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journal or publication title	Science and Technology reports of Kansai University = 関西大学理工学研究報告
volume	51
page range	33-45
year	2009-03-20
URL	http://hdl.handle.net/10112/918

A Study on Smoking Spaces in a University Campus: The Case of Kansai University, Japan

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(Received October 4, 2008)

Abstract

Smoking problems are serious for human health. However, there are many students smoking at universities. One awkward problem for a university is to provide suitable spaces for smoking on campus.

The purpose of this study is to clarify the relationships between smoking space and smoking behavior. In this study, the smoking places on the campus of Kansai University are surveyed and we investigated where university students smoke, how they behave, and what kind of equipment is furnished there. From the results, we try to get hints for creating good, safe smoking environments and for improving them.

1. Introduction

Smoking is undesirable for human health. In Japan, the law Health Japan 21 was made in 2000, and the Health Promotion Law, in 2002, in order to maintain public health and to prevent present age disease. In these bills, the prevention of passive inhalation of cigarette smoke is described. In 2005, the WHO Framework Convention on Tobacco Control became effective, and a lot of countries in the world signed this treaty. In 2006, a No Smoking Support Manual was issued in Japan. Since passive inhalation of tobacco smoke influences a person's health, most places are no smoking areas in Japan, and even outdoor spaces on the street are mostly no smoking areas, not to mention public buildings. Places where smoking is permitted are very limited.

In this study, smoking places and spaces are investigated on the university campus. On most Japanese university campuses, smoking is not permitted, and most spaces inside buildings are no smoking areas. A smoking corner or a smoking room might on occasion be able to be set up. It is likely, however, that smoking will be possible if it is an outdoor space. The smoking problem at a university is very serious, as not only does it concern students' health, but also there is danger of a fire.

The purpose of this study is to clarify the relationships between the smoking spaces and smoking behavior, in order to obtain insights for creating good, safe smoking environments and for improving them. Therefore, we surveyed where the university students smoke, how they behave, and what kind of equipment is provided there.

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Prior investigations¹⁻³⁾ have focused on the smoking places in an office, station, park, restaurant, and so on. Furthermore, there are also studies^{4,5)} on the smoking behavior of university students and their consciousness about smoking. For the study on smoking spaces in the university campus, the smoking environment was investigated using video cameras set up in three places⁶⁾. However, this was thought to be insufficient, because only a few places were investigated, and the relationship between the space and behavior was not made clear enough. In our study, to increase the scope, field surveys were carried out so that we can survey a lot of places and gather a lot of data.

2. Methods

First, the smoking situation at the campus of Kansai University is investigated, and the current state of all smoking places in the university is researched. Next, the smoking places for field surveys are selected, and the surveys carried out. The space, and the behavior of both smokers and non-smokers in it are observed. They are recorded on data sheets in detail. The relationships between them are discussed, and their spatial behavior characteristics are clarified.

(1) Smoking places surveyed

In this study, 9 outdoor smoking places at Senriyama campus, Kansai University were selected for the survey under 13 headings. These places are shown in Figs.1 and 2.

