nd individual stage
54	P8	握手券同封の CD 販売	2nd individual stage
55	P8	男子校の共学化	2nd individual stage
56	P8	ミッキーも今日は飲みたい気分	Group work
57	P8	今日はルオーでカレーを食べよう	Group work
58	P8	食卓の異文化交流	Group work
59	P8	下町ロケット　佃のバルブは日本一だ	Group work
60	P8	男子校の共学化　俺たちの青春はこれからだ	Group work
61	P8	握手券同封の CD 販売　会いにいけるアイドル	Group work
62	P9	植物への栄養：日本経済への労働力	1st individual stage
63	P9	子はかすがい	1st individual stage
64	P9	桃太郎	1st individual stage
65	P9	植物への栄養	2nd individual stage
66	P9	タグビー日本代表	2nd individual stage
67	P9	レッドブル	2nd individual stage
68	P9	世界に一つだけの花	2nd individual stage
69	P9	日の丸弁当	2nd individual stage
70	P9	山梨学院大学	2nd individual stage

			2nd individual stage
71	P9	戦隊モノ	
72	P9	No border	Group work
73	P9	日の丸弁当じゃちょっと味気ない	Group work
74	P9	山梨学院大学　異文化が繋ぐ日本の欅	Group work
75	P9	世界に一つだけの花　一人ひとり違う種を持つ	Group work
76	P9	戦隊モノ　私たち、五色レンジャー	Group work

Group 4

Idea No.	Participant No.	Idea	Phase
1	P10	深刻な労働力不足を解消するためには、海外労働者の受け入れが不可欠	1st individual stage
2	P10	matter｜	1st individual stage
3	P10	労働力不足｜移民受入	1st individual stage
4	P10	資源不足｜資源輸入し加工貿易	1st individual stage
5	P10	体｜栄養不足｜サプリメント	1st individual stage
6	P10	対象｜問題｜解決策	1st individual stage
7	P10	対象｜不足｜充足	1st individual stage
8	P10	労働｜労働力｜移民受入	1st individual stage
9	P10	産業｜資源｜資源輸入し加工貿易	1st individual stage
10	P10	体｜栄養｜サプリメント	1st individual stage
11	P10	盲目の人｜視力｜盲導犬	1st individual stage
12	P10	資源だけではなく労働力も不足した日本は、国際競争力維持のため海外から労働力を輸入する必	1st individual stage

		要が有る	
13	P10	労働力は国にとって栄養のようなものである。不足した以上、サプリメントのようなもので補う必要が有る	1st individual stage
14	P10	企業｜資金｜銀行からの融資	1st individual stage
15	P10	労働力は国にとっての資本である。不足した以上、銀行からの融資のようなもので補う必要が有る	1st individual stage
16	P10	農業｜土の中の栄養｜肥料	1st individual stage
17	P10	PLUS:充足に使ったものを返すときには相手の国にもリターン（ただし国民の説得時には意味が無い）	1st individual stage
18	P10	農業｜土の中の養分｜肥料	1st individual stage
19	P10	労働力は国にとって栄養である。不足した以上、サプリメントのようなもので補う必要が有る	1st individual stage
20	P10	労働力は国が育つための栄養のようなものである。不足した以上、補う必要が有る	1st individual stage
21	P10	電化製品｜電池｜充電	1st individual stage
22	P10	労働力は国にとって、スマホでいうところの電池のようなものである。不足した以上	1st individual stage
23	P10	不足の量が大幅だとダメ	1st individual stage
24	P10	労働力の不足が深刻である｜解決策にはデメリットがある｜しかしメリットの方が大きい	2nd individual stage
25	P10	Aの不足が深刻である｜Aを充足する解決策にはデメリットがある｜しかしメリットの方が大きい	2nd individual stage
26	P10	日本は労働力という名の栄養が足りていない。子どもが嫌な野菜を食べた方がいいように、日本も海外から労働力を受け入れることで成長できる。	2nd individual stage

27	P10	日本は労働力という名の栄養が足りていない。子どもが嫌な野菜を食べた方がいいように、日本も海外から労働力を受け入れてより成長しよう。	2nd individual stage
28	P10	日本は労働力という名の栄養が足りていない。子どもが嫌な野菜を食べた方がいいように、日本も海外から労働力を積極的に受け入れてより成長しよう。	2nd individual stage
29	P10	日本は労働力という名の栄養が足りていない。子どもが嫌な野菜を食べた方がいいように、日本も海外から労働力を受け入れてより成長しよう。	2nd individual stage
30	P10	運動不足は心身の健康に害がある。時間をかけてでも運動した方がいいように、日本もコストを払ってでも移民受入という運動をしよう	2nd individual stage
31	P10	日本は労働力という名のビタミンが足りていない病気である。移民という苦い薬を飲んででも、しっかり病気を治そう	2nd individual stage
32	P10	日本は労働力という名の栄養が足りない病気にかかっている。移民という苦い薬を飲んででも、しっかり病気を治そう	2nd individual stage
33	P10	日本は労働力不足という風邪を引く一歩寸前である。早めのパブロンが大事	2nd individual stage
34	P10	風邪に効く注射	Group work
35	P10	薬が劇薬かもしれないのを恐れてる	Group work
36	P10	薬が劇薬かもしれないのを恐れてる（長期的なデメリットを嫌がってる）	Group work
37	P10	今回はシンプルなスローガン	Group work
38	P10	パブロン	Group work
39	P10	注射	Group work
40	P10	正露丸	Group work
41	P10	青汁	Group work
42	P10	野菜	Group work
43	P10	ちょっと嫌なことだけど本当はいいこと	Group work
44	P10	おじいさん、おくすりの時間ですよ	Group work
45	P10	コラーゲン（女性向け）	Group work
46	P10	鉄分	Group work

47	P10	鉄分：さば	Group work
48	P10	鉄分：レバー	Group work
49	P10	鉄分：輸血	Group work
50	P10	貧血：さば	Group work
51	P10	貧血：レバー	Group work
52	P10	貧血：輸血	Group work
53	P10	肌：コラーゲン（女性向け）	Group work
54	P10	育毛剤	Group work
55	P10	植毛	Group work
56	P10	座薬	Group work
57	P10	肌：コラーゲン（女性向け）痛くない	Group work
58	P10	貧血：さば、レバー、輸血、痛くない	Group work
59	P10	ちょっと強すぎるけど、抗がん剤	Group work
60	P10	ちょっと強すぎるけど、抗がん剤：がんではない	Group work
61	P10	子供：野菜系でいいのはないか：デメリットではなく拒否感	Group work
62	P11	移民受け入れを説得する必要がある	1st individual stage
63	P11	人々の不安	1st individual stage
64	P11	治安対策	1st individual stage
65	P11	雇用の削減	1st individual stage
66	P11	治安の悪化	1st individual stage
67	P11	高齢者を支える労働力	1st individual stage
68	P11	介護・医療	1st individual stage
69	P11	労働力	1st individual stage
70	P11	農業	1st individual stage
71	P11	あなたの子供は誰が支えるの？	1st individual

			stage
72	P11	ポジティブメッセージ	1st individual stage
73	P11	広げよう、日本の後継者を	1st individual stage
74	P11	あなたの子供は誰が支えるの？次の先生は外国人	1st individual stage
75	P11	あなたの老後はおもりのないやじろべえ	1st individual stage
76	P11	ピッチンングは下半身が大事。増やそう労働力、受入れよう外国人	1st individual stage
77	P11	広げよう、日本の後継者を、受入れよう、外国人	1st individual stage
78	P11	長期的に考えられない	1st individual stage
79	P11	あなたの子供は誰が教える？次の先生は外国人	1st individual stage
80	P11	次の世代に引き継ごう、日本の素晴らしい景色	1st individual stage
81	P11	あなたの老後はおもりのないやじろべえ、受入れよう外国人、支えよう日本	1st individual stage
82	P11	広げよう、日本の後継者、受入れよう、外国人	1st individual stage
83	P11	「外国人」という言葉は良くない	1st individual stage
84	P11	排他的な精神	1st individual stage
85	P11	おじいさんは独りが大好き、誰も家の中に入れようとしません。急に病気になっても助けてくれません。それが日本です。受入れよう、次の世代を	1st individual stage
86	P11	おじいさんは独りが大好き、誰も家の中に入れようとしません。急に病気になったらどうするの？それが日本です。受入れよう、次の世代を	1st individual stage
87	P11	先発ピッチャーは9回まで投げられません。中継ぎと抑えは任せよう、次の世代に	1st individual stage
88	P11	広げよう、日本の後継者、受入れよう、次の世代を	1st individual

			stage
89	P11	ガス欠です！ガソリンを入れてください	1st individual stage
90	P11	ガス欠です！ガソリンを入れてください！！	1st individual stage
91	P11	充電しなくて大丈夫？もう次の世代が待っている。	1st individual stage
92	P11	三脚は一本でもかけては行けません。安全保障、教育、そして外国人労働者です。	1st individual stage
93	P11	前に進めません！櫂の漕ぎ手は足りません！	1st individual stage
94	P11	身体・栄養系で攻めよう	2nd individual stage
95	P11	病気だから対処して、健康に戻す方面	2nd individual stage
96	P11	健康をキープして長生きするには青汁が必要路線	2nd individual stage
97	P11	肝油ドロップ、次の世代を健康に	2nd individual stage
98	P11	健康をキープして長生きするには青汁が必要路線子供にあげえるもの	2nd individual stage
99	P11	増やそう友達、育もう健やかな将来	2nd individual stage
100	P11	健康をキープして長生きするには青汁が必要路線子供にあげえるもの　そして最初に痛みが分かる	2nd individual stage
101	P11	注射は痛いよ！でも子供の健康には必要です	2nd individual stage
102	P11	注射は痛いよ！けど子供の健康には必要です	2nd individual stage
103	P11	年老いた人を主人公にするのか？	2nd individual stage
104	P11	痛いが効くよ、この注射	2nd individual stage
105	P11	乾布摩擦は効きません、辞めよう自己流	2nd individual stage
106	P11	痛いが効くよ、この注射、次の世代を健康に	2nd individual

			stage
107	P11	おじいさん、お薬が必要ですよ！	2nd individual stage
108	P11	おじいさん、お薬が必要です！子供たちを悲しませないために、飲もう薬	2nd individual stage
109	P11	子供たちを悲しませないために、飲もう正露丸、お腹でよく効きます。	2nd individual stage
110	P11	子供たちと笑おう、飲もう正露丸、お腹でよく効きます。	2nd individual stage
111	P11	子供たちと笑おう、飲もう正露丸、お腹でよく効きます。	Group work
112	P12	移民政策 is like 正露丸（漢方薬）。飲み込む時は苦くても後々効いてくる	1st individual stage
113	P12	移民政策は禁煙のようなもの。始めはつらくても将来的に良い状態になれる	1st individual stage
114	P12	移民政策はダイエットのようなもの。始めはつらくても将来的に良い状態になれる	1st individual stage
115	P12	移民政策は 2019 年ラグビーワールドカップ招致のようなもの。はじめは「なんでこんなことするの」とおもっても後から考えると素晴らしい判断	1st individual stage
116	P12	移民政策はラーメンのなるとのようなもの。日本にいろどり（多様性）を与えてくれる政策	1st individual stage
117	P12	移民政策は芸術のようなもの。日本に多様性を与える	1st individual stage
118	P12	日本は電池不足に陥ってる。充電しなくては、	2nd individual stage
119	P12	移民政策は筋トレ後のプロテイン。強く成長するためには必要なもの	2nd individual stage
120	P12	移民政策は貯金をするようなもの。将来を見据えると必要なこと	2nd individual stage
121	P12	桃太郎がサルや犬やキジの力を借りて鬼退治をしたように、日本にも日本人以外の人の力が必要	2nd individual stage

Appendix 4 Group communication transcript

Group 1

No.	Start Time	End time	Who said	To whom	Content
1	48:10.6	48:49.8	P1	All	The Labor mobility is like currency circulation in economy. We invest in overseas market, and labor should also move like investment in them. This is the first one and the second one "closed room makes people sick and closed society also." We had better welcome the outside labors in.
2	48:52.3	49:20.1	P2	All	The first one is your decision, Our future." It is because the party does not have choice, they considered it is a choice of people. It is important to highlight that the people's decision for the future. And the second one is the same principle. But it is based on a religious slogan. Just a catch phrase to remember.
3	49:21.3	50:35.6	P3	All	With a little help from friends I was trying to make a analogy from an advertisement song. Maybe it is more famous in the Western. And about the immigrant workers, I was trying to show them as friends not stress for the local people. And I was trying to say it is just a little from them to make us better. And the second one, Japan only imports the best for you. I was also thinking maybe the party could tell the population that the labors who is coming is the best in the area, for Japan and trying to highlight that You as an important person in this decision.

