

Impact of Future Design on Workshop Participants' Time Preferences

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Abstract: In this paper, we examine the impact of Future Design (FD) on public workshops organized in Matsumoto City, Japan, for its city hall renovation plan. We ran an FD workshop and an ordinary workshop as a control, and the participants were randomly assigned to one of the two workshops. We identified the SVO (social value orientation) type (prosocial, proself, and other,) and time preference of each participant using simple questionnaires that were independent of the context of the workshops. We found that proself individuals tend to have shorter time perspectives than prosocial individuals before workshops. While proself individuals who went through the ordinary workshop became even more myopic, we did not detect such adverse effects in the FD workshop. This contrast between the ordinary and FD workshops is consistent with the qualitative differences in the policy outcomes between the two workshops. The discussions in the ordinary workshop tended to focus on resolving today's needs, such as acquiring more rooms, more services, etc., while the discussions in the FD workshop focused on the more fundamental functions of the city hall that will be needed in the future, thereby leading to more constructive policy proposals. Such demand-based discussions in the ordinary workshop may have been a result of the growing myopia within proself participants who insisted on ensuring their current needs.

Keywords: Future Design; public participation; time preferences; social value orientation

1. Introduction

"Public participation" is a commonly adopted method of policy making particularly for local municipalities. The early stages of policy planning theory placed a large emphasis on "rationality" along with optimism, where a policy planner was intended to be strictly neutral and offer alternatives backed by scientific evidence. Conversely, the public's role was limited to advising based on values and preferences. Often, however, public workshops become fields of conflict among the relevant diverse stakeholders. Although in recent years, it has been legally required to employ public participation in government decision making in various forms of public review, citizens, agencies, and researchers are disappointed at these public participation procedures. Innes and Booher [1] noted that these procedures "do not work. They do not achieve genuine participation in planning or other decisions; ... Most often these methods discourage busy and thoughtful individuals from wasting their time going through what appear to be nothing more than rituals designed to satisfy legal requirements" (p.419). Many studies including those by Baum [2] and Hibbard and Lurie [3], as well as many public administrators have found their procedures to be problematic.

Various practical efforts have been made to cope with this difficulty. Noteworthy attempts include "Responsible Research and Innovation" (see Owen et al. [4] and Stilgoe et al. [5]), which introduced public participation to govern science and innovation as a form of social responsibility. Fitzgerald et al. [6] reported on the effectiveness of public participation in forming European Commission regulations. The authors also reported that, despite the help of well-prepared workshop management, "many citizens turned up on the day with a pet subject and tried to dominate the conversation" (p. 257). Communicative planning theory promotes "collaborative planning" as an alternative, which incorporates all stakeholders in the community in a flat mutual dialogue network

that helps to integrate individual and social interest. However, this approach is not enough to dissolve the ongoing frustrations, despite the scholarly efforts in making methodological improvements, such as those by Denhardt and Denhardt [7] and Kakabadse et al. [8].

This paper investigates the impact of "Future Design (FD)" proposed by Saijo [9] on the outcomes of public participation, as well as the valuation of the future in the minds of the participants. FD is fundamentally different from other approaches to public participation in that it aims to solve not only conflicts between individuals and social interests but also conflict between the present and future generations, which are the source of the pressing issues of sustainability that many communities now face. FD is an attempt to redesign communities and societies to be more forward-looking by incorporating future generations as one of the vital stakeholders, which both democracy and markets fail at accomplishing. Since these future generations are yet to be born, it is crucial to let public participants to recognize and value the interest of future generations in practice. We followed the workshop method developed by Saijo et al. in the first FD attempt in Yahaba town, Japan (reported by Hara [10], and Hara and Saijo [11]), where participants were asked to play the role of an imaginary future generation. They were instructed to pretend not to be older versions of themselves but to be their counterparts of the same age, with the same occupation, living 50 to 60 years in the future.

The field of future studies is closely related to FD, which increasingly involves public participation to induce cognitive changes in society for a sustainable future. The methods commonly used in the future studies to consider the desirability and feasibility of a future state include "backcasting" (Quist and Vergragt [12], Robinson [13], Robinson et al. [14]) and "scenario planning" (Peterson et al. [15], Patel et al. [16], Chakraborty [17], and Duckett et al. [18]). It should be noted that these studies share the problematic issue of communication under the collaborative planning theory. Referring to Habermas [19], Innes and Booher [20] argued that communication is not a mere neutral transmission of factual information but a form of acting on others. Habermas based his argument on Weber's concept of "social action" which is defined by the properties of "purposive-rationality" (connecting values and means to ends) and "value-rationality" (which involves screening consequences with a subjective intrinsic meaning). Weber added two more categories to his typology of social action, "present affects" and "long practice or tradition", to generate coordination and consensus. FD challenges the latter two types of rationality by freeing participants from "present affects" and "present practice" to obtain a wider and longer-term perspective to cope with social problems stemming from intergenerational dilemmas, especially sustainability. A possible shift in the participants' perspectives can be found in the qualitative differences in the policy recommendations generated by the FD workshop and the non-FD workshop. Hara [10], Hara et al. [11], and Nakagawa et al. [21] identified such differences via transcription analyses of textual data from the first FD workshop done in Yahaba. Based on the transcription data from the recent Yahaba FD attempt, Nakagawa [22] proposed a conceptual framework where he extracted four factors to free participants from their present constraints.

This paper takes a completely different approach from these previous FD studies. The goal of the paper is to identify changes in participants' perspectives by eliciting *quantitatively* individual time preference from the FD workshop participants through questionnaires whose contents are *independent of* the context of the workshops. We utilized a standardized question format in the field of economics, that contains a list of simple intertemporal choices of monetary outcomes. The choice alternatives are purely monetary and have no contextual link to the topic of the main workshop. The questions are designed such that the answers can be mapped to a set of plain numbers, which are described in detail in the next section.

In Matsumoto city, Japan, we organized public participation workshop for real policy-making purposes from November 2017 to February 2018. The target of the workshop was 60-year-old city hall renovation plan. We ran two sets of workshops for the same target: One took the form of an ordinary workshop and the other took the form of an FD workshop. The groups in the ordinary workshop were labelled "C" for the current generations, while the groups in the FD workshop were labelled "F" for the future generations. Under this setting, any difference in participants' time

preference data between the C and F groups should reflect the influence of FD on the participants' time perspectives.

We delivered the same set of questionnaires before and after the workshops to every participant in the C and F groups. As explained in detail in the next section, the questionnaires consisted of two parts of multiple-choice questions on simple monetary alternatives, all of which had no context dependence with the workshops. In this way, we did not expect that conducting the questionnaires before the workshops would interfere with the main workshop discussions to follow. We did not reveal our research interests to the participants until the very end of all the workshops to minimize risk of data distortion.

The first part of the questionnaire was used to elicit the SVO (Social Value Orientation) index commonly used in the field of social psychology (see for example, Van Lange and Kuhlman [23]) and thus identify individual social inclinations. We classified the participants into three SVO types: "prosocial", those who value social welfare more than self-welfare; "proself" those who ensure their self-welfare before social welfare; and "the other". We did not provide these classifications to our participants. The second part contained multiple binary choices asking each participant to choose an amount of money today that would be equivalent in value to a given amount of money one year later. This equivalent amount of money today should reflect individual time preference. If the amount is low, an individual is impatient and myopic.

In conjunction with the SVO classification, we compared the time preference data before and after the workshops and between the C and F groups to see if FD has any impact on time perspectives. Research on how time preference correlates with psychological personality traits such as the "Big Five" has begun developing in recent years (see Cohen et al. (2020) [24] for a survey). However, to our best knowledge, no other studies have examined time preference with SVO except for Hernuryadin et al. (2019) [25] who investigated the group-level time preferences in relation to the SVO type configuration within a group and found mixed results.