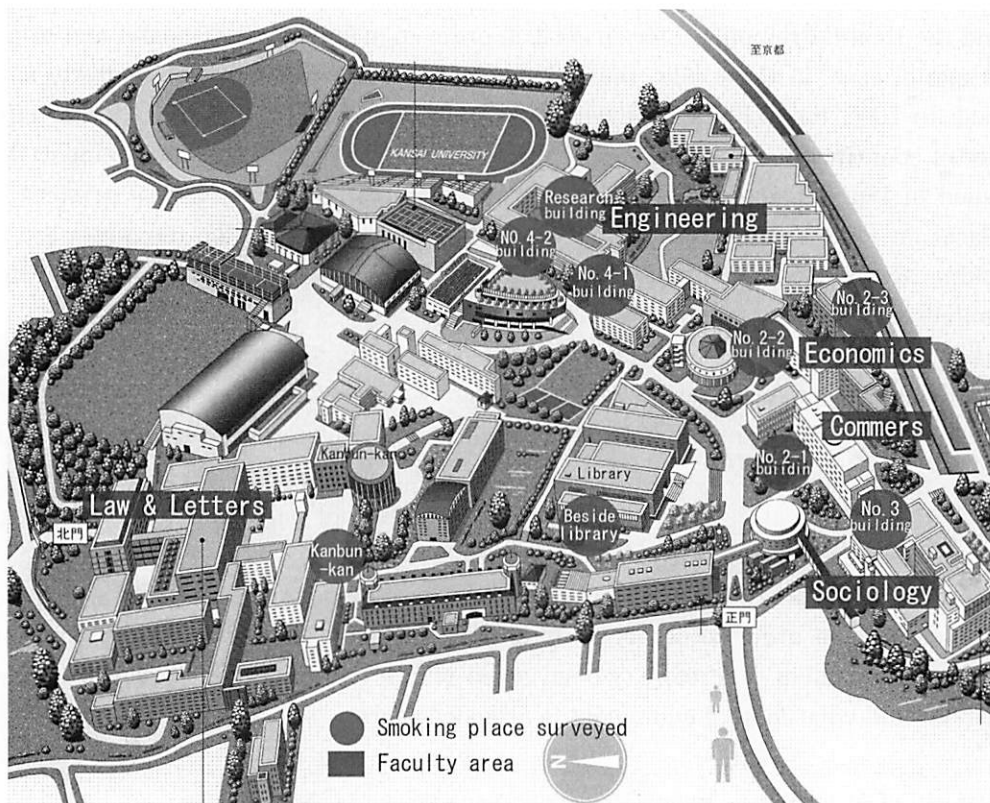


Fig. 1 Smoking places surveyed in the university

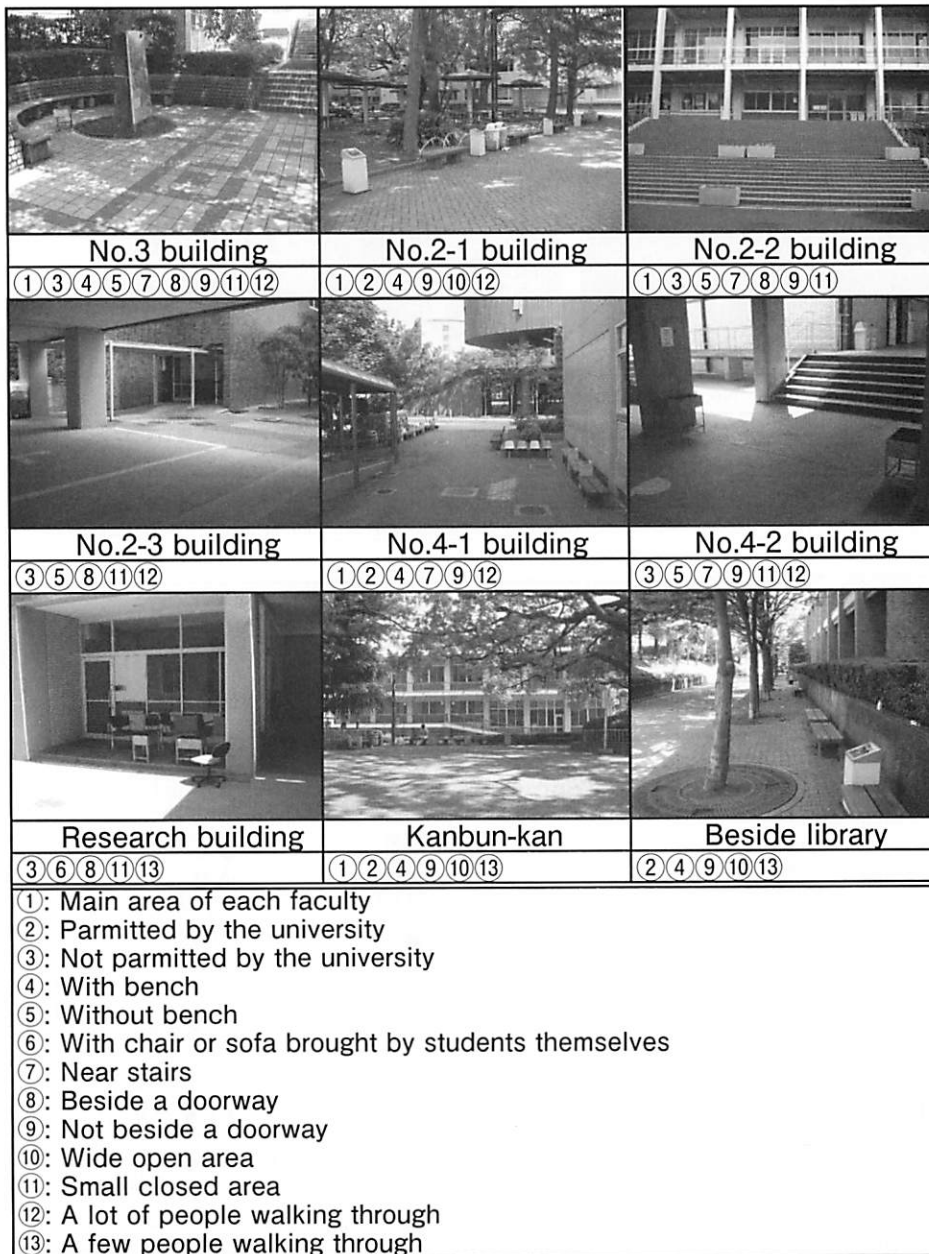


Fig. 2 Smoking places and criteria

(2) Survey method

The number of people, smoking behavior, situation, pose, impression, feature, etc. were recorded on the investigation sheet, and photos taken. The survey time is during breaks between classes, at lunch time and during class time. The survey was carried out three times at each place and at each time.

