

小学校教諭の校内の樹木や森林環境教育に対する意識

— 神奈川県藤沢市の事例 —

Elementary school teachers' level of consciousness concerning trees in their schools and forest environmental education

- Case study of Fujisawa in Kanagawa Prefecture -

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要旨：藤沢市立小学校全 35 校の校内の 8 年間にわたる樹木調査の結果、生徒の危険防止や美化の目的で各小学校の校庭内の樹木が減少していることが明らかになっている。しかし、教育の場としての校内の樹木や森林環境教育に対する小学校教諭の意識はどのようなものか不明である。そこで、本研究目的は、藤沢市立小学校教諭の校内の樹木活用の実態や森林環境教育に対する意識を明らかにすることである。調査対象は、2014 年 8 月 26 日に藤沢市立小学校理科教育研究会の理科教育研究会の研修の一環として行なわれた「子ども樹木博士」に参加した教諭 23 名を対象とした。その結果、樹種名を知らない教諭ほど、授業等で校内の樹木を活用していないことが明らかとなった。また、森林に関する教育の必要性と教育意欲に関する質問の回答の分析から、森林環境教育に対する教諭の意識は必ずしも高くないと考える。現在の指導要領の中で森林に関する教育を推進していくためには、教諭の力も必要だが、環境の整備も必要だろう。

キーワード：意識、森林環境教育、小学校教諭、藤沢市

Abstract: As a result of an eight-year survey of trees in all 35 elementary schools in Fujisawa, it was found that the number of trees in the school grounds of each elementary school has decreased. This is has been performed in the interests of danger prevention and the beautification of the area. However, elementary school teachers' level of consciousness of the trees in their elementary schools and the need for forest environmental education is unknown. Therefore, the purpose of this study is to clarify teachers' consciousness of the actual situation of trees as educational tools and forest environmental education in elementary schools. The subjects of the survey were 23 teachers who participated in the Fujisawa elementary school science education meeting on August 26, 2014. From this, it was recognized that teachers who do not know the names of trees do not use trees as educational tools in elementary school and that the teachers who do use trees use them for science. In addition, from analysis of answers concerning the necessity of and motivation behind forest environmental education, we believe that teachers have insufficient consciousness of forest environmental education. Improving the ability of the teacher and environmental maintenance in elementary schools is necessary to promote education about forests in current courses of study.

Keywords: consciousness, forest environmental education, elementary school teacher, Fujisawa

I Introduction

In recent years, the interest in forest environmental education has increased. In 2014, a special feature on the study of forest environmental education was included in the Japanese Forest Society's journal, Vol. 96 No. 1 (10). Forest environmental education is designed to inspire interest in the relationship between human society and the forest by

increasing familiarity with trees and forests and through activities that deepen children's understanding and thinking in the future (7). The Forestry Agency promotes the use of the forest for education based on experiences and participation in forest environmental education (6).

However, there is little forest in the vicinity of elementary schools in urban areas and there are few opportunities to gain

experience and learn about contact with the forest and the use of wood from the forest in everyday life in modern society (5). In addition, children's playgrounds are often indoors (4). Staying in an elementary school is important for a child as it is a long-term place of learning and a familiar environment. Familiar environments (in particular, elementary schools and parks, etc.) have been previously as materials to allow children to learn about trees (8). As a result of an eight-year tree-related survey on all 35 elementary schools in Fujisawa, it was found that the number of trees in the school grounds of each elementary school had decreased in the interests of danger prevention and the beautification of the area (9). Since there are few forestry-related tree species in elementary schools, it is difficult to link directly to forests and forestry. However, there is a possibility for the use of trees in elementary schools as an introduction for someone interested in trees (9).

Therefore, a purpose of this study is to clarify municipal elementary school teachers' consciousness of the reality of forest environmental education concerning trees utilized in schools in Fujisawa.

II Survey participants

Fujisawa is located in the southern part of the center of Kanagawa prefecture. Blessed with convenient proximity to transportation such as railroads, it has become a sightseeing spot and a health resort and has residential areas in the suburbs of the metropolitan area, such as "Enoshima" and "Shonan Coast," that face Sagami Bay (2, 3). It is a city of approximately 420,000 people that developed as an industrial and commercial city around Fujisawa Station. The city itself is dissimilar to the Tokyo downtown area; however it is larger than a village.

The subjects of the survey conducted in this study were 23 teachers who participated in the Fujisawa elementary schools science education meeting on August 26, 2014 in Nihon University (College of Bioresource Sciences). The content of the workshop was the "children's tree doctor" which is referred to in a literature (9).

