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What Do People Say When They become "Future People"? - Positioning Imaginary Future Generations (IFGs) in General Rules for Good Decision Making

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What do people say when they become "future people"?*
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Abstract

In public decisions with long-term implications, decisions of the present generation will affect long-term welfare, including future generations. However, only the present generation is able to participate in such decision-making processes. In this study, based on Saijo [1, 2], we invited "Imaginary Future Generations" (IFGs), which are participants in a discussion that take on the role of members of future generations to argue on behalf of their future interests, to engage in present-day deliberations among residents of a Japanese town. Through an analysis, it is seen that the deliberations among IFGs raise interest in issues that are related to common fundamental needs across generations. While the cognitive aspects of interpersonal reactivity, which measures reactions of one individual to the observed experiences of another, are seen as useful in arguing for the interests of future generations, it is suggested that the environment for deliberation has a significant impact on the ability to effectively take on the role of members of future generations. Finally, this paper positions IFGs within the broad context of general rules for good decision making, based on an analysis of these deliberations and in light of philosophical arguments such as the veil of ignorance.

Keywords: Future Design; Imaginary Future Generations; deliberations; general rules for good decision making

JEL classification: D02, Q01, Q56

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1. Introduction

In public decisions that have long-term consequences such as those addressing global warming and long-term fiscal policies, decisions of the present generation will affect long-term welfare, including that of future generations. However, only the present generation can participate in such decision-making processes, and it is often the case for the present generation to increase their own welfare at the cost of future generations. In global warming, we face difficulties in reaching to a meaningful agreement to curve atmospheric level of carbon dioxide. To address this problem, Anderson [3] suggested the idea of negotiating between generations. Saijo [1,2] proposed "Future Design"(FD), more specifically, inviting "Imaginary Future Generations" (IFGs), who pretend to be the future generations and express intentions of the future, to participate in present-day deliberations. These studies discuss that an individual will achieve *futurability* when he/she experiences an increase in satisfaction as a result of deciding and acting to forego current benefits in order to enrich future generations. Previous research has demonstrated that incorporating IFGs into discussions of issues that will have future impact is an effective way to overcome shortsighted decision-making. In the first lab-scale experiment, groups that included an IFG demonstrated the capacity to make judgments and decisions that opted to leave resources for future generations, even if that meant reducing the remuneration that the group itself would realize (Kamijo et al. [4]).

How is participating in a deliberation as an IFG different from participating in an ordinary deliberation? According to Hara et al. [5], based on observations of deliberation in Town Yahaba, Japan, in the deliberation of the present generation, discussions tend to focus on the current state of the town and unmet needs. They tend to give the highest priority to the urgent and important policy issues challenging the present generation, such as "economic development" and the "wealth gap." In deliberations among IFGs, in contrast, higher priority is given to policy issues that take longer to resolve such as global environmental problems. Nakagawa et al. [6] conducted interviews with two subjects who had active statements as IFGs during the deliberation in Town Yahaba. In the interview transcript, they arranged psychologically relevant statements and clarified that there were four themes in the subjects' statements: 1) jumping back and forth to shake off present concerns, 2) treating the imagined world as real, 3) recognizing the present generation's actions as a prerequisite for the happiness of the future, and 4) perceiving the coexistence of conflicting identities of the present and the future.

Hara et al. [7] reported separate deliberations from Hara et al. [5] in Town Yahaba. The three-stage deliberation, 1) ordinary deliberation as the present generation, 2)

deliberation as IFGs, and 3) deliberation without specifying any (the subjects were asked to leave the reason for their decisions to the future generations), was implemented afresh. In the survey after the third deliberation, the subjects were asked to provide answers in five steps to the following prompts:[6] "In today's debate, I thought about things from the standpoint of people living now," and "In today's debate, I thought about things from the standpoint of the future generations." There was a positive correlation between the answers to both questions. This suggests that the subjects were thinking from the perspectives of both the current and the future generations simultaneously. Hara et al. [7] proposed the concept of "viewpoint sharing" from this finding. A high degree of viewpoint sharing can activate *futurability*, which can pave the way for consideration for future generations. Nakagawa & Saijo [8] found that metacognition was active during their workshops, concerning the two cognitions which were governed by the present and future selves.

Those instructed to become future generations are expected to look back on the present from the future and to consider the decisions that are desirable now. Looking back and evaluating the present from the future through a typological remark "I'm glad I did XX 30 years ago (the present) / I regret making a decision XX" (retrospective assessment) was expected. Anderson et al. [9] found that in considering the impact of the present decision on the future, it is useful to first look at past decisions and take steps to consider how they have affected the present. Nakagawa et al. [10] and Nakagawa et al. [11] asked their subjects to look at past decisions by reading old newspapers and selecting decisions that would affect the future. These studies conducted experiments (the former focused on national and local fiscal policies, and the latter on forest policies in Kochi Prefecture), and reported that consulting past decisions encourages consideration for future generations[7].

In this paper, we report on new deliberations in Town Yahaba. The following issues are addressed through reporting.

Issue 1: To comprehensively understand the characteristics of deliberation as IFGs that previous research has revealed

In this paper, we understood the characteristics of deliberation using two methods. The first aims to present the overall characteristics of group deliberation through text mining techniques of transcripts. The second focuses on individual subjects in which coders,

[6] 1. Totally disagree, 2. Disagree, 3. Neither agree nor disagree, 4. Agree, and 5. Very much agree.

[7] They called their retrospective assessment "past design".

independent of the experimenter, read the transcript and determine the characteristics of the subject's speech. We combine both methods to understand the characteristics of the deliberation of future generations comprehensively.

Issue 2: To consider conditions that are advantageous for exhibiting the characteristics of IFGs.

In this paper, psychological scales and attributes of subjects were collected through surveys. By comparing the result of this survey with the judgment of the coders as described in **Issue 1**, conditions that are advantageous for exhibiting the characteristics as future generations are examined. Does one's personality affect their performance as an IFG? Can anyone be an IFG based on how the deliberation settings are set?

Issue 3: To position the functions of IFGs in general rules for good decision making.

Rawls [12], in the original position beyond the veil of ignorance, presented a means of agreeing upon two principles of justice independently of individual interests. Becoming an IFG seems to have something in common with Rawls' [12] argument. However, in what sense? Based on considerations in **Issue 1**, the functions of IFGs will be placed in the broad context of general rules for good decision making.

2. Materials and methods - the setting for the deliberations

The deliberation was held on May 28, 2018 in Yahaba Town, which has a population of about 2,800 (2015, Census report). It is located in Iwate Prefecture, in the northeastern region of Japan. It is an old village with paddy fields, and a commuter town situated on the outskirts of Morioka City, the capital of the Prefecture. In line with Japan's nationwide trend, the population in the town is also aging. The aging rate of the population (the percentage of the population aged 65 years and over) was 23.6% in 2015 and will continue to rise. The National Institute for Population and Social Security Research has projected that the population will decline to around 2,400 in 2045. It is big event for the town that the Iwate Medical Collage Hospital was set to move from Morioka City in the fall of 2019. Along with this, facilities were developed to accommodate hospitals, including the construction of an interchange that can climb up and down the expressway, extending from Morioka City.

A total of 30 people participated in the deliberations, including 22 publicly invited residents, 4 town hall officials, and 4 officials from the Ministry of Finance. Approximately 45 % of subjects are female. The percentage of subjects younger than 40 and older than

60 are around 45% and 35 %, respectively[8]. In the beginning, the Yahaba Town Office explained the town's ideas for formulating a comprehensive administration plan, which is the issue to be discussed among the people. As background information, the national government briefed them on Yahaba Town's financial situation as well as the national and global issues including population aging and climate change. After that, five or six inhabitants, one town hall staff member, and one national staff member were formed as a unit to form four groups, separated into different rooms. The subjects discussed twice with the same members for issues to be raised in the comprehensive plan. In the first session (Part 1), everyone was treated as part of the present generation and discussions were held for about 60 minutes. In the second session (Part 2), all subjects were instructed to become IFGs from 2048, and views were exchanged for about 60 minutes. In Part 2, the subjects received the following instructions: "As a resident of the same age, gender, and other social statuses in 2048, imagine what policies you would like the town to work on. From the perspective of humans in 2048, think about what the comprehensive administrative plan should look like." We asked town and government officials to participate in the deliberations with the same perspective as that of the residents. In each group, a town official (separate from the town officials participating in the deliberation) facilitated the discussion. Another town official worked as a secretary and wrote down the subjects' opinions on a white board.

Finally, the subjects answered the questionnaire. They were asked about the recognition of what was discussed in the deliberation and thoughts on Yahaba Town (Q1-3), Interpersonal Reactivity (Q4), Critical Thinking (Q5), and Generativity (Q6) in addition to information on their basic attributes (Q7).

Table 1 summarizes the psychological scales tested and basic attributes surveyed. Interpersonal Reactivity (IRI-J) is an index by Davis [13] and Himichi et al. [14] that measures reactions of one individual to the observed experiences of another. It consists of four factors: Perspective Taking, Fantasy Scale, Empathic Concern, and Personal Distress. It is hypothesized that the higher the Interpersonal Reactivity, the easier it is to make a statement from the perspective of future generations. Critical Thinking, according to Hirayama and Kusumi [14], is a form of reflective thinking that consciously examines one's inference process. Hirayama and Kusumi [15] divided Critical Thinking into four sub-items: awareness of logical thinking, inquiry, objectivity, and emphasis on evidence. We focused only on awareness of logical thinking. Those strongly disposed toward Critical

[8] Of the 30 participants who attended the deliberation, 28 responded to the survey because of time constraints.

