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The principle of data sampling in GT

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Description

The principle of data sampling in GT is to select respondents who can provide the most informative insights on the research questions. In order to collect comprehensive and extensive opinions on a healthy acoustic environment, two types of respondents were considered: ordinary residents and professionals. Before the formal interviews, 5 ordinary Chinese residents and 3 acoustic professionals were selected as targets to conduct the interview. The pre-interview mainly involved the semistructured questions of the cognition of a healthy acoustic environment.

The preliminary findings showed ordinary Chinese residents seemed to provide more personal feelings based on their daily experience, while the acoustic professionals seemed to be more capable of providing expertise-based opinions, which were all helpful for enriching categories. Therefore, in the formal interview, two types of respondents were all selected. Ordinary Chinese residents were selected and interviewed face to face on streets and in parks, offices, factories, and residential areas in the Beijing–Tianjin–Hebei region. In order to obtain more diverse viewpoints, in addition to acoustic professionals, professionals with the research or education background in medicine science, environment science, sociology, psychology, and architecture were also invited to participate in investigations. Finally, the first type of respondents comprised 44 ordinary Chinese residents (labeled as P01–P44), and the other comprised 31 worldwide professionals (labeled as P45–P75). There were 27 professionals with a research background in acoustics, among whom 3, 3, and 2 professionals had an interdisciplinary research background in sociology, psychology, and environment science, respectively. 3 professionals had a research background in medicine science, and 1 professional had a research background in healthy building. Among the 75 respondents, there were 37 males and 38 females, ranging in age from 23 to 76 years old (average age = 41).

Firstly, in the open coding, the verbal transcript data were broken down into labels by searching for key phrases, significant factors, and relations. Labels were then gradually conceptualized and grouped together by comparing their associations and similarities. It was worth noting that data conceptualization was not obtained immediately but developed by repeatedly comparing the labels with each other and with the newly emerging codes. Finally, categories emerged.

Axial Coding

In axial coding, the data related to categories were constantly compared, on the one hand, to rationalize the classification of the categories and to develop their subcategories, and on the other hand, to determine how the categories were linked and crosscut. The category was compared with each other to discover any existing associations. By constant comparison, initial relationships among categories were developed, and the embryonic form of the conceptual framework was created. During the final stage of this procedure, based on the relationships identified, the coding paradigm was used to further develop the linkages among categories.

In axial coding, on the one hand, subcategories of each category and dimensions of each subcategory were developed. For example, “sound sources” and “perceived characteristics of the acoustic environment” were developed as two subcategories of “sound sources and acoustic environment.” Based on the conceptual data (aa3), dimensions of “perceived characteristics of the acoustic environment” were also developed; they were “characteristics of auditory sensation” and “characteristics of auditory perception.” The central idea (phenomenon) of this research could be labeled as the judgment of the acoustic environment quality. The category of “sound sources and acoustic environment” could be divided into two subcategories: “sound sources” and “perceived characteristics of the acoustic environment.” The sound sources were the basis of people’s perception, while gradual perception and interpretation of the acoustic environment were necessary conditions to motivate the judgment of the acoustic environment quality. Therefore, “sound sources and acoustic environment” was the first causal condition that gave rise to the phenomenon.

The “sound sources and acoustic environment” consisted of key points related to the characteristics of a healthy acoustic environment. To illustrate the characteristics of a healthy acoustic environment clearly, the frequency of labels was taken into consideration.

According to respondents’ description, the acoustic environment quality was divided into three levels in this paper, namely “unhealthy,” “healthy (low),” and “healthy (high).” They were the final consequences of the judgment of the acoustic environment quality.

As described by respondents, the expected characteristics of a healthy acoustic environment depended on people’s demands. If their demands were met by the acoustic environment, the acoustic environment was judged as healthy. Therefore, “people’s demands” was regarded as the other causal condition that gave rise to the judgment of the acoustic environment quality (phenomenon). In this study, “people’s demands” consisted of three subcategories: physiological, psychological, and behavioral demands.

Process of Supplemental Measurement

Physiological demands were composed of descriptive words related to physiological health. During the interview, because respondents did worry that the acoustic environment would negatively impact their physiological health, they expected that a healthy acoustic environment could protect them from being negatively affected (e.g., P16); thus, the key points of no negative effects on the physiological health, no negative effects on the hearing etc. were mentioned.

In addition, some respondents also mentioned that a healthy acoustic environment should not only protect people's physiological health from being negatively affected but also have a positive or promotive effect on people's physiological health. For example, the key point of positive effects on the recovery of disease was mentioned by P33.

The process of supplemental measurement was called the "secondary fitting process and it contained two subcategories with a causal relationship: "do harm to health or not fit for standard—unfitting" and "no harm to health and fit for standard fitting. Secondary fitting process also reflected the process by which the judgment of the acoustic environment quality (phenomenon) was handled and carried out, which had a similar role to the matching process. Thus, it was also considered as action/interactional strategy.