Topic choice influence on language output in task-based language teaching

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The power to choose has been widely recognized as motivating in diverse situations. Would choice also affect language output of students as well? This research investigated the differences in accurate, complex, and fluent output of students engaged in a task with three different levels of choice of task topic; none, limited, and complete. The results indicate there is significantly greater complexity in language output with a limited and a complete amount of choice. More accurate and fluent output also was evident, but not statistically significant. The implications of these findings are discussed.

様々の場面にて選択肢によって動機付けが高まります。この研究は三の種類のタスクを行う場合、選択肢を加わればどの程度第二言語の出力（正確性、複雑性、流暢性）が変更するのかと調べました。タスクトッピックを選択肢なし、三つのタスクトピックから一つを選ぶ限界的選択肢、そしてタスク範囲にトピックを自由に選んで、選択肢を三段階に実行しました。結果によって選択肢なしの場合より限界的選択肢と自由選択肢の方が複雑政が高くなりました。正確性出力も流暢性出力も高くなりましたが統計学的有意差じゃありませんでした。教育上の影響をまとめに述べます。

This paper is an exploration of the effect choice induces upon the language output of students learning English as a foreign language while doing different types of tasks. A unique contribution of the design of this study is that it incorporates two influential areas. From the area of human motivation, intrinsic motivation (e.g., Deci & Ryan, 1985) is integrated through the use of choice. From the area of foreign or second language teaching, the method of teaching that uses tasks as the central unit of analysis, task-based language teaching (TBLT), is the second pillar of this study.

The interaction between the two provides useful benefits for motivating students learning a language. An earlier study indicated that choice might positively influence students' task motivation and task competence (Thurman, 2007). Would these positive influences affect students' language output as well? The question this

paper will confront is if students' accuracy, complexity, and fluency are influenced by the introduction of choice.

Where this influence could originate is from three constructs. For one, there is the power to control the environment. When participants could control the situation in some way, such as choose the duration or timing of a noise distracter with a button, they did cognitive exercises more quickly and with fewer mistakes than those who had no power to control the noise (e.g., Glass, Singer, & Freidman, 1969; Corah & Boffa, 1970; Reim, Glass, & Singer, 1971). Dember, Galinsky, and Warm (1992) found that participants were significantly more vigilant (in detecting bar flashes on a computer screen) when they had a choice of a difficult or easy task, compared to those who had no such choice, even though there was no difference between the two tasks.

For another, choice has also been shown to be effective in improving a student's task motivation. Thurman (2007) found that when students in an English as a foreign language class in Japan had a choice of the topic of a task, they had a significantly higher level of motivation in an after-task survey than when they did not have a choice. It is possible that when students feel a higher level of motivation while engaged in a task, they may pay more attention to accuracy, be more willing to take risks to use more complex language, or be induced to be more fluent.

A third source could come from the willingness to communicate (WTC) as hypothesized for the language learning context (e.g., MacIntyre, Clément, Dörnyei, & Noels, 1998). MacIntyre et al. defined WTC in a second language as "the readiness to enter into discourse at a particular time with a specific person or persons, using a L2" (p. 547). They proposed that motivation plays a role in WTC. More motivated individuals feel a greater sense of self-confidence as well as a greater desire to communicate.

In her examination of WTC with high school-aged Japanese participants using structural equation modeling, Yashima (2002) found that WTC is boosted by a student's confidence to speak, and this confidence is increased by motivation. More recently, Yashima (2007) found that participants with more self-determined behavior, such as intrinsic motivation, had statistically significant higher correlations with high levels of WTC.

Although Dörnyei and Kormos (2000) claimed that the construct of WTC presumed not that a person would speak more but rather that the person would more likely initiate communication, the former was in fact a result in Kormos and Dörnyei (2004), which found that the learners who had higher positive task attitudes also had highly significant correlations of WTC with complexity and with fluency.