III Methods

After the training, we conducted a questionnaire survey on the following four items: 1) The forest, trees, and the actual situation of education on wood, 2) The actual environmental situation of trees in elementary school campuses, 3) Necessary materials for the promotion of forest environmental education,

4) Intentions to practice forest environmental education.

Five phases of evaluation data were examined through principal component analysis (PCA). The question items were as follows: 1) the need for an emphasis on forest environments in elementary schools, 2) enforcement of forest environmental education in elementary schools, 3) the need for trees in elementary schools as educational materials, 4) intentions for the enforcement of the "children's tree doctor." The PCA was performed using R software and the first two components were chosen to plot the principal component scores.

IV Results and discussion

As can be seen in Figure 1, most of the teachers who participated were between their 20s and 30s in age, suggesting that relatively young teachers appear to be more motivated towards forest environmental education. The results for each item of the questionnaire are as follows:

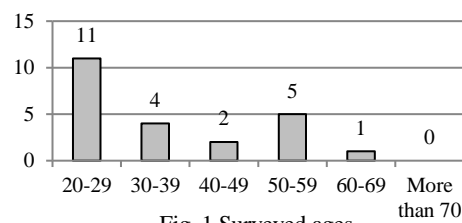


Fig. 1 Surveyed ages

1. School hours and educational content concerning forests

Most of the participants responded to this question by giving the number of hours they devote to science education, while others provided the hours devoted to social studies. Many gave life environmental studies for their answer for item "Other" in Figure 2. In relation to the educational content, types and characteristics of trees are commonly focused on in science and Kanagawa forestry is focused on in social studies. Education relating to fallen leaves and nuts is conducted during drawing and crafts classes.

2. Teachers' knowledge of tree species

"Ignorance" and "less than ten" were commonly provided as answers (65%) to the item pertaining to the numbers of tree species that the teachers can recognize, as can be seen in Figure 3. Nine of the participants who gave response of "ignorance" and "less than ten" were teachers in their 20s. On the other hand, by examining the ages of the people who responded that they could recognize 20 or more (one person in their 40s, two in their 50s, and one in their 60s), it was found that these were often relatively elderly teachers.

3. Name tags on trees in the elementary school

The question pertaining to the presence or absence of name tags on trees in the teachers' schools was often answered with "some trees" or "none," as can be seen in Figure 4. As a result, it can be surmised that many teachers are probably aware of the situation of the trees in their school. On the other hand, the four teachers who answered "unknown" had also answered "ignorance" or "less than ten" in relation to the question on knowledge of trees. In other words, these teachers are probably indifferent to the trees in their school, even if the number of trees in their school is high, because they have no knowledge of tree species.

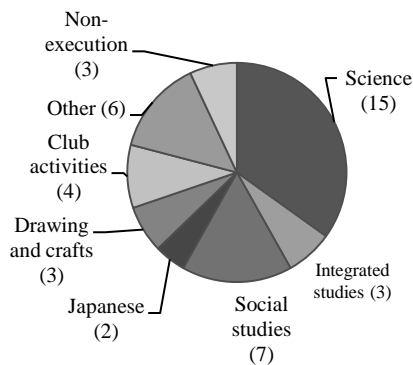


Fig. 2 School hour and education content concerning forests (Duplicate answers allowed)

Note: The number in parentheses is the number of people.

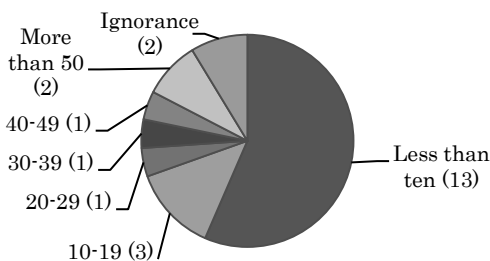


Fig. 3 Number of tree species teachers can identify

Note: The number in parentheses is the number of people.

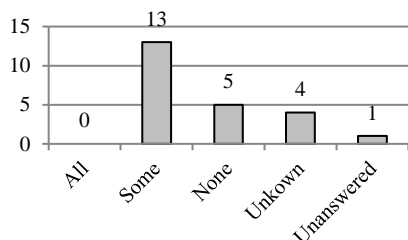


Fig. 4 Name tags on trees in the elementary school

4. Inflection of the tree in the elementary school

The percentage of teachers that utilize trees in school as educational tools was 65% (15 teachers), as shown in Figure 5. On the other hand, 35% of teachers do not use trees (8 people).