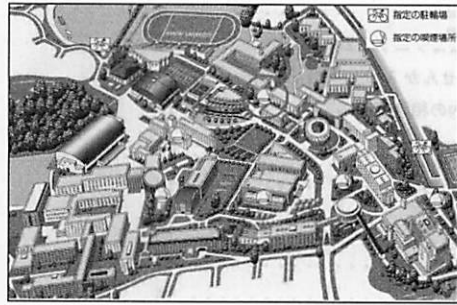
(3) Data sheet

The data sheets were made based on the investigation sheets and photos surveyed. An example of part of a data sheet is shown in Fig.3.

(4) Survey period

The survey period was from November to December, 2007.

No.4-1 building



Left: view
Right: location

Place	No. 4-1 building
Date	24/11/2007, Sat
Time	10:36-10:41 Resting time
Weather	Clear
Temperature	9.6 °C

Check	<input type="checkbox"/> Ashtray: free standing	<input type="checkbox"/> Plants
	<input type="checkbox"/> Ashtray: box	<input type="checkbox"/> Tree
	<input type="checkbox"/> Ashtray: others	<input type="checkbox"/> Trash box
	<input type="checkbox"/> Bench	<input type="checkbox"/> Beside doorway
	<input type="checkbox"/> Stairs	<input type="checkbox"/> Under roof
	<input type="checkbox"/> Steps ()	<input type="checkbox"/> A lot of passers by
	<input type="checkbox"/> Chair: someone brings	<input type="checkbox"/> Few passers by

Recording methods
※Example : There was a man smoking sitting on a bench drinking and talking with his friends. ⇒①(②, ③·③) Expression: ●(B1, 1·3)
①Smoker or non-smoker
● : Smoking man ○ : Non-smoking man ▲ : Smoking woman △ : Non-smoking woman
②Poses
A : Standing B : Sitting on B1 : bench B2 : ground B3 : stairs B4 : others () C : Walking D : Others ()
③Behavior
1 : Drinking 2 : Eating 3 : Conversation 4 : Operating mobile phone 5 : Calling by phone 6 : Reading 7 : Listening to music 8 : Studying 9 : Doing nothing 10 : Others ()
Ashtray: ⊗ free standing ⊠ Trash box 1 ⊞ Ashtray: box ⊡ Trash box 2 ⊙ Ashtray: others ▤ Bench ▨ Roof or eaves △ Doorway ⊕ Tree ⊞ Planting