4	54:22.9	54:26.9	P3	P2	For the "In Japan we trust", I think I have seen it...
5	54:27.4	54:30.7	P2	P3	Yeah, everywhere. You can change Japan with anything.
6	54:31.5	54:40.1	P3	P2	I don't know. But I think it is quite American?
7	54:40.2	54:41.6	P2	P3	Yeah. Cause God we trust in America
8	54:42.0	54:58.5	P3	P2	Yeah, and I don't know how Japanese people will feel about something related with America. You know, yeah, they like Halloween and Christmas. But I don't know about this.
9	54:59.6	55:02.2	P2	P3	Yeah, I know it is too weak. It is a very generic
10	55:02.9	55:10.3	P3	P2	Yeah. Maybe you are right. Very generic is the proper word.
11	57:35.6	58:04.8	P3	All	I like the one "you decision our future". It makes, the government tries to make the population realize they are not just making a choice for themselves; it is for everyone in the case they win. To make the people conscientious.
12	58:05.5	58:21.6	P2	P3	It is a bit, as I wrote; it is not so specific, especially regarding to the problem of worker shortage. Very unspecific.
13	58:22.3	58:41.4	P3	P2	Yeah. But when... Yes, the slogan is not so specific, but they can do speech, when they do speech, they can just show the slogan again and again. And people will relate this slogan with the problem they are trying to solve.
14	58:45.5	58:49.3	P3	All	And I like the first one "labor mobility..."
15	58:49.6	58:54.0	P2	P3	I like the idea too.
16	58:55.2	59:05.4	P2	P3	But I think it is possible to make it shorter. Actually I think the first two slogans can be combined as a shorter one.

17	59:09.5	59:13.3	P2	All	Like stagnant economy is dying the country. Or something like that
18	59:28.4	59:33.7	P2	All	So they want to win election. So..
19	59:34.9	59:45.7	P1	P2	Closed room... Closed society... People die...
20	59:47.2	59:49.4	P2	P1	I think write die in a slogan is...
21	59:49.9	59:51.7	P3	All	It is not really (a good idea).
22	00:03.4	00:05.0	P1	All	I like "Japan imports the best for you"
23	00:05.5	00:07.3	P2	P1	Yeah, I like also this one.
24	00:09.6	00:12.0	P1	P3	But Import worker?
25	00:12.4	00:13.7	P2	P3	It's like a...
26	00:14.3	00:16.4	P3	P2	Like a product? Treat them like a product?
27	00:16.5	00:19.2	P2	P3	Yeah, it is a bit harsh
28	00:27.9	00:30.6	P3	All	Maybe change the words?
29	00:31.3	00:33.7	P2	P3	Like "wants"? Maybe? " Japan wants the best for you?
30	00:41.5	00:45.9	P3	P2	Wants, I think it can make the slogan more general
31	01:34.5	01:37.0	P1	All	Which one we want to refine?
32	01:38.9	01:41.8	P3	P1	For example, I like the first one.
33	01:42.5	01:46.9	P2	P1	Let's say if the first one or the second one, anyone of them are better re-termed, they will be chosen
34	01:47.8	01:51.6	P2	All	Now we get the idea, maybe it is better to find a good way to write it.
35	01:53.2	01:56.0	P1	P2	Open the window
36	01:57.5	02:02.2	P1	P2	Opening window for circulation
37	02:03.0	02:03.9	P2	P1	Fresh Japan
38	02:04.4	02:07.0	P1	P2	Ah, "fresh air to Japan"
39	02:09.3	02:10.7	P2	P1	"Japan air fresh"
40	02:11.8	02:14.8	P1	P2	Fresh air
41	02:15.9	02:17.0	P2	P1	Refresh Japan
42	02:18.2	02:24.8	P1	P2	Fresh air flows
43	02:26.6	02:33.2	P1	P2	Fresh air blows
44	02:32.3	02:35.5	P3	All	Actually the "refresh Japan" sounds...

45	02:37.0	02:43.2	P3	All	Actually the "refresh Japan" sounds cool also.
46	02:45.8	02:50.7	P1	P2	There is like, "Opening window", "refresh"
47	02:52.0	02:54.2	P2	P1	Renew?
48	02:54.0	02:55.1	P1	P2	Renew? I don't like it
49	02:55.5	02:59.5	P2	P1	I like. To throw the old and..
50	03:01.5	03:03.4	P1	P2	"Fresh air to Japan"
51	03:03.5	03:04.3	P2	P1	For Japan
52	03:04.4	03:05.1	P1	P2	For Japan
53	03:14.3	03:25.9	P3	All	So we also consider the, like around 20% population are old?
54	03:26.6	03:30.0	P3	All	And it says it is over 65, right?
55	03:30.4	03:34.4	P2	P3	So they have a strong power for votes
56	03:35.1	03:38.7	P1	P2	Fresh people by plane
57	03:54.6	03:59.6	P3	All	Well, I think also usually slogans are just couple of words
58	03:59.8	04:01.9	P2	P3	But I don't know in Japan if it is the same.
59	04:02.5	04:04.7	P3	P2	Yeah. Me neither.
60	04:14.1	04:35.7	P2	All	And is it a slogan just for the specific topic, or like... because I think they should have more global slogan for the selection. So, like I said. This one (Your decision our future) might be too generic, not specific on the problem.
61	04:40.5	04:50.6	P3	P2	Yeah, but it says this topic is the most popular for the election.
62	05:01.5	05:03.0	P2	P1	Open the window
63	05:03.3	05:05.0	P1	P2	It's time to ventilate
64	05:05.2	05:09.8	P2	P1	Ventilate? It stinks
65	05:18.8	05:21.6	P1	P2	Ventilate our country
66	05:21.5	05:26.1	P2	P1	Yeah, it sounds like air indicator.
67	05:29.2	05:48.9	P3	All	Maybe we can add something to your decision our future? To persuade them to do this? Like..

68	06:01.0	06:02.7	P3	All	(Doing this bring them) their chance
69	06:12.3	06:17.3	P1	P3	But we need metaphor or analogy
70	07:11.1	07:15.8	P2	P1	Workers are medicine to Japan's future
71	07:22.6	07:25.8	P2	P1	"Take you medicine"
72	07:26.2	07:29.8	P1	P2	Take your foreigner medicine
73	07:30.9	07:32.4	P2	P1	"Japan needs help"
74	07:32.7	07:35.7	P1	P2	Japan needs…
75	07:35.9	07:36.6	P2	P1	"Help"
76	07:37.4	07:42.6	P1	P2	We have there "a little help from friends"
77	07:43.0	07:46.5	P2	P1	So, maybe "Japan needs help"?
78	07:53.0	07:55.8	P3	All	"your decision our future help Japan"
79	08:04.5	08:07.0	P1	P2	" help from..."
80	08:07.3	08:08.6	P2	P1	heaven
81	08:16.0	08:17.8	P1	All	"SOS..."
82	08:19.4	08:20.9	P2	P1	"SOS to Japan"
83	08:43.2	08:51.1	P1	P2	"SOS, workers..um..."
84	08:54.4	08:57.7	P2	P1	Japan needs help from you and them
85	08:59.5	09:00.6	P3	All	I've seen with the...
86	09:00.9	09:02.2	P1	P2	Save our life
87	09:02.3	09:04.0	P2	P1	save our life?
88	09:04.3	09:07.6	P1	P2	Save our economy, "workers save our economy"
89	09:07.9	09:09.2	P1	P3	What did you just say?
90	09:09.4	09:44.8	P3	P2	The one I wrote about "little help from our friend". You wrote" probably they need to know the song". But as marketing, they can use the song to relate with this, plays it on the radio and TV. Now they know this song because of this selection. And then they can play it again and again on the radio and everywhere. And the company already did it.
91	09:45.1	09:49.5	P2	P3	Yeah, but with the company, it can get money back.
92	10:38.7	10:41.2	P3	P2	We are going to choose yours?

93	10:41.9	10:43.1	P2	P3	Choose this one?
94	10:43.8	10:46.1	P3	P2	No. Yours
95	10:52.3	10:54.8	P1	P2	(Choose) mine. Fresh air!
96	11:01.9	11:04.7	P2	P1	Open the window, Open our country
97	11:26.8	11:29.4	P3	P1	So you like that one? "Closed room"
98	11:30.2	11:32.0	P3	P1	How is this slogan?
99	11:32.8	11:35.4	P1	P3	Air, fresh air.
100	11:35.8	11:40.7	P2	P1	Fresh air. Yeah, strong slogan. Strong meaning.
101	11:41.9	11:43.7	P1	P2	(Not) Strong?
102	11:44.6	11:50.9	P1	P2	Save Japan
103	11:52.0	11:54.6	P1	P2	Immigrant workers save Japan
104	11:54.4	11:57.3	P2	P1	I don't know if put immigrant in slogan is a good idea
105	11:57.5	11:58.3	P3	P2	No, it is not
106	12:07.1	12:09.2	P1	P2	It's time to open window
106	12:30.0	12:32.0	P3	All	So which one to choose?
107	12:35.2	12:37.0	P1	P3	Help from friend?
108	12:56.8	13:07.7	P2	P3	I like what you talked about the music radio and application is good

Group 2

No.	Start Time	End time	Who said	To whom	Content
3	40:08.9	40:11.9	P4	All	So, I think these two analogies is going to be effective
12	51:17.5	51:20.8	P4	P6	Yes, something like that. And the bottom one could be similar too.
13	51:21.1	51:24.1	P6	P4	Yes, that's true. The underlying conceptualization is the same
14	51:24.3	51:25.8	P6	P4	But something is different
15	51:25.9	51:27.4	P4	P6	Yes, I think something is different too.
16	51:27.5	51:29.2	P4	P6	Maybe the perspective is

					different
17	51:32.3	51:36.4	P4	P6	P6's statements show the feature of endurance.
18	51:36.6	51:37.8	P6	P4	Yes.
19	51:37.8	51:40.0	P4	P6	And maybe mine are a bit pushing
20	51:40.6	51:42.3	P6	P4	Yes, it is necessary to do it.
21	51:44.6	51:52.0	P4	P6	About the conception of P6's statement, it is easy to understand, but as an analogy, where is the comparison.
22	51:52.1	51:53.9	P6	P4	Yeah, it is too simple.
25	53:00.8	53:06.7	P6	All	For P5's statement, I am really convinced. But I feel it will be easily neglected.
30	53:44.0	53:52.0	P4	All	It is impossible, for my statements. The purpose of convincing is clear, but they will not change, I think.
32	53:57.4	53:59.1	P4	All	Then maybe P5's is good
33	53:59.2	54:00.6	P6	P4	Based on what we just discussed, yeah.
34	54:06.1	54:17.6	P5	All	But then just like election statement always did, to turn a blind eye to what was not good, we are doing it here. I'm not sure about it.
35	54:22.0	54:31.4	P5	All	To be clear, mine are appealing to emotion, and P4's are more logical
41	55:45.3	55:50.3	P6	P5	*The second statement of P5, would it be incomplete as an analogy?
42	55:51.1	55:52.5	P4	P6	The one about runner?
43	55:54.2	55:56.2	P5	P6	Labor and water..

44	55:56.3	56:01.6	P6	P5	It is possible to refine it. I know the meaning, but maybe we can improve the rhetoric
45	56:03.4	56:06.3	P6	All	But we have to do it from now right?
46	56:42.6	56:44.7	P4	All	Not sure what we should do
47	57:35.2	57:49.8	P4	All	According to this material, around 12% doesn't support, if nothing changed, maybe they will lose. Then they are doing this. In this light, maybe P6's a bit aggressive statement might be better.
48	58:08.0	58:37.0	P4	All	And then compared with the bottom one, maybe the one on the top could be better. The one on the bottom has the nuance of for the sake of future, it is better to inject now. But the focus of the opposite might be the negative outcome, such as lower wage and poor security. But I feel that from the upper one, it is possible to see how to make people understand the whole thing.
49	58:45.3	58:55.2	P4	All	*What about the one with nutrition.. Um...
50	58:57.8	59:04.5	P6	P4	I was thinking about what if bad nutrition was taken..
51	59:06.2	59:11.8	P6	All	But people might easily be prone to think: The things from outside is not necessarily good.
52	59:12.0	59:12.4	P4	P6	Yes
53	59:12.5	59:12.9	P5	P6	Yeah

54	59:16.7	59:23.9	P4	All	It not so good because it doesn't involve the opposite. But it is an analogy that shows the shortage.
55	59:37.0	59:43.4	P5	All	If it is the case, the top statement of P6' shows no necessity.
56	59:44.5	59:45.8	P6	P5	Indeed
57	59:46.0	59:47.1	P4	P5	Indeed
58	59:47.1	59:58.4	P5	All	The opposite's concern might be dispelled, but we cannot see the necessity from it. Instead, we can see it from the statement of vaccine.
59	00:00.8	00:01.6	P4	P5	Indeed
60	00:01.7	00:09.5	P6	P5	If it was vaccine, indeed it is clear that after injecting it, cold symptom will be mitigated.
70	00:55.5	00:58.1	P4	All	Then I think the statement of vaccine is fine.
71	00:58.8	01:01.8	P5	All	And the analogy is clear in the case of vaccine
72	01:02.7	01:10.6	P6	All	But I'm worrying if it is proper to compare foreigner to vaccine in the ethnic light.
78	01:30.5	01:33.9	P6	All	But it is different from the way minister officer will speak
79	01:40.3	01:42.2	P5	All	It is quite an aggressive statement
80	01:45.5	01:48.0	P4	All	But P5's statement sounds like something Abe minister would say.
81	01:50.5	01:52.6	P4	All	Sounds like politician
82	01:56.4	01:59.4	P6	All	It likes something said in Diet, because of this, so we do this.
83	02:17.3	02:19.2	P4	All	So, which one to choose?
84	02:26.6	02:28.2	P5	All	Vaccine?

