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# Research on Writing Popular Science Articles in WeChat Era

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In nowadays, the Internet has long been closely related to people's living, especially the emergence of various social software, which has had an important impact on the audience's knowledge acquisition. At the same time, with the continuous development of modern medical science, a large number of popular science journals have sprung up to publicize and promote common scientific knowledge and medical technology such as medical treatment, health, medicine and health. In particular, the emergence of WeChat public platform has become an important form and means of health communication. Therefore, it is of great significance to study how to carry out health communication in the Internet era. In this study, a semi-quantitative study was conducted to study the writing rules of medical popular science articles in the era of WeChat. The article about AIDS was selected as experimental materials. The results showed that WeChat writing style and page layout style can affect the audience's reading. This study is of great value to make full use of WeChat public platform for health communication in the Internet era.

## Introduction

The amount of text-based information that people are getting through the Internet is growing. Universities, educational training structures or training institutions within enterprises are also providing a large number of online courses for users or learners. At the same time, a variety of for-profit and non-profit organizations have launched a variety of consulting on a variety of online platforms, as consumers can get a lot of news, information and medical and health knowledge from the Internet every day. Therefore, it is of vital importance to study which factors will have an impact on the users who read information on the network. Therefore, it is necessary to study the readability of texts on the network.

In a recent survey, Shaikh and Chaparro conducted a survey and research on Internet users' reading habits of five types of documents. They found that users prefer to read books or magazine articles printed in the paper media, while for other types of documents, such as news, current affairs reports and product reviews on the Internet, users prefer to read them directly on the Internet [1].

Research shows that there are a number of factors that affect users' reading performance and satisfaction when typesetting text on the Internet. Dyson gives a good review of this research [2]. One of the factors studied was the length of the lines of text and the number of characters in each line of text. Some studies have shown that when the length of lines is large (80-100 characters per line), the length in this range is faster for readers to read online text content (duchnick & kolers, Dyson & Kipping) [3, 4]. In contrast to these studies, however, other researchers have suggested that shorter lines should be used. Dyson and Haselgrove's study found that reading 55 characters per line is faster than reading 100 or 25 characters per line [5]. Similarly, based on the study of user

preferences, Grabinger and osman-jouchoux suggested that the length of lines should be between 45 and 60 characters [6]. Bernard, Fernandez, Hull and Chaparro found that adults prefer to read medium-length lines (76 characters per line). For children, they prefer a shorter line length of 45 characters compared to 132 characters per line [7]. However, the existing research is obviously not applicable to the typesetting of popular science articles in the WeChat era. So the aim of this study is to investigate the ruler of writing popular science articles and reveal how to use these rulers in WeChat era for WeChat articles.

# Research Contents and Methods

## Experimental Background

A survey conducted by ChongQing Vocational College of Electronic Engineering and ChongQing Medical University, the results show that college students now prefer to acquire health knowledge through the Internet in Figure 1.
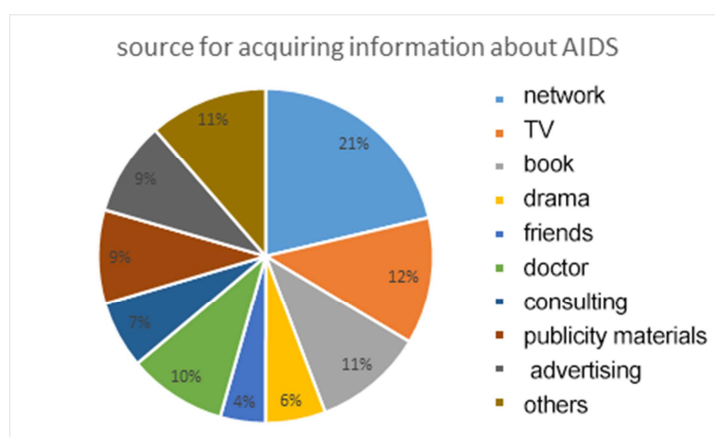


**Figure 1.** *Source for acquiring information about AIDS.*

## Experimental Materials

The reading materials used in this experiment are about 375 words (Average 367.9) of medical and health science articles selected from WeChat public platform, a well-known domestic health communication platform. The Average reading level required for each paragraph is 12.0. The articles were chosen to cover topics ranging from HIV to everyday health. The text in these paragraphs is in a 10-point font with a line spacing of 12. As on a normal web page, there is an extra blank line between adjacent paragraphs, and no hyphen is used in the text.

**Table 1.** *Questions for each article.*

| question | scale range |
| --- | --- |
| How do you like the title? | 1–10 |
| How do you like the content? | 1–10 |
| Reading enjoyment | 1–10 |
| Reading feeling | 1–10 |
| Article grade | 1–10 |
| Do you like fiction books? | 1–10 |
| Do you like magazines? | 1–10 |
| Do you like newspapers? | 1–10 |
| Image is important | 1–10 |
| Font family | 1–10 |
| Font color | 1–10 |
| Font style | 1–10 |
| Background color | 1–10 |
| Article length | 1–10 |
| Background music | 1–10 |
| Writing style | 1–10 |
| Reliable | 1–10 |
| Reality | 1–10 |
| Enough data | 1–10 |

The total number of questions for each article is 19, which are divided into six categories in table 1. What is the central idea; Questions about the structure of the article; Tao refers to the facts stated in the article. Three details; and 10 discrimination questions. A background questionnaire was used for information about the participants' demographics and how they used computers and the Internet. The experiment also designed a reading satisfaction Scale that included 11 questions measured on a 7-point Likert Scale to gather information about users' reactions to paragraph layout and their visual fatigue. At the end of the experiment, the participants were also asked to fill out a questionnaire to determine which typesetting style they preferred.

## Experimental Process

After completing the consent form and the background questionnaire, the participants held their iPhone 6s 25cm away. Participants used their iPhone 6s smartphones to read pages with text, which reduced the distraction of toolbars, scrollbars and menu bars. In particular, use finger swipes to move between paragraph contexts during reading. Each participant read a total of eight WeChat articles, which were balanced in order of row length. Each line length shows two articles. After reading each paragraph, the participants completed a set of comprehension questions. After reading each set of paragraphs, they were asked to fill out a reading satisfaction questionnaire. After reading the last paragraph, they were asked to fill out a post-experiment questionnaire.

## Experimental Results

### Reading Speed

The results convert the reading speed into the number of words per minute, which is expressed by WPM (words per minute). Results of one-way object analysis of variance (ANOVA) show that the length of a row has a great impact on the reading speed, $F_{(3, 57)} = 3.45$, $p = 0.02$, vertical 2 = 0.15. Articles with 95 letters per line (CPL = 95, M = 178.82, SD = 41.83) are longer than any other length (CPL = 35, M=167.21, SD = 33.66; CPL = 55, M = 167.38, SD = 33.96; CPL = 75, M = 169.44, SD = 33.48). The reading speed comparison between the articles of different line length is shown in figure 2.

### Reading Efficiency

Reading efficiency is achieved by comparing the reading speed of the participants with the reading speed of the articles. The rate of correct answers to the questions asked multiplied. One-way object internal variance analysis (ANOVA) showed that row length had only a small effect on reading efficiency, $F_{(3.57)} = 2.68$, $p = 0.06$, vertical = 2.12. When the number of characters in each line is 35 and 95 respectively, there is a considerable difference in reading efficiency, among which the reading efficiency is higher when