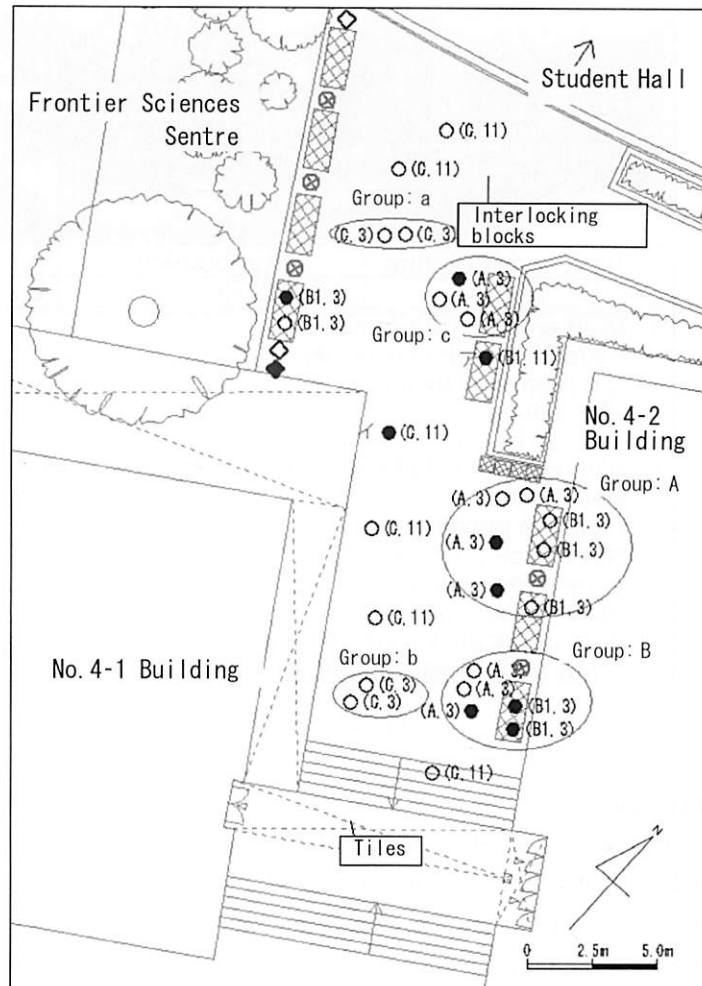


Fig. 3 Example of part of a data sheet

3. Results and Considerations

3.1 Current state of all smoking places

(1) Ashtray types

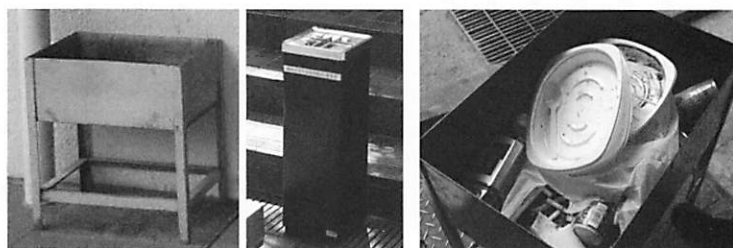
There were mainly two types of ashtray at the campus. One was the box type. The other was the free standing type. These are shown in Photo 1. In the case of the box type, there were not only cigarette ashes but also a lot of plastic wastes. This is a fire hazard (see Photo 2).

(2) Number of ashtrays

The total number of all ashtrays on the university campus is 113. 38 are box type, 72 are free standing type, 'other' are 3. There were a lot of smokers using cans after they have drunk them dry, but a few smokers were using portable ashtrays. Over 80% of ashtrays are not allowed by the university. This shows that the students were setting up ashtrays without permission, and they smoked there. One of the reasons is that the signboards for no smoking are not easily seen (Photos 3 and 4).

(3) Ashtrays beside a bench and beside a doorway

50% of the ashtrays are beside a bench. 38% of the ashtrays are beside a doorway to a school building. In this case, a lot of cases can be seen around the doorway that the students usually make use of. And 5.3% of the ashtrays are both beside a bench and near a doorway.



Box type

Free standing
type

Cigarette ashes and plastic
waste in box type ashtray

Photo 1. Ashtray type

Photo 2. Waste in ashtray



Signboard for smoking place

Sign on the wall for prohibiting
smoking

Photo 3. No. 4-1 building

Photo 4. Non-smoking place

3.2 Smokers

The total number of people at the smoking places surveyed was 1,448 (Fig. 4). The number of men was 1,064 (73.5%) and women was 384 (26.5%). The ratio of all smoker is 24.2%. 31.0% are smoking men and 5.2% are smoking women. The smoking ratios are shown in Fig. 5 smokers vs. all people at the smoking place. At the permitted places, the ratio is high except “Beside library”. The ratio of “Beside library” is low, because that this place is not for smoking but for walking through, and students can not stop to smoke (Photo 5). In “Kanbun-kan”, the ratio of women is high. The reasons are that there are many women around Kanbun-kan, and that women also use this space easily and feel calm because there are many plants and trees, and women may not worry about the public notices. Furthermore, in “No. 3 building”, “No. 4-1 building”, “No. 4-2 building” and “Research building”, the ratio is high, because these smoking places are beside a doorway, and many students smoked beside the doorway there (photo 6). It seems that students want to come out of the school building and to smoke at once after their class has finished.