Thinking are expected to be more successful in putting aside their a priori perspectives and open mindedly asses views of future generations. Generativity is a concept introduced by Erikson [16] and refer to concern for establishing and guiding　the next generation. It is an indicator that measures the nature of being actively involved in the act of creating value for the next generation. In this paper, based on the test in MacAdams et al. [17], the subjects were asked such questions as “Have you taught somebody a skill?” and “Have you served as a role model for a young person?” Nakagawa et al. [10] found that those who have higher Critical Thinking (awareness of logical thinking) or higher Generativity are more likely to make future-oriented choices. With regard to basic attributes, consideration for the future may decrease with age. Nakagawa et al. [10] reported that younger people were more likely to choose fiscal policies that take future generations into account. Public Service means that the subject was town or government officials. In the discussion, the officials were asked to speak freely from their positions in the offices. However, in their careers they were trained to be public-spirited. Mill [18] pointed out that offering people roles in public service would enhance their public spirit and named the function of the public roles “school of public spirit”[9]. We hypothesize that the officials will play greater role of future generations.

For IRI-J, Critical Thinking (awareness of logical thinking) and Generativity, factor analysis was performed. Since IRI-J assumes four factors, factor analysis was performed to determine whether each subscale indicates one factor. As a result of factor analysis, one item was excluded from Perspective Taking[10],two items from Fantasy Scale[11], and two from Personal Distress[12] and subscales were synthesized with other items (Reliability coefficient of each scale: Perspective Taking, α=0.50; Fantasy Scale, α=0.55; Empathic Concern, α=0.52;, Personal Distress, α=0.80). All items for Critical Thinking and Generativity were used.

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[9] “Still more salutary is the moral part of the instruction afforded by the participation of the private citizen, if even rarely, in public functions. He is called upon, while so engaged, to weigh interests not his own; to be guided, in case of conflicting claims, by another rule than his private partialities; to apply, at every turn, principles and maxims which have for their reason of existence the general good; and he usually finds associated with him in the same work minds more familiarized than his own with these ideas and operations, whose study it will be to supply reasons to his understanding, and stimulation to his feeling for the general interest. He is made to feel himself one of the public, and whatever is their interest to be his interest.” Mill [18] (p. 49).

[10] “I believe that there are two sides to every question and try to look at both.”

[11] “I really get involved with the feelings of the characters in a novel” and “Becoming extremely involved in a good book or movie is somewhat rare for me.”

[12] “In emergency situations, I feel apprehensive and ill-at-ease” and “When I see someone get hurt, I tend to remain calm.”

Table 1: Summary of the psychological scales tested and basic attributes surveyed

Scales /attributes	References	Descriptions of measure	Previous studies /hypotheses
Interpersonal Reactivity (IRI-J)	Davis [13], Himichi et al. [14]	Reactions of one individual to the observed experiences of another. 1. Perspective Taking – The tendency to spontaneously adopt the psychological viewpoints of others 2. Fantasy Scale– Taps respondents' tendencies to transpose themselves imaginatively into the feelings and actions of fictitious characters in books, movies, and plays 3. Empathic Concern – Assesses "other-oriented" feelings of sympathy and concern for unfortunate others 4. Personal Distress – Measures "self-oriented" feelings of personal anxiety and unease in tense interpersonal settings	The higher Interpersonal Reactivity, the easier it is to make statements from the perspective of future generations. (a hypothesis)
Critical Thinking	Hirayama & Kusumi [15]	Reflective thinking that consciously examines his or her reasoning process. One of the sub-items is "Awareness of logical thinking," which expresses confidence in thinking (the sub-item is shown in **Appendix A**)	The higher the Critical Thinking ability, the easier it is to make future-oriented choices. (Nakagawa et al. [10])
Generativity	MacAdams et al. [17]	The nature of being actively involved in actions that create value for the next generation	The higher the Generativity, the easier it is to make future-oriented choices. (Nakagawa et al., [10])
gender	-	-	-
age	-	-	Younger people were more likely to make future-oriented choices. (Nakagawa et al., [10])
Public Service	Mill [18]	Town or government officials	Officials play greater role of future generations. (a hypothesis)

3. Results and discussion

3.1 Understanding the characteristics of deliberations as IFGs

3.1.1 Understanding the overall characteristics of deliberations

Issue 1 focuses on the characteristics of deliberations. In this paper, these

characteristics are understood using two methods. The first aimed to understand the overall characteristics through text mining techniques of the transcripts. The transcripts are divided into Parts 1 and 2, and each group (ABCD) and its characteristics are grasped. One utterance of a speaker is defined as a paragraph, which is used as a unit of analysis[13]. The transcript is mechanically divided into six paragraphs (six utterances) in order from the front, and each is called a "section." By understanding the details in each section, transitions in the discussions according to progress made are revealed. KH Coder (Higuchi, [19]) was used to create coding rules for verbatim transcripts and to analyze the contents of the deliberations[14].

The coding rules are as seen in **Table 2**. "Future" is a code that expresses deliberations on the future, of which "30 years later" and "2048" are words used in the instructions in Part 2. "30 years ago" contains words that are expected to be used in retrospective assessment. "Traffic" comprises words related to traffic and words representing specific modes of transportation. "Facility" comprises words related to facilities and words representing specific facilities. "New and old residents" pertain to the relationship between new and old residents. "Culture" comprises words related to culture and artistic activities. "Landscape/environment" comprises words related to landscape and environment. The landscape includes concrete scenery such as Nanchang Mountain, and the environment excludes elements related to the living environment such as the child-raising environment. "Disaster prevention" includes words pertaining to disaster prevention and safety, and safety excludes traffic safety. "Agriculture" is related to agriculture and includes specific crops. "Generation exchange/festival" comprises words related to exchanges and connections between generations and festivals in which residents gather. When words related to the elderly/youth/child coexist in the same utterance (paragraph), it is counted as corresponding to the code. The term "new technology" comprises words related to new technologies, and includes words related to technologies that have become more popular, such as the Internet, considering that discussions are conducted by local residents. "Foreign" comprises words related to foreign countries. The term "elderly/depopulated" includes words on the elderly and depopulated, as well as words on related issues such as lonely death. "Child/Childcare" comprises words

[13] Each paragraph consists of multiple sentences or a single sentence.
[14] Nakagawa [20], in his FD workshops in an anonymous town, visualized the group deliberation processes by extending the technique of cognitive mapping. The technique is useful to show the details of the processes, however the use of coding rules, adopted in this paper, has an advantage of grasping what were discussed in the deliberations comprehensively.

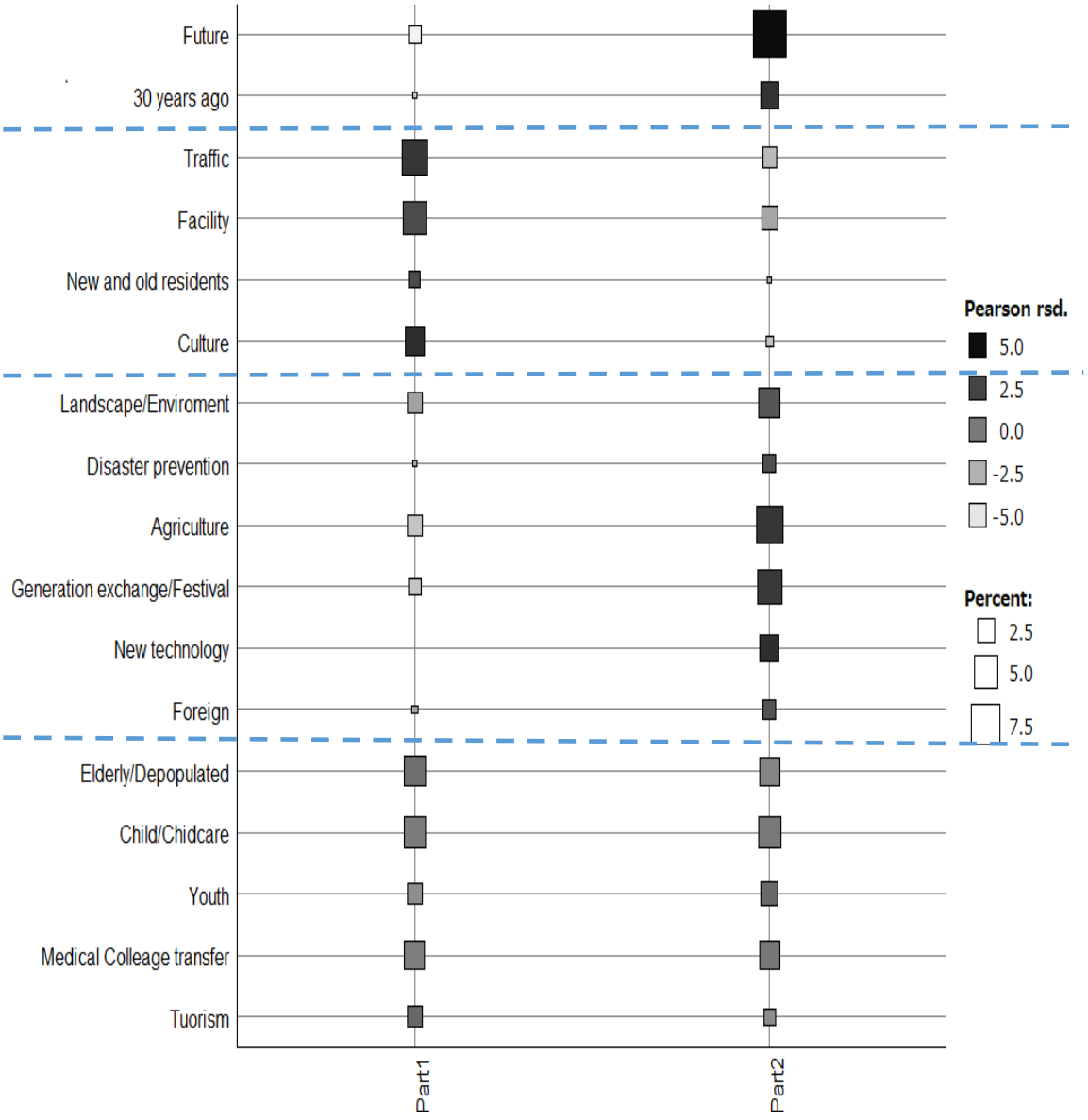
that represent children up to junior high school and words pertaining to childcare. “Youth” refers to young people who are older than the high school age. “Medical College transfer” comprises words pertaining to transfer of Iwate Medical College Hospital. “Tourism” comprises words pertaining to tourism.