Research questions

This study consists of three research questions: whether choice can affect oral output in relation to *accuracy*, *complexity*, and *fluency*. It is hypothesized that there may be a linear progression of greater oral output for each of the dependent variables, according to research which showed that with choice, there is a greater amount of attention to the completion of the task (e.g., Dember et al., 1992). In addition, choice may also engender greater willingness to communicate (e.g., MacIntyre et al., 1998; Yashima, 2002), which has been shown by Kormos and Dörnyei (2004)

to possibly have a relation with more complex and fluent output. Increased motivation itself may affect attention as well (Crookes & Schmidt, 1991).

Method

The participants in this study were 42 first-year Japanese university students forming 21 pairs. While the students were engaged in the task, their conversations were recorded.

The procedures for collecting the data are shown in Appendix 1. Each task was done twice. In order to control for planning, the recording from the second time was used for transcribing. Possible drawbacks from using this second round are that some pairs might do the tasks more quickly with less interest than during the first time.

Independent variables: Task type and choice

There are two independent variables in this study. The first is the level of topic choice for a designated task-type: no choice (students engage in the task provided by the teacher; denoted NC in this paper); limited choice (students choose from amongst three task topics pre-selected by the teacher; LC); and complete choice (students choose any topic within the parameters of the task type; CC).

The second independent variable is the type of task. Three types of tasks were used: descriptive (denoted DT in this paper), narrative (NT), and decision-making (DMT). The DT-NC and DT-LC materials were modified from Nicholson and Sakuno (1982) (see Appendix 2). For the DT-CC task, the students chose any place they wanted and described it while their partner drew it. The NT-NC and NT-LC tasks were picture stories from Heaton (1966). For the NT-CC task, the students told a personal story while their partner outlined it. The design of the DT-CC and the NT-CC tasks was that, rather than one student saying something and the other not, both students were involved to promote an interaction similar to the other task designs from the books. Each had to communicate with each other and had to make sure the other was getting it right. All the decision-making tasks were made originally for this study (Thurman, 2007; see Appendices 3 & 4).

Dependent variables: Accuracy, complexity, and fluency

Skehan (1998, 2003) developed a method of assessing output during task performance through the dimensions of accuracy, complexity, and fluency. This troika has been extensively used to measure output in recent TBLT research. The ensuing definitions are from Skehan and Foster (1999). Accuracy is the ability to avoid errors in performance, reflecting higher levels of control in the language and an orientation to avoid challenging structures that might provoke errors. Complexity is the capacity to use more advanced language—with the possibility that such language may not be controlled effectively—and a greater willingness to take risks. Lastly, fluency is the capacity to use language in real time, to emphasize meanings, possibly drawing on more lexicalized systems. In this study, accuracy is assessed by the ratio of error-free clauses, complexity by the type-token ratio, and fluency by word count.

Results and discussion

Data were entered into an SPSS file for repeated-measures ANOVA analysis. Important for this analysis is an additional assumption of sphericity (ε), which is "the variances of the differences between the data taken from the same participant are equal" (Field, 2005, p. 745). There were no instances in this paper when this assumption was violated. The ε values are below each of the appropriate ANOVA tables.

Accuracy

Examining the profile plot for accuracy by level of choice (Fig. 1, right), the results were mixed. However, although the difference was not great, the limited choice of topic engendered greater accuracy across the different tasks. The complete choice of topic as well showed high levels of accuracy. It appears that in general, providing the participants a choice of topic exerted an influence on the accuracy of their spoken production. In the graph on the left, the level of accuracy increases linearly for the narrative task but is parabolic for the decision-making task. Pair-wise comparisons with a Bonferroni correction indicated that there were no significant differences between the levels of choice for accuracy.