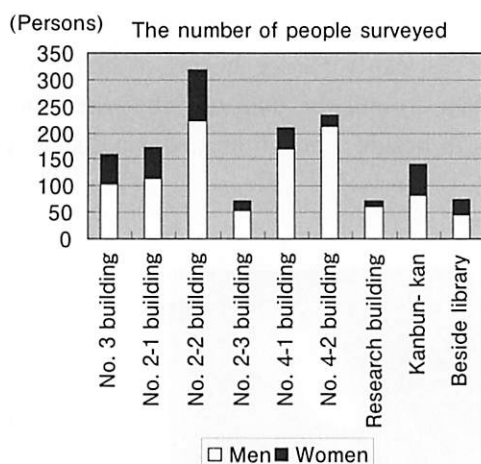


Fig. 4 Number of people surveyed

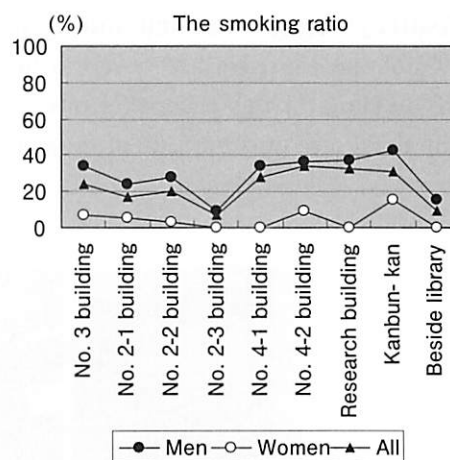


Fig. 5 Smoking ratio

3.3 Smoking poses and behavior

(1) Smoking poses

The poses of the smoker and non-smoker are shown in Fig. 6. In the case of the smoker, the ratio of “Standing” is high and that of “Walking” is low. On the other hand, for the non-smoker, that of “Walking” is high and that of “Standing” is low. This shows that the smokers are standing and staying at the smoking place, although there are some benches, and the non-smokers walk through the smoking place and neither stop to stand nor sit down on the bench there. With regard to “No. 2-3 building”, the ratio of “Standing” is 100% and the non-smokers’ ratio of “Walking” is 100%. At this smoking place, there is no bench, and people can neither stay nor smoke because this smoking place is narrow and beside the doorway. In the case of places which have benches, the smokers’ ratio of “Sitting on a bench” is high and that of “Standing” is low at “No. 2-1 building” and “Kanbun-kan”. However, at “No. 3 building”, the smokers’ ratio of “Sitting on a bench” is very low and that of “Standing” is high, although there are some benches (Photo 7). At “Beside library”, the smoker’s ratio of “Walking” is higher than “Sitting on a bench” or “Standing”. At a “Research building”, both the smokers’ and non-

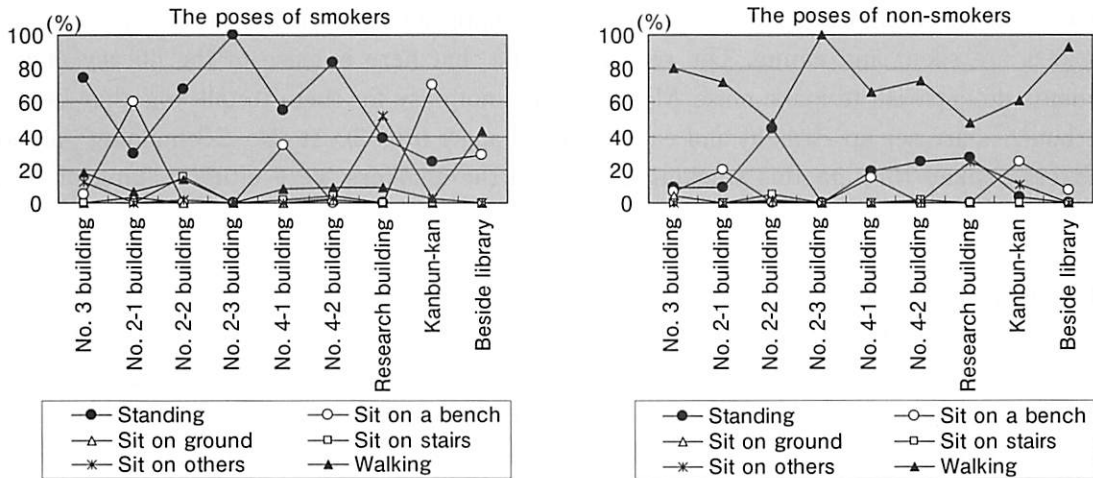


Fig. 6 Smoking poses

smokers' ratio of "Sitting on other things" is high. This shows that someone brought chairs or sofas to this smoking place to make the space comfortable (Photo 8). At "No. 2-2 building", the smoker's ratio of "sitting on stairs" is relatively high. At this place, the non-smokers' ratio of "Standing" is highest (Photo 9).

(2) Behavior of smokers and non-smokers

The behavior of smokers and non-smokers is shown in Fig. 7. In the case of both the smoker and the non-smoker, the ratio of "Conversation" is highest in most places. This shows that non-smokers can enjoy talking with smokers at the smoking places. With regard to the smokers, the ratio of "Doing nothing" is high, while for the non-smokers, that of "Eating" is high. Especially, the non-smokers' ratio of "Eating" is high at places which have benches or big stairs. This shows that non-smokers can eat even in a smoking place if they can sit down on a wide bench or big stairs, and feel relaxed (Photo 10). The ratio of "Eating" is higher than "Drinking". At "Beside library", the ratio of "Conversation" of both the smoker and the non-smoker is lowest and that of "Operating mobile phone" and "Doing nothing" is high. The