No.	Start Time	End time	Who said	To whom	Content
85	02:28.2	02:29.5	P4	All	Vaccine
86	02:30.9	02:32.9	P4	All	It is prone to spread widely.
87	02:33.7	02:35.4	P4	All	Ok, finish.

Group 3

No.	Start Time	End time	Who said	To whom	Content
1	15:10.3	15:13.5	P8	All	To be honest, I'm not quite sure about this.
2	15:18.4	15:20.0	P7	P8	To make something like catchphrase?
3	15:27.7	15:32.7	P8	All	It is possible that we are going to write something interesting based on our own standards and then found those are actually not what is required in this task.
4	15:37.5	15:39.1	P9	P8	Well, I can see it coming.
5	16:01.6	16:05.0	P8	All	If I wrote something weird maybe we can later discuss about it and you tell me it not right.
6	18:12.1	18:13.0	P8	P9	Is it like that?
7	18:13.3	18:14.6	P9	P8	No no no.
8	18:15.6	18:17.5	P9	P8	I am just thinking now.
9	18:29.9	18:31.7	P8	P9	By the way, what is the example?
10	18:33.6	18:35.2	P9	P8	It is cancer.
11	19:15.1	19:18.2	P8	All	I really don't know what kind of thing I should write here.
12	19:33.7	19:37.2	P8	All	To write something relative? Like what?
13	19:37.5	19:41.1	P8	All	I wrote something like "If you stoping using smartphone when walking, the traffic accident will decrease.

14	19:42.4	19:57.1	P7	P8	I was trying to make something, which finally relates to labor force importation.
15	19:58.5	20:02.6	P8	All	I really don't know what to write. Anyway, I wrote something.
16	28:37.8	28:41.6	P8	All	I really don't know if I wrote the right things
17	0:35:27	0:35:29	P8	All	Though I wrote 34 sentences
18	0:36:12	0:36:13	P8	P8	(All my sentences) which one is interesting?
19	0:37:22	0:37:24	P9	P8	What is it...
20	0:37:57	0:37:59	P8	All	I wrote a lot of interesting things
21	0:38:00	0:38:01	P9	P8	You can tell us later
22	39:04.9	39:27.2	P7	All	Cause now we are trying to import foreign workers to solve the problem of lacking of labor force, I was thinking about food. In Japan, there is not enough food for us, we imported. So for the case of labor force shortage, we should consider importation as well.
23	39:38.4	39:48.7	P7	All	And the second idea is based on car gasoline this kind of energe shortage.
24	39:50.5	39:52.9	P8	All	We should make that kind of sentence?
25	40:01.6	40:25.3	P8	All	It is a common opinion that when foreign workers come, the security issue will be a huge problem. Then let's take a look at the cafes in Omotesando street, there are a lot of fashionable people. So for new coming foreign culture, instead of distroy it, it is more often to adapt to it.

26	40:26.6	40:46.4	P8	All	And the second one is "right, let's go to Kyoto". It not really about anywhere, but I just wanted to express that people's behavior can be influenced by their impression on things. For example, in this case, by saying this sentence, people will start to believe that Kyoto is a great place. So they would want to go there. And here, I was thinking if we can impress the people by making them believe foreign workers are great, maybe we can achieve something.
27	40:53.0	41:26.3	P9	All	The first one is about redbull, the energy drink. So here now in Japan, it lacks of energy. We are facing the problems of aging society and lack of labor force, things like this. And then we can import foreign workers like drinking energy drink to make the country and the economy better. Just like the case when we want to work hard, but run out of energy, we drink energy drink.

28	41:30.4	42:35.0	P9	All	And then, because I was thinking we are trying to make some statements that show by importing foreign workers, Japan can achieve further development. However, from the standing point of foreign labor force, (the first one) it was not a very good statement. So I don't know from where, but I came up with the idea of Momotaro. In this story, Momotaro worked with Monky, Chicken, and dog to defeat the evil. So in our case, Japanese can work with foreigners, people from the other country, to help Japan overcome the difficulties it is facing now. And this is the rough image. I haven't come up with any sentance yet.
29	42:52.9	42:54.2	P8	All	I misunderstood the task
30	44:42.6	44:45.4	P9	P8	Can you explain about your this statement?
31	44:45.4	45:10.2	P8	P9	So now on Facebook, they are doing a France flag campaign. Recently France is not in a good condition, and they are trying to do something like this to make cheer the country up. And it is difficult to tell who is really doing it for this purpose and who is not. So it is a difficult problem to solve.
32	45:27.8	45:34.8	P8	P9	So we should work from the perspective of problem. I was totally trying to make analogy

					based on the solution.
33	46:21.3	46:31.2	P9	All	If this is good, maybe let's just select the one with good analogy.
34	48:13.4	48:26.1	P8	P7	So about this 40% food shortage. What is the source of this analogy? Is it "if we lack something, we should supply"?
35	48:26.5	48:36.9	P7	P8	In this case, the lack of food was solved by importing food. Then if there is a lack of labor, we should do the same, importation as well.
36	48:40.4	48:43.4	P8	P7	What about the "It will be late if we run out of gas completely"?
37	48:43.5	49:06.0	P7	P8	So, I wasn't thinking that much. My analogies can be mainly two groups. One is if lack of something, we should supply. Another one is it will be a problem if something is short.
38	49:06.6	49:20.2	P7	P8	It will be too late if we ran out of something has the nuance that before we completely run out of something, let's do something about it. I just thought about it though.
39	50:18.0	50:25.9	P9	P8	So "right, let's go to Kyoto" is just a catchprase, and then maybe we can create something similar to incite people (accepting labor importation)
40	50:26.2	50:27.2	P8	P9	Yes, that's right

41	50:28.2	50:38.7	P8	All	Cause I was thinking about something related to the solution, I made these analogies. Cause I was trying to create something similar to the example of cancer.
42	50:44.3	50:53.9	P8	All	The way to discuss. From here I can say something, from there I can say something else, and then if I combine both, would it be something? That's what I though, the fact is something totally different.
43	52:39.4	53:03.8	P8	All	About the statement of worrying about the lack of gas and 40% food shortage, the solution is not necessarily foreign labor importation. For example, just like China recently put an end to the One Child Policy, we can have a policy like Five Children for every family. It is possible that this kind of statement will attract misunderstanding like this.
44	53:04.6	53:09.1	P8	All	It is difficult to find out the purpose (of this statement)
45	53:09.8	53:12.5	P9	P8	If you put it in that way, everything will be like this.
46	53:13.2	53:17.2	P8	P9	But if you look at the idea of momotaro, it is (different)
47	53:17.8	53:19.4	P9	P8	Maybe...
48	53:21.9	53:24.9	P9	P8	*Yeah, but all those solutions are all for one problem, right?

49	53:26.3	53:37.6	P8	All	But if you look at the final problem, you will find that the problem exiStSin the difference between foreigner and local. Maybe it is better to look at this aspect.
50	53:37.9	53:41.7	P9	P8	So, you mean to think about the opposite opinion?
51	53:42.8	54:00.5	P8	P9	So though we have this problem, it can be solved by having more Japanese population, but which is something impossible. Therefore, as a second plan, we want to import foreign workers, something from the outside. That's why we have all these concerns. So I think it is better to include this aspect as well.
52	54:02.1	54:06.1	P9	P8	So something that works for the opposite as well.
53	54:07.1	54:11.7	P8	P9	The one that works in this situation should be the best.
54	54:12.7	54:20.2	P9	P8	So something that can make the supportive side more enthusiastic and convince the opposite.
55	54:36.1	54:42.6	P8	P9	And redbull actually it is something outside of Japan, but if it is chinese medicine, maybe it would be better
56	54:43.9	54:52.1	P8	P9	And at the begining people were worrying about the Redbull. This is something similar to our case, right. That's why I found Redbull interesting as well.
57	54:52.9	54:56.6	P9	P8	Redbull is something similar when thinking about its market

					path.
58	54:57.8	55:00.7	P8	P9	And it is not something exiStSin Ancient Japan.
59	55:01.7	55:05.2	P8	All	And it was imported though it was not about the 40%
60	55:27.4	55:31.9	P9	All	I was thinking about using something everybody knows to make analogy.
61	55:32.4	55:33.9	P9	All	I wrote something about vehicle
62	55:34.0	55:35.9	P9	All	That's easy to understand
63	55:36.5	55:40.4	P9	All	Maybe there's only few people know Redbull.
64	56:34.2	56:45.9	P7	All	What should we focus on. I mainly created analogies focusing on the problem. And P9's statements are basically about the image after importing foreign workers.
65	56:46.9	56:48.7	P8	P9	I think we should focus on the problem
66	56:53.8	56:56.2	P8	All	And I wrote something totally different
67	56:57.9	57:00.6	P7	All	I really like the idea of momotaro, but..
68	57:01.6	57:03.3	P9	P7	But I cannot make a statement out of it
69	57:04.4	57:21.5	P7	All	The target for statement is for the supportive or the opposite? It is to persuade those who are opposite? But the way to advertise is the problem either way.
70	57:22.7	57:30.9	P8	All	But based on the characteristics of Japanese, most people they don't think anything. So maybe it is good just to convince them.

71	57:37.2	57:43.8	P8	All	But even though, it is still better if we can make the opposite quite about the issue by the statement.
72	57:48.8	57:54.6	P9	P8	If it is the case, it is better to make this statement impressive like a catchphrase.
73	57:57.9	57:59.6	P9	All	But at less it is not Kyoto.
74	58:00.6	58:01.7	P8	All	This is too catchy.
75	58:02.0	58:03.7	P7	All	But if our statement can be so catchy, that's good.
76	58:04.0	58:05.7	P9	All	Yeah, even though we want to.
77	58:16.8	58:20.1	P7	P9	It is really difficult to make some statement out of momotaro.
78	58:22.4	58:27.4	P9	P7	It is really difficult to use language to depict momotaro.
79	58:28.4	58:36.6	P7	P9	If we use words... I really want to sell the image of momotaro.
80	58:36.7	58:46.5	P9	P7	But then (if we are trying to make something out of momotaro), we are going to face the problem of making it catchy like Kyoto again.
81	58:47.4	58:51.8	P8	All	By the way, there are many people like Japanese rugby team.
82	58:52.2	58:59.8	P9	P8	Yes. Eventually, for me rugby and momotaro are the same.
83	59:01.1	59:05.7	P8	P9	I think for foreign worker, in rugby team they are the foreign workers, right?
84	59:06.8	59:18.1	P9	P8	But we want something analogy. That's why I chose momotaro instead of rugby player.
85	59:19.3	59:23.5	P9	P8	Well, I think rugby is something good too. All for one.
86	59:24.1	59:25.6	P8	P9	no, it is one for all team in this case
87	59:26.3	59:28.6	P9	P8	One for all team, maybe it is good.

88	59:29.0	59:30.5	P7	All	Regarding that of rugby?
89	59:33.3	59:36.3	P8	P7	Foreign players like Thompson, they are frequently seen in Japan Rugby team
90	59:36.9	59:50.3	P7	All	I though you were talking about one country has a lot of foreigner rugby player. Well that wasn't what you were talking right? One for all, it exits in any rugby team right?
91	59:50.4	00:00.7	P9	P7	yes, we were talking about country and foreign player, but when we were trying to make a catchy statement, we started talking about the One for All, All for One.
92	00:07.3	00:08.7	P8	P9	But is it analogy?
93	00:08.8	00:16.6	P9	P8	Speaking of analogy, it is it, (foreign player is foreign worker) isn't it. But it is typical situation, when people see it, they can easily understand.
94	00:16.2	00:19.1	P8	All	But I really want to find something irrelevant to the topic.
95	00:19.3	00:24.1	P9	P8	Then what is it?
96	00:24.7	00:27.0	P8	P9	Something surprise people when explained.
97	00:28.3	00:33.2	P9	P8	But if without explanation, people don't understand, then it might be not a good statement, right?
98	00:39.3	00:44.9	P8	All	Then among all the statement, which one do you want to make it a catchy statement?
99	00:47.6	00:51.6	P7	All	I prefer momotaro
100	01:02.0	01:06.5	P7	All	But can one single word be a catchy statement?