The results of repeated-measures ANOVA for the accuracy dependent variable are shown in Table 1. There was a statistically significant interaction effect between Task and Choice. The observed power and the effect size for the Choice main effect were both very weak. However, the interaction effect of Task and Choice resulted in high observed power and very high effect size, which may

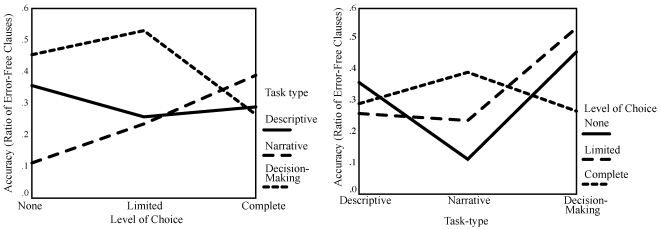

Figure 1. Profile plots of accuracy by level of choice

Table 1. Repeated-measures ANOVA for accuracy

Source	*df*	*SS*	*MS*	*F*	η^2	β
Task[a]	2	.96	.48	8.17*	.29	.95
Error (Task)	40	2.35	.06			
Choice[b]	2	.04	.02	.52	.03	.13
Error (Choice)	40	1.53	.04			
Task x Choice[c]	4	1.66	.42	8.95*	.31	.99
Error (Task x Choice)	80	3.71	.05			

[a] ε = .86; [b] ε = .99; [c] ε = .93; *$p < .017$

indicate a strong relation between the two independent variables and accuracy.

The students produced more accurate output when a modicum of choice was present, although not significantly more. In this study, if the participants were paying attention more closely when engaging in a self-selected task, they may have monitored the language forms in their output more carefully. Despite this potential increase in monitoring, the participants may have been unable to mobilize the linguistic

resources (e.g., morpho-syntactic, collocational, and pragmatic knowledge) to a degree that was high enough to increase the accuracy of their spoken output.

In the NT-CC treatment, there was an increase in accuracy possibly because one student had to write an outline of the story the other student told. This feature of that task may have encouraged the speakers to monitor the accuracy of their output. Willis (1996) and Skehan and Foster (2001) have suggested that if students are required to make a final product, then they will be pushed to focus more on spoken accuracy. This finding lends limited support to this contention.

Complexity

Complexity was calculated using type-token ratio, which is the total number of different words, or types, divided by the total word count. This is a very commonly used statistic, but it has one weakness in that it is influenced by text length: the shorter the text is, the higher the ratio is likely to be. However, as described below, there were no significant differences for the number of words between the various treatments.

Type-token ratio is used when calculating lexical complexity. Because low proficiency speakers may recover from communication breakdowns lexically rather than syntactically, this may be a more appropriate measure of complexity for the participants in this study.

To calculate type-token ratio and word count (for fluency), the appropriate segment of the transcript was copied to an Internet site (http://www.lextutor.ca/vp/eng/) that counts the number of English words, automatically rejecting unfinished words and Japanese words, and provides a type count for the segment as well. The resulting printout from this website was examined carefully for any additional types for type-token ratio analysis (and words for word count) that should be rejected or included into the count. The total number of types was then divided by the total number of words to result in the type-token ratio for that student.

The profile plot for complexity by level of choice (Fig. 2, right) indicates that the limited and complete choice of topic treatments sustained high levels of complexity across all task types. The plot on the left indicates that complexity increased somewhat linearly for the descriptive and narrative tasks, but the level of complexity was parabolic for the decision-making task across the different levels of choice. Pair-wise comparisons with a Bonferroni correction indicated that the limited level of topic choice was higher to a statistically significant degree than the no choice of topic treatment ($p < .05$). The complete choice of topic treatment was also significantly higher than the no choice of topic treatment ($p < .05$). However, there was no statistically significant difference between the limited choice of topic and complete choice of topic treatments.

The results of repeated-measures ANOVA for the complexity dependent variable are shown in Table 2. The main effect of Choice was significant. Although the power and effect size for the interaction effect of Task and Choice were both very low, there was high observed power for the Choice main effect as well as a strong effect size. This indicates that Choice and complexity were strongly related.