Table 2: Coding rules

Codes	Rules (examples)
Future	the future, 30 years later, 2048
30 years ago	30 years ago, now 2048, at that time
Traffic	traffic, undercarriage, car, bus, taxi
Facility	facilities, construction, playgrounds, shops, roads, pools
New and old residents	new residents, old residents, unfamiliar
Culture	culture, art, music, traditional performing arts, dance
Landscape / Environment	landscape, Nanchang Mountain, townscape, environment (excluding “living environment”), forest, green
Disaster prevention	disaster prevention, disaster, typhoon, Nankai Trough, safety (excluding “traffic safety”)
Agriculture	agriculture, farms, paddy fields, rice, vegetables, strawberries, zucchini
Generation Exchange / Festival	generation exchange / connection, appearance of the elderly / youth / child in the same paragraph, festival
New technology	electric vehicle, automatic driving, automatic translation, Internet
Foreign	foreign, US, North Korea, overseas aid, refugees
Elderly / Depopulated	elderly people, depopulation, lonely death, social worker, unoccupied houses
Child / Childcare	child, preschooler, nursery school, elementary school, junior high school, childcare, education
Youth	youth, high school, university
Medical College transfer	Medical College, smart inter, hospital, medical, pharmacy
Tourism	tourism, guide, public relations, sunflower

Figure 1 presents the results of analyzing the characteristics of the deliberations in Part 1 (present generation) and Part 2 (future generation) by using the coding rules for Groups A to D.

Figure 1: Contents of deliberations in Parts 1 and 2 (Groups A to D)



Note 1) The chi-square values and significance levels are as follows. Future (58.7**), 30 years ago (22.4**), Traffic (18.5**), Facility (8.5**), New and old residents (7.2 **), Culture (22.0**), Landscape/Environment (6.7**), Disaster prevention (7.9**), Agriculture (21.7**), Generation exchange/Festival (20.3**), New Technology (26.0**), Foreign (6.0*), Elderly/Depopulated (0.3), Child/Childcare (0.0), Youth (0.1), Medical College transfer (0.0), Tourism (1.0).

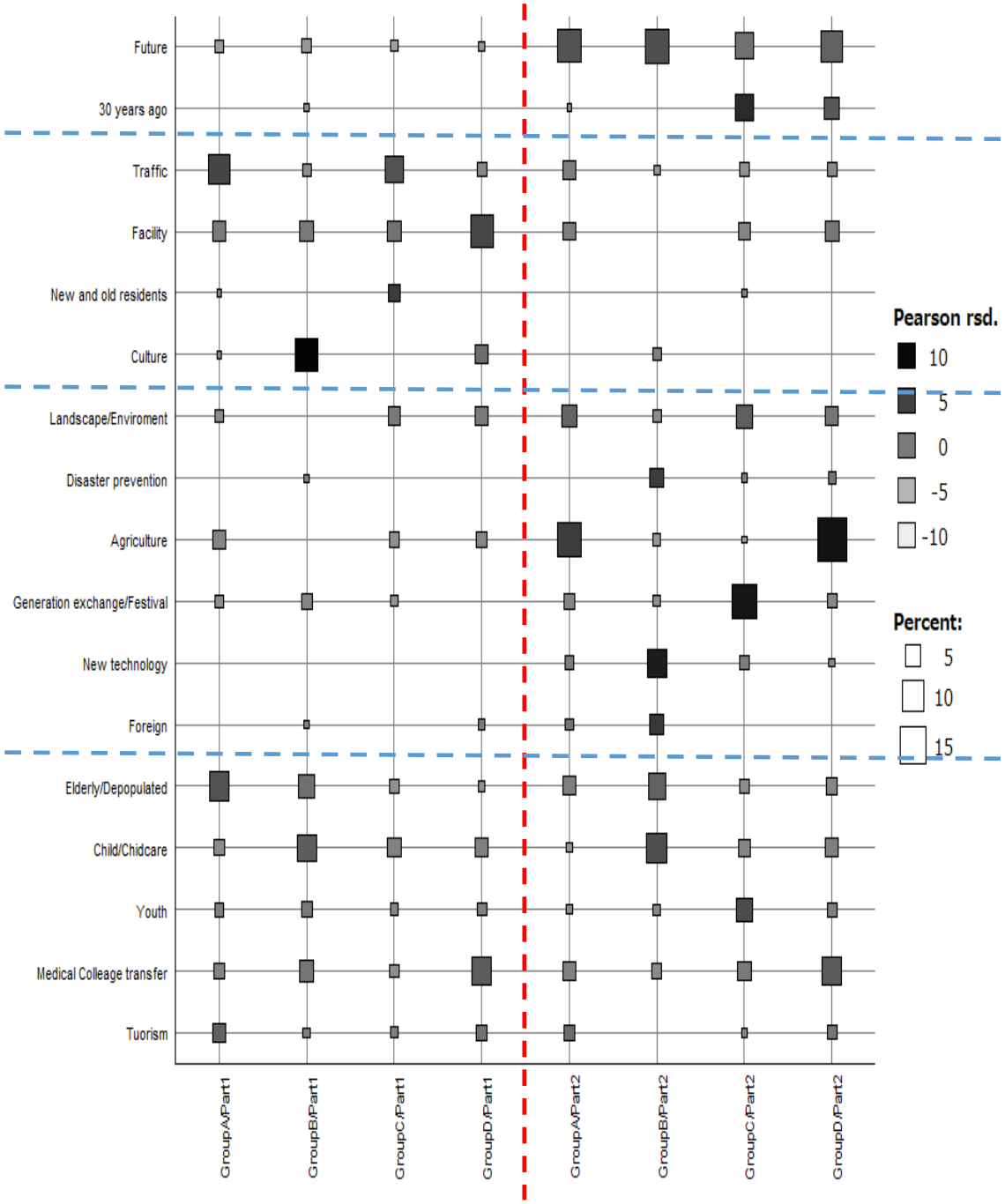
Note 2) ** p <.001, * p <.005.

Here, the sizes of the squares indicate the proportion (percentage) of the paragraphs corresponding to each code in Parts 1 and 2. As a corollary, “Future” is more common in Part 2. The code “30 years ago,” which represents retrospective assessment, has been significantly observed in Part 2. The codes that characterize the present generation's deliberations (Part 1) are “Traffic,” “Facility,” “New and old residents,” and “Culture.” The codes that characterize the deliberation of future generations (Part 2) are “Landscape/environment,” “Disaster prevention,” “Agriculture,” “Generation exchange/Festival, ” “New technology,” and “Foreign.” “Elderly/Depopulated,” “Child/Childcare,” “Youth,” “Medical College transfer,” and “Tourism” have been addressed in the deliberations. There was no difference between Parts 1 and 2.

Figure 2 shows the results of performing the same analysis as in **Figure 1** for each group. The unit of analysis remains a paragraph.

From **Figure 2**, it is possible to read the bias in the topic by group. “Traffic” appears frequently in Part 1 in Groups A and C, “Facility” appears in Part 1 in Group D, and “culture” appears in Part 1 in Group B. “Landscape/Environment” is seen in Part 2 in Group C, “Disaster prevention” is in Part 2 in Group B, “Agriculture” is in Part 2 in Group A/D, “New technology” and “Foreign” are in Part 2 in Group B. The code for “Future” appears commonly in Groups A to D, while the code for “30 years ago” appears in Groups C and D, especially in Group C. It has been suggested that instructing future generations does not necessarily result in retrospective assessment.

