

STANDARDIZED NOISE ANNOYANCE MODIFIERS IN KOREA

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Introduction In order to compare response-relationships from different surveys, it is important to determine how to transfer annoyance response measured by different scales into a unified scale. ICBEN (International Commission on Biological Effects of Noise) Team 6 planned an experiment to construct comparable standardized noise annoyance scales using the same method, and suggested a survey form which has two major parts. Firstly, 4 or 5-point verbal annoyance scales were constructed from minimum to maximum from the 21 modifiers. Secondly, the intensities of the 21 modifiers were evaluated by placing a mark on 10 cm line. As a part of international joint study, the standardized experiments were performed in Korea to determine noise annoyance modifiers with the ICBEN's proposed method.

Methods First of all, we selected 115 modifiers expressing the amount of noise from Korean dictionary. Then suitability test was conducted. The criterion of selection is to be frequently used when people talk about noise annoyance. Table 1 shows the selected 21 modifiers.

Table 1. The codes and words for 21 modifiers

Jeonhyia	Gudaji	Byulro	Gurokke	Jogum	Jom	Yakgan
Daso	Bigyojiac	Jebupp	Kkue	Yunanhi	Tukki	meu
Jungmal	Noumu	Aju	Mopsi	Dedanhi	Kengjanghi	Umchungnage

In order to minimize the effect of difference from region and age this survey was conducted from four areas (Seoul-Kyonggi, Taejon, Taegu, Kwangju), and almost 100 subjects were participated in each area. In total, 391 questionnaires were collected. The subjects completed the questionnaire by performing next three tasks. (a) classifying 21 modifiers into nine or fewer groups based on rating of intensity scores of annoyance (b) evaluating the intensities of 21 modifiers by marking on 10-cm line (c) selecting one word for each of the scale points by choosing a word which is most likely to be used for expressing greatest amount of annoyance and then selecting other point's best suitable word with the same method.

Results We analyzed the data according to the ICBEN's proposed steps for eliminating candidates. The selection of modifiers was based on the following criteria; (a) the average of Intensity Scores, (b) the standard deviation of Intensity Scores and (c) the Net Preference Score. The step proceeded until all modifiers but one had been eliminated. That remaining modifier was chosen as the modifier for the particular scale point and the process to select modifiers are shown in Table 2.

Table 2. Scales constructed from regional data

Scales	Seoul	Taejon	Taegu	Kwangju	Total
1	JH	JH	JH	JH	JH
2	JG	JG	JG	JG	JG
3	BG	JB	BG	BG	BG
4	AJ	JM	AJ	YN	AJ
5	UC	UC	UC	UC	UC

The modifiers finally selected in Korea are ‘Jeonhyia (JH)’, ‘Jokum (Jo)’, ‘Bigyojiac (BG)’, ‘Aju (AJ)’ and ‘Umchungnage (UC)’ in order. The regional verbal scales are almost same but Taejon and Kwangju are different from the selected verbal scale (‘Total’ in Table 2). Figure 1 compares the four areas with respect to the average Intensity Scores. Kwangju has the highest average Intensity Score.

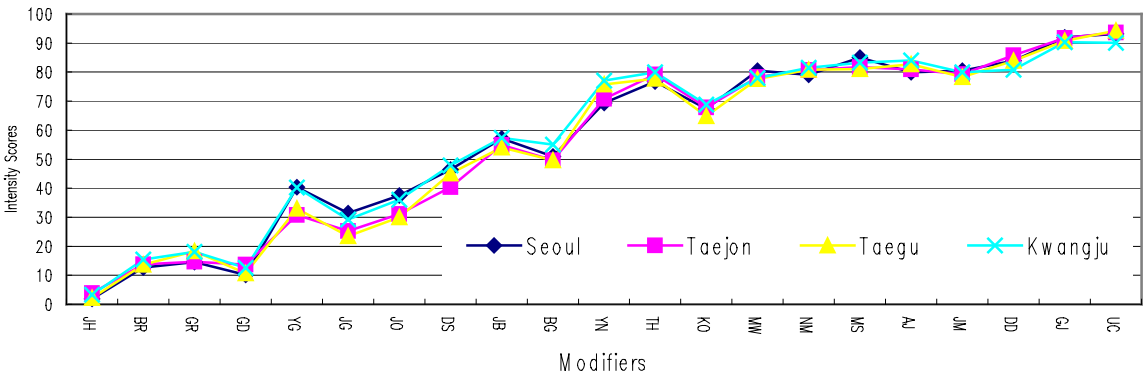


Figure 1. Regional comparison of Intensity Scores

Discussion After conducting the survey it is investigated that the selection of noise-evaluation modifiers are affected by the regional difference because the intensity scores and net preference scores are different form region. Kwangju has the highest Intensity Scores and other regions have almost same value. Even though there are some difference in Intensity Scores and Net Preference Scores, it is possible to suggest a standard 5 verbal annoyance scale in Korea as following 'Jeonhyia'(JH), 'Jogum'(JG), 'Bigyojiac'(BG), 'Aju'(AJ), 'Umchungnage'(UC).

Keywords: ICBEN Team 6, Community response to noise, Standardized annoyance modifiers, The net preference score, Intensity Score