Our findings are two-fold. First, we found a strong correlation between individual SVO and individual time preferences, such that proself individuals were more myopic than prosocial individuals, in general. Second, the proself participants became *even more myopic* after the *non-FD* workshop while the *FD* workshop *did not* produce such an adverse effect. For the prosocial group, a rough comparison of the group average time preferences before and after the workshop indicated that the participants in the F groups tended to have a longer time perspective after the FD workshop, but an individual-level comparison did not confirm this tendency.

These findings correlate with the clear qualitative difference observed from the textual data of the workshop discussions between the C and F groups. The renovation design policies suggested by the C groups listed various needs—such as more parking lots, more counselling and registration windows, bigger rooms, bigger buildings—from present-day perspective. In contrast, the counterparts from the F groups did not describe such need-base items. Instead, the F group participants began to question what the function of the local government should be in the future and determined that the city hall should be equipped with tools and capacities to cope with expected social issues and problems. This type of qualitative difference exactly corresponds to that reported in the other FD attempts [10,11, 21,22].

Thus, the contribution of this paper can be summarized as follows. Firstly, this paper highlights that measuring individual's time preferences is a useful objective tool to evaluate the effectiveness of FD workshops, but has not been included in extant research on public participation, both with FD and without FD. The importance of introducing independent measures of time preference should be thus emphasized. Without such measures, it would be difficult to clearly determine whether one individual's recorded statement in the discussions in the F group indicates a successful mind transformation towards future generations or a futuristic statement to conform with the statements of other group members who were successful. Examining individual time preferences brings us one step closer to understanding what occurs within participants' minds, as reflected by the textual data generated by the workshop. Secondly, we combined our time preference analyses with the SVO typology. Thereby, we found a possible serious side-effect of ordinary workshops, which could drive proself participants to behave even more myopically. This side-effect may have contributed to the

aforementioned problematic phenomena of public participation that has been widely reported in the literature of various fields. The workshop itself possibly compelled some participants to become more eager to secure their own present-day interests and spoil the community discussions as the workshop proceeds, unless some additional care such as FD approach was taken to design the workshops.

2. Materials and Methods

We ran two sets of workshops, an ordinary workshop and an FD workshop, on the city hall renovation plan in Matsumoto city, Japan, from November 2017 to March 2018. Matsumoto is a town with about 240,000 residents, located in the dry and sunny highlands at an altitude of 600 meters, surrounded by 3,000-meter high mountains, known as the Japanese Alps. Matsumoto is the commercial and cultural center of Nagano prefecture, which is 2.5-hour train ride from Tokyo or Nagoya. The 60-year-old city hall is situated in the city's historic area next to Black Castle, which was built in 1504 and is a national treasure. Naturally, concern for the city hall renovation plan is substantial among Matsumoto's citizens.

Both sets of workshops consisted of two-day sessions following the same procedure and participants are strongly asked to attend both days. The interval between the first and the second day of each two-day workshop was about ten days. The workshop was run twice. The first two-day workshop was organized in November, 2017, where 63 city officers of various divisions volunteered, and the second was held in January and February, 2018, and was attended by 41 citizens who applied to an announcement via the city hall website, the local newspaper, or city flyers. The number of those who participated only on the second day of the first two-day workshop was seven. The number of those who participated only in the first day of the second two-day workshop was four. Those who participated in the second two-day workshop took a city hall tour before the first day workshop. On the first day before the workshop, each participant received a set of questionnaires to determine their SVO types and time preferences, and were asked to answer to all questions in the set. The same set of questionnaires was distributed at the very end of the second day after the completion of the workshop.

The city took an initiative to run the two-day workshops as a part of its formal policy making procedures. Each participant received a formal invitation letter in the name of the mayor, which explained that the workshop was organized for the purpose of constructing the city hall renovation plan. The letter also mentioned that a survey would be conducted by Shinshu University alongside the workshop discussions, strictly for academic purposes (see appendix A.1. for details).

The questionnaire instructions distributed on the spot were self-explanatory. The instructions explained that the questionnaires were research material to analyze choice behavior and that the answers would be treated as anonymous data identifiable only by an ID number for statistical analyses. We instructed the participants to answer the questionnaires without consulting any other participant or staff (Appendix A.2. provides the instructions for the questionnaires, translated in English). We provided no further explanations about the nature of the questionnaires until all stages of the second day workshop were completed. Just before the closing announcement, we briefly explained that the FD method was introduced to half of the groups, and a survey was then taken to evaluate the method.

As described in detail in subsection 2.2, the content of the questionnaires was independent of the context and purpose of the two-day workshops. Moreover, a ten-day interval between the first and second day is presumably long enough for most of the participants to clear their precise memories of their exact choices on the first day. In this way, we minimize the risk of possible data distortion.

We paid each participant a fixed amount of show-up fee of 4,000 yen (about 37 US dollars) at the end of the first day, as well as at the end of the second day. We could not pay the participants in the session for city officers due to regulations.

2.1. FD Workshop

At the beginning of the first day, the participants were randomly divided into 8 groups in the first workshop and 6 groups in the second workshop. Half of these groups was assigned the label “C”, and the other half was labeled “F” randomly. However, the participants were not informed of these labels. After an ice-breaking session, a blank city map and chronological table (shown in Figure 1) were distributed to each group, and all groups discussed about the state of living in Matsumoto as the current generation. The chronological table shows a graph of the annual city population and age demographics from 1960 to 2060, revealing a projected decline of 34.9% from 2010 to 2045. The area under the graph presents a list of past symbolic events such as Tokyo Olympics (1964), the oil crisis (1973 and 1979), the first appearance of mobile phones, the launch of Windows95, etc., as well as various scientifically predicted events for the future, such as climate change, the expected technological change of self-driving cars, AI robots, regenerative medicine, and other information available on the website of Ministry of Internal Affairs. The C groups primarily used the blank city map to visualize the way of life in the city and used the chronological table as a reference, while the F groups mainly used the chronological table.

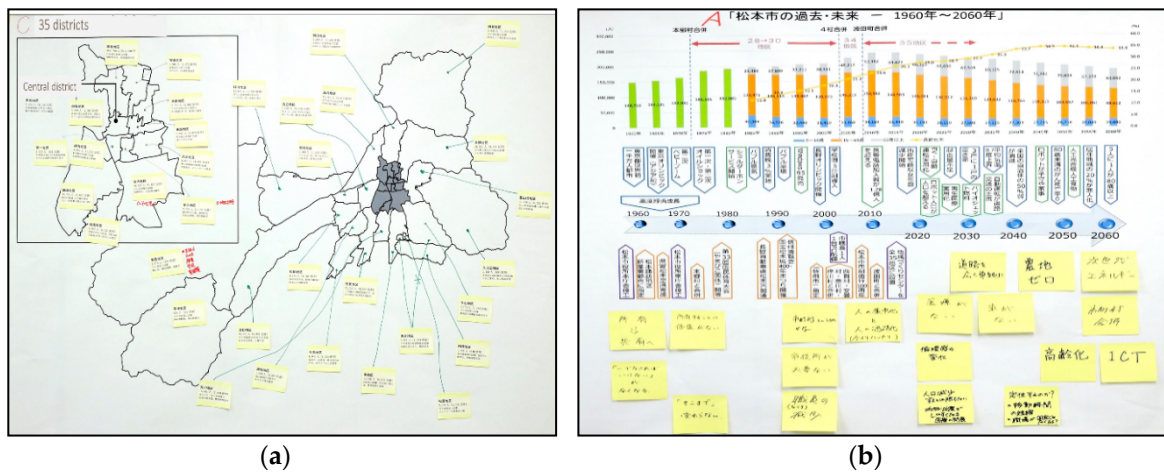


Figure 1. (a) Map work of Matsumoto city; (b) chronological Table from 1960 to 2060.

As the current generation, the F groups on the first day discussed the things that should have had been done in the past or the things done in the past that they were thankful for. This past reflection work is called “past design” and helped participants act as an imaginary future generation during the study in Yahaba, in which no chronological table was used (as reported in Hara et al. [11] and Nakagawa et al. [21,26,27]). In our FD implementation in Matsumoto, we used a chronological table for past design among the F groups. We found that the use of the chronological table amplified the positive effects of past design.

