PUBLIC SHARING AND UNDERSTANDING OF SCIENTIFIC DATA

- WITH THE ILLUSTRATION OF WEATHER TERMS

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ABSTRACT

The sharing of scientific data is a problem that attracts worldwide attention. In answer, governments have started to establish many systems to provide the public with scientific data. However, sometimes the access does not consider the public's practical need but just stands as an "official" prototype. In this research, a questionnaire was devised to understand a Beijing citizen's practical need for scientific data and to explore the inconsistency between the needs of the public and the information published by the government. The research looks to find a more effective way to solve this problem.

Keywords: Scientific data, Weather terms, China, Public, Sharing

1   INTRODUCTION

It is a consensus in recent years that the public has the right to have access to scientific data, and correspondingly, many governments are doing their best to share such data with the public in various ways. Some governments even devise laws as an efficient mechanism to protect the people's right to access scientific data.

There may be a problem, however - whether the provided scientific information and the gradually popularized scientific knowledge can satisfy the public's need for scientific data. Therefore, a questionnaire about weather forecast terms was devised to investigate how well people understand the weather condition terms which they check every day.

Several weather condition terms are frequently mentioned in newspapers, websites, TV, and radio. These terms, such as "humidity," "ultraviolet radiation," and "weak cold air," have different levels of understanding,

The questionnaire was given to a total of 60 participants coming from three groups – citizens, migrant workers, and post-graduate students, who were chosen randomly. Each group had 20 persons.

2   QUESTIONNAIRE RESULTS

The results of the questionnaire show that about 70 percent of the people understood the meaning of "humidity," that is, the amount of moisture in the air, about 13 percent of the people chose the distracting term "atmosphere precipitation degree," and 17 percent of the people did not understand the meaning of humidity. This means that 30 percent of the people were ignorant of the meaning of the term "humidity." In addition, 80 percent of the people considered "humidity" to be "comparative humidity" instead of "absolute humidity," and 20 percent of

the people did not know the answer.

However, for the question – "Which do you consider to be more comfortable, 10 percent or 50 percent humidity?" only 35 percent of the people gave an appropriate answer of lower humidity. Thus, although most people know the meaning of "humidity," they do not know which degree of humidity is most comfortable for them, and accordingly they do not use this frequently mentioned term properly.

As for the meaning of the term "weak cold air," only 10 percent of the people understood it correctly, 77 percent of the people were not clear about its meaning, and 13 percent of the people were not familiar with it at all.

When several terms were listed that were frequently used in weather forecasting, only 13 percent of the people chose "humidity" as their most important weather term, lower than the 33 percent choosing "precipitation frequency" and "air quality." The most unpopular term was "wind direction," about which only 10 percent of the people cared.
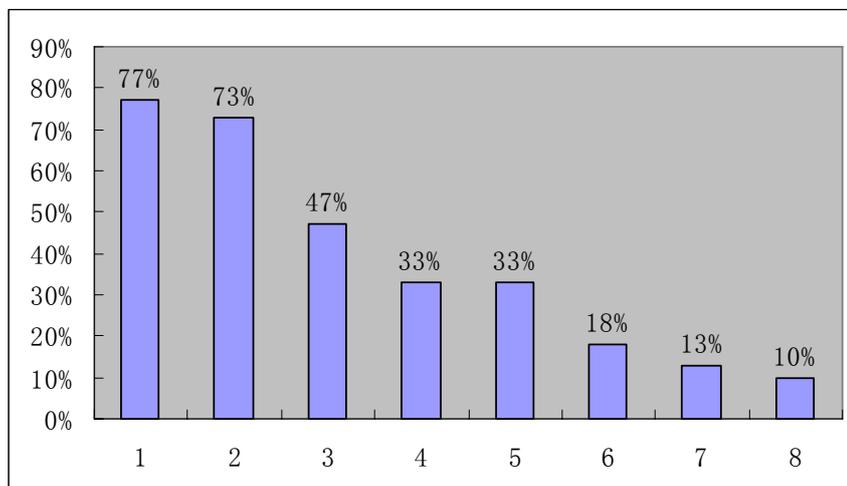

Figure 1. Weather terms of most concern to Beijing residents: 1. Weather condition, 2. Temperature, 3. Wind velocity, 4. Precipitation frequency, 5. Air quality, 6. Ultraviolet radiation, 7. Humidity, 8. Wind direction

In Beijing, the most popular weather terms are considered to be "weather condition," "temperature," "wind velocity," and "ultraviolet radiation." However, the unpopular terms "humidity" and "wind direction," which people care little about and are not capable of using, are mentioned frequently in the weather forecasts of various newspapers, TV stations, radio stations, and websites. Thus we could say that there is still a long way to go before the provided data will satisfy the people's needs in weather forecasts.

It is worth mentioning that only 17% of the people knew all eight indexes, 45% of the people knew the exact meaning of 4 to 6 of them, and 38% knew less than 3 (Figure 2).
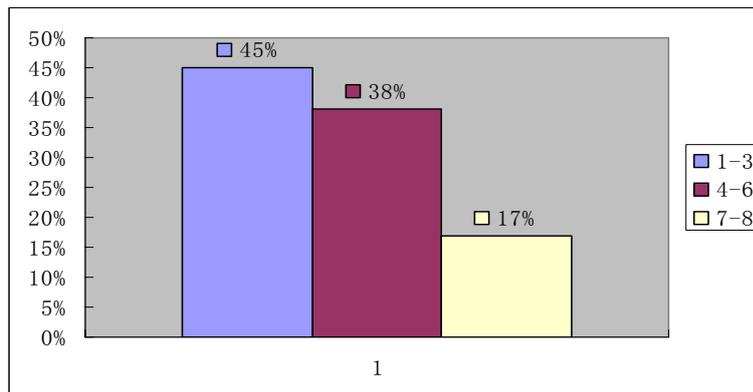
Figure 2. Percent of Beijing residents understanding various weather indices

It is very interesting that the females' rate of correct answers is far higher than the males', especially in the graduate group. One of the possible reasons is that women are more concerned with their surroundings and thus pay more attention to the weather.

According to the results, the group of post-graduate students obtained the highest correct rate. However, the correct rate of migrant workers was unexpectedly higher than that of Beijing citizens. The reason behind this deserves deeper consideration. Additionally, based on citizens' and migrant workers' answers, the correct rate does not have a significant correlation with educational level. For example, one person with a bachelor's degree had an error rate up to 40%, while a young person answered all questions accurately. The error rate was about 50% for those whose age was above 50, about 30% for people whose age was between 18-30, and about 27% for people whose age was between 30-50.

3   CONCLUSION

According to this analysis, the public's demand for and understanding of scientific data in weather forecasting is not consistent with the degree of popularization of scientific data. Sometimes those data are not even what the public wants. And this phenomenon does not only lie in the understanding of weather forecasting. For example, frequently used economic terms such as GDP and GNP may not be really understood by the public. Although educating the public about the meaning of terminology is a normal phase in the process of popularizing scientific data, we have to pay special attention to some problems, such as the approaches and methods of the popularization and determine whether the public understands and applies these data correctly. This initial research on this problem indicates that more work is needed to get a better conclusion.

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