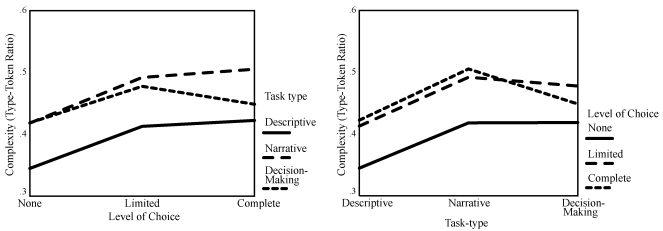

Figure 2. Profile plots of complexity by level of choice

Table 2. Repeated-measures ANOVA for complexity

Source	*df*	*SS*	*MS*	*F*	η^2	β
Task[a]	2	.20	.10	7.74*	.28	.93
Error (Task)	40	.53	.01			
Choice[b]	2	.18	.09	9.98*	.33	.98
Error (Choice)	40	.37	.01			
Task x Choice[c]	4	.02	.01	.74	.04	.23
Error (Task x Choice)	80	.59	.01			

[a] ε = .97; [b] ε = .93; [c] ε = .64; *p < .017

By the simple inclusion of choice in the syllabus, the students produced significantly more complex output. As written previously, more complex output is a possible signal that students are stretching their interlanguage more to meet the demands of the task.

The reason that complexity increased when choice was introduced may stem from an increased utilization of attentional resources in the limited choice treatment. As noted above, Dember et al. (1992) found that their participants were more vigilant with choice. Vigilance also requires a high level of attention. Therefore, in this study, the attentional resources of the students may have been stimulated in a limited measure when they had choice.

The participants' willingness to communicate (WTC) may also have led to the increase of complexity for the limited and complete choice treatments. Such feelings may underlie greater willingness to use more complex language because of the element of risk that is a part of using more complex language. Kormos and Dörnyei (2004) found that learners with positive task attitudes had highly significant correlations of WTC with the number of turns (r = .91, p < .01), another measure of complexity. Enhanced by choice, the higher levels of WTC may have led to more complex output.

In summary, spoken complexity was positively influenced by choice to a significant degree. The finding that linguistic variables (i.e., spoken complexity) that require a manipulation of cognitive resources were influenced by choice is unique to this study. This study is the first to find such an effect on these resources, not from manipulations of task design, but from increases in affective variables, such as in Thurman (2007).

Fluency

Examining the profile plot for fluency by level of choice (Fig. 3, right), highly noticeable decreases in fluency across the tasks for the no choice of topic treatment as well as the limited choice of topic treatment were evident. In general,

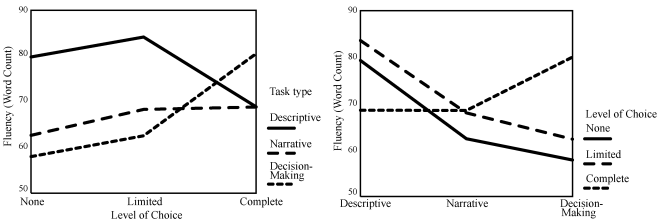

Figure 3. Profile plots of fluency by level of choice

the treatments with choice were again higher than the no choice of topic treatment across the different types of tasks, as with accuracy. The plot on the left indicates that fluency had a linear increase for the decision-making task, very little increase for the narrative task, and a parabolic curve with a steep decline for the descriptive task, across the different levels of choice. Pair-wise comparisons with a Bonferroni correction indicated that there were no statistically significant differences between the different levels of choice amongst the different types of tasks.

The results of repeated-measures ANOVA for the fluency dependent variable are shown in Table 3. There was a statistically significant interaction effect between Task and Choice. As in the results for accuracy, the power and the effect size for the Choice main effect were small. However, for the interaction effect of Task and Choice, the observed power was high and the effect size was large, which may indicate that the two independent variables of Task and Choice together were strongly related to fluency.