The main work on the second day was to determine a master plan for city hall renovations, which each group presented in front of all participants at the end of the day. The F groups did so as the future generation living in Matsumoto city in 2060, while the C groups did so as the current generation. The details of the process and method that we employed to induce the participants to play the role of imaginary future generation are described by Nishimura et al. [28,29].

2.2. Questionnaires

We distributed the same set of multiple choice questions twice—before and after the two-day workshops. The questionnaires consisted of two parts. The first part listed nine trinary choice problems to determine SVO types based on Messick and McClintock [30], where each participant was asked to choose one of three alternatives (A, B, and C), as shown in Table 1. We asked the participants to imagine that each of them was paired with an unknown, anonymous, and unidentified person whom the participants would never encounter in the future. For example, in Q1 in Table 1, the participant receives 450 yen and the unknown other obtains 80 yen in alternative A; the participant

obtains 540 yen and the other receives 280 yen in alternative B; and both receive 480 yen in alternative C. Let $r = \{r_1, r_2, r_3, r_4, r_5, r_6, r_7, r_8, r_9\}$ denote the choices made in Q1 to Q9. There are three choice patterns of particular interest; $r_{ps} = \{C, B, A, C, B, A, A, C, B\}$, $r_{ind} = \{B, A, C, B, A, C, B, A, C\}$, and $r_{comp} = \{A, C, B, A, C, B, C, B, A\}$. According to the SVO typology, those who give six answers consistent with pattern r_{ps} are classified as being a *prosocial* type, those who give six answers consistent with pattern r_{ind} are an *individualistic* type, and those who give six answers consistent with pattern r_{comp} are a *competitive* type. The latter two types are often merged as *proself*. The rest who were not classified as either type were labelled as *other*. We produced two SVO classification: One obtained from the first set of questionnaires and the other from the second set. Those who were classified as prosocial twice were considered "strong prosocial".

Table 1. Nine Trinary Choices for SVO classification.

Title 1	Q1			Q2			Q3		
	A	B	C	A	B	C	A	B	C
Amount you get	450	540	480	560	500	500	520	520	580
Amount the other gets	80	280	480	300	500	100	520	120	320
	Q4			Q5			Q6		
	A	B	C	A	B	C	A	B	C
Amount you get	500	560	490	560	500	490	500	500	570
Amount the other gets	100	300	490	300	500	90	500	100	300
	Q7			Q8			Q9		
	A	B	C	A	B	C	A	B	C
Amount you get	510	560	510	550	500	500	480	490	540
Amount the other gets	510	300	110	300	100	500	100	490	300

Units of the amount in each cell are in Japanese yen.

The second part of each questionnaire was used to measure individual time preferences. Following the multiple-choice list (MCL) method described in Andreoni et al. [31] and Coller et al. [32]), which is often used to elicit individual time preferences in the field of economics, we presented the participants a list of binary choices, Q1, as shown in Table 2. There were ten questions included (listed as "item"), each of which asked individual participants to choose between option "W" and option "M". If he/she chose option W in item 1, he/she would receive 9,800 yen today and 0 yen a year later, where if he/she chose option M, he/she would receive 0 yen today but 10,000 yen a year later. As the item number increased, the amount he/she could receive today in option W reduced by 400 yen, while option M remained the same. We expected most of the participants to choose option W in item 1 and option M in item 10. If the participants' utility functions are non-decreasing in the prize amount, there should be some item number between 1 and 10 where the choices *switch* from option W to option M. Let us denote the minimum item number where the choice switch occurs in Q1 list by q_1 . Here, a larger q_1 value indicates a higher degree of impatience or myopia. We set $q_1 = 1$ for the individual who chose option M from item 1, and $q_1 = 11$ for the individuals who did not make a switch from option W to option M at any item number from 1 to 10.

Table 2. Questionnaire Q1 to measure individual time preferences.

item	Option W	Option M	Choose W or M
1	Receive 9,800 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
2	Receive 9,400 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
3	Receive 9,000 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
4	Receive 8,600 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
8	Receive 7,000 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
9	Receive 6,600 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
10	Receive 6,200 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M

The amount of today's prize in option W in item $q_1 - 1$ approximates the value of 10,000 yen a year later (When $q_1 = 1$, the prize today is set to 10,000 yen). Let us denote that amount by x_1 . Then, we can find a number δ that satisfies $u(x_1) = \delta u(10,000)$, where the u function represents an individual's utility from receiving a prize. Number δ is called the "discount factor", which is one of the main building blocks in economic analyses of intertemporal decision makings such as savings and investments in general. The discount factor δ varies according to the length of time t before receiving 10,000 yen. There have been many theoretical and experimental studies on the functional form of $\delta(t)$, but the literature remains in disagreement (see Cohen et al. [24] for a survey.) In this paper, we focus on identifying any change in an individual's q_1 before and after the FD workshops. This serves our purpose without trying to estimate the exact functional form of $\delta(t)$.

While Q1 focuses on the participants' own rewards, we also propose another list, Q2 (shown in Table 3), where the binary choices relate to rewards accrued simultaneously by two persons—a choice maker and his/her anonymous unknown counterpart who has no role in decision making. The social situation that Q2 depicts is an abstract of the workshops where participants discuss public policy, which may also affect the welfare of the non-participants in a community. Similar to Q1, we focused on the minimum item number of q_2 where the decision makers switched their choices for the first time from option W to option M.

Table 3. Questionnaire Q2 to measure time preferences for a pair.

item		Option W		Option M		Choose W or M
		Amount You receive	Amount the Other receive	Amount You receive	Amount the Other receive	
1	Today 1 yr. later	9,800 yen 0 yen	9,800 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
2	Today 1 yr. later	9,400 yen 0 yen	9,400 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
3	Today 1 yr. later	9,000 yen 0 yen	9,000 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
4	Today 1 yr. later	8,600 yen 0 yen	8,600 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
8	Today 1 yr. later	7,000 yen 0 yen	7,000 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
9	Today 1 yr. later	6,600 yen 0 yen	6,600 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
10	Today 1 yr. later	6,200 yen 0 yen	6,200 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M

In the next section, we report some statistical analyses on the change in q_1 and q_2 before and after the workshops, combined with conditional analyses on SVO's typology. Any change detected for the C groups reflects the impact of the *ordinary* workshops on the participants' time perspectives, while any change in the F groups reflects the impact of the *FD* workshops.

3. Results

In this section, we investigate the possible impacts of FD workshops upon participants' preference. Any impact should also be reflected as a difference in the workshop outcomes between the C and F groups. We briefly sketch our qualitative analyses of workshop outcomes first and then describe the details of our statistical analyses on time preference along with the SVO classification of the participants.

3.1. Qualitative Difference in Workshop Output between C and F groups

One facilitator and one graphic facilitator were assigned to each of the 14 groups, as depicted in the two pictures of Figure 2, where the left picture features a discussion scene from one of the C groups, and the right picture is from one of the F groups. These facilitators are members of our research team. Most of them are city officers, who went through training provided by a non-profit organization SCOP in Matsumoto to learn the principles of facilitation. Note that all members in the right picture, including the two facilitators, are wearing the same green jackets. This is a technique commonly used in FD attempts (e.g., in Yahaba, Suita, etc.) that makes it easier and faster for participants to imagine their future selves. The participants undertook the two-day workshops to determine some desirable properties of the renewed city hall as a final output.

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Figure 2. The second day of FD workshops, Feb. 2, 2018. (a) C group; (b) F group.

We digitally recorded all the conversations in every group. The graphic facilitator in each group also documented the discussions via graphic recording. Based on the graphic outcomes with the help of voice data, we were able to extract the core issues that emerged as focal points in the discussions. Figure 3 and 4 show the issues extracted from the C groups and F groups, respectively.