101	01:12.2	01:15.1	P9	All	I think maybe a single word is good too.
102	01:19.0	01:21.6	P8	All	*I like the RedBull give you wings
103	01:25.0	01:30.6	P9	P8	But here we have someone wrote, it might not be a good idea to compare people to food.
104	01:43.5	01:49.2	P9	All	And I agree with it. So for me momotaro is better than RedBull.
105	01:51.7	01:54.4	P7	P9	And it is a good analogy for teammate as well.
106	01:54.6	01:56.6	P9	P7	And it fits the theme.
107	02:16.2	02:28.6	P9	All	Personally I think, image is important. However, if we can't make a statement like the example, maybe it is not so possible to use the idea momotaro.
108	02:32.6	02:37.7	P7	All	So we are going to keep thinking later, right?
109	02:38.2	02:40.1	P9	P7	Yes, right.
110	02:40.3	02:42.9	P7	All	But the main idea should be this.
111	02:46.4	02:50.7	P8	All	Let's stick together among the enemy who cannot be defeated by only one.
112	02:55.9	02:59.6	P7	All	And it has nothing to do with who the enemy is, right?
113	03:15.1	03:25.3	P8	P9	And in momotaro, it is obvious there is an enemy and the task is to defeat the enemy. But here we are not going to name specifically who the enemy is.
114	03:25.6	03:32.7	P9	P8	The problem is not about who the enemy is, but where to focus

115	03:38.2	03:45.7	P8	P9	But when we are trying to make a catchy statement, it is natural to think about they are going to defeat a demon.
116	03:45.8	03:50.0	P9	P8	But we don't want to focus on the demon
117	03:50.1	03:54.0	P7	P8	Yes. When both of us trying to this way and you are going opposite, it is not so good.
118	03:57.5	04:03.7	P9	All	And it will be so helpful if the story can finish when momotaro gives the animals rice balls and become friends.
119	04:06.2	04:09.5	P8	P9	How about rice ball support your team.
120	04:09.6	04:13.5	P9	P8	You really like Redbull
121	04:14.8	04:16.5	P8	P9	Right, let's go defeat the demon.
122	04:19.6	04:22.6	P9	P8	You are really focusing on the demon.
123	04:25.0	04:27.1	P8	P9	I wanted to create statements in this form
124	04:27.2	04:28.5	P9	P8	Well we can do it.
125	04:29.7	04:30.1	P9	P8	Parody famous slogans
126	04:30.9	04:31.4	P8	P9	Yes
127	08:11.8	08:13.4	P9	P8	It is possible
128	07:19.7	07:21.9	P8	F	Can we think about the other things except momotaro?
129	07:22.8	07:31.2	F	P8	Please decide by yourselves.
130	07:53.9	07:58.0	P8	All	Shitamachi rokect.
131	08:06.8	08:34.8	P8	All	A lot of components are needed for creating an airplane. But the main system, bulb system, can only be created by a small local factory. So it is possible that something comes from a strange place might become a success.

132	10:17.5	10:20.5	P8	All	Kiyokiba left Exile
133	10:23.4	11:03.5	P8	All	The second vocal in Exile, Kiyokiba, left the group. And it is not good if the situation keeps the same, so Exile group started to recruit new member. And because of this recruitment, though something like Jsoul Brothers and some other group was built, 15-20 member's current version Exile was built as well. So maybe the change of policy, accepting more members might end up to be something good. It is possible.
134	11:03.8	11:06.9	P9	P8	So the premise is that Exile are good performers, right? Okay…
135	1:11:10	1:11:15	P9	All	But if they really sang for Tokyo Olympic, it would be shocking
136	1:11:17	1:11:21	P7	All	Yes. Also like AKB
137	11:57.1	11:59.8	P8	All	Curry rice in Rio.
138	12:03.8	12:25.4	P8	All	It is normal to drink coffee in a cafe. But in order to attract more customers, Rio launched the menu of curry rice, something foreign to any cafe. And it is possible that the foreign thing might become the main sell.
139	12:26.6	12:29.5	P9	P8	You are really into business.
140	12:46.6	12:51.4	P9	P8	If we stopped talking in lab, we can progress
141	13:14.4	13:16.8	P8	All	Sell beer in Disney sea.

142	13:22.8	14:03.7	P8	All	Though it was said that it might be not good or against the image of Disney if it starts to sell beer, many people who never go Disney might consider to go. In this way, profit might increase, and it might lead to a good circle. So something that looks negative at the firStSight might turn out to be something good. So something time, it is worth the try.
143	14:15.9	14:22.6	P9	P8	Would you be quite for a moment? I have to think (over my analogy)
144	14:53.4	14:55.4	P9	All	My ideas are now like P8's
145	15:08.9	15:14.3	P8	All	International Project Lab in social engineering department.
146	15:16.7	15:20.5	P9	P8	We are talking about Japanese policy.
147	15:25.1	15:35.3	P8	All	Really it is not so sure what might come next if we import something foreign. Hope it is going well.
148	15:52.0	15:54.7	P9	P8	You were just collecting the successful cases, right?
149	15:57.0	16:02.4	P8	P9	But if we collect failure, everybody can do nothing but against us.
150	16:46.8	16:49.2	P8	All	Sell CD with shake hand coupon.

151	16:56.3	17:29.3	P8	All	It is not normal to sell CD with shake hand coupon because the purpose is to sell music. But because of illegal download or so, CD market decreased. And the whole music market might decrease. So in order to vitalize the music market, music companies started to sell CD with shake hand coupon, which might found to be strange, but might increase the market vitality.
152	17:32.1	17:36.6	P8	P9	Aoyama university is almost the same with rugby right?
153	17:37.3	17:50.1	P9	P8	You know it well. I might not propose it, just wrote it. Thought I created it, it has little novelty.
154	19:23.7	19:25.7	P8	All	Start coeducation in boy school.
155	19:28.8	20:10.2	P8	All	My senior high use to be a boy school. And it was not that good. But after coeducation, it became better. School stuff use to think boy might not be able to focus on study if there are girls around, but some other stuff said it was against the trend, and should take in girls. And there are other advantage to accept girls. And after they did, it turned out to be success.
156	20:19.6	20:26.5	P9	P8	Well, now is still individual work. I will not comment too much.
157	22:35.0	22:42.2	P8	All	I was thinking to gather 5 irrelevant slogans, and maybe we can create some analogy adversely.

Group 4

No.	Start Time	End time	Who said	To whom	Content
1	34:57.9	34:59.9	P11	All	Oh, it's typical P10.
2	35:00.2	35:02.2	P10	P11	I have something worse, but I didn't post it here
3	35:02.6	35:04.3	P11	All	It really is something of P10's
4	35:06.5	35:08.9	P11	All	awesome! It really typical P10
5	35:11.8	35:13.0	P11	All	So serious
6	35:15.8	35:19.7	P11	All	Oh seirogan! It is nice. It is a nice idea to use medicine to compare
7	35:21.7	35:24.5	P10	All	I have another idea, processing trade. It fits the situation as well.
8	35:26.0	35:28.1	P11	All	This really shows everyone's personality
9	35:37.3	35:38.5	P11	P12	Naruto
10	35:39.8	35:42.9	P12	P11	I was looking for something close to me
11	36:11.8	36:27.8	P10	All	The situation is that working labor is insufficient and it should be compensated. Based on it. the first one is about company that lacks capital, something to keep the company operating.
12	36:28.1	36:52.6	P10	All	And the other one is about, um nutrition. And I have the image that we all possess human body and mom who is especially aware of raising a child, so nutrition. I thought about supplement to compensate, but here it is better to be more common. In order to grow, nutrition is necessary and country is lack of it too in order to grow.
13	36:55.4	37:14.5	P11	All	At first, I compared with tripod. To support it, well, the rest 2 are really just something not so well considered. Though creating the image of something is for supporting machine, but when put some machine on it, it is already shaky, I want to say that it is important, if lacking of it, nothing can support it.

186

14	37:15.7	37:33.8	P11	All	The other one, I was considering about breaking the exclusivity in terms of thinking. In fairy tales, an old man who does not accept any other can be easily found. So I think this image can be easily imaged by the common. And this kind people will have troubles in the future.
15	37:35.0	38:03.4	P12	All	My first statement is seirogan. So when foreign worker came, at the beginning, ones might have negative feels. However, eventually, if Japan didn't import foreign labor, Japan might struggle in the future. So I compared it with seirogan, saying when taking the medicine, it was bitter, but after taking the medicine, it will be good for health.
16	37:59.9	38:01.0	P11	All	Nice
17	38:03.8	38:19.3	P12	All	And the second one. Even though immigration policy is economic policy, it still has something cultural. So I was thinking about using the naruto in ramen that makes the ramen colorful to exhibit diversity.
18	43:00.9	43:03.0	P11	All	It is clear who wrote what comment
19	43:05.8	43:09.0	P11	All	The comments showed everybody's personality
20	46:32.8	46:36.8	P11	All	It is okay to compare with ramen. But I think it is not about naruto...
21	47:16.4	47:18.7	P11	All	It is really easy to make positive comment on one's own statement
22	50:09.5	50:13.8	P11	All	Maybe it is good to rewrite specifically "in the future" into "after taking it"
23	50:14.7	50:15.4	P12	P11	which one?
24	50:15.4	50:17.0	P11	P12	Seirogan
25	50:17.3	50:20.9	P11	P12	Something like "it is bitter when swallowing it, but after taking it, it will be good for the body"
26	50:21.5	50:22.8	P12	P11	Indeed
27	50:22.9	50:25.1	P11	P12	When you say future, people might ask you when
28	51:15.1	51:17.8	P11	All	But seirogan is similar with anesthesia.
29	51:19.9	51:20.6	P10	P11	What?

30	51:21.0	51:24.3	P11	P10	The medicine component. It is just making you thought you were good...
31	51:24.4	51:25.9	P10	P11	Ah, so it is not about improvement
32	51:25.9	51:26.4	P12	P11	Indeed
33	51:26.9	51:32.1	P11	All	Well, after all there are a lot of theories when it comes to Chinese medicine.
34	51:44.9	51:46.8	P10	All	Who wrote this random comment? Where is the wife? that's a good question.
35	51:53.9	51:57.0	P11	P10	At the first, I wanted to use "Old couple", but then it was not so lonely in that situation.
36	52:14.9	52:28.2	P11	All	For Japan, in order to have long term expectation or entrepreneur ship, the topic of health or food might be difficult to understand. And as well medicine
37	52:30.9	52:38.4	P11	All	How to reflect a country's situation? Even if compare it with a tripod, there is no need to take a picture
38	52:43.3	52:45.3	P12	P11	What will happen if the tripod crumbled
39	52:45.4	52:49.4	P11	P12	Even so we can use our knee to support it, or we can hold tighter to it.
40	52:51.7	52:54.1	P11	All	Eventually maybe the topic of Health or food is good
41	52:56.2	52:59.4	P12	P11	Maybe the human related topic is too simple
42	52:59.2	53:00.8	P10	P11	What will happen with the old man?
43	53:01.6	53:20.9	P11	P10	I was thinking about the tendency of exclusivity. And then I was thinking what was having trouble because of exclusivity. And then I thought about this stubborn old man in many fairy tales. There are many fairy tales writing about this kind of character.
44	53:22.1	53:25.9	P11	All	If we can draw a picture, it might be better. But we cannot.
45	53:31.8	53:34.9	P11	All	Surely, seirogan...
46	53:35.0	53:42.6	P10	All	And the one on the right top and the one on the left bottom, show the same tendency, solving problem somewhere.

47	53:43.3	53:45.2	P10	All	But I'm not sure about the old man
48	53:46.4	53:51.9	P11	P10	About the old man, I thought about the possibility that few might ring a bell on this image as well, to be honest.
49	53:52.6	53:53.5	P10	P11	What do you want to do with this?
50	53:57.4	54:14.9	P11	P10	Un, about the purpose, or the aim is to show that the exclusivity of sticking to one's own way stubbornly might cause trouble in the future. So please accept
51	54:29.2	54:39.8	P11	All	So as P10 said, the two of health and food is easy to understand.
52	54:40.6	54:51.9	P10	All	Yes, so eventually, for what problem to solve, the top one is about to accept the supplement of what is insufficient.
53	54:52.1	55:09.0	P10	All	And the bottom one is about aside from the obvious disadvantage, the advantage is bigger compared with the disadvantage.
54	55:09.2	55:10.9	P11	P10	Compared with the original situation, future will..
55	55:09.9	55:14.4	P10	All	Which one should be chosen?
56	55:16.5	55:30.2	P10	All	It is obvious about the disadvantage, but the scale of advantage is larger than disadvantage is the bottom one.
57	55:31.0	55:38.3	P11	P10	And the bottom one shows both the advantage and disadvantage. Something like "Good medicine tastes bitter"
58	55:40.3	55:42.7	P11	All	Why not just use "Good medicine tastes bitter"
59	55:47.2	55:48.4	P10	All	Which one to choose?
60	55:49.3	55:52.3	P10	All	Which one on earth the public will prefer?
61	55:53.2	55:54.8	P11	P10	Those one who is against the policy?
62	55:56.9	56:11.3	P11	P10	For both bitter and the effect, it is natural to doubt about the scale, right. How bitter it is and how effective it is. So it is not so necessary to change. I think most people think so.
63	56:12.1	56:17.4	P12	P10	Those who think keep the current practice works as well might go against.