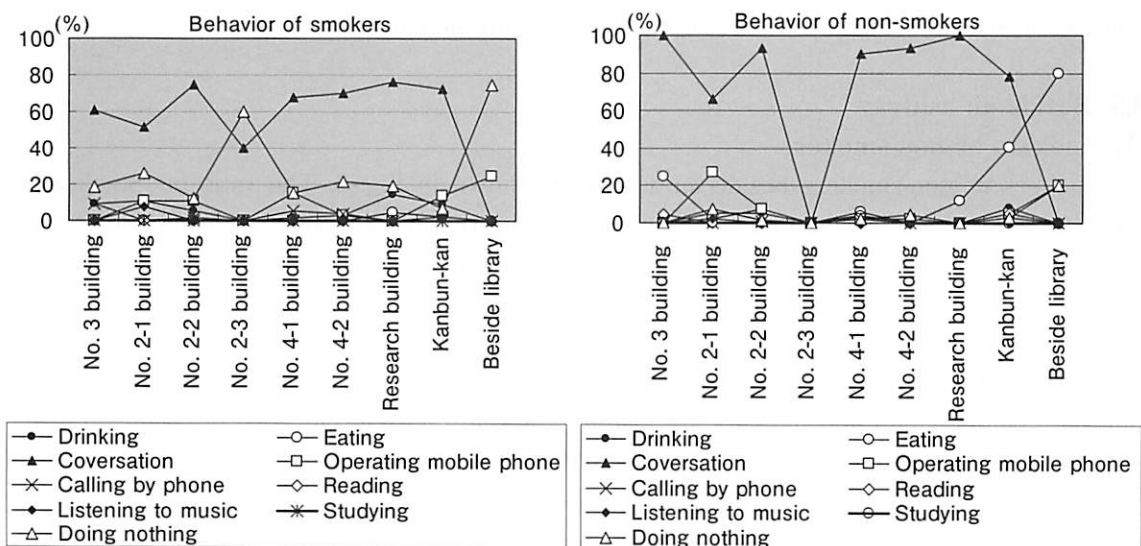


Fig. 7 Behavior of smokers and non-smokers

smokers at these smoking places are silent and doing nothing. On the other hand, the non-smokers are silent and eating. The reason may be that here is close to the library and the students do not wish to make noise. Moreover, it is not easy for them to talk together because the benches are set up straight and each bench is apart (Fig. 2). At “No. 2-3 building”, all non-smokers walked through this smoking place, and the smokers were either talking or doing nothing.

3.4 Differences of time

The smoking ratio according to the time is shown in Fig. 8. In general, the ratio of “Lunch time” is relatively low and that of “Resting time” is relatively high, although there are differences between places. The reason is that not only smokers but also non-smokers have lunch at smoking places where there are benches or stairs, apart from beside a doorway. There are a lot of people in the smoking places during lunchtime. Furthermore, the smokers tend to smoke during the break times because they cannot smoke during the class time. In the cases of “No. 3 building”, “No. 2-1 building”, “No. 4-1 building” and “No. 4-2 building”, the ratio of “Break time” is highest. The common feature of these smoking places is that they are close to the school building the lower grade students usually use for their classes. The lower grade students can smoke only in breaks and cannot smoke during class time because they must attend a lot of classes and must have lunch only during lunchtime. With regards to “No. 4-1 building” and “No. 4-2 building”, the ratio of “Lunch time” is high. The students can take a rest, talk together and feel relaxed, because they can sit on a wide bench or big stairs at this smoking place. In the cases of “No. 2-2 building”, “Research building” and “Kanbun-kan”, the ratio of “Class time” is high. With regard to “No. 2-2 building”, there is a convenience store and stairs near this smoking place, and a lot of people come there and take a rest, in spite of it being class time. With regard to the “Research building”, the students at a research building are more senior and research regardless of class time hours. They can smoke during class time. Furthermore, the ratio of “Resting time” is high as well, because there are not only senior students but also lower grade students on breaks at the researching building. The “Kanbun-kan” is a museum and research centre. The higher grade students, regardless of whether it is class time or not, tend to make use of this smoking place.

3.5 Beside an ashtray

(1) Smokers or non-smokers

Smokers or non-smokers beside an ashtray is shown in Fig. 9. The ratio of “Smokers” is the ratio of smokers beside an ashtray against all the rest of the smokers. The ratio of “Non-smokers” is the ratio of non-smokers beside an ashtray against all the rest of the non-smokers. In all smoking places except “No. 2-3 building”, the ratio of “Smokers” is higher than that of “Non-smokers”. In the cases of “No. 2-2 building”, the ratio of both “Smokers” and “Non-smokers” is low. This shows that smokers as well as non-smokers are apart from ashtray. The reason is that both smokers and non-smokers are able to stay there without an ashtray because there is a big flight of stairs and a wide space (Photo 11). In the case of “No. 3 building”, the difference between “Smokers” and “Non-smokers” is large. It is thought that only smokers use the ashtrays because this smoking place is set apart from the students’ main walking route.