Figure 2: Contents of deliberations in Parts 1 and 2 (by group)



Note 1) The chi-square values and significance levels are as follows. Future (67.2**), 30 years ago (78.4**), Traffic (51.4**), Facility (32.0**), New and old residents (37.1**), Culture (32.7**), Landscape/Environment (20.6**), Disaster prevention (36.8**), Agriculture (51.9**), Generation exchange/Festival (98.6**), New Technology (83.5**), Foreign (42.9**), Elderly/Depopulated (29.0**), Child/Childcare (32.5**), Youth (22.0**), Medical College transfer (21.3**), Tourism (13.8).

Note 2) ** p <.001, * p <.005.

Figure 3 is the result of an analysis for each section in Group C, which shows the transition of topics according to the progress of the deliberations in the group. The horizontal axis represents the progress of sections. From the left hand side, Sections 1 to 47 of Part 1 and Sections 1 to 54 of Part 2 is shown in the figure (The progress of deliberations in Groups A, B, and D are presented in the section titled "**Appendix B, C, and D**").

In the deliberations of Part 2 in Group C, it can be seen that "Generational exchange/Festival" and "Landscape/Environment" appear alternately. "Generation exchange/Festival" includes a proposal wherein students of Iwate Medical College and residents interact at events such as *Yosakoi* (Japanese dance). "Landscape / Environment" includes remarks that addressed how they could enjoy the scenery in Nanchang Mountain because they did not have any tall buildings 30 years ago (i.e., now). An important point to be noted from **Figure 3** is that the code for retrospective assessment, namely "30 years ago," first appeared in Section 10 in Part 2, and has been continuously observed since then. This suggests that some turning point may have existed near this section in the appearance of the code. The turning point can be understood from a transcript near Section 10. Here, subjects 23 pointed out the importance of communications between newly invited college students and residents.

(Subject 23) "... If 30 years later, when I am here, if college students and townsmen are separated, I will feel a bit sad, so I hope to make warm relationship now. If you do something more and more to promote communications, it will make the town better for newcomers, and it is good for those who are originally there too."

(Secretary) "Everybody, it is now 2048, so now is 30 years from now."

(Facilitator) "I should have done it 30 years ago."

(Secretary) "Yeah, yeah, if I had been doing it for 30 years, it would be growing now!"

(Subject 18) "Thirty years ago, I did not build tall buildings, I did not touch it, so the mountain remains!"

(Facilitator) "You are talking well now."

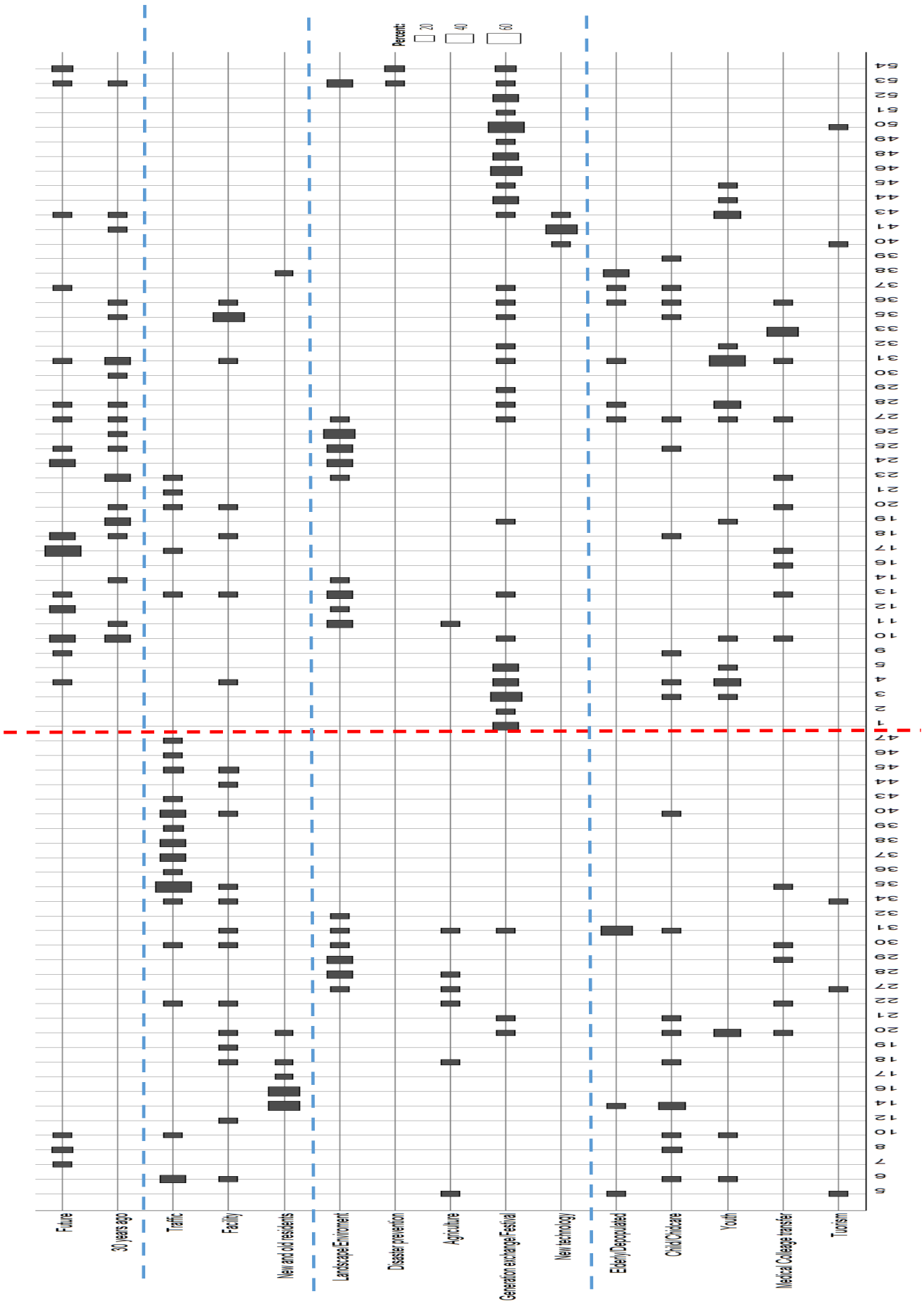


Figure 3: Deliberation process in Group C (changes in each section)

With this exchange, remarks of the type “I am glad I did XX 30 years ago (i.e., the present) / I regret having decided XX” continued. The remarks that came out were: 1) The mountain remained because we did not build buildings 30 years ago, 2) We built a transportation facility that can be used easily, so we can go to the town center and the hospital, 3) As we had provided a place to talk beyond generations, there were no lonely deaths, 4) We left behind some ground from a former junior high school as a festival venue, so there is still some space left for events, 5) We created workplaces for young people 30 years ago, so there are young people in town, 6) Thanks to the construction of a sports ground for the elderly 30 years ago, they can still exercise well, 7) We made a child-raising facility 30 years ago, so the town did not just get old, and 8) It was good that disaster prevention and building reinforcement measures were taken 30 years ago.

3.1.2 Judgment of individual subject’s statements by coders.

Another approach toward characterizing the deliberations is to have independent coders read the transcripts and make judgments on the characteristics of each subject's speech. We hired three college students, all unrelated to this study. The coders were asked to determine whether the following three features were found in the statement of each subject in each Part.

Feature 1 (statements from the current state):

Speaking from the current state / speaking from unmet needs

Feature 2 (relationship with the future):

Make statements with at least two of the following four characteristics:

-Statements jumping back and forth to shake off present concerns.

-Statements treating the imagined world as real.

-Statements recognizing the present generation’s actions as a prerequisite for the happiness of the future.

-Statements perceiving the coexistence of two conflicting identities of the present and the future.

Feature 3 (retrospective assessment):

Making statements that assess the present from the future, such as "I'm glad I did XX 30 years ago (i.e., the present) / I regret having decided XX."

Hara et al. [5] identified Feature 1 as a feature of deliberations in the present generation. Feature 2 can be called as a "relationship with the future." It was taken from Nakagawa et al. [6], which analyzed the characteristics of statements obtained by interviewing those who made remarkable statements as part of the future generation. Feature 2 has four properties, however considering the limited time for discussion, it was requested to judge positive if not all four properties but two or more of the four were observed in each subject's speech. A judgment of retrospective assessment was necessary for Feature 3 based on the presence or absence of typical statements. The sums of the number of coders who made positive judgement for each Feature is set as a score (3, 2, 1, 0 points) of each subject.

Table 3 summarizes the judgment by the coders. In Part 1 (present generation), Feature 1 (statement from the current state) appeared in most subjects. Remarks from the current state or from unmet needs are dominant. Features 2 (relationship with the future) and 3 (retrospective assessment) are (almost) not seen. It seems that the subjects requested the town for policies based on their immediate awareness of the problem, and their request was not spread over time. On the other hand, in Part 2 (future generation), although Feature 1 (statement from the current state) was continuously observed, its presence was declining. Instead, Feature 2 (relationship with the future) is seen in each group. Although Feature 3 (retrospective assessment) was also observed, it was intensively observed in specific groups (especially Group C, then Group D). When the difference between the averages of the scores of Features 1, 2, and 3 was tested between Parts 1 and 2, the difference was significant.