64	56:17.5	56:20.7	P11	P10	Thus, even persuade them from two sides, maybe they will just counter the argument and end of the story.
65	56:25.8	56:31.2	P11	P10	Something like "I'll have children and someone will support me"
66	56:41.7	57:11.2	P11	All	So I think that's why in stead of comparing advantage and disadvantage, the shaky tripod and old man statements were created. The negative, those who keeps doing the old things, are disappearing. It is not about taking the medicine, but a emphasis on the current situation.
67	57:11.3	57:14.1	P11	All	But compared with the other two, it is a failure (to create this way)
68	57:18.0	57:25.0	P11	All	Something about ramen, about food. It is not necessarily ramen. Ramen is not good for health.
69	57:28.7	57:31.6	P11	P12	It is not about diversity, right?
70	57:31.7	57:32.3	P12	P11	a bit different
71	57:33.0	57:37.1	P10	All	But it is actually one of the advantage. But we are not so sure yet now.
72	57:37.5	57:45.5	P11	All	Rather than that, what P10 said about the labor shortage and disease at the first place might be...
73	57:45.6	57:47.1	P12	All	Yes, this one is too indirect.
74	58:33.0	58:36.2	P10	All	Yes, it doesn't have the sense of urgency.
75	58:48.2	58:52.3	P11	All	Seirogan might be the best
76	58:52.5	59:00.8	P11	All	But "one self is sick". It doesn't have to be seirogan, right?
77	59:01.1	59:02.6	P10	All	Good medicine is bitter is good
78	59:03.4	59:07.0	P12	P11	I was thinking about the image of bitter medicine, (that why seirogan was choosen)
79	59:07.7	59:10.5	P11	P12	Yes, understand. And there's nothing else can be a good example right? I tried to find though.
80	59:12.7	59:19.8	P11	All	Good medicine is bitter is indeed the case.
81	59:20.4	59:32.8	P11	All	But just like P10 said, future advantage might has nothing to do with the elderly. Then someone might think why bother to take the bitter

					medicine.
82	59:33.8	59:37.5	P11	All	If we can find something quite pushing, then that will be so nice.
83	59:40.5	59:42.2	P11	All	Something like cancer in the case
84	59:42.6	59:43.4	P10	P11	You are right
85	59:44.2	59:51.7	P11	All	But in that way, it will become something similar to P10's statement, such as labor shortage, capital shortage or malnutrition.
86	59:52.1	59:54.0	P10	All	But there's nobody suffering malnutrition.
87	59:54.3	59:55.1	P11	P10	In reality.
88	59:55.5	59:58.4	P10	P11	Rather than malnutrition, it is more like unable to raise children nicely.
89	59:58.5	00:01.4	P11	P10	Further long term thing.
90	00:01.8	00:03.0	P11	All	What could be it?
91	00:27.7	00:31.8	P11	All	It will be nice if we can combine the one on the right top and the one on the left bottom.
92	00:31.9	00:32.5	P10	P11	I think so too.
93	00:32.5	00:33.6	P12	P11	Yes, you are right.
94	00:34.3	00:39.3	P10	All	But there is no very bitter medicine for nutrition supplement.
95	00:40.7	00:42.3	P12	P10	What about Aojiru
96	00:42.4	00:44.4	P10	P12	Ah, that way?
97	00:45.0	00:48.1	P11	P12	Ah, it is bitter.
98	00:49.7	00:51.3	P11	All	so Aojiru?
99	00:53.4	00:58.6	P10	All	Yes, that's right. There are someone who doesn't like vegetable too.
100	01:02.3	01:03.9	P10	All	No need to consider nutrition balance?
101	01:03.9	01:04.4	P11	P10	No need
102	01:04.7	01:10.6	P10	All	It is necessary to have something, and in order to have it, one has to eat what one doesn't like.
103	01:11.6	01:12.7	P12	All	Drinking Aojiru is not necessary
104	01:12.8	01:16.2	P10	All	The thing that is not fond with

105	01:16.2	01:20.0	P11	All	But if it is the case, it will turn into longevity, but which is not the exact case.
106	01:21.3	01:22.3	P12	P11	Not longevity?
107	01:22.3	01:25.1	P11	P12	Is it longevity? But it was about being healthy right?
108	01:25.4	01:28.9	P12	P11	But why not longevity?
109	01:29.0	01:29.9	P10	All	I think both are fine.
110	01:30.0	01:33.7	P12	P11	Japan is getting better so it becomes longevity.
111	01:34.0	01:37.1	P11	P12	But if it is longevity, it is obviously along with ending.
112	01:39.1	01:43.7	P10	P11	No, it is not about life and death, it is improvement more than supplement.
113	01:44.3	01:47.5	P11	All	So it is Aojiru instead of Seirogan, right?
114	01:48.9	01:53.6	P11	All	But in order to push people, Seirogan is better. Telling the public that the situation is terrible.
115	01:53.7	02:00.8	P12	All	Indeed, the necessity of curing a desease might be more pushing.
116	02:02.3	02:10.1	P11	All	Is it the pushing seirogan, or the long term Aojiru?
117	02:10.9	02:14.1	P11	All	Um.. Aojiru is nice.
118	02:14.6	02:17.0	P11	All	Immigration policy: one cup of Aojiru
119	02:20.6	02:22.9	P11	All	If so, it is light.
120	02:23.7	02:25.4	P12	All	Not so serious
121	02:42.2	02:45.1	P11	All	Oh, tripod and old man were not chosen.
122	03:14.1	03:17.9	P11	All	If we are going to choose, it is seirogan, right?
123	03:17.9	03:18.4	P10	P11	Why not.
124	03:18.5	03:19.7	P12	P11	En.

Appendix 5 Interview transcript

Participant No.2

P2	It took me really long time to write one (statement). Because it is really difficult to relate slogan with analogy or anything else. Actually the first few slogans I wrote have no any analogy. And some slogan like No.4, "In Japan We Trust" is just based on "In god we trust" American slogan. Until then, I didn't have any analogy. Even this one (No.4) has a little analogy but it is not related to the topic..
P2	In the beginning, it was difficult to find analogy. Then I did, No.7 or 10, "may the work be with you", that is from the game of wars, star wars, most famous sentence. I'm not sure if you have seen star wars, but in that movie, they said May the force be with you. It was just a joke. But I didn't share this one, actually I liked it a lot. This one was really fun. But I didn't share it in the group discussion because I think it is not serious. Political slogan is not something fun I think.
P2	1, 2, 3 just to find the slogan.
P2	on the topic of immigration.
P2	4, 7, 10 were I used something really famous catchphrase. I wanted to make the almost same catchphrase. Popular sentence in the world.
P2	The last 11 and 12 are also something slogan but not related to any analogy.
P2	It was something slogan to highlight the fact it is people's decision.
P2	So the 13 to 15 are after group discussion. So this one, after talking and having more time to think, I found it is more related to analogy. So in the paper, the example was like debt is cancer. So I was thinking what type of decease can be related to the lack of workers
P2	And I came up with anemia that is a disease caused by lack of blood cell in the body. So I just said the same thing that debt is cancer but with anemia, like Japan suffers from anemia.
P2	So the slogan 13 is related to this one. And 14 and 15 are right after the discussion and we thought that P1's slogan about opening the window. Like the idea of opening the window in the house is something we need to do, to keep healthy life. So the analogy is to open the window open Japan.

P2	So I guess maybe Opening the window is a habit in Japan, maybe in the morning.
P2	One is Open the window and the other one is about suffocating, needing some oxygen. Both are the same needing fresh air.
P2	Idea of renewing the air.
P2	The air is the workers in this case.
P2	About 5, no worker no Japan. There is no specific analogy.
P2	(And I wrote this is) because it is normal to write No twice for a slogan.
P2	6 is I think in the I don't remember in which decades but a lot of Polish people came to France to find a job. So there was a kind of propaganda saying they are good workers, they are beautiful and strong. Polish guy they can fix your house. I don't remember but there was some sentence like "Like your neighbor, like your neighbor country". It was this kind of propaganda.
P2	Something similar happened in Europe many years before.
P2	So this kind of slogan that is not so related to the topic of immigration, was because of the idea that the party wants to win the election. They need a strong slogan. I was thinking about this kind of slogan, but this kind of very generic slogan you can find it everywhere. It is not so good.
P2	About 9, it is the same with "In Japan we Trust". It just replace Japan with worker. To be more specific with the topic of immigration and getting a job.
P2	So this one is the last stage. The first idea was one with me and P1, about renewing the air. But slogan itself is not so good, but the topic is one that was decided.
P2	Second one Open the window open Japan is also what I wrote in my personal page.
P2	Snow ball was P3's slogan. I understand the slogan but first it is too long and it is a bit disconnected from the topic.
P2	Sun rise, it is time to open the window. About sun rise, it was P1's idea. But because Japan is a sunrise country, this kind of thing might be good.
P2	Working cell... it is like some biology but not so suitable for slogan.
P2	Japan is suffocating... So it was one of my statement. I have already explained. Workers are cure to Japan's anemia. So it I was also the topic with anemia. With improving just by including workers. So 8 is a little bit different from the way of writing it, without verb. I don't know here,

	but in French slogan with no verb is better.
P2	9 removed anemia with suffering. Because maybe P3 didn't like anemia. But I think anemia is a good idea. So after that, there was one slogan from P3. Something like Japan only imports the best for you. So after that, i was thinking what Japan imports mainly. So I came up with energy. Japan imports lots of energy. So I wrote like Japan ran out of fuel, workers are needed. Because it was just an analogy with You are importing fuel why you not import people.
P2	So 11 is similar.
P2	I wrote the last one is 14. So I thought instead of what Japan imports, what is necessary for people. What is needed. So I came up with being health and so on. We did it with changing air and something like that. We talked about Vitamins, but we thought it was not good to write vitamin in a slogan. And then I came up with the idea that the major thing we need is water. And also it rhymes with worker.
Interviewer	What is the most difficult part?
P2	So getting the idea might be just ok. We managed to get some good analogy within few hours. But getting something to attract people, is difficult. So making idea into words is the most difficult thing.
Interviewer	Did you feel helped or inspired by working with the others.
P2	So, before discussion, almost all my idea were not related to analogy. And during the sharing stage, mine and P3's were not so related to analogy, but P1's two were analogical. Though these two are not slogan but analogical. So I understood better what the task was.
Interviewer	So for creating analogy, did you get any image from the others?
P2	So we had a discussion on P1's good analogy. And after that I read the materials again, especially the example of debt is cancer. So for creating analogy we have to decide which field to use. The example used the field of medicine or disease. So the basic first thing for creating analogy is to decide the field. That is why I came up with anemia, because I wanted to use medical field.
Interviewer	Is there any other help except the medical field?

P2	So in the last stage, about what human need, and also with the Japan importation.

Participant No.3

Interviewer	This is the statements you created, and please recall what you were thinking when you were creating them from No.1 to No.13.
P3	No.1 and No.2 I was just trying to make some quick ideas, some key words. Just wrote them down to have them on the sheet. And use them for the slogans, because No.1 and No.2 are...
Interviewer	Are they from reading materials?
P3	Yes, I remember from the reading materials, it said from 2015, there will be a problem. So maybe the foreign worker will just be necessity for a short period. Or the government could just use it in this way, for a little period. And then it will be done. They don't need them anymore. Something like this.
Interviewer	From the issue of Japan needs workers, you created No.1 and No.2.
P3	No.3, the idea was just starting coming to me. "Foreign worker strengthen us", it is related with the reading materials. Obviously it is not a slogan, but I was trying to make a fact that foreign worker will strengthen the economy, and the labor force in Japan. Then I was thinking, I already had the three main ideas from the reading, so I can try to get some slogans, which was a little difficult for me. And it was really not easy to find something related with the problem, the issue. And I was just stating "foreign workers will strengthen us" and then I was thinking what thing would help to improve you when you were weak. And then I thought about Vitamins, when you lack vitamins, any vitamin. It could be a good analogy.
P3	No.5 is also related with No.3, like a little help will be very beneficial for the future. I was really trying to relate with the vitamin. Like a factor that helps to improve, just a little push to do this. And then I started thinking maybe the policy will be approved, they will hire foreign labor, and this could be taken as a chance for the population. Maybe the population will be more in touch with the foreign people. And they could just use it as a benefit for themselves. Try to feel another culture, another habits, another way of living, that is why I wrote this " A better future learning from abroad". I was thinking more

	about the working environment.
P3	No.7, I was just thinking about the previous statements, they will just take the very best to work in Japan, not just random people. We will select. So maybe people against the policy will agree. Cause they are just getting the bests.
P3	No.8, I was trying to make an analogy, with the previous one. No.9 also. Usually when you buy imported products, usually they will be expensive. And at least I justify it as they are healthy. For example, when I cook, when I trying to buy cooking materials back in Mexico, I use to buy olive oil which was really expensive, maybe it was something imported. And I was thinking it might be expensive, but it was something good for me. I could justify the price of the item.
Interviewer	So this is an analogy for the foreign worker importation.
P3	The previous one, the No.7, usually selected are more expensive. So I was just trying to justify this fact.
P3	About No.10, I started thinking about the Vitamins. I think at this moment, I was running out of ideas. So I went back and was reminded of this song of a cookie which I think is famous in the western. And then I was just thinking the task is to write down what ever whether you think it is good or not. So I just wrote down.
Interviewer	So this is a lyric from the song, or?
P3	It is the title. The name of the song. But they repeat this in the song many times.
P3	No.11, I was just trying to make something straight to the point.
Interviewer	Sorry but about No.10, you were focusing on trying to fix the foreign worker issue, emphasize the help. And then you related to the song?

P3	Yes. When it came to my mind, it was just the phrase. But then I was thinking maybe it can be used in the certain for the government, the party by saying it is just a little help we need. And to name foreigner friends, I wanted to show the foreigners are here to help not just to do some trade, or to steal your job or properties.
Interviewer	About No.11?
P3	So this one, I thought the previous ones were not so direct, so I was trying to make something really direct. So in the materials, it said probably Japan was not going to do well in the future because of the lacking of labor, so Japan will have trouble if you do nothing. But you are also (part of) Japan. So trying to make the community aware that they are Japan, they are not an individual people, living somewhere. So living in Japan means they will need help also.
Interviewer	And No.12 is after discussion. What happened for creating this new air?
P3	We were talking about one of P1's phrases, it was something related to the opening the window. So we were creating ideas about fresh air. So I just wrote new air refresh Japan. Ventilate the closed room, is similar to that Japan should not be so close to solve the inside problem. Also let the outside thing help the inside issue.
P3	And No.13 I was thinking, I was trying to make another analogy. I went back to the idea of song. I thought what needs help to start to get motion to get to run. So I thought about the snowball and the hill. You just give it a small push and it starts rolling and rolling and it becomes bigger. Actually I never done that, but I saw it in many carton. So with this small policy, well it might be huge, it can have a good benefit, and even more and more benefit in the future for everyone. But I could not make a really good analogy between the thing I was thinking and the issue.
Interviewer	These are the individual ideas and these are the group ideas.
P3	I think No.1 and No.2 I just helped, we were discussing with P2 about 7, 8 and 9, just to make it more friendly without the word of anemia, some disease. Because it is a little bit harsh, people don't want to admit they are sick. If they think I'm not sick, I don't need help, that could be even much bigger trouble. .
Interviewer	So can you explain the ideas you generated?

P3	No.12, it was because I wrote "we only import the best for you" in the selection stage. And I think both of them said it was okay, but the word was treating foreigner like product, which was not good. But to be honest, I think it could be used that way. They will hire the foreigner, so I think product is the right word. I think someone wrote "we import fuel why not worker", so I was trying to make something more general. Maybe not be so specific about this. So I wrote we only import what we need. If we can do it, we do it, if we cannot, we import.
Interviewer	How about No.15?
P3	I had written it in my personal sheet. "Vitamin strengthen us". But I didn't think it was good. And then we were talking about disease. So I thought it was to take something in to make yourself better. So I thought they were the same, you brought something from outside for your benefit, and vitamin was you brought something from outside benefits your body. So you get stronger. So I think maybe the analogy of external vitamin could be good. And I used Japan was because it was what we were talking about.
Interviewer	So you idea went from fresh air to push snowball, and then number 12 and vitamin. So could you tell me how did you change the topic. Because they are quite different.
P3	No.1 and No.2 are what I wrote on my personal sheet, and then we have another 30 minutes to think. So I wrote what I created in the 2nd stage to the group sheet. There were moments of silence. I think we were thinking about new ideas. They started writing some more, and I was just looking at their ideas and trying to make something new based on their ideas.
Interviewer	Did you find any helpful idea?
P3	For example, No.12 is based on No.11. I think it was P2 and it was about importation of fuel, importation of necessities.
Interviewer	But you wrote "they only import the best for you" already

P3	Yes, I selected that one. But when we were trying to choose one best out of the 6, I think we chose P2's idea. Oh, we selected another one. But I really liked this one. "You decision our future", so at some moment I started to think about "Japan only imports the best for you". Until the moment of generating new slogans, I think P2 mentioned something, so he drug the notes to the front, and that was the moment when I thought about this. Because he also wrote something about the fuel. And then I think maybe I can fill something out of this fuel, some new idea.
Interviewer	So why you didn't continue writing something on importation is because of this?
P3	We chose the little help, but professor Horii said it was not really an analogy, so I thought we were starting with creating new slogan, new ideas. On the one hand we were trying to make new ideas, on the other hand, I went back to have some more idea
Interviewer	After No.12, how you went to No.15?
P3	I think also I went back to what I had written, and based on what P1 and P2 said, I wanted to create something new.
Interviewer	What do you think is the most difficult part for this task?
P3	Trying to figure out what the other people are thinking. I think it was really difficult for me because for a long time, there was only silence. It was a little bit awkward. So I think we can work together to create something good instead of working individually, but P2 told me it was individual task. And then when we were presenting our 2 best, I couldn't understand the whole idea of P1. Maybe she did her best but I don't know. It wasn't so clear to me, some of the idea I couldn't understand. Maybe the whole idea is more complicated or deep, but they just mentioned the superficial idea concept. I think that is very difficult.

Participant No.4

	Personally I love the top down approach. The first thing I did was to define the exact problem, which the immigrant policy is now facing. I personally feel there are mainly 2 problems. One is about the immigrant policy. How the immigrants actually contribute to the Japanese economy fabric. The second one is sort of backlash towards the immigrant. So there are many opposite arguments such as how these people hinder the security or that kind of thing. So basically based on that, what I thought was to convince them about the 2 issues. So the first one is about the practical argument, which is No.6. So in order to show how immigrants actually contribute to the Japanese economy fabric, I thought of some analogies, such as Japanese pension system collapsing. Because of the lack of young people, or lack of people, who engaging in the society. So I believe the scarce of workers. Actually I wanted to define the immigrant policy, this is No.16. So the analogy is in Singapore or Netherland, in which their population is not so large, but their economy are rather stable owning to their drastic immigrant policy. So these are the economy that I came up with. So moving on to the second point about, even if the immigrant policy effect is not so clear, why the Japanese society needs to welcome the immigrant workers from the developing countries. So this is a point from the, about the philosophical argument as to show why the Japanese society has the obligation to welcome immigration to some extent. This actually counters to the argument how immigrants or foreigners sometimes can be a detriment towards the security. Such as ODA. The analogy of ODA clearly demonstrates why the Japanese society has the obligation as an international actor. This is sort of analogy that saving those who seek to be better off is within the obligation of Japanese society as an international actor. Or another analogy is about No.8, the internation aid from other countries to the Japanese society. Japan use to be a developing country especially after WW2, at that time, many countries actually helped us, so it is our turn to help those who are suffering from the economic fabric, the economic depression. So this is the basic structure I
P4	came up with these analogies and ideas.

Interviewer	From here we can find you proposed four analogies before the group discussion. ODA, WW2, Japanese pension system and Singapore/Netherland. You already told me about the structure, but can you tell me the exact reason why you came up with the image of ODA?
P4	So I briefly thought it was about 2 issues as I showed in my No.5 and No.6. Firstly, I wanted to find out the practical argument, or the consequence of immigrant policy. But it seemed to be a little difficult, cause it isn't analogy but example. It seems similar but.. I thought that it is a little difficult to find analogy about the practical argument. That is why I firstly came up with the idea about the ODA.
Interviewer	Cause you were saying it was about helping no matter to Japan or from Japan. So maybe ODA in Japan is famous for helping other countries? Does it have anything to do with why you came up with this image?
P4	Because I really concerned about the xenophobic culture of the Japanese society. So many Japanese does not like to cooperation with foreigners because Japan use to be a very isolated country. I personally feel that in order to counter these arguments, and in order to convince these people who are really not willing to cooperate with foreigners, I felt it was necessary to make them feel it is sort of obligation or duty. That is why I used the image of ODA. Because the essence of ODA is sort of obligation or something we must do. That is why I came up with the idea of ODA.
Interviewer	Can you tell me why you move from the ODA to international aid after WW2?
P4	Because A, I think ODA might be not that famous for the ordinary people, and B, in order to show sort of obligation, I think the fact of they use to be helped, by saying that I think it is relatively fair for them to help the others. That is why I came up with this idea.
Interviewer	How did you come up with the idea of Japanese collapsing pension system?

P4	So I already finished explaining why the Japanese society has the obligation to help. But in order to make it a policy, we also have to show how this policy contribute to Japanese society. So I need to show 2 things. One is about why doing nothing really collapse Japanese society. And two, why welcoming foreigners actually helps Japanese society. I think that Japanese Pension system is a good example showing current Japanese system is not working well. In this structure, the working people are not enough to save the increasing old population. By saying the pension system, the working people who are really making the money, is the one Japanese society needs. So I think the pension system can be good example, and plus it is a very famous or serious problem to each individual. So I think pension system can be an analogy to convince people.
Interviewer	And why you proposed Singapore/Netherland?
P4	So the problem that Japanese concerns is that the job is limited, welcoming foreign worker means more Japanese is going to lose job. In order to prove this is false, I used the example of Netherland/Singapore, in which that Singaporeans and Dutch people can still work in the central area. So I think this can be an analogy in order to convince those who really cares about the capacity of job, the scarce of work place or this kind thing.
P4	And it is not just about safety, it also cause benefit. Cause it is obvious that Singapore and Netherlands are facing labor shortage, and foreign labor actually contribute to their economy.
Interviewer	If you had more time, would you be able to create more analogy?
P4	So if I had twenty minutes more, I would come up with more relevant or close analogies. Especially about the effect of the policy. I think the analogy (I created) is not so good in order to convince the people. So I think I would change the analogy.
P4	As for the 1st stage, I think 20 minutes is not enough, cause I spent the whole 20 minutes creating these ideas. So regarding the 1st stage, I think at least I need 5 or 10 minutes more.
Interviewer	After group discussion, how did you come up with the idea of Japanese football team?
P4	So during the discussion with my partners, I think the it was about whether to cooperate with foreigners. I tried to find some example in which the Japanese really did a good job in cooperating with foreigners. That is why I came up with this idea.

Interviewer	Then how did you change the football team into rugby team?
P4	It is almost the same. But Japanese football team is composed of only Japanese or those who changed their nationality. But in the case of Japanese rugby team, it is composed of people from Japan, New Zealand, Tonga and other countries. So I think the rugby team can be a good example to show cooperation with foreigners.
Interviewer	After rugby team, you proposed Mr. Pepper. So what reminded you of this idea?
P4	During the discussion, I think we choose the idea of "adapt to the new wind, you will feel good", which means when we welcome something new, even if firstly people might react it is something strange or something they don't like, they are going to accustomed to it and they are going to cooperate with them. So I think that can be applied to Mr. Pepper. Cause Mr. Pepper is a symbol. It is kind like a robot, and some shop actually introduced. And at first, customers to shops thought Mr. Pepper is no something they wanted to talk to, but since the promotion of Mr. Pepper works, so people realised it has a lot of datas and information which is relevant or helpful to the customers. So the customers actually use it. So I think that can be analogous to the situation of how people is going to get accustomed to the new emergence. So that is why I came up with the idea of Mr. Pepper.
Interviewer	What do you think is the most difficult part for this workshop.

	I actually wrote memo from No 27 to No. 30. At first I didn't realize, but as the discussion goes, I feels that the purpose is somewhat vague for me. Because the purpose is only about the promotion about the politician. So I don't know who the target is, it is the people who already support or who are against the politician, and I will have to talk them into supporting. So it is vague for me. or I didn't define the purpose. So I think the purpose is extremely important. And secondly, I problem with the politician statement is that they are more passionate that logical, that is why I think that, for example, in the group discussion, labor is the nutrition for country, it is sort of promotion, because it is completely illogical, but it is more convincing cause it can agitate people, so I think we failed to analyze the characteristic of politician. It is really hard to choose a good idea or a bad idea. Because the metric of something good for me is something logical or persuasive. But for the other members, it is that being attractive. So I think we failed to share what is a good idea and what is a bad idea. It is really hard to reach a consensus during the discussion. And thirdly is there was a long quite time, especially the last 10 minutes. It is hard for me to start a conversation, because the purpose is A to brush up the existing idea or B to create new ideas. So I don't know which one to go. So that is why I think it is difficult to restart the conversation. The last point the very vague. For me 90 minutes is
P4	the maximum to concentrate on one thing...

Participant No.5

	Can I start with explaining the first 6 statements that sharing common features? At the beginning, I was thinking how to make the situation straight. In another word, how to abstract the situation of accepting foreign workers. Then I was thinking about bringing in something from the outside to supply the insufficient, to abstract the situation a bit. So the first one, I was thinking about to reflect the abstraction into some other fields. At first, I was thinking about how about reflect it into human or food. And then the second one is about vehicle and fuel. The lockage of fuel should be supplied from outside, so I found it is something similar. And then, about the third one. Because my interest is marathon, I was recall my daily life so as to find how to supply. And from No.4, I was really trying to create
P5	something that looks like a slogan. So I thought about what was writen in

	real election campaign.
Interviewer	What you were thinking when you created the first statement?
Interviewer	Is boat frequently used in election poster?
P5	at that time, I was thinking about the mayor Hashimoto Toru for Osaka. In his press conference, he said Osaka is now a broken boat. And then I was thinking it was close (to the situation).
P5	No.5 is something similar.
Interviewer	But what reminded you of the image of company?
P5	That is because I was thinking the place lacking money, lacking labor that is close to lacking of money, capital. And then I was trying to think what uses capital. Then I found company.
P5	No.6 is about medicine. I heard from my friend in pharmaceutical department, when taking medicine, if the dose is not enough, the medicine is not going to work.
Interviewer	How did you change your focus from No.5 to No.6?
P5	After No.5, I got stuck with idea generation in the same way. I felt maybe it was impossible to keep generating like 4 and 5. So I tried to use another completely different perspective. I tried to think what happened one week ago, and I realized this episode.
P5	And then next, what we discussed. Before the discussion, I just thought about taking things foreigners from outside to supply domestic market was a good thing. And then from here, I was trying to sell the concept that acceepting foreigner might cause something unpleasant, but it was good for the future. I was trying to add this to the statement generation.
Interviewer	How did you change in this way?
P5	That is mainly because of P6
Interviewer	So, can you tell me what you were thinking when you created No.7?

P5	Do you know the old saying in Japan that the soil will be more solid after rain. This was originally used for discribing friendship. After arguing with each other, the relationship wil become better. So rain in this case is something making people unpleasant, similar to fighting with someone. So after the happening, the soild will be more solid, better. So for analogy, it might be the same with our case. At the beginning, when importing foreigners, someone might get worried about safety and such things, but after talking with others, it will become better later on.
P5	The rest statements are similar. For creating a good stage play, it is necessary to practice hardly before the stage. And because the more practice makes the better stage, it is similar to the need of amont and hard practice. I wanted to include these two pointviews,so...
Interviewer	So you were thinking about after accumulating unpleasant things, the situation will getting better. And with this concept in mind, you looked for similar images. All have the two pointview you just mentioned.
P5	The new pointview is about unpleasant things is necessary for the future. But still at the same time, I was trying to say it is necessary to take in the necessary amount. So practice is not just about unpleasant feeling, the more you practice, you better you are going to be. I think it was good to present in this way.
P5	No.9 is something similar to 7 and 8. But this is about investment, something like stock market. At the beginning, we have to pay the money, which is painful, but the more you buy the more you will gain later on. Something similar to what I just said.
Interviewer	Something unpleasant brings benefit.
P5	Future. Something unpleasant now but will bring benefit in the future. This is the first pointview. And more practice or investment, about the proper amount, is the second pointview.
P5	7, 8, 9 are the same structure.
P5	No.10 might be a little bit difficult to understand. To borrow things that you don't have or don't have enough amount from the others, and borrowing things is a bit embarrassed, these two points. It looks like 7, 8, 9, but borrowing things is not the more the better, so it is a bit different. It is embarrassed at present, but it will be good for the future is one pointview I wanted to show. In this sentence, there was no the point of the more the better.

Interviewer	How did you create the No.10. No.9 and No.10 are quite different, so what did you think at that time?
P5	After proposing No.9, I was again stuck. So I thought about changing my way of consideration. So I though I should went back to my first thinking. That is to say to push the idea of supplying something that is insufficient from the outside. And plus the feature of unpleasant for now better for tomorrow. And then I found this idea. That is to say, I got stuck after No.9 and then I went back to starting point, created something similar to the first stage.
Interviewer	From No.10 to No.11?
P5	No.10 and No.11, I feel they share something in common. There is a saying "it is one moment embarrassment to ask, but it will be lifetime embarrassment if one didn't ask. So No.11 is based on No.10, I was trying to make something more like a slogan out of No.10.
Interviewer	Why did you put these three in the group sheet?
P5	At the beginning, No.4 and No.7 are my idea, so I wrote them in group sheet.
Interviewer	What are you standards to choose which one to write in the group sheet?
P5	Um, I have two standards. One is about analogy. It should be an analogy that is easy to understand. For example, practice is something needs explanation. But for example, old sayings are easy to understand for every Japanese. There is no need to explain anything to them if you said the sentence. So these two statements both share this feature. And another one, it is better to be concise, something that looks like a slogan and has good rhyme. So one is about analogy and the other one is about euphony. Based on these two standards, I selected No.4 and 7.
P5	No.10 is an improved version of No.4. No.4 is just the original old saying. And the word of shame is not so good. And the word of Open reminds people of opening the country to the world, which means more communication with the foreigners. And another thing is, the Chinese character of Open is similar to the Chinese character of Ask, so we made this change. And damage is something unpleasant but not so exaggerating like shame. So we replaced shame with damage.
Interviewer	Who proposed Open?
P5	I think it was P6.
Interviewer	How about damage?

P5	It was me.

Participant No.6

P6	About No.1, I was thinking about promotion messages that already exist, from Japanese political parties. And I think I heard about this kind of messages, and I just imitated it.
P6	About the No.2, when i wrote the No.1, I was able to get to know the structure that Japan now is facing difficulties, it is necessary to take something from the outside to help Japan. In this way, it reminded me of that Japan now is out of spirits, which is like cellphone ran out of battery. So that is how I generated No.2.
P6	And No.3 is something similar, a silver bullet is necessary for the dying Japan. This idea just suddenly came to me.
P6	About No.4, we have a close old saying, which suddenly came to me, about the cat paw. I tried to work on that to create something.
Interviewer	Is it because you think Japan needs help, then this message came to you?
P6	Yes.
P6	Associated this two images.
P6	About No.5, this is similar to the previous one, in that Japan is now in a very dreadful situtaion, it is urgent to do something to fix it. I was trying to deliver this massage, and then I looked through my daily life and found vehicle or bicycle. Then I arrived at the word of wheel.
P6	And then about No.6, I tried to look even closer to myself and associate Japan with human body. So Japan is now suffering a cold, and needs refresh, and inhale the air from outside. And outside is something relevant and close to the image of foreigner. So...
P6	About No.7, it is about rhythm. I wanted to make something with good rhythm. This is different from the others.
Interviewer	You wanted to make a good expression with No.7?
P6	I didn't think too much about the analogy itself.
Interviewer	You just wanted to make a good statement.
P6	About No.8, I gave up on (rhythm) and went back to analogy. And Then suddenly I thought about that I didn't get vaccinated yet. Then the word vaccine came to my mind.

P6	Vaccine will cause a slight cold at the moment injected. So it will be something hard at the beginning but in the future one will not suffer from cold. So structurally it is something similar, so I wrote it down.
Interviewer	Who did you go from No.7 to No.8? Is it because you were thinking about cold, so associated with cold vaccine?
P6	Could be. But between 7 and 8, there was a really long interval, and I really thought a lot about it. Thought about a lot of things but maybe finally went back.
P6	And No.9, it is something similar to No.6. For this, I still wanted to generate something simple, though ignoring analogy.
P6	About No.10, um, this is after the group discussion. And then I focused more on rhetoric.
P6	And No.10 is something rhetorical and plus, I remembered we talked about with foreigners coming from all over the world, it is good to have diverse people. So...
P6	About No.11, I went back to the topic of foreign worker. Though we might face problems when importing foreigner now, which is something similar to the squat before jump, (it is for a better future, jumping in the future). It is frequently said in the word of volleyball. In order to jump highly, it is necessary to squat.
P6	About No.12, during the group discussion, P5 said something about marathon runner. And I said it is not enough as an analogy. Something should be added into the sentence. And I wrote this after giving a deep thought on how to make it a better statement.
P6	About No.13, well I didn't give that much of thought during this period of time. So now Mr. Abe said something about regain Japan, so I tried to write something similar. And in order to make it different, I wrote Japan in capital, but it seems they didn't like it that much.
P6	About No.14, I went back to analogy again, and trying to say that welcoming foreigner might be hard at the beginning, but it is a good thing for the future. I made this kind of...
Interviewer	About No.14 did you think about creating an analogy or just some good sentence?
P6	I think I was trying to make a good sentence

P6	About No.15, before creating this sentence, I was quite stuck, couldn't create anything in a long time. And then I was trying to look for things close to me, my life. The arrival of foreigner means the arrival of new things, right? So in the sense, it is a bit similar to the seat change in school. When change seat, the one sits nearby could be something unfamiliar or total stranger. So it is a bit similar...
Interviewer	I heard you talking about tunnel during the discussion, why didn't you write it down?
P6	The group member's reaction is not that much as I expected, so I gave up on this idea. Though I had image on this, but because in the discussion we said No.6 is good, so maybe it is good just to use No.6.
Interviewer	How did you realize the idea of tunnel?
P6	It is because I was looking at No.3 for quite a long time. And I've been having the image of good things will happen in the future if we endure what difficulty we had now. So it feels like getting out of the dark, there will be light. So the image of moving from dark place to a place full of light reminded me of tunnel. And in the famous book of snow country, the sentence in the beginning says, it is snow country after getting out of tunnel. So I was thinking to create something with good rhythm based on this. But because they seemed not so interested, so I gave up...
Interviewer	Can I ask why you focus on No.3?
P6	Maybe because when P4 and P5 was sharing, some comments were written concerning No.1 and 2, and it is time to look at No.3. So it is just in order, and when I was trying to create something, coincidently I arrived at No.3 and was looking at it.
Interviewer	What's the most difficult part in this workshop?
P6	The 1st individual stage. It was really difficult when I tried to generate ideas.

Participant No.9

P9	Haven't come up with any idea during the first half. At the begining, you showed us a table for analogy. Government and human were written in that table, so I started to try to use something esle, rather than human. After a lot of thinking, I could not find anything. And then I looked away and saw the tree outside. Then the image of plant came into my mind. So I tried to use this image to create something. The situation in the task is to fix the problem of labor shortage, which means we don't have enough workforce but we have to do something to improve the situation. So for the solution, at first I was thinking about injection. But it doesn't have too much difference with cancer, so something related to human being. I don't think it is good, so.. .
Interviewer	Why did you think that way?
P9	We were expected to created innovative things. Finally I didn't write it at that time.
Interviewer	Why did you choose to not write?
P9	Because it is quite similar with the example, it includes human and medical tratement. If it doesn't have anything to do with medical tratement, maybe I would write. But because it is too similar to the example, and I don't want to be influenced by the example too much, I didn't write it. So I think it is better to think more aspect, to create more idea. So I came up with the idea of plant first.
P9	There is an old saying goes like "children connects the parents better". So children have the ability to make parents close to each other, even if the parents were not so close. They will stick together to raise the baby, so getting better.
P9	Cause I can't find any good analogy at first, I changed my way to look into the old sayings.
P9	We were trying to create some popular slogan. So around us, and just like P8 said about the advertisement at the beginning. Though I thought about these, I could not find a good way to connect it with labor shortage. So I tried old sayings, which is something similar, around us and easy to retrieve. And when I was thinking about the old sayings, though it doesn't match with labor shortage too well, I was able to see the image and the situation shared something in common that is something from outside can make difference. So I wrote down it.

P9	So in this task, we are facing the problem of labor shortage and health carer for the seniors, and other possible risks. And in order to persuade the public, I used the image of this old saying. .
Interviewer	And how the 2nd idea is so different from the 1st idea?
P9	Um, so at first I was trying to use something rather than human being, So I used the image of plant. But then I couldn't find anything else. So I reread the materials and noticed we have to create statement. I decided to gave up on analogy for a while, and changed my direction to create something like slogan. And speaking of slogan, I thought about advertisement.
P9	But I could not connect advertisement and labor shortage, so I gave up on advertisement. And then I kept looking for sentences around us, old sayings came into my mind. And then I started to search for proper sentences from the old sayings.
P9	So I was thinking about searching in old sayings.
P9	When I was using old sayings, in my mind, I was trying to create idea from somewhere, from something that already exists for long time. P8 is good at creating based on recent trend, but I'm not good at it. And I felt a bit irritating from what I was doing, so I started to search the knowledge or things I knew, or I learnt. As old saying is something exists for a long time and everybody knows. Even though I gave up on old saying, I still was trying to look for something that already exists for long time, and everybody knows. And the opposite can be the elderly... anyway, something that existed for long time and was well known is good. In this sense, old story came into my mind. So I started to search in old story for things that can be used as analogy and has the trait that brings something from outside to solve problem, which is similar with the situation in the task. Then I thought of momotaro.
P9	Gathering and using kinds of people to solve the problem.
Interviewer	So, to bring in something from outside and make it stronger, or to achieve the goal. Something like this, right?
P9	P8 focused on other aspect, but I constantly focused on 3 things. There is a problem, to import something from outside and solve the problem. I think we were expected to create something like this.

P9	About rugby, it is quite similar with momotaro. Both are about taking people from outside to make team and do something together. And then recent it is easy to find the news about rugby. And rugby is something typical in terms of teamwork. At first I was thinking about using and being used, Japanese and foreigner. In this sense, Japanese is superior than foreigner, which is something not good. And when I thought about momotaro, I found it was a team, and more persuasive to use team. So I started to thinking about team, and then I thought about foreigners in rugby team. And I felt it was a nice idea, so I wrote.
Interviewer	How did you jump from momotaro to rugby team?
P9	What I wanted to express by the story of momotaro is about equal relationship, though it was animals. But in the image of plant and children, the relationship is not equal, relating to using and being used. And when I thought about momotaro, in this story is something from outside and formed a team to solve the problem. And it is not so easy to provoke the public's antipathy. Compared with the concept of using foreigner to improve Japan, it is better to say it is about teamwork. So I decided to do it in the form of team. In this way, after momotaro, I used the image of rugby.
P9	About redbull, after rugby I could not come up with anything more, so I went back to the idea of plant.
P9	So I was trying to use nutrition.
P9	When thinking about nutrition, I recalled yesterday I drank some energy drink.
P9	And energy drinking is something similar with what I wrote at the beginning. It is also about taking something from outside to get back in good shape when tired. And among all the energy drink, Redbull has the advertisement of "Redbull gives you the wings to fly", and it looks like a popular slogan. So I wrote down redbull trying to make something based on it.
Interviewer	How did you come up with the next idea?

P9	After discussion, I found momotaro was quite accepted by the group. And the reason why it was accpeted, according to P7, is about equal relationship. Using and being used relationship is not so proper in a slogan according to her. So I was impressed. And another thing impressed me is that P8 was focusing on a different aspect than me and P7. And he was trying to created something from far distance. Influenced by him, I tried and was able to find something with far distance that looks irrelavant at the firStSight (but actually related).
P9	And at that time I was trying to find some far distance image that shows equal relationship. And at that moment, I just turned back to the topic of plant. And when I was thinking about treating everyone equally, the famous flower song came into my mind.
Interviewer	So before group communication, equity didn't influence that much. But after group discussion, you realised the importance of equity and start to focus on it. And then because you were thinking about plant. so you thought about this famous song. Is it correct?
P9	To be more precise, because I had already created momotaro and rugby, the concept of equity already came into my mind. But after talking with the other two members, I realized that equity, which I proposed, was important, based on the positive feedback from the other two members. It is important and appropriate to consider equity.
Interviewer	After discussion, you focused on it.
P9	Yes, I became confident with it.
P9	About hinomaru bento, when I was trying to create something, P8 said something about Exile, someone left the group. And because of it this group succeed after dramastic change. From here, I got an inspiration from the leaving. P8 talked about changes generated by it, trying to bring back the balance.
Interviewer	So it is good to leave? or not?