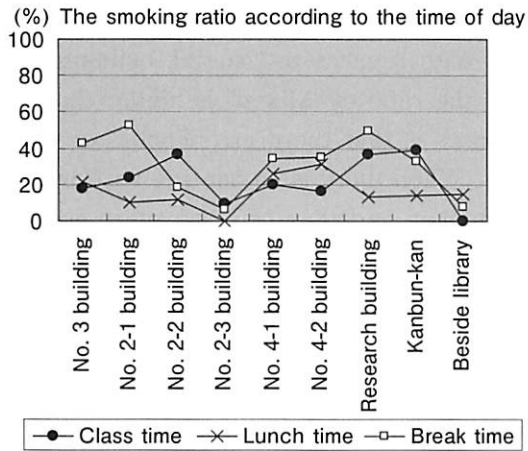


Fig. 8 Smoking ratio according to the time of day

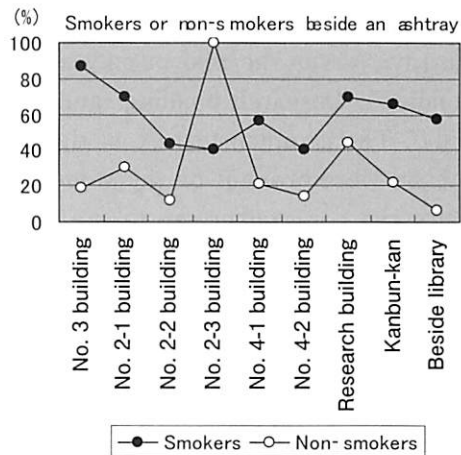


Fig. 9 Smokers or non-smokers beside an ashtray

(2) Group or alone

Group or alone is shown in Fig. 10. The ratio of “Group” is the ratio of groups beside an ashtray against the rest of the groups. The ratio of “Alone” is the ratio of lone smokers beside an ashtray against all the rest of lone smokers. The ratio of “Alone” is higher than that of “Group”. In the cases of “No. 3 building” and “Research building”, the ratios of both “Group” and “Alone” are high. With regard to “No. 3 building”, the smoking place is beside the doorway, and many students use it. When the students use this smoking place, they naturally get close to the ashtray since this space is narrow and surrounded loose. With regard to the “Research building”, three ashtrays are standing apart from each other, and there are benches at each ashtray. This shows that the smokers can select and occupy an ashtray and they will naturally get close to the ashtray when they sit down on a bench.

(3) Groups in which both smokers and non-smokers coexist

Groups in which both smokers and non-smokers coexist are shown in Fig. 11. The ratio of “Mixed” means groups of smokers and non-smokers beside an ashtray versus the rest of the

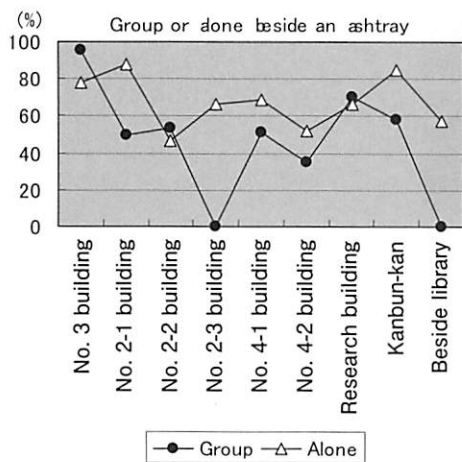


Fig. 10 Group or alone beside an ashtray

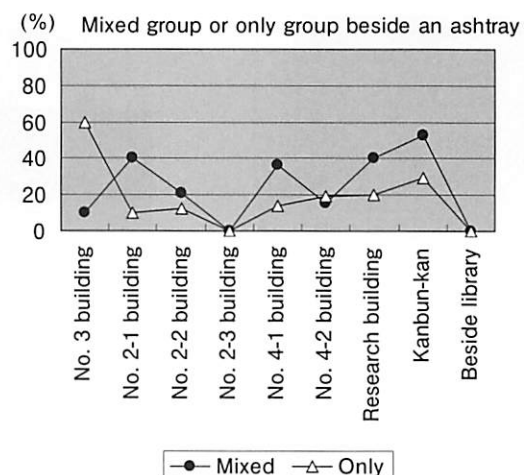


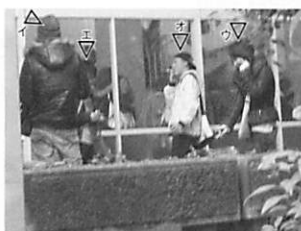
Fig. 11 Mixed group or only group beside an ashtray

mixed groups. The ratio of “Only” is the ratio of groups in which all people are smoking beside an ashtray, versus the rest of only smoker groups. With regards to “No. 2-1 building”, “No. 4-1 building”, “Research building” and “Kanbun-kan”, the ratio of “Mixed” is higher than that of “Only”. The common feature of these smoking places is that there are benches or chairs. The chairs were brought by the students themselves. When there is an ashtray with benches or chairs, the non-smoker can take a rest with the smoker, and they can also share activities with the smoker easily (Photo 12). In the case of a mixed group of smokers and non-smokers various activities such conversation, eating, drinking and reading could be seen besides smoking.