Table 3. Repeated-measures ANOVA for fluency

Source	*df*	*SS*	*MS*	*F*	η^2	β
Task[a]	2	4741.46	2370.73	5.34*	.21	.81
Error (Task)	40	17774.32	444.36			
Choice[b]	2	1219.65	609.83	1.84	.08	.36
Error (Choice)	40	13286.79	332.17			
Task x Choice[c]	4	7523.94	1880.98	7.43*	.27	.99
Error (Task x Choice)	80	20254.95	253.19			

[a] ε = .93; [b] ε = .97; [c] ε = .87; *$p < .017$

Although there were no statistically significant differences between the levels of choice, the limited choice of topic was higher than the no choice of topic across all types of tasks. Overall, there was a slight increase in the number of words that the students used to complete the task when choice was available. This is desirable because by producing more output, language learners can experiment more with the language, test hypotheses, and possibly learn the language more efficiently.

This also could be an effect of an increased WTC. Kormos and Dörnyei (2004) found that learners with positive task attitudes had highly significant correlations of WTC with the number of words produced ($r = .93$, $p < .001$), a measure of fluency also used in this study. With choice as part of the treatment, a student's WTC may increase and this in turn may positively influence linguistic variables such as spoken fluency.

For the DMT-CC task, there was a statistically significant increase in fluency. This task had a written component because it was deemed that the topics would be too difficult without some preparation by the students. It is possible that the influence of the writing assignment increased the word count in subtle ways.

In summary, choice exerted a limited effect on the participants' spoken fluency. It may be the case that fluency is less amenable than accuracy or complexity to changes due to the introduction of choice and increased motivation. Be that as it may, open-ended tasks, as were the narrative and descriptive tasks for the complete choice of topic, should encourage students to produce relatively high total word counts when compared to the limited and no choice of topic treatments for these same tasks.

Conclusion

Four conclusions result from this study: (a) choice at some level may positively effect the accuracy, complexity, and fluency a student produces while conducting a task; (b) with choice in the syllabus, the attentional resources of the students may be freed up in a limited way; (c) with choice, the task designer may have more freedom, designing tasks for one aspect of the output but maintaining high levels of other aspects of the output, and (d) with choice, teachers can design tasks that can promote accuracy, complexity, or fluency, but still not lose motivation.

That complexity was positively influenced by choice was an unexpected finding of this study. The reason for this may lie in both the cognitive and the affective domains. For the cognitive domain, Dember et al. (1992) found that participants were more vigilant in noticing changes in a flashing bar on a computer screen when they were told they had a choice in the implementation of the task, compared to those who had no choice. Vigilance requires a great deal of attention, and it is possible that with choice, some attentional cognitive resources were freed up to a certain degree so that students paid more attention to the complexity of their language output. This hypothesis may fit with Skehan's (2007) Tradeoff Hypothesis, which claims that with attentional resources freed up in one capacity, such as fluency, those resources may be allocated for another capacity, such as complexity. This was the result even for the limited level of choice, when the requirements of the task were similar to those for the no choice of topic task. In other words, controlling for moderating variables as much as possible so that choice may be singled out, choice itself may have inspired more complex output.

It was postulated during the presentation of this data at JALT2007 that students might have overwhelmingly chosen a task topic that was easier in terms of vocabulary. Although the DT-NC and DT-LC treatments and the NT-NC and NT-LC treatments were taken from the same sources, there is no definite assurance that there were no differences in difficulty between them, even though the topics were examined carefully for differences beforehand. This might especially be true of the DT-LC treatment, where a single topic was chosen for 14 of the 21 pairs, and for the NT-LC treatment, where a single topic was chosen for 15 of the 21 pairs. The students might have evaluated these topics, when chosen, to be easier or more familiar (which makes the task less

difficult, e.g. Ellis, 2003). However, Skehan and Foster (e.g. Foster & Skehan, 1996, 1999; Skehan & Foster, 1997, 1999, 2001, 2005), and Robinson (1995, 2001a, 2001b, 2003) have claimed that a task that is relatively easy will not engender higher levels of complexity. In this study, students produced significantly more complex output with choice for both the descriptive task and the narrative task. The design of this study included three levels of choice with three different task types. With a tighter focus upon two task types, descriptive and narrative, and two levels of choice, none and limited, many more participants may be included and this limitation may be alleviated.