These results are consistent with the overall tendency as seen in **Figures 1** and **2**. In Part 2, it was already pointed out that the frequency of the code of the "future" had increased, and that the time horizon of the discussion had been broadened. The code "30 years ago" appeared in Groups C and D, and this is consistent with the findings by the coders of subjects with Feature 3 (retrospective assessment) in Groups C and D. Feature 1 (statement from the current state) maintained a certain presence although it is attenuated in Part 2. This fact matches the fact that codes such as "traffic" and "facility" were retreated in Part 2 in **Figures 1** and **2**. However, issues such as "Elderly / Depopulated," "Child / Child care," "Youth," and "Medical College transfer" were kept to be discussed in Part 2.

Table 3: Judgment by coders for the features of each subject

	Judgment by coders					
Subjects	Part 1 (present generation)			Part 2 (future generation)		
Group A	Feature 1	Feature 2	Feature 3	Feature 1	Feature 2	Feature 3
1	3	0	0	0	1	1
2	3	0	0	2	1	0
3	3	0	0	2	2	1
4	3	1	0	0	2	0
5	3	0	0	3	0	0
6	3	0	0	1	1	0
7	3	0	0	1	0	0
8	2	1	0	1	1	1
Group B	Feature 1	Feature 2	Feature 3	Feature 1	Feature 2	Feature 3
9	2	0	0	2	2	0
10	3	0	0	3	2	0
11	2	0	0	0	2	0
12	2	0	0	1	0	0
13	3	1	0	3	1	0
14	3	0	0	0	1	1
15	3	0	0	2	2	0
16	1	0	0	2	1	1
Group C	Feature 1	Feature 2	Feature 3	Feature 1	Feature 2	Feature 3
17	3	0	0	3	0	3
18	3	0	0	3	0	3
19	3	0	0	2	1	3
20	3	0	0	2	1	2
21	3	0	0	2	1	2
22	1	0	0	0	0	3
23	1	0	0	3	2	3
Group D	Feature 1	Feature 2	Feature 3	Feature 1	Feature 2	Feature 3
24	3	0	0	2	1	0
25	3	0	0	1	1	0
26	3	0	0	3	2	0
27	3	0	0	2	3	2
28	1	0	0	3	0	2
29	3	0	0	1	0	0
30	2	0	0	1	1	0
Average	2.57	0.1	0	1.70**	1.07**	1.16**

Note 1) The number of coders (3 to 0) judged to have the relevant feature is described. In the average column, the difference between the averages of Parts 1 and 2 is tested (** 1%, * 5%, † 10% significant).
Note 2) Feature 1: "statements from the current state," Feature 2: "relationship with the future," Feature 3: "retrospective assessment."

Table 4 shows the correlation matrix of each feature in Part 2. There is no correlation between the features. Feature 1, which is characteristic of the discussion by the present generation, does not have any conflicts with Features 2 (relationship with the future) and 3 (retrospective assessment). The absence of the correlation is consistent with the fact that the codes related to the future of "future" and "30 years ago" coexist with the codes of "Elderly/Depopulated," "Child/Childcare," "Youth," and "Medical College transfer," which also appeared in Part 1. It can be seen from **Figure 3** (or **Attachment**) that there is no conflict between the references to these issues such as the elderly and the appearance of the codes for the "future" and "30 years ago" (there is no correlation between Features 2 and 3, which will be discussed in **3.3** below.)

Table 4: Correlation matrix for each feature (Part 2)

Feature 1 (statements from the current state)	Feature 2 (relationship with the future)	Feature 3 (retrospective assessment)	
1.00	0.02	0.19	Feature 1
	1.00	-0.14	Feature 2
		1.00	Feature 3

Note) n=30 (**1%, *5%, † 10% significance) 。

3.1.3 Discussion

Instructing the subjects to discuss as future generations has expanded their temporal perspective. It is easy to understand that attention to new technologies has gained strength. Increased references to foreign countries suggest that expanding the temporal perspective is accompanied by expanding the geographic perspective. Retrospectives assessment did not always occur in discussions among the future generations (**Figure 2**). The progress of deliberations in Group C suggests that in the appearance of retrospective assessment, there was a turning point in which the subjects learned the type of utterance (**Figure 3**).

Whereas there are topics that are characteristic of deliberations as the present generation, there are also those that are characteristic of deliberations as future generations. Some topics were consistently taken up by both the present and future generations (**Figures 1, 2, and 3**). The present generation discussed complaints on public transport such as community buses, which will be abolished soon, and familiar requests for the development of specific facilities such as playgrounds, shops, roads, and pools. The future generations deliberated on topics such as landscape/environment, disaster prevention, agriculture, generational exchange/festival, which can be summarized as

issues pertaining to common basic needs across generations. Landscape and environment constitute the basic living environment that the townspeople of the present and the future enjoy in common. Disaster prevention is the basis of survival for all generations. Agriculture concerns the basic human need for food, and also the basis of life for Yahaba, a rural area. Generational exchange is a joint effort to address the challenges of each generation, and festivals are opportunities for various members of the community to meet face-to-face and share time and place. Finally, there are topics that were consistently mentioned in the discussions of the present and future generations, such as the elderly, depopulation, and childcare. These issues were already clearly recognized as issues, and are expected to continue to remain issues in the future.

By being instructed to become future generations, subjects will come to think of these issues from perspectives that are detached from the here and now, and from "me." They move away from the immediate interests of community buses and facilities, and think about things from the perspective of time, place, and inhabitants that will continue from the present to the future. Since the importance of continuous issues such as aging will not change for future generations, Feature 1 (statements from the current state) will not disappear among future generations. On the other hand, there is a growing interest in common basic needs across generations, which were not paid attention to in the present generation, such as landscape, disaster prevention, and agriculture. In deliberations of future generations, Feature 1 (statement from the current state) and Features 2 and 3 coexist in the same subject's speech. Saijo [1,2] and Hara et al. [7] pointed out that subjects in the role of IFGs look at things from a perspective that looks at both positions of the present and the future generations. This paper traces the path to the acquisition of this bird's eye view from the change of topics covered.

There is no correlation between the appearance of Features 2 (relationship with the future) and 3 (retrospective assessment). Although both emerge in future generations' deliberations, this decorrelation suggests that they are distinct from each other. Retrospective assessment is a distinguished statement for IFGs, but it is not the only type that represents the future generation's statement. The progress of deliberations in Group C (**Figure 3**) suggests that there was a turning point in the deliberations with the advent of retrospective assessment. By learning the type of thinking that manifests "I am glad I did XX 30 years ago / I regret making a XX decision," Feature 3 can be duplicated.

3.2 Are there any conditions that are advantageous for the performance of IFGs?

3.2.1 Matching with questionnaire survey

Issue 2 focuses on conditions that are advantageous for exhibiting the characteristics as future generations. What is the relationship between the Features of each subject's remarks judged by the coders and the psychological scales and personal attributes obtained from the questionnaire survey? Regression analysis (order logit) was performed taking Perspective Taking, Fantasy Scale, Empathic Concern, Personal Distress, Critical Thinking (awareness of logical thinking), Generativity and personal attributes (gender, age, and Public Service) as explanatory variables. In Part 1, most subjects exhibited Feature 1 (statement from the current state), and Features 2 and 3 were (almost) not observed. Thus, only Part 2 was analyzed.

Table 5 shows the results.

Table 5: Regression analysis with coder judgments as the objective variables (order logit)

	Part 2 Feature 1 (statements from the current state)				Part 2 Feature 2 (relationship with the future)					
	Model 1		Model 2 (stepwise)		Model 3		Model 4 (stepwise)		Model 5 (with deliberation environment)	
	coef.	p	coef.	p	coef.	p	coef.	p	coef.	p
Perspective Taking	-1.29	0.16	-1.20	0.11	1.27	0.16	1.36†	0.07	1.49†	0.06
Fantasy Scale	-0.51	0.54			0.81	0.30				
Empathic Concern	1.40	0.32			0.47	0.74				
Personal Distress	0.46	0.57			-0.87	0.27				
Critical Thinking	1.04	0.39	1.19	0.14	-1.36	0.25	-0.56	0.49		
Generativity	0.00	0.88			-0.01	0.75				
Gender	0.60	0.53	1.12	0.14	-0.33	0.74				
Age	0.00	0.99			0.01	0.88	0.02	0.37	0.20	0.31
Public Service	-0.37	0.83			-0.81	0.65				
Deliberation Environment	—	—	—	—	—	—	—	—	-4.99	0.23
AIC	84.7		75.7		77.9		69.4		70.1	

Part 2 Feature 3 (retrospective assessment)						
Model 6		Model 7 (stepwise)		Model 8 (with deliberation environment)		
coef.	p	coef.	p	coef.	p	
-3.00†	0.09	-2.76*	0.04	-2.00	0.13	Perspective Taking
0.46	0.67					Fantasy Scale
-6.00*	0.02	-5.89*	0.02	-4.63*	0.02	Empathic Concern
-0.04	0.97					Personal Distress
6.16†	0.06	6.39*	0.04			Critical Thinking
0.09*	0.04	0.07*	0.05	0.12*	0.02	Generativity
1.95	0.14			4.00*	0.02	Gender
-0.19*	0.02	-0.20**	0.01			Age
-4.66†	0.07	-5.80*	0.01			Public Service
—	—	—	—	10.10**	0.00	Deliberation Environment
60.1		56.9		39.5		AIC

Note 1) n=28 (**1%, *5%, † 10%significance).