Of these eight, seven had answered "ignorance" or "less than ten" to the question concerning knowledge of trees. As a result, it is clear that teachers with no knowledge of tree species do not use trees in school education.

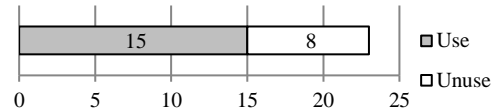


Fig. 5 Inflection of the trees in the elementary school

5. Change in numbers of trees in elementary schools

As shown in figure 6, many of the teachers responded to this question with "immutable" or "decrease." The reasons for reducing the numbers of trees in school grounds include the inconvenience caused by withered trees, impact on the surrounding roads, danger of child injuries, neighborhood complaints, etc. Teachers give priority to these items over trees education uses. On the other hand, five teachers of the six that answered "unknown" to this question had answered "ignorance" or "less than ten" to the question concerning knowledge of trees. As a result, it can be said that teachers with no knowledge of tree species have no interest in trees in the school.

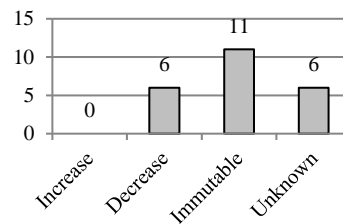


Fig. 6 Change in the numbers of trees in the elementary schools

6. Necessary measures for the promotion of forest environmental education

As shown in figure 7, necessary measures for the promotion of forest environmental education include an improvement in teachers' knowledge of the forest and trees, improvement of school environments, and external cooperation. Teachers were aware of the need to teach about forests and trees.

7. Five phases of acquired through principal component analysis

After using principal component analysis, the result shown in Figure 8 was provided. The proportion of variance of the PC1 was 54.8% and approximately half overall. In addition, because the proportion of variance of the PC2 was 24.2%, the cumulative proportion with PC2 was approximately 80% overall. The numbers in Figure 8 are Identification numbers (ID), used to distinguish survey participants. ID numbers 2

and 23 were evaluated as receiving a 5 on all of the questions, while ID number 1 was evaluated as receiving a 4 on three questions and a 3 on one question. Thus, a distribution of higher consciousness towards the right side and inferior consciousness towards the left side is presumed. There was an apparent high score in the questionnaires, but a large number of teachers are on the left side, despite the questionnaire being distributed immediately after the workshop. Thus, teachers' consciousness of forest environmental education is presumed to be low.

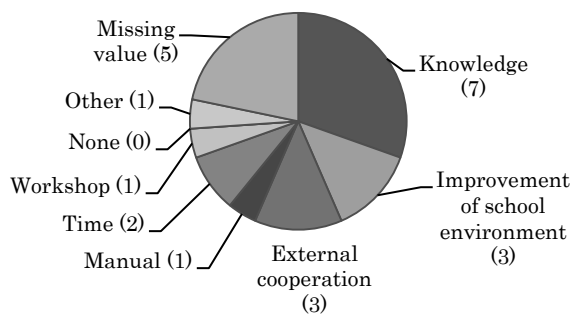


Fig. 7 Necessary measures for the promotion of forest environmental education

Note: The number in parentheses is the number of people.

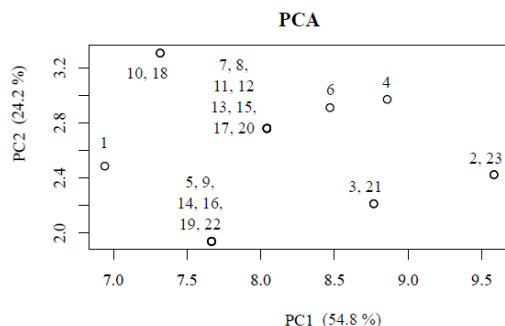


Fig. 8 Five phases of evaluation data acquired through principal component analysis

Note: The number in this figure is ID number of participants.

V Conclusion

It was found that forest environment education promotion requires teachers' to have knowledge of trees. Moreover, it is concluded that the development of the school environment on trees in addition to the educability of teachers on trees in the school is also necessary.

It is presumed that a large number of teachers do not know the names of trees in their elementary schools, even if these teachers have felt the need for forest environmental education. School education is considered to play an important role in educating children on nature and environment (1). In order to improve teachers' knowledge of trees, they must have high

consciousness in this respect. Also, in current curriculum guidelines, development of school environments is required, which not only involves passive learning for children, but also encourages interest in the trees in the school.

There is a need to research trends in more many elementary school teachers' consciousness for forest environmental education in future.

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