P9	The situation after leaving is not good. I felt it is an interesing perspective from P8's story. So similarily, Japan is now in a situation lack of peace because of lack of people, someone necessary. So I agreed with P8 from a different perspective, saying it matches with the situation in the task, which is short of something. The shortage will cause inconvinience, or loneliness, boring or tasteless. And this kind of loneliness, tasteless situation is what I want to show by this idea. And about the analogy, I tried to think but could not come up with good ideas. And then I noticed the taste in the tasteless, which reminded me of food, bento.
Interviewer	How easy it is to think of hinomaru bento from tasteless?
P9	Mainly from tasteless, I thought of hinomaru bento.
Interviewer	short of people, tasteless, hinomaru bento. Something like this?
P9	Yes, that path.
Interviewer	Did you feel it as an insight?
P9	I didn't think it was a good idea. I wish I could find a better image to depict the situation of loneliness, boring, tasteless. But I got the image of hinomaru bento soon, so got fixed on it.
P9	About the Aoyama university, I wrote something about rugby, and in group discussion, I selected Redbull and momotaro. But P8 said the idea of rugby was good too. So before conversation, rugby and momotaro were in the same group in my opinion. However I had to choose one from the two. At that time I was trying to use the far distance image.
P9	In the case, it is about foreign worker, and in rugby it is actually foreign worker too. So if I selected this, it would be totally the same and it was not interesting at all. That's why I choosed the other one, momotaro. But then in the group communication, I was told rugby was good too. Then I decided if I have chance to proposed more, I would propose rugby in the later phase. And then in the second stage, I wanted to propose something similar to rugby but not rugby itself cause it was not good (to use the same image), and something has teamwork, so I came up with the idea of ekiden. And everybody knows Ekiden.
Interviewer	How did you go from bento back to teamwork?
P9	I tried really hard to create something related to lonelieness or boring, but I could not. So I gave up on the structure of supply the shortage and proposed this idea.

P9	And because we were running out of time, and during the discussion rugby got positive feedback, so I wrote it down for the time being.
Interviewer	Did you proposed any new idea in group work?
P9	my goal is to make good sentence based on ideas proposed in the previous stages. At first, I was not so sure of what to do in the group work. I thought it was to create good sentence based on the images as kind of final conclusion.

Participant No.11

Interviewer	What is No.1?
P11	This is the problem.
Interviewer	And No.2?
P11	This is what is needed to be solved
P11	These are also about the things to be solved in a more detailed way.
P11	What everyone is worried about
P11	Problems to solve
P11	And this is about what is the benefit
P11	This "agriculture" is the domain, labor force in agriculture industry.
Interviewer	So this is also one of the benefits, right?
P11	Yes, it is a benefit. And "who will support your children" is my first statement. I was trying to make the voters to realize the necessity of laborforce in the future in the way that associating children and laborforce.
Interviewer	So you were trying to say that the current lack of labor might cause the lack of supporter for your children in the future, right?
P11	Yes, and so it is necessary to import foreign labors.
P11	I wanted the voters to realize this.
P11	So the message of "your children might have no supporters" is a negative statement that make the audiences uneasy. And next I tried to make something positive message, then I wrote the next one.
Interviewer	What made you change in this way?
P11	Because I think "who will support your children?" is a negative message.
Interviewer	Did you think negative message is not good?
P11	No, I was trying approach from both sides.
Interviewer	But this is not so well analyzed, right?

P11	No, I had lots of ideas in my mind, but since this one is negative, I thought I should propose a positive message.
Interviewer	So, you were trying to create a framework for the pproblem solving?
P11	Yes, I had a framework. And this "Japan's successor" is an example of positive message, to expand the position for people who will turn into future labor because we are going to need labors in the future.
Interviewer	Is it analogy?
P11	It was not, but I was thinking about the lack of labor for the successor for the traditional art so I wrote this.
Interviewer	But is there any item related with analogy?
P11	A little. Between the concept of art successor and economic developer, there is something similar.
Interviewer	But this does not have any analogy?
P11	No, this one does not have any.
P11	So I now turned dto education domain.
P11	Um, but this one is not analogy.
Interviewer	So the concept of who will support your children is too abstract?
P11	Yes, I was thinking like that and wrote something down. And I gradually understand it might not be a good way to do it like this.
P11	And this balancing toy is something analogical.
P11	At the first I was thinking with the increasing of elderly people, the population structure will become unbalanced. Then I was trying to think of something which is unbalanced, I found this balancing toy.
P11	And in order to keep balance, the base is needed. This is just like the case of young generation and labor force, if the young and labor foce are in shortage, nobody will support the other.
Interviewer	So you were trying to deal with the problem of unbalance.
P11	Yes, and when I tried to think about unbalance stuff, the toy came to me.
P11	And foreign workers is the base for the toy.
Interviewer	And in this case, the perspective is from children's perspective?
P11	No, it is from the parents' perspective. Your children.
Interviewer	And then next you came up with the idea with one's own future when getting old
P11	Yes.
Interviewer	Can you tell me the process?

P11	About how I thought about it? They are all about the future. The future of your children, and your own future.
Interviewer	About the pitching statement. The lower body is foreign workers?
P11	So it was similar with the previous statement. For balance toy the base is important, and for the pitcher, the lower body is important.
Interviewer	How did you think about this pitcher idea?
P11	Well I think they are the same.
Interviewer	This is about toy
P11	And this is about baseball.
P11	And the reason why I thought about baseball is because I was trying to think about images to which base is important.
Interviewer	About "can't think in long term"
P11	I was mainly thinking about the future, And I thought this kind of ideas were good. But the problem existing in the voters is that they could not think in a long run. This is not a statement.
Interviewer	And here you were trying to
P11	summerize things so far
Interviewer	And trying to evaluate if it is good/bad, and what to do next
P11	and broaden my way of thinking
P11	All the statements I wrote share one common thing is that they are all concerining about the future. So I just wrote it down.
Interviewer	You thought it was not good?
P11	It was just about the existance of this trend
Interviewer	How about this statement about "pass on the beautiful scenery"?
P11	This one is similar with the one of "successor". The difference is just I used the scenery as a concrete thing, because it is difficult to think about Japan in a long run. But in the case of scenery, it might be easier to understand.
P11	Here is about they can't think in a long run, and next I was trying to write something positive
P11	Because I thought the voters can't think in a long run, I used the next generation driving them to think for the future.
P11	Except the pitching statement, all the statements are for driving them to think more about the future.
P11	This is I added something just becauseI think maybe the sentence is not clear.

P11	And this one is just something I was thinking about, that it might be not proper to write words like foreigners.
P11	Cause I thought why Japanese voters are against the importation of foreign workers might be because they are still exclusive, don't like foreign things that much. Therefore I think it might be better not to use any words that shows this kind of meaning.
P11	And it is one of voters' problem.
Interviewer	So you created the idea of "old man"?
P11	When I was trying to think of some image of this exclusiveness, it is easy to come up with this kind of "old man" story. "Old man in the rural area"
Interviewer	How did you come up with the next idea of pitcher? Cause before this statement, you were talking about exclusiveness.
P11	Cause in baseball, there are some pitchers, who don't want to exchange with somebody else. It is kind of exclusive too. So I compared it with this..
Interviewer	So the two ideas are the same because they all like being alone.
P11	They don't want to accept help from the others.
P11	And because Japanese likes baseball. So they will soon get the point if they saw the statement.
Interviewer	When you were creating statements, do you consider if others would accept it or not?
P11	Yes, I would consider.
Interviewer	What about the statement of "Gas"
P11	Cause I was comparing it with human, like old man and pitcher. Then I was thinking what it could be if i compare it to machine.
Interviewer	How did you jump from the image of pitcher to machine?
P11	I think the interval should be quite long. I restarted to think about ideas, and tried to focus on analogy and was trying to think except the images of human, what would it be if I want to compare Japan to other things.
Interviewer	So from here, you started to focus on analogy
P11	Yes, I think I started to focus on analogy from here.
Interviewer	So you were trying to compare the situation of importing foreign workers into Japan to something else, and then you found the image of gas, right?
P11	So, the previous statements were focusing on the background, to create analogy. So I created old man and balance toy. And then, after that, I was trying to find something similar to the example of "Death is like cancer". So

	"importing foreign workers is like gas".
Interviewer	Did you create the statement after you checked the reading materials?
P11	No. I think at that time, we were running out of time creating new ideas. And because no time left and I don't have any new idea, I went back to the problem and the other ideas I had during the previous thinking process, I found this.
Interviewer	And about the charge?
P11	So this is similar to the idea of gas. And I added "the next generation is waiting" trying to emphasize the future.
Interviewer	And about the tripod?
P11	This, I went back to unstable again. Maybe I checked the idea of balance toy once more and trying to find something else that can be related with unstable, I found tripod. The other two options, education and safety are casually chosen, but the point I was trying to say here is that foreign labor importation is important.
Interviewer	And how did you change from the previous one to this idea?
P11	I guess I was stuck at that time, so I went back to see the ideas I created so far. From the idea of balance toy, I found this tripod.
Interviewer	What about this boat rowers?
P11	I was thinking about machine, like car, so next I thought of boat.
Interviewer	So, from here is the group discussion. Your group set some rules to create statements right?
P11	Yes.
Interviewer	So based on that, you proposed the next idea?
P11	This is not a statement. It is just something I thought at that moment. I was trying to decide whether it should be more heathier or just keep being healthy.
P11	So this is the healthy rule we set. The Cod liver oil Just like vegetable juice.
Interviewer	So using the Cod liver oil it is possible to get healthier?
P11	Yes.
Interviewer	And how did you change from the idea of Cod liver drop to the increasing friendship?

P11	Because P10 and P11 they were not thinking that much about future, their statements were mainly about human body, like drugs or so. But I think maybe future is better, I created the next statement about a healthier future.
Interviewer	So these are quite similar
P11	But not analogical.
Interviewer	How about the injection to children
P11	So it is similar with the drug, bitter but good for human. But I put children there to hint the future.
Interviewer	So you combined health and future, that is injection and children.
P11	Yes, and it is similar to the drug.
P11	And the next note is a question for myself, if it is good to create message just for the elderly.
Interviewer	So you summerized again and trying to find out what kind of statement to propose.
P11	Yes.
P11	This massage statement says about to stop using the traditional ways, like using massage to cure desease, go to hospital is better, is what I wanted to say in this sentence.
Interviewer	The traditional way didn't work. So stop it.
P11	Yes. To accept injection. So to accept to do something else by someone else, it is impossible to be on one's own.
P11	And later I wrote some notes about the difference between statements.
P11	And I added the bitter but better part in the original statement, emphasize the pain from injection. Because I think it is an important element, the painful part.
P11	And Cod liver drop is sweet, so (it might be not so good).
P11	And in the next statement, the foreign workers are medicine (for the old man).
Interviewer	And medicine has the image
P11	Image of negative feeling.
Interviewer	But at the same time
P11	It is good for the body.
Interviewer	And the next one is about the future too.
P11	Yes.
P11	So I took the idea of seirogan, to be specific of what is the drug.

P11	I tried kinds of sentence (wiith the same concept)
P11	Like the next one, laughing with children, happy in the future.
Interviewer	And this is from negative to positive
P11	Right, from cry to laugh
Interviewer	Cause you think negative is not good, you changed it into positve in the next sentence,
P11	Yes.
P11	And that is pretty much from the group discussion.
P11	And I proposed blood transfusion
P11	The reason is because I was trying to find something that is usually insufficient for ladies
P11	And something that might be added to.
P11	But because the case is not for the future, blood transfusion is for the future, it might be not so good to use this image.
Interviewer	What do you think is the most difficult part?
P11	We could not propose any better idea in the group discussion part. The one about seirogan was pretty good. It is hard to find something better than that. And we didn't change our policy to create statement as well.
Interviewer	When did you change policy usually?
P11	When I got stuck.
P11	But it was the end of the workshop. We didn't have so many time left and though we didn't change the policy, it was not so possible to find ideas better than seirogan, so...
Interviewer	Because the group had already set the rule. was it possible that even you wanted but didn't feel the necessity to change the policy?
P11	It was purely because P12's idea is better, and I thought it was right to go down this way.
P11	P12's method was better than mine, so it was purely because we couldn't propose any new better statement, about why I felt depressed at the end.
Interviewer	Were you helped or inspired by others during the workshop?

	I think the P10 and P12's idea about nutrition and body is good. It is easy to understand. And I defined the problem as people cannot think in the long run, but P12 defined the task as how to express advantage when there is disadvantage. What I was trying to do was to tell the others the disadvantage is not actually disadvantage if looked in a long run, but P12 was saying the advantage is bigger than disadvantage afterall. And I thought his definition for the problem is way better than mine. So I approached to
P11	his definition.