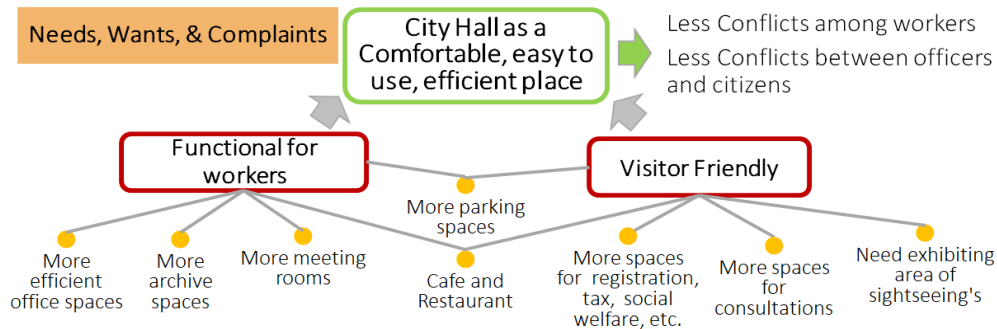


Figure 3. Issues extracted from the C groups.

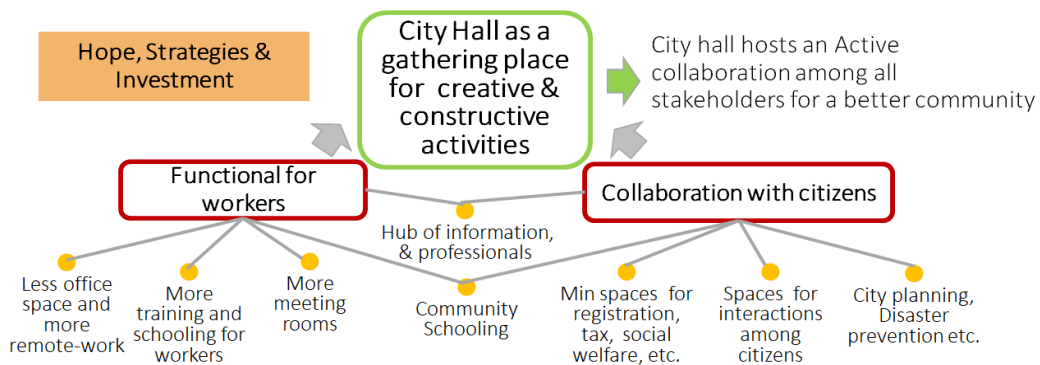


Figure 4. Issues extracted from the F groups.

The expressions in the green square at the top center of each figure describe the desirable state of the city hall to be achieved by the renovation. The yellow dot items connected to the left red square are the focus issues for the benefit of the city officers, and the items connected to the right red square are the focus issues for the benefit of general citizens. There are substantial qualitative differences in the focus issues (marked by yellow dots) between the two groups (figures). Most of the focus issues raised by the C groups are “demands”, such as asking for more space, more facilities, and more services, which were labeled as “needs, wants, and complaints”, as shown in the upper left orange square in Figure 3. In contrast, there are no such “demands” in the focus issues raised by the F groups

(Figure 4). Instead, the items from the F groups are more forward-looking and investment-oriented, viewing the renovated city hall as a place for training and schooling of the community, interactions and discussions among citizens about city planning and disaster prevention, and—most of all—for coordinating various productive collaborations between citizens and professionals.

It is also interesting to note that the above qualitative differences are consonant with the observable differences between the C and F groups. We heard many laughs and witnessed youthfully cheerful discussions in the F groups, which we did not find in the C groups. This observation alongside the aforementioned outcome differences suggests that there may have been some changes in the participants' mind set between the C and F groups. The following analyses provide some supporting evidence.

3.2. Data Analyses of Questionnaires

There are 76 male and 28 female adult participants. In total, 46% were in their 40s or older, labelled "older", with 36% among females and 50% among males. Figure 5a shows the corresponding ratios with the distribution of the SVO types based on the first set of questionnaires for the C groups and F groups. Figure 5b shows the distribution of gender with the SVO types within the younger subgroup and the older subgroup. Since the C and F groups were formed randomly, in Figure 5a, there is little difference between the two groups, while the distribution of the SVO typology shows gender and age dependence, as depicted in Figure 5a and b. The ratio of prosocial type was higher among female than male participants, and was higher among the older participants of both genders.

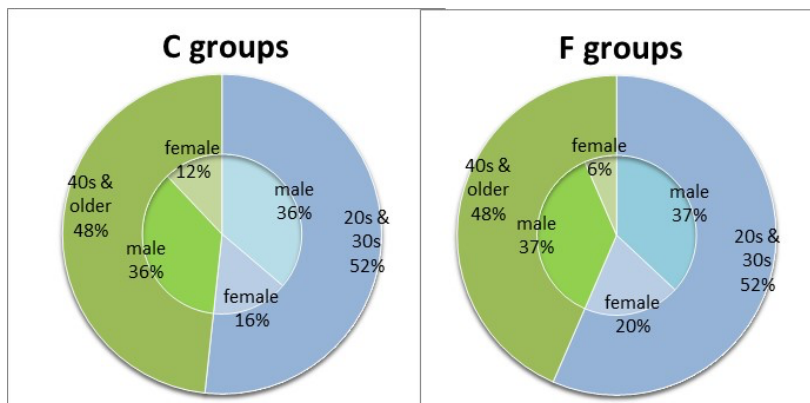


Figure 5a. Distribution of younger (20s & 30s) and older (40s and above) generations.

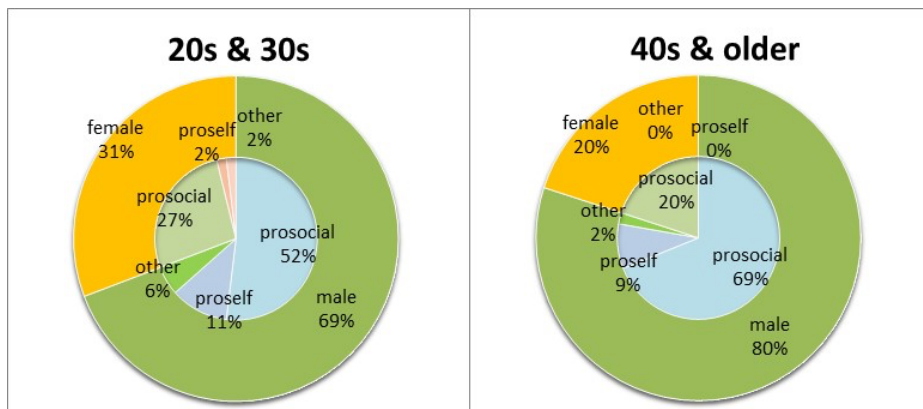


Figure 5b. Distribution of SVO Typology.

3.2.1. Correlation between SVO and Time Preference

Our first finding is a curious correlation between SVO typology and time preference. Based on the first set of questionnaires conducted before the workshops, Figure 6 summarizes the average switch item number q in four cases of Q1 and Q2, conditional on the basic three SVO classifications from the first questionnaire (left panel (a)), and for Q1 and Q2 conditional on whether the SVO type was strongly prosocial or not (right panel (b)). Both the t -test and Mann-Whitney U -test detected a significant difference in the average q between the prosocial and other types, but only in the right panel for Q2, with less than an 8% significance level. Since four cases out of four produced an average q of the prosocial type is nominally lower than that of the other type, the proportion test offers a less than 1% significance p -value to support the lower average q of the “prosocial” type, suggesting that the prosocial type has a longer time perspective.

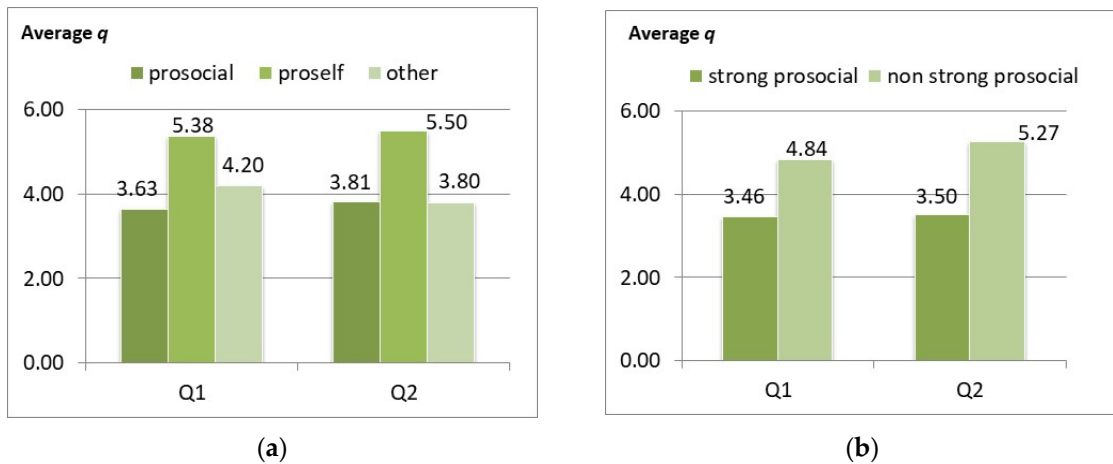


Figure 6. Average q and SVO Typology: (a) A case of three SVO types; (b) a case of two SVO types.

3.2.2. Quick Overview of Group Data Comparison

To provide an overview, Figure 7 shows the average q from the first day questionnaire for all first day participants, indicated by the darker pillars labeled with *before*, as well as the average q from the second day questionnaire over the second day participants, indicated by the lighter pillars labeled with *after*. These results are displayed by SVO type, with the C groups labeled as “c_SVO type”, and the F groups labeled as “f_SVO type”.

For the F groups, the first day and second day differences were significant according to a t -test using heteroscedastic consistent standard errors at a 5% significance level only for the case of Q2 questionnaire for the prosocial type. The lower q_2 in the second day may reflect a tendency for the prosocial type to have a longer time perspective after the workshops, but this was not detected from Q1.

Impact of Future Design on Workshop Participants' Time Preferences

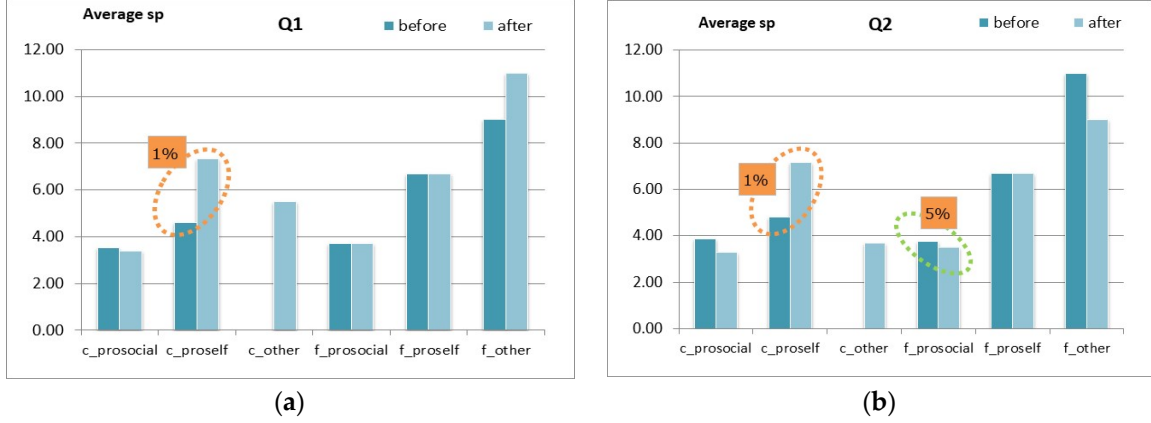


Figure 7. Average q for the C and F groups by SVO type: (a) Questionnaire Q1; (b) Questionnaire Q2.

Notably, there was a large difference between before and after the workshops for the proself type in the C groups, marked by an orange dotted circle in both panels (a) and (b). According to a t -test, this difference is significant at less than a 1% level, which may suggest a tendency of the *proself* type in the C groups to become even *more myopic* after the workshops. There was no corresponding tendency found for the proself type in the F groups (no indication by a dotted circle means no statistically significant difference in Figure 7.)

The above observation suggests that FD's impact may be two-fold. One is an impact on the prosocial type to induce them to have a longer perspective. The other is an impact on the proself type to keep them from becoming more myopic; otherwise their average q increased greatly in the ordinary workshops.

3.2.3. Analyses based on Individual Data Comparison

To be more precise, we must examine the differences in the q values of individuals who participated in both of the two-day workshops. The number of data available was reduced to 80 in total, 42 in the C groups, and 38 in the F groups. Table 4 (a) below shows the distribution of SVO types based on the first questionnaire, "b_SVO type", as well as those based on the second questionnaire, "a_SVO type". To account for the possible preference instability that may have occurred during the 10-day interval between the first and second day of two-day workshop, we classified SVO types in the main analyses using "s_prosocial" for those who are classified as prosocial twice and "s_proself" for those who are classified at least once as proself; the rest were classified by "s_other". Table 4 (b) lists the number participants in each of the three "s_SVO" types in the C and F groups.

Table 4. Distribution of SVO types of individuals who attended both days.

	(a)				(b)			
	a_prosocial	a_proself	a_other	total	C	F	total	
b_prosocial	64	1	1	66	s_prosocial	33	31	64
b_proself	2	8	0	10	s_proself	7	5	12
b_other	1	1	2	4	s_other	2	2	4
total	67	10	3	80	total	42	38	80

The kind of individual data to be considered is the difference in q before and after the workshops, denoted by dq , where $dq = [q \text{ after}] - [q \text{ before}]$ for each individual. Because both $q \text{ after}$ and $q \text{ before}$ must be valid for the same individuals, our sample size was further reduced to 63 for Q1 (30 for the C groups, and 33 for the F groups) and 65 for Q2 (31 for the C groups, and 34 for the F groups). Each workshop's schedule and size were strictly constrained by actual policy-making schedule within the municipality, and it was practically impossible to replicate the same workshops to increase our sample size.

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Figure 8 below depicts the average dq of Q1 and Q2 in the C groups, $dq1-C$ and $dq2-C$, as well as in the F groups, $dq1-F$ and $dq2-F$. The dark blue bars show the average q for all participants; the light green bars are for the $s_prosocial$ type; the yellow bars for $s_proself$ type; and the gray bars for s_other type. Figure 8 shows a contrasting pattern between the C and F groups, which is mainly reflected in the $s_proself$ type (yellow bars), where the average $dq1-C$ and $dq2-C$ values are positive, while the average $dq1-F$ is zero and the average $dq2-F$ is negative. This nominal pattern is consistent with the observation obtained in Figure 7.

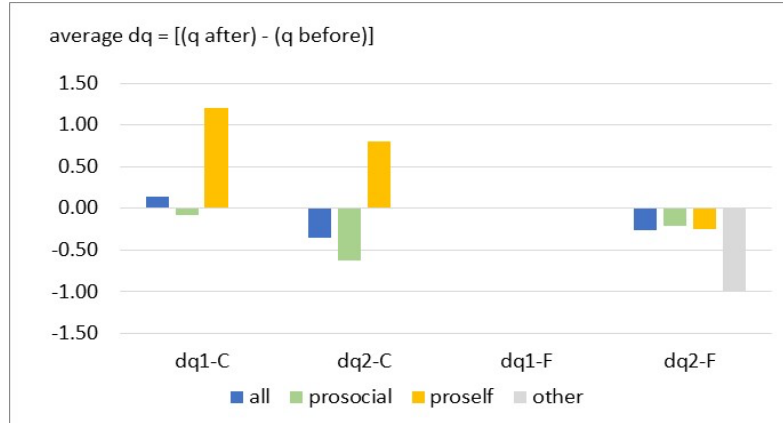


Figure 8. Average $dq = [q_{after}] - [q_{before}]$ for the C and F groups by SVO type.

We conducted OLS (difference-in-differences) regressions on each individual's dq , as shown in Table 5. Models (1) and (2) are for Q1, while (3) and (4) are for Q2. The regressors are a dummy variable for the F groups (F), a type dummy ($s_proself$) used for the proself type individual, a type dummy for the other type individual (s_other), along with three cross terms ($q_{after} * F$), ($s_proself * F$), and ($s_other * F$). The OLS regressions in models (1) and (3) were done using robust standard errors, while those in models (2) and (4) corrected standard errors by clustering with 14 groups and gender (estimating with standard bootstrapping or with wild bootstrapping to remedy our small sample size did not work.)

Table 5. OLS Regressions on $dq = [q_{after}] - [q_{before}]$ for Q1 and Q2.

model	(1) Q1 robust	(2) Q1 cluster	(3) Q2 robust	(4) Q2 cluster
F	0.304 (0.498)	0.304 (0.444)	0.411 (0.612)	0.411 (0.709)
$s_proself$	1.504* (0.833)	1.504* (0.753)	1.425** (0.590)	1.425** (0.551)
$s_proself * F$	-1.504 (0.976)	-1.504* (0.869)	-1.461 (0.955)	-1.461 (0.984)
s_other	0.304 (0.357)	0.304 (0.332)	0.625* (0.370)	0.625 (0.399)
$s_other * F$	-0.304 (1.568)	-0.304 (1.623)	-1.411 (0.962)	1.411 (0.830)
Constant	-0.304 (0.332)	-0.304 (0.332)	-0.625* (0.370)	-0.625 (0.399)
observations	63	63	65	63
R-squared	0.052	-0.304	0.038	-0.625

robust: robust standard errors are in parentheses;

cluster: standard errors corrected by clustering are in parenthesis

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The effect of " $s_proself$ " is positively significant in all models for both Q1 and Q2. Model (2) detects the negatively significant effect of the cross term of " $s_proself$ " with "F" that cancels out the

positive effect of “s_proself”. In sum, the positive coefficient of “s_proself” indicates that the proself individuals in the C groups became more myopic after the ordinary workshop, while the total effect of “s_proself” and its cross term indicate that the proself individuals in the F groups did not become more myopic after the FD workshop. This confirms the distinct behavior of the proself participants shown in Figure 7 and 8 for Q1, but not Q2.

Table 6. Probit Regressions on $dq = [q \text{ after}] - [q \text{ before}]$ for Q1 and Q2.

model	(1) Q1 robust	(2) Q1 cluster	(3) Q2 robust	(4) Q2 cluster
F	0.0106 (0.398)	0.0106 (0.325)	0.243 (0.382)	0.243 (0.472)
s_proself	4.652*** (0.306)	4.652*** (0.256)	4.873*** (0.285)	4.873*** (0.315)
s_proself * F	-4.769*** (0.798)	-4.769*** (0.832)	-4.990*** (0.790)	-4.990*** (0.892)
s_other	4.652*** (0.348)	4.652*** (0.230)	4.873*** (0.302)	4.873*** (0.284)
s_other * F	-5.443*** (0.996)	-5.443*** (1.003)	-5.665*** (0.980)	-5.665*** (0.897)
Constant	0.781*** (0.295)	0.781*** (0.206)	0.548** (0.272)	0.548* (0.300)
observations	63	63	65	65

robust: robust standard errors are in parentheses;

cluster: standard errors corrected by clustering are in parenthesis

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6 reports the probit regressions on each individual’s dq , where the dependent variable takes a value one if $dq \geq 0$ for Q1 and for Q2 with the same regressors in Table 5. Models (1) and (3) provide results with robust standard errors, and models (2) and (4) provide results when the standard errors are corrected by clustering according to groups and gender. Table 6 shows stronger results than Table 5. The coefficient associated with “s_proself” is positively significant, while the cross term “s_proself * F” is negatively significant in all models for both Q1 and Q2 at less than a 1% level. Table 6 indicates that the proself individuals in the C groups became more myopic after the workshop, but this tendency for the proself individuals in the F groups was cancelled out for both Q1 and Q2. Furthermore, Table 6 captures the significant effect of “s_other” and its cross term where other type individuals in the C groups also became more myopic after the workshop; however, those in the F groups obtained a longer time perspective after the workshop, which Table 5 does not capture. Thus, Table 6 supports the nominal pattern in Figure 7 for the non-prosocial type.

Next, we examine the subgroups defined by the participants’ characteristics of age and profession. Table 7 reports the OLS regressions on Q1 and Q2 for the two sets of subgroups with the same regressors as in Tables 5 and 6. Models (1) to (4) are for the younger and older (= not younger) subgroups, and models (5) to (8) are for the subgroup of city officers and the subgroup of the general public (= not city officers). We selected the first set of subgroups because we witnessed first-hand during the workshops that the older participants had less difficulty in acting as an imaginary future generation. This impression is shared by many of those who have conducted FD workshops. The second set corresponds to two sets of two-day workshops organized in different days. All models in Table 7 corrected standard errors by clustering with group and gender. We report the results of corresponding OLS regressions using robust standard errors (without clustering) in Appendix B.

Table 7. OLS Regressions on $dq = [q \text{ after}] - [q \text{ before}]$ for Q1 and Q2: subgroups of age and profession.

model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
subgroup	Q1 young	Q1 old	Q2 young	Q2 old	Q1 officer	Q1 public	Q2 officer	Q2 public
F	0.871 (0.644)	-0.148 (0.721)	-0.0857 (0.903)	0.929 (0.850)	0.235 (0.614)	0.267 (0.669)	0.142 (0.718)	0.736 (0.916)
s_proself	2.300* (1.199)	-0.0769 (0.537)	1.700** (0.636)	0.571 (0.524)	4.077*** (0.385)	1.100 (0.941)	2.615*** (0.302)	1.031 (0.601)
s_proself * F	-2.371# (1.389)	0.148 (0.721)	-1.248 (1.282)	-0.929 (0.850)	-3.735*** (0.756)	-1.267 (1.140)	-1.642* (0.890)	-2.236 (1.335)
s_other	-0.0714 (1.619)	-0.0769 (0.537)	0.700 (0.468)	0.571 (0.524)	0.0769 (0.385)	0.333 (1.704)	0.615* (0.302)	-0.626 (0.955)
s_other * F	omitted	omitted	-0.914 (1.168)	omitted	omitted	omitted	omitted	-1.970 (1.329)
Constant	-0.800* (0.434)	0.0769 (0.537)	-0.700 (0.468)	-0.571 (0.524)	-0.0769 (0.528)	-0.600* (0.306)	-0.615* (0.302)	-0.531 (0.459)
observations	33	30	34	31	36	27	36	29
R-squared	0.170	0.002	0.118	0.037	0.133	0.065	0.056	0.060

Standard errors corrected by clustering are in parenthesis, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, # $p < 0.102$.

Ultimately, the tendency particular to proself individuals that we previously observed were detected only in the younger subgroup. The effect of “s_proself” for both Q1 and Q2 remains positively significant, but the negatively significant effect of its cross term with “F” was detected only for Q1. Therefore, for the proself type, the younger participants in the F groups were successful in shifting their mind sets through the FD workshop when they thought about their own monetary payoff, but they were not successful when they thought about the monetary payoff for themselves and other persons. The lower ratio of the proself type within the older subgroup (as observed in Figure 5b) may have contributed to generate non-significant results in models (2) and (4).

For the city officers and general public subgroups, to our surprise, a strongly significant positive effect of “s_proself” was detected for both Q1 and Q2 in the subgroup of officers (but not the public), as shown in models (5) and (7). The effect of cross term of “s_proself” was significantly negative, but this time its magnitude was not sufficient to offset the effect of “s_proself”. Thus, the proself officers in the F groups became more myopic after the workshops only to a lesser extent than those in the C groups. This difference seems not a result of young vs. old observed in models (1) to (4) within the officer subgroup, because the percentage of younger participants was about 50% common between the officer and public subgroups. The difference in the coefficients between the two subgroups (young vs. old and officer vs. public) was significant at less than a 1% level by a Wald test, suggesting a structural difference between the two subgroups.