Note 2) Details of each variable. For Perspective Taking, Fantasy Scale, Empathic Concern, Personal Distress, and Critical Thinking, the average value of the answers "1. Not at all to 5. Very applicable" after correcting the reversal items. Regarding Generativity, the average value of the respondents who answered that they performed a certain action in the past year "0. Not at all – 2. more than twice." Gender (0 = male, 1 = female). age (18-30=24, 31-39=35, 40-49=45, 50-59=55, 60-69=65, 70 or older=75). Public Service (0=non-officials, 1=town or government officials). The deliberation environment indicates how much a certain subject was exposed to each characteristic exhibited by another subject. It is calculated by (total score of each feature of all members except the subject) / (3 × (number of members of the group - 1)) (0 or more, 1 or less).

Models 1, 3, and 6 are the results of multiple regression analysis using all the explanatory variables, and Models 1, 2, and 7 are obtained by processing these stepwise. From Model 2, we could not find any relationship between the psychological scale and the personal attributes for Feature 1 (statements from the current state). According to Model 4, for Feature 2 (relationship with the future), the coefficient of Perspective Taking is positive and significant. According to Model 7, for Feature 3 (retrospective assessment), the coefficients of Perspective Taking, Empathic Concern, age, and Public Service are negative and significant, and the coefficients for Critical Thinking, and Generativity are positive.

We found that during the deliberation process, there was a turning point that activated Feature 3 (retrospective assessment). As an explanatory variable for examining the influence of such an environment, the "deliberation environment" was considered. The deliberation environment was calculated by (a total score of each feature of all members except the subject) / (3 × (number of members of the group - 1)). This index indicates how much of the subject in the group, other than the subject, has exhibited either Feature 2 or 3. The score is higher (0 or more and 1 or less) as the subjects other than the person exhibit the feature. When this deliberation environment was included in the model and regression was performed, the coefficient for the deliberation environment for Feature 2 was not significant, while the coefficient for Perspective Taking was still positive and significant (Model 5). On the other hand, when the deliberation environment is included for Feature 3, the coefficient of the environment was positive and significant, the coefficient of Empathic Concern was negative, and the coefficients of Generativity and gender (female) were positive. The significance of Perspective Taking, age, and Public Service were lost (Model 8).

3.2.2 Discussion

The coefficient of Perspective Taking for Feature 2 (relationship with the future) is positive. The coefficient of Empathic Concern is negative, and the coefficients of Generativity and gender (female) are positive for Feature 3 (retrospective assessment). In Feature 3, the coefficient of the deliberation environment is positive, which is consistent with the existence of a turning point in the process suggested by the analysis in **3.1.1**.

From the indicators of the Interpersonal Reactivity Index, it can be seen that Perspective Taking, which is measured using responses to questions such as "I try to look at everybody's side of a disagreement before I make a decision," shows a tendency to spontaneously adopt the psychological perspective of others. Feature 2 includes in its

definition “statements jumping back and forth to shake off present concerns.” It seems natural that Perspective Taking has an advantageous effect on the display of Feature 2. On the other hand, the relationship between Feature 2 and Empathic Concern cannot be confirmed. Empathic Concern is measured by responses such as “I often have tender, concerned feelings for people less fortunate than me.” It is a scale of assessing “other-oriented” feelings of sympathy and concern for unfortunate others, which is closely related to helping behavior. The results of the regression analysis suggest that Feature 2 is not necessarily evoked in the context of helping behavior. When it comes to Feature 3, the relationship with Empathic Concern is rather negative. Feature 3 is not evoked from the context of the helping behavior, and the effect of Feature 3 may be suppressed in a person who is likely to arouse “other-oriented” feelings. Empathic Concern and Personal Distress measure emotional aspects, and Perspective Taking and Fantasy Scale measure cognitive aspects of Interpersonal Reactivity Index (Himichi et al. [14]). The analysis shows that the cognitive aspects of Interpersonal Reactivity play roles in deliberating as future generations, while there is no evidence that emotional aspects of helping future generations worked.

Generativity is an index that measures the nature of being actively involved in actions that create value for the next generation. In these deliberations, a positive relationship was confirmed between Generativity and Feature 3. Nakagawa et al. [10] found that those with Critical Thinking or high Generativity tended to make more future-oriented choices. The findings of this paper are consistent with Nakagawa et al. [10] in Generativity, however there is no connection with Critical Thinking. In Nakagawa et al. [10], the subjects were imposed with great cognitive load, in which they had to look back at past policy decisions, by reading old newspapers, before making fiscal policy choices. The cognitive load imposed in the deliberation in this paper is not as great as that in Nakagawa et al. [10], which may be a factor in not finding a connection with Critical Thinking.

Although a relationship with gender was suggested, no relationship was found for age with both Features 2 and 3. Consideration for the future may decrease with age. Nakagawa et al. [10] reported that younger people were more likely to choose fiscal policies that take future generations into account. Hiromitsu [21], through experimental study that made subjects choose hypothetical fiscal policy options, also confirmed that there was a tendency for older people to make short-sighted choices that postponed the burden for the future. We could not confirm concerns around decreasing consideration for the future with age. Hiromitsu [21] affirmed the existence of a decrease, but pointed out

that the degree of decrease was not as strong that among selfish individuals. Hiromitsu [21] argued that the reason that the decrease was not so strong was that the older one is, the closer they are to *nirvana* and the more likely they are to make a public judgment. In the deliberation as future generations, the subjects paid attention to the common generational issues of landscape, disaster prevention, agriculture and generational exchange. If senior subjects were instructed to become future generations, rather than stay silent, and instead focused on these issues that were common to all generations, then it is a natural consequence that there will be no relationship between age and Features 2 and 3.

With regard to Public Service, we hypothesize that officials play greater role of future generations, however no relation was found with both Features 2 and 3. Daily trainings to be public-spirited have nothing to do with playing the role of future generations. To put it the other way, it is suggested that common people performed well as IFGs.

Taken together, those with high cognitive aspects of Interpersonal Reactivity tend to make characteristic utterances in future generations, but the impact of psychological measures and attributes within the analyzed range is not necessarily definitive. In particular, Feature 3, which had a typical pattern, can be learned from the deliberation environment. This discovery has meaning in promoting the social implementation of FD. In the context of implementation, if we incorporate a mechanism that calls for "looking back at the present from the point of view of XX years ago" in advance, within the setting of the deliberations, it is possible to enhance the deliberations of future generations by encouraging Feature 3.

3.3 IFGs and general rules for good decision making

Finally, we will work on positioning IFGs in general rules for good decision making, which has been set as **Issue 3**. Becoming IFGs means detachment from the here and now, and "me," and seems to have something in common with the veil of ignorance as articulated by Rawls [12]:

> The idea of the original position is to set up a fair procedure so that any *principles* agreed to will be just. The aim is to use the notion of pure procedural justice as a basis of theory. Somehow, we must nullify the effects of specific contingencies which put men at odds and tempt them to exploit social and natural circumstances to their own advantage. Now in order to do this I assume that the parties are situated behind a veil of ignorance. *They do not know how the various alternatives will affect their own*

particular case and they are obliged to evaluate principles solely on the basis of general considerations.

It is assumed, then, that the parties do not know certain kinds of particular facts. First of all, no one knows his place in society, his class position or social status; nor does he know his fortune in the distribution of natural assets and abilities, his intelligence and strength, and the like. Nor, again, does anyone know his conception of the good, the particulars of his rational plan of life, or even the special features of his psychology such as his aversion to risk or liability to optimism or pessimism. More than this, I assume that the parties do not know the particular circumstances of their own society. That is, they do not know its economic or political situation, or the level of civilization and culture it has been able to achieve. The persons in the original position have no information as to which generation they belong. These broader restrictions on knowledge are appropriate in part because questions of social justice arise between generations as well as within them, for example, the question of the appropriate rate of capital saving and of the conservation of natural resources and the environment of nature. There is also, theoretically anyway, the question of a reasonable genetic policy. In these cases too, in order to carry through the idea of the original position, the parties must not know the contingencies that set them in opposition. *They must choose principles the consequences of which they are prepared to live with whatever generation they turn out to belong to*. (Rawls [12] (pp.118-119); *italic* by quoters).

According to Rawls, the veil of ignorance separates us from the information of who we are and makes us choose the principle of justice in the original position. The important point here is that problem-setting after detachment becomes a matter of choosing principles. The path for choosing principles from points detached from individuality is part of the general rules to follow while making good decisions. In the context of the constitutional process, at the position detached from individual circumstances (personal, regional, and sectarian interests), deliberations and decisions on highly abstract principles (basic human rights and basic principles of governance) are taken. The reconciliation of interests on a case-by-case basis takes place after the end of the constitutional process. Taking fiscal policy as an example, most must agree with the importance of sound fiscal management while choosing principles. However, if individual circumstances come into view, various means of achieving the same goal of sound finance, such as whether to reduce expenditures or increase taxes, will be separated. If a majority vote is held in this situation, the sound fiscal policy, which is originally the majority, may

be defeated by a loose-minded one because of the cracking of votes. To avoid such problems, it is conceivable to return to the constitutional process and incorporate the basic principles of sound finance into the constitution[15].

The motif of discussion at the level of the principles is shared by the IFGs. As discussed earlier (3.1), factors that are absent in the deliberations as the current generation and present in the deliberations as the future generations are discussions on topics such as landscape, disaster prevention, agriculture, and generational exchange, as well as issues related to common basic needs. By being asked to be future generations, people focus on issues that are common to all generations. To discuss common issues is to consider them from the standpoint of principles that are appropriate and commonly applied to all generations. Working on landscape and disaster prevention is choosing principles of allocating resources to the basic needs of humans, and being involved in agriculture (for many Yahaba residents) is a return to basics as humans. Intergenerational exchange is to work together on issues that are common to all generations. By deliberating as future generations, people are invited to discuss issues at the level of principles, and in this sense, FD shares a motif with the veil of ignorance[16].

What kind of principles are actually present in the deliberations by future generations? Here, the Sufficientarianism plays an important role. It was proposed by Frankfurt [24] as an alternative to egalitarianism, in which the moral significance is that everyone has enough income and wealth (not that everyone has the same income and wealth). Page [25] studied Sufficientarianism in intergenerational problems and found that each generation has to ensure that the life of the future generations does not fall below the level of basic needs (universal and objective across generations). Determining the specifics of "basic needs" is a task that still remains to be addressed. However, under Sufficientarianism, basic needs should be protected, and thus it is prohibited to make choices that have the

[15] Ishida & Oguro [22] pointed out that in such policies as fiscal consolidation, there are a lot of means to achieve a goal and that there is a possibility that votes will be broken by a majority vote. As a countermeasure, they recommended considering a voting system that is strongly set against vote splitting such as Borda voting. In contrast to their findings, our argument is that while facing similar challenges, we should separate choices of objectives from those of instruments (rather than introducing a new voting system that is immune to vote splitting).

[16] Another important philosophical study related to FD is Mackie [23], who stated that moral judgments can be universalized and listed three stages of universalization. The third step is to take account of different tastes and rival ideas, in which a person puts herself completely in the position of others and makes an effort to see things from her own and others' perspectives. At this time, Mackie [23] raised the perspective of future generations as one of the perspectives of others to be considered. IFGs can be interpreted as an attempt to find moral judgments based on principles that can be universalized between generations by proceeding to the third stage in Mackie [23], though Mackie [23] itself ended up rejecting moral universalism.

potential to devastate the future generations. The attitudes of the people who sought to be future generations in Yahaba seem to share the principle and logic of Sufficientarianism, especially in the discussion on the issues of landscape and disaster prevention. They believe that the future townsfolk should also enjoy the beauty of Nanchang Mountain. They give up the construction of tall buildings, which affect the view[17]. They believe that future townsmen should be protected from the Nankai Trough earthquake and that their public facilities should be reinforced[18].

Another principle that plays an important role is Communitarianism (e.g., Maclntyre [26]). Awareness of the fundamental needs of generations is supported by a sense of community that encompasses multiple generations. The reference to the view of Nanchang Mountain is based on the consciousness of the town, which extends beyond a single generation, symbolized by the mountain. Agriculture and festivals, which are rooted in tradition, are closely related with community. Scheffler [27] sought to place trans-individual values based on intergenerational ethics. He presented an "infertility scenario," in which no one will die prematurely, but no children will be born in the future. Here, people cannot be indifferent to the fact of infertility merely because they do not die early. Scheffler (2013) argued that apathy must be pervasive in society. The value we find is indeed really valuable only in the presence of life after death. We need to pay attention to future generations. This paper handles the policies of Town Yahaba, and although the focus is on the small community, the subjects are arguing that the town is a carrier of continuous value beyond its own.

4. Conclusions

We now draw out conclusions and identify two remaining issues. **Table 6** summarizes the key points. First, the features of the present and future generations at each deliberation are identified. Topics characteristic of the present generation are familiar problems such as transportation and facilities, and topics characteristic of future generations relate to basic needs that are common to all generations. There were also issues that were consistently addressed by the present and future generations, and these are that are expected to continue to remain issues, such as aging. There is a tendency for the present and future generations to make remarks from the current situation, but this is a natural consequence given the ongoing challenges. With respect to retrospective assessments of a standard type such as "I am glad I did XX 30 years ago / I regret making

[17] Part 2, Group C.
[18] Part 2, Group C.

a decision XX," there is a turning point in the deliberation process when it appears.

Second, while the cognitive aspects of Interpersonal Reactivity are found to be favorable conditions for exerting the features of IFGs, there is no evidence that the emotional aspects of wanting to help future generations works. On the other hand, the effects of psychological measures and attributes are not necessarily definitive. In particular, retrospective assessment can be learned from others. There is a view that consideration for the future will diminish as people grow older, but as far as the deliberations in this paper are concerned, this view is not supported.

Third, it was shown that instructing the future generations not only fulfills the detachment from individuality but also shifts the focus of deliberation to the level of principles. This is an excellent property of IFGs that follows general rules for good decision making. During the discussion as future generations, remarks based on the principles of Sufficientarianism and Communitarianism were observed.

The first of the remaining issues relates to favorable conditions for exhibiting the features of future generations. Although this study did not find a relationship between Critical Thinking and age and the features, Nakagawa et al. [10] were more positive about these aspects. It is necessary to accumulate practices and clarify who is likely to become a future person and when.

The second issue is the consideration of issues that form the basis for sharper intergenerational conflict. The deliberations in this paper handle the comprehensive administrative plan of a local government and does not necessarily imply sharp intergenerational conflicts. We found that instructing the future generations has broadened temporal perspectives and has increased interest in the basic needs of all generations, however it is an issue to be examined whether it is true in sharper conflicts of interests.

Table 6: Features of deliberations (summary)

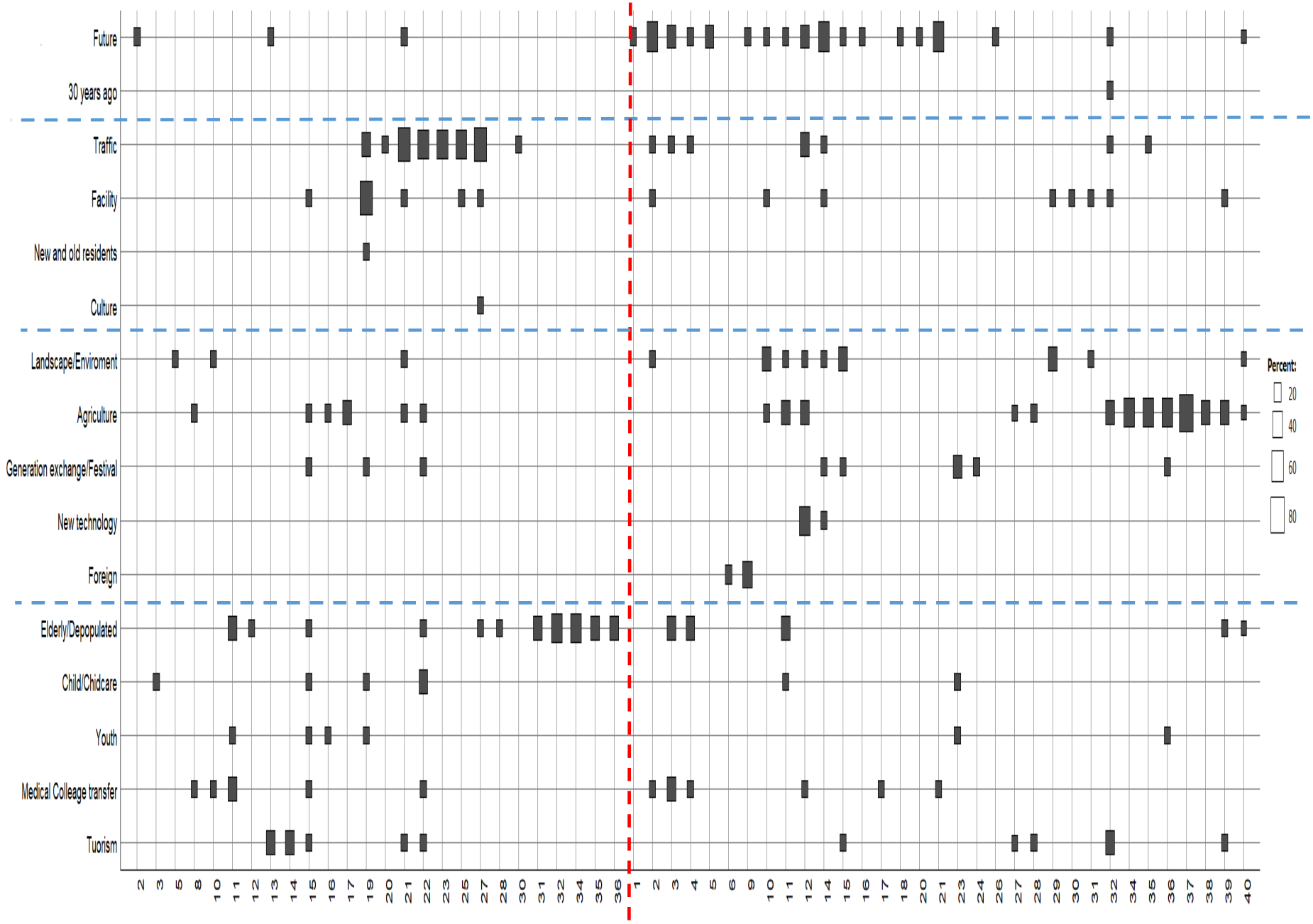
Deliberations as the present generation	Current issues (complaints, immediate requests) for example, traffic, facility, old and new residents, and culture	
	Current issue and at the same time ongoing challenges in the future for example, elderly / depopulated, child / childcare, youth, and tourism	
Deliberations as the future generations	Relationship with the future, retrospective assessment Expanding temporal and geographic perspectives Basic needs for all generations for example, landscape / environment, disaster prevention, agriculture, and generation exchange / festival	Detachment from individuality ⇒Discussions at the level of principles - Sufficientarianism - Communitarianism

Appendix A: Critical Thinking (awareness of logical thinking) disposition scale items (Hirayama & Kusumi [15])

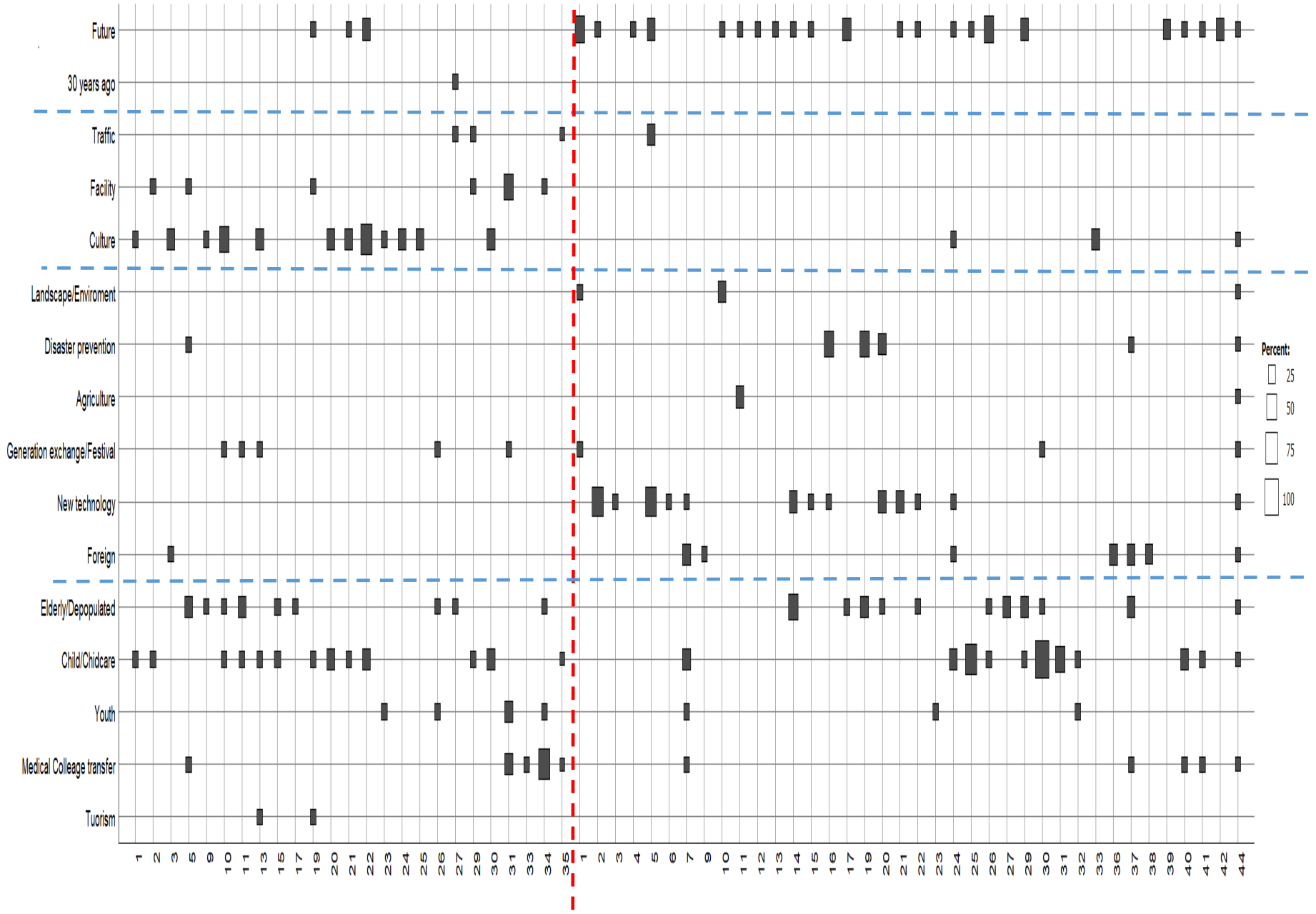
No	Item
1.	I am good at thinking about complex problems in an orderly fashion.
2.	I am good at collecting my thoughts.
3.	I am confident in thinking about things precisely.
4.	I am good at making persuasive arguments.
5.	I am confused when thinking about complex problems*
6.	I am the one to make decisions because my peers believe I can make fair judgments.
7.	I can concentrate on grappling with problems.
8.	I can continue working on a difficult problem which is not straight forward.
9.	I can think about things coherently.
10.	My shortcoming is that I am easily distracted*
11.	When I think about a solution. I cannot afford to think about other alternatives*
12.	I can inquire into things carefully.
13.	I am constructive in proposing alternatives.

Note. *: Reverse item. Items were rated from 1 = "Strongly disagree" to 5 = "Strongly agree." The theoretical range is 13–65.

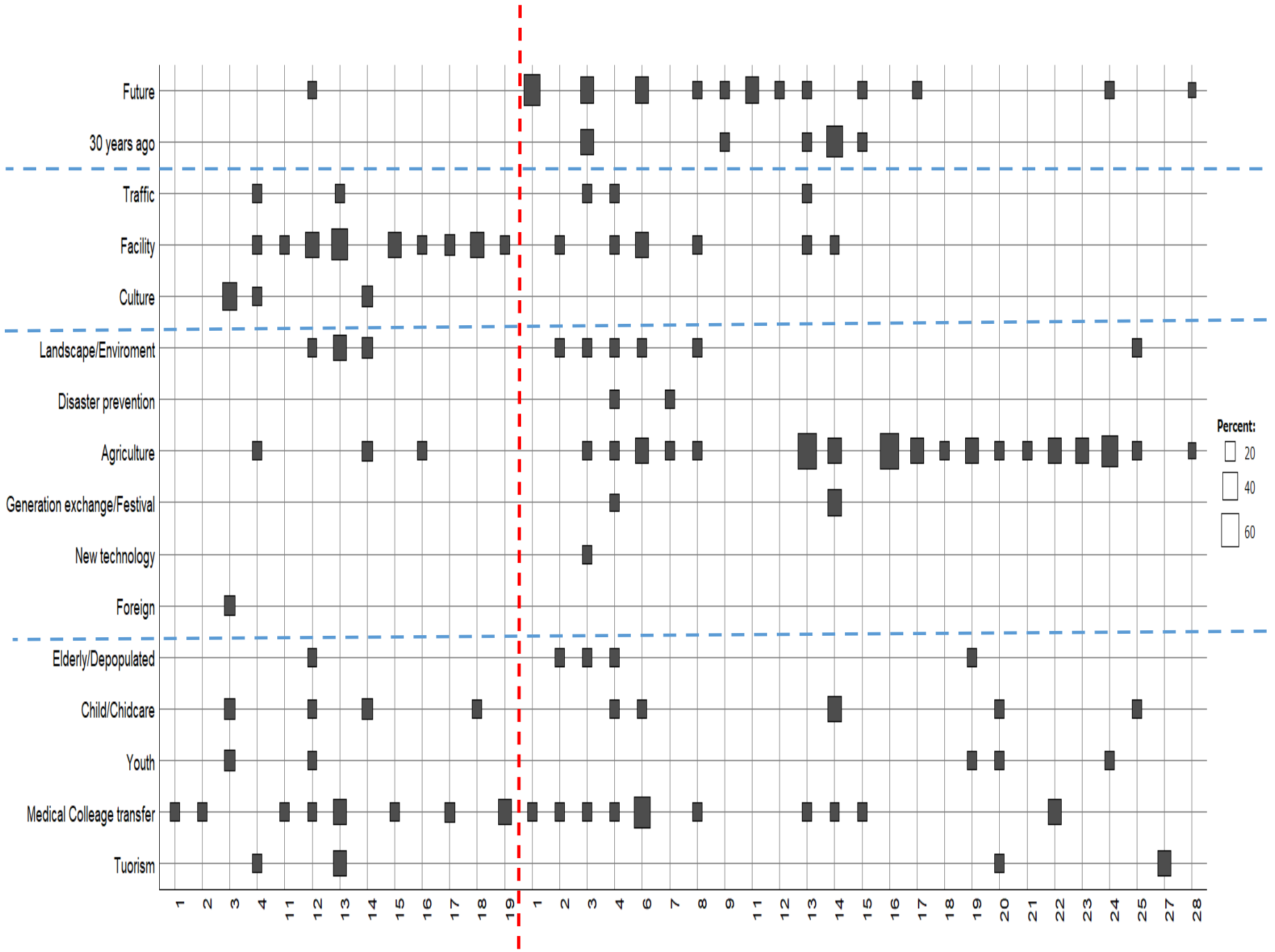
Appendix B: Deliberation process in Group A



Appendix C: Deliberation process in Group B



Appendix D: Deliberation process in Group D



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