A lot of people walking through the smoking place

Photo 5. Beside library



A lot of smokers beside a doorway

Photo 6. No. 3 building



Smokers standing near the benches

Photo 7. No. 3 building



The chairs brought by students themselves to make them comfortable

Photo 8. Research building



Smoker sitting on stairs and non-smokers standing

Photo 9. No.2-2 building



Non-smokers eating with a smoker

Photo 10. Research building



The smokers away from an ashtray on the big stairs

Photo 11. No. 2-2 building



Both smokers and non-smokers on the benches

Photo 12. Kanbun-kan

4. Conclusion and Proposal

4.1 Setting up signboards that show smoking areas clearly

Currently, signboards for smoking are not easily seen. It is necessary that the signboard should be easily understood. A sign stating the identity of a smoking place is needed as well. Furthermore, there should be diversity where each smoking place has an original spatial feature.

4.2 Needed: two kinds of smoking place

(1) Only smoker use

From the results, it was found that there were many smokers near the doorways of school buildings, and they were smoking standing there even if there were some benches. This shows that they wanted to smoke at once after their class and they wanted to finish smoking quickly. This case can be seen during breaks at the school building used by lower grade students. For this type of smoking place, a bench should not be furnished and the smoking place should be surrounded with plants or walls, so that smokers can be confined. Smoking places should be set up near doorways, but they should not interfere with human traffic lines. In addition, signboards should be displayed so that people can identify smoking places easily.

(2) Both smoker and non-smoker use

From the results, it was found that non-smokers can easily take a rest with smokers, if benches are set up beside an ashtray. There were many smokers and non-smokers taking a rest there together during long breaks. This case can be seen during lunchtime at places where students can sit down on benches or big stairs. For this type of smoking place, wide, comfortable benches should be set up and the smoking space should be surrounded with plants and trees, so that people can feel calm and relaxed. Moreover, such smoking places should be set up away from doorways, and should be arranged so that groups of smokers and non-smokers can converse, eat, drink, and read, together. It is important to arrange the benches for them as well.

4.3 Making use during class time

The higher grade students are researching regardless of whether or not it is class time and may be smoking during class time. Such cases can be seen at places like the research building, special institute or the museum. Furthermore, a lot of people come together at such places as the convenience store, student hall, or big stairs regardless of whether or not it is class time. For these types of smoking place, it is necessary to be able to use them considering human traffic, time and noise. The smoking place for class time should be close to the school building that the higher grade students usually make use of. On the other hand, a place is also needed apart from the school building so that the lower grade students can use it.

4.4 Leading smokers

It was found that there are a lot of smokers who started to smoke at the place beside the doorway of a school building at once after their class was over. This shows that the smokers smoke when they come out of a narrow indoor space to the outdoor opened space. It is

possible to lead the smokers to the smoking place permitted to smoke, if there is a narrow indoor passage between the school building and the smoking place. In this way, it would be possible to prevent smokers from staying and crowding at the place beside the doorway of a school building.

4.5 Don't set up ashtrays near the edge of a space

The group in which both smokers and non-smokers coexisted tended to surround the ashtray. Thus, the ashtrays should not be arranged on the corner or at the edge of a smoking space, so that a lot of people can make use of the ashtray. However, there was a case in which only one group occupied an ashtray. The number of ashtrays and setting places should be considered, so that other smokers can make use of it, too.



Smokers surrounding an ashtray



Smokers surrounding an ashtray and standing near the benches

Photo 13. Ashtray on the edge of the space



A smoking woman on a bench alone



Smoking women on a bench

Photo 14. Smoking women



Smoking alone and standing near the benches



Smoking alone and listening to music

Photo 15. Smoking alone

4.6 Special smoking spaces

(1) For women

At the silent smoking place where people are few or during class time, women smoking secretly and quietly can be seen. It is thought that consideration for women is necessary, since the smoking ratio of women is not low and some of women worry about being viewed smoking in public. In this case, using plants, trees, translucent glass or membrane might be effective to gently obstruct the eyes of others.

(2) For one person

From the survey, especially during the class time, the smokers smoking alone can be seen. In fact, some of the smokers said, "I would like to smoke alone". Furthermore, school administration staff and teachers smoking alone can be seen as well. For such people, a smoking space for one person is necessary.

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