4. Discussion

In this study, we reported both qualitative and quantitative analyses on the impact of the FD workshop on the outcomes of workshop discussions and participants' time preferences. We conducted two kinds of public participation workshops in Matsumoto city, Japan for its city hall renovation plan: One took the form of an FD workshop and the other was an ordinary workshop with no element of FD. Before and after the workshops, we elicited participants' time preferences via binary choice questionnaires whose content were independent of the workshop context. In conjunction with classifying participants into three SVO types (prosocial, proself, and the other) based on the standard nine trinary multiple choice questions, we found that (i) the prosocial type was more likely to have a longer-term perspective than the proself type in general; (ii) the ordinary workshop without an FD element had an adverse effect, where the proself type became even more myopic; (iii) the FD workshop had a positive impact on the proself type and prevented them from becoming more myopic; and (iv) the tendency of (ii) and (iii) was more pronounced among younger participants than older participants and among city officers than the general public; however, (v) no significant FD impact was found for the individual time preference of the prosocial type

These findings are consistent with our qualitative analyses on the discussion outcomes. The policy recommendations proposed by the ordinary workshop demanded the resolution of present-day needs, wants, and complaints. In contrast, the FD workshop induced the participants to focus more on the core functions of the city hall and how different the state of municipal services should be in the future. As a result, the FD discussion generated more constructive and efficient policy proposals by explicitly rejecting the idea of accommodating today's needs. Matsumoto city adopted most of the recommendations proposed by the F groups into its basic policies for renovation plan listed in the city's web site [33].

These observations are consonant with those of existing reports, including [10], [11], and [21]. This study suggests that the change in attitudes on time perspective, particularly by those of a proself type (e.g., (ii) to (iv)), may have been a driving force behind the distinctive nature of the FD workshop's outcomes. Notably, we conjecture that the ordinary workshops induced the proself individuals, who are mostly concerned with their own stakes, to think more deeply about the current constraints that limit their welfare such that they give higher priority to resolving these constraints and ensuring their current welfare.

This paper demonstrates not only the positive impact of FD workshop but also the negative impact of ordinary workshop on the proself participants by means of individual time preferences measure based on materials independent of the workshop context. This method also enabled us to explore the effect of the participants' characteristics, such as age (i.e., younger versus older) and professions (i.e., city officers or not). To elicit individual time preferences, we used a standard form of questions, Q1, which involves only a decision maker's own monetary payoffs. In addition, we made another list of questions, Q2, by modifying Q1 to make a decision incorporate not only the decision maker's welfare but also the other person's welfare. The observations (ii) to (iv) were captured by both regression analyses on Q1 and Q2, but more often by Q1. We conjecture that the proself individuals were more sensitive to Q1 than Q2.

Saito [34] calibrated the average discount rate based on choices observed in experiments using sequential dictator games with FD elements (reported in Kamijo et al. [35]) and showed that the average discount rate was substantially lower than the value estimated from macroeconomic data, such as savings and investments. The discount rate estimated in Saito [34] is based on group decisions in the games without a real timeline and is game-context dependent. This paper provides more direct evidence that FD can prevent at least proself individuals from pursuing a lower discount factor.

There are, however, two issues to be improved: One is our sample size, and the other is the fact that our questionnaires were hypothetical and the participants did not face real consequences based on their choices. Two issues stem from the same root. We usefully collected data from workshops that were part of an actual policy making procedure, not a hypothetical one; however, this advantage also imposed two constraints. First, we could not ask the city to reorganize the same workshops by calling for new sets of participants to increase our sample size. Secondly, it is unacceptable for the city to pay different amounts to different participants. Though experiments in the field of economics, in principle, should be incentivized (that is, the experimenters pay according to each subject's choices made during the experiments), there is debate over the role of such incentives, especially in studies on individual time preference. Thus far, there is little evidence of systematic differences in choice behavior between incentivized and unincentivized experiments (for details, see [24]).

To improve future research, we could utilize additional independent measurements, such as risk attitude or cognitive ability, as it is unreasonable to consider time preference as the only measure to evaluate the effects of FD or non-FD workshops. We could also improve the design of the workshops. It is plausible that the effectiveness of FD workshops depends on the specific verbal guidance and reference materials used to induce participants to imagine themselves as future generations. Developing new, more effective, methods and procedures for FD workshop is needed, which will be the topic of our future FD studies.

Lastly, those who experienced the FD workshop recognized the transformation occurred within their minds. This recognition stayed with the participants long after their FD participation, as reported by an article in Asahi newspaper (Nishimura and Inoue [36]) that interviewed one of our

participants. The same phenomenon was also reported for other FD workshops (Nakagawa et al. [21]).

Author Contributions: Conceptualization, N.N. and N.I.; methodology, N.N. and N.I. ; formal analysis, N.N., N.I., and H.M.; investigation, N.N., N.I., H.M., and T.M.; data curation, N.N.,N.I., and H.M.; writing – original draft preparation, N.N.; writing – review and editing, N.N., N.I., H.M., and T.M.; visualization, N.N., N.I., and H.M.; supervision, N.N.; project administration, N.N., N.I., and T.M.; funding acquisition, N.N., N.I., H.M., and T.M.

Funding: This study was supported by a Grant-in-Aid for Scientific Research (Research Project No. 18K18570) from the Japan Society for the Promotion of Science.

Acknowledgments: The authors thank K. Yamaoki and S. Sumi for their collaboration and inputs, as well as anonymous referees for their helpful comments. We also deeply thank M. Yakubo, T. Yokouchi, Y. Miyao, Y. Yoshiike, T. Kashima, H. Fushimi, and the other members of Matsumoto Policy Study Forum for their productive discussions and efforts in operating the FD workshops.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

A.1. Invitation Letter

A call for participants in the city hall renovation workshop was announced on the city's web site, the local newspaper, and the city flyer, which stated that Matsumoto city would organize a workshop to discuss the city hall renovation plan. Those who applied to the city received a formal invitation letter under the name of the mayor. The letter described the two-day schedule, the location, and what to do in the workshop: "All participants will be divided into groups of five to six people to have a discussion and determine some ideas to help establish the direction of the City Hall renovation plan. We ask you to participate both days as much as possible. In addition to discussions, we ask that you answer a questionnaire prepared by Shinshu University for academic purposes. For this workshop, you will be paid a gratuity of 4000 yen per day." Along with the invitation letter, each applicant received a set of materials explaining the past reviews and discussions on the needs of renovation, the current conditions of the city hall, and a tentative operational timetable for the renovation plan to be formed and executed.

A.2. Questionnaire Instruction

This questionnaire will be used as academic material to analyze choice behavior. You will be asked to make choices in an academically standardized format. This is not a test to measure your ability, since there is no "correct" answer to each question.

All collected answers will be treated as anonymous data identified only by an ID number for statistical analyses. No link between the ID number and your private information is traceable. Making a choice following your own feelings and thinking will be much appreciated.

Please do not hesitate to ask us if you have any questions. You can refuse to answer any question that you might feel is unacceptable. The anonymous data will be kept for a certain period of time and may possibly be open to academic researchers. The data will not be used for other purposes.

Please read all instructions carefully before you start answering the questions. Please answer all the questions in order. Do not come back to the earlier questions after you have answered the later questions. There are many questions. Please treat each question independently, not sequentially or jointly. Lastly and importantly, please do not consult with any other participant or staff.

Part 1:

Please consider the following hypothetical situation, and pick the alternative you prefer.

Suppose you participate in an experiment where you are paired with a person whom you have never met before and will never meet again. You will be asked to choose one of three alternatives of the following sort.

Example

	Q1		
	A	B	C
Amount you get	500 yen	500 yen	550 yen
Amount the other gets	100 yen	500 yen	300 yen

In this example, you receive 500 yen, and the other person receives 100 yen if you choose alternative A. Likewise, for alternative B and C, your choice determines the amount of money you obtain, as well as the amount that the other person gets. There is no correct answer to this type of question. Please pick one out of three alternatives, A, B, and C as you wish.

Please circle **one** of the three alternatives for each of the following nine questions.

Part 2:

Please consider the following hypothetical situation involving various monetary rewards at different time intervals and pick the alternative you prefer for each question.

Question 1	A	B	C
Amount you get	450 yen	540 yen	480 yen
Amount the other gets	80 yen	280 yen	480 yen
Question 2	A	B	C
Amount you get	560 yen	500 yen	500 yen
Amount the other gets	300 yen	500 yen	100 yen
Question 3	A	B	C
Amount you get	520 yen	520 yen	580 yen
Amount the other gets	520 yen	120 yen	320 yen
Question 4	A	B	C
Amount you get	500 yen	560 yen	490 yen
Amount the other gets	100 yen	300 yen	490 yen
Question 5	A	B	C
Amount you get	500 yen	560 yen	490 yen
Amount the other gets	100 yen	300 yen	490 yen

Question 6	A	B	C
Amount you get	560 yen	500 yen	490 yen
Amount the other gets	300 yen	500 yen	90 yen
Question 7	A	B	C
Amount you get	500 yen	500 yen	570 yen
Amount the other gets	500 yen	100 yen	300 yen
Question 8	A	B	C
Amount you get	510 yen	560 yen	510 yen
Amount the other gets	510 yen	300 yen	110 yen
Question 9	A	B	C
Amount you get	550 yen	500 yen	500 yen
Amount the other gets	300 yen	100 yen	500 yen

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- (1) You are asked to choose between receiving 10,000 yen in one year (option M) or receiving a certain amount today (option W). The amount you can receive today in option W varies across the following ten questions. If you choose W, you will receive nothing in one year. If you choose M, you receive nothing today. Please choose W or M for each of all the ten questions from Q1 to Q10 and circle W or M of your choice in the rightmost column. Please consider each question independently, not sequentially or jointly.

Q	Option W	Option M	Choose W or M
1	Receive 9,800 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
2	Receive 9,400 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
3	Receive 9,000 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
4	Receive 8,600 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
5	Receive 8,200 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
6	Receive 7,800 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
7	Receive 7,400 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
8	Receive 7,000 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
9	Receive 6,600 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M
10	Receive 6,200 yen today & Receive 0 yen one year later	Receive 0 yen today & Receive 10,000 yen one year later	W / M

- (2) You are paired with a person whom you have never met before and will never meet again. You are asked to choose between receiving 10,000 yen in one year (option M) and receiving a certain amount today (option W). If you choose option M, you and the other person will receive the same amount in one year. If you choose option W, you and the other person will receive the same amount today. The amount you and the other person will receive today in option W varies across the following ten questions. If you choose W, you and the other person will receive nothing in one year. If you choose M, you and the other person will receive nothing today. Please choose W or M for each of the ten questions from Q1 to Q10 and circle the corresponding mark of your choice in the rightmost column. Please consider each question independently, not sequentially or jointly.

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Q		Option W		Option M		Choose W or M
		Amount You receive	Amount the Other receive	Amount You receive	Amount the Other receive	
1	Today 1 yr. later	9,800 yen 0 yen	9,800 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
2	Today 1 yr. later	9,400 yen 0 yen	9,400 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
3	Today 1 yr. later	9,000 yen 0 yen	9,000 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
4	Today 1 yr. later	8,600 yen 0 yen	8,600 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
5	Today 1 yr. later	8,200 yen 0 yen	8,200 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
6	Today 1 yr. later	7,800 yen 0 yen	7,800 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
7	Today 1 yr. later	7,400 yen 0 yen	7,400 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
8	Today 1 yr. later	7,000 yen 0 yen	7,000 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
9	Today 1 yr. later	6,600 yen 0 yen	6,600 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M
10	Today 1 yr. later	6,200 yen 0 yen	6,200 yen 0 yen	0 yen 10,000 yen	0 yen 10,000 yen	W / M

Part 3:

Please circle one alternative for each of the next two questions.

- (1) You are (male or female).
- (2) You are in your (20s, 30s, 40s, 50s, and 60s, or older).

Appendix B

Table B-1 and B-2 list the results of OLS regressions for the younger (20s and 30s) and older (40s and above) subgroups, and for the city officers and public subgroups, respectively. In each table, models (1), (2), (5), and (6) were done using robust standard errors, while those in models (2), (4), (7) and (8) corrected the standard errors by clustering according to group and gender (estimating with bootstrapping or wild bootstrapping to remedy our small sample size did not work).

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Table B-1. OLS Regressions on $dq = [q \text{ after}] - [q \text{ before}]$ on Q1 and Q2: subgroups of young and old

model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Q1				Q2			
	robust		cluster		robust		cluster	
subgroup	young	old	young	old	young	old	young	old
F	0.871 (0.655)	-0.148 (0.759)	0.871 (0.644)	-0.148 (0.721)	-0.0857 (0.754)	0.929 (0.976)	-0.0857 (0.903)	0.929 (0.850)
s_proself	2.300** (1.009)	-0.0769 (0.526)	2.300* (1.199)	-0.0769 (0.537)	1.700** (0.723)	0.571 (0.570)	1.700** (0.636)	0.571 (0.524)
s_proself * F	-2.371* (1.225)	0.148 (0.759)	-2.371# (1.389)	0.148 (0.721)	-1.248 (1.226)	-0.929 (0.976)	-1.248 (1.282)	-0.929 (0.850)
s_other	-0.0714 (1.606)	-0.0769 (0.526)	-0.0714 (1.619)	-0.0769 (0.537)	0.700 (0.469)	0.571 (0.570)	0.700 (0.468)	0.571 (0.524)
s_other * F	omitted	omitted	omitted	omitted	-0.914 (1.084)	omitted	-0.914 (1.168)	omitted
Constant	-0.800* (0.455)	0.0769 (0.526)	-0.800* (0.434)	0.0769 (0.537)	-0.700 (0.469)	-0.571 (0.570)	-0.700 (0.468)	-0.571 (0.524)
observations	33	30	33	30	34	31	34	31
R-squared	0.170	0.002	0.170	0.002	0.118	0.037	0.118	0.037

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, # $p < 0.102$.

Table B-2. OLS Regressions on $dq = [q \text{ after}] - [q \text{ before}]$ on Q1 and Q2: subgroups of officer and public

model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Q1				Q2			
	robust		cluster		robust		cluster	
subgroup	officer	public	officer	public	officer	public	officer	public
F	0.235 (0.653)	0.267 (0.719)	0.235 (0.614)	0.267 (0.669)	0.142 (0.803)	0.736 (1.056)	0.142 (0.718)	0.736 (0.916)
s_proself	4.077** (1.882)	1.100# (0.926)	4.077*** (0.385)	1.100 (0.941)	2.615*** (0.615)	1.031 (0.621)	2.615*** (0.302)	1.031 (0.601)
s_proself * F	-3.735 (2.315)	-1.267 (1.535)	-3.735*** (0.756)	-1.267 (1.140)	-1.642* (0.889)	-2.236 (1.395)	-1.642* (0.890)	-2.236 (1.335)
s_other	0.0769 (1.882)	0.333 (1.224)	0.0769 (0.385)	0.333 (1.704)	0.615 (0.615)	-0.626 (1.032)	0.615* (0.302)	-0.626 (0.955)
s_other * F	omitted	omitted	omitted	omitted	omitted	-1.970 (1.442)	omitted	-1.970 (1.329)
Constant	-0.0769 (0.503)	-0.600 (0.495)	-0.0769 (0.528)	-0.600* (0.306)	-0.615 (0.615)	-0.531 (0.399)	-0.615* (0.302)	-0.531 (0.459)
observations	36	27	36	27	36	29	36	29
R-squared	0.133	0.065	0.133	0.065	0.056	0.060	0.056	0.060

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, # $p < 0.102$.

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