With the simple introduction of choice, complexity was positively influenced by choice to a statistically significant degree and accuracy and fluency were positively influenced as well. These findings are important not only to teachers, but also to researchers who are interested in the cognitive processes that students engage in and how attention can be freed up for use in other areas of output. With choice, a wide spectrum of concerns of both teachers and researchers can be manipulated and improved.

John Thurman is currently working at Hyogo University of Education. He is finishing his doctoral studies at Temple University, Japan. The topic of his dissertation is *The interaction of topic choice and task-type in the EFL classroom*.

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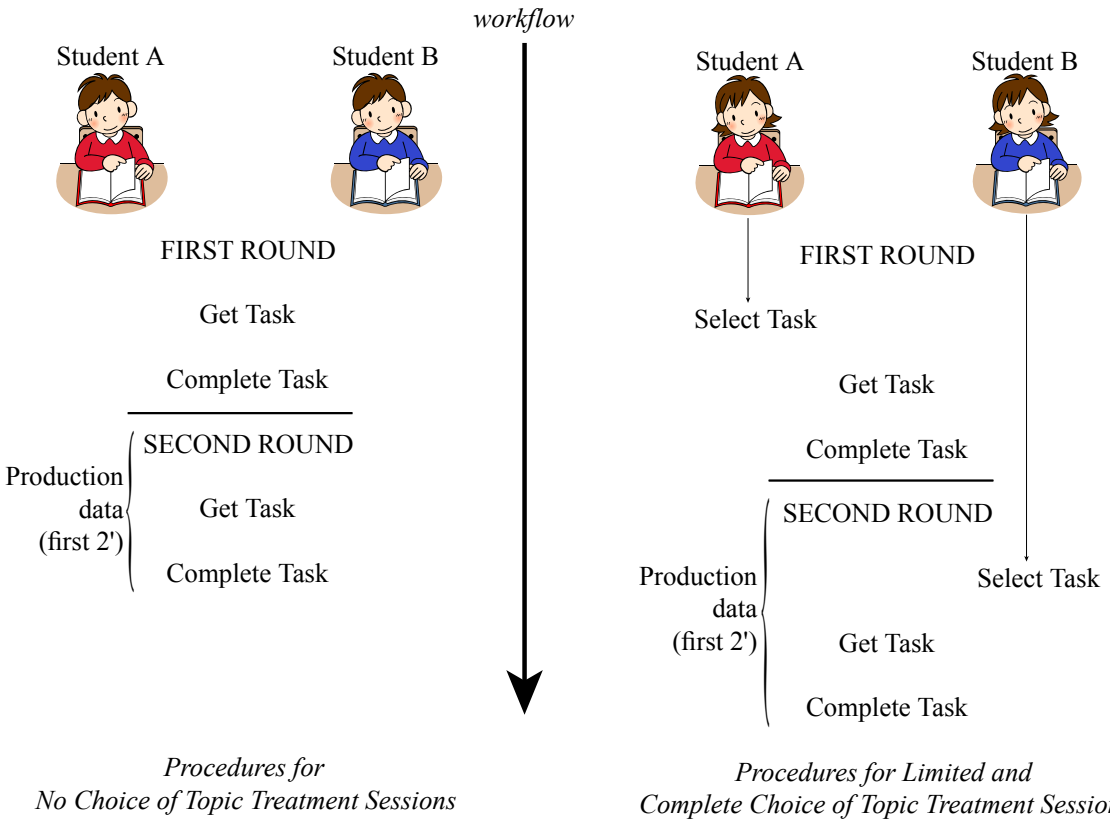
Appendix 1

Procedures used during data collection



Procedures for No Choice of Topic Treatment Sessions

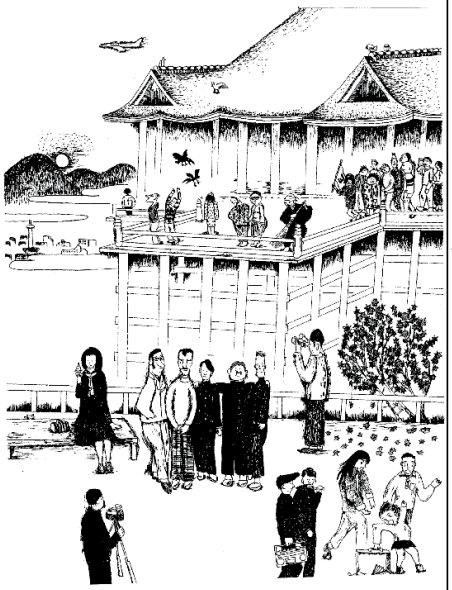
Procedures for Limited and Complete Choice of Topic Treatment Sessions

Appendix 2

Example of descriptive task (from Nicholson & Sakuno, 1982)

Partner A: Page 1

Please describe this picture to yourpartner to complete the answers.



Partner B: Page 1

In this picture, there are many missing spaces. Your partner will describe the full picture to you. Please put the numbers below next to the proper picture on Page 2

Partner B: Page 2

Where do these pictures go on Page 1? Listen to your partner describe the picture and please put the number of the missing place where the picture should go. Thank you.

A Bag

A Priest

Appendix 3

Decision-making tasks: Limited choice

No Choice of Topic, First-Round Task:

You and your partner have won a prize to visit three foreign countries. You can visit any three foreign countries but you only can spend one day in each country. The rest of the time you will be traveling in the plane. What three countries would you and your partner like to visit? Why do you two want to go to that country? Please discuss and decide with your partner which countries you would like to visit.

No Choice of Topic, Second-Round Task:

Please decide the following. You and your partner will be able to visit six world leaders of today. What questions would you like to ask them? Please write a question for each world leader.

_____

Topics for Limited Choice of Topic, First-Round Task:

1. You and your partner will have a visitor from the United States. You and your partner have one day to take him to Kyoto. You and your partner have enough time to take this person to six (6) places. Which places do you want to go to? Please put a check next to the places you want to go to. Good Luck! (adapted from http://www.pref.nara.jp/nara_e/index.html).

2. You and your partner will go on a camping trip. What will you and your partner take? You will already have a tent, a sleeping bag, and a backpack. What ten (10) things will you take?

3. The university will make a time capsule. This is a box where you put personal things and then the time capsule is put in the ground. This time capsule will be removed from the ground in 100 years. What four (4) things will you put in this time capsule? Please choose four things with your partner and the reason for putting them in the time capsule. Good luck!

Topics for Limited Choice of Topic, Second-Round Task:

1. You and your partner will have a visitor from the United States. You and your partner have one day to take him to Kyoto. You and your partner have enough time to take this person to six (6) places. Which places do you want to go to? Please put a check next to the places you want to go to. Good Luck! (adapted from http://www.japan-guide.com/e/e2155.html).

2. You and your partner will go America. You and your partner only have enough space to take ten personal items between you. What will you and your partner take in your luggage? Please choose ten (10) things to take. What ten (10) things will you take?

3. You will make a home page of famous Japanese people of today. You and your partner only have enough space to write about four (4) people. Please choose four people and the reason you chose that person.

Appendix 4

Decision-making tasks: Complete choice

A week ago, I gave you the list of topics to do for today. Please circle the topic you want to do today. Here are the topics:

The garbage problem
Global warming
Bad smells
Dwindling resources
Rising sea levels
Fish depletion
Nuclear waste
Golf course construction
Desertification
Dirty air
Dirty water
Endangered species
Population increase
Food additives
Acid rain
Deforestation
UV radiation
Soil pollution
Freon gas
The ozone hole
CO2
Sinking land
Heat islands
Kitchen waste
Noise
Dioxin
Bird influenza
Deforestation
Dirty Oceans
Your own topic: _____

Now, please discuss with your partner the topic. You should be able to discus

1. What the problem is.
2. What the cause of the problem is.
3. How the problem can be made better.

Now, discuss with your partner the above. In the space below, write how you and your partner think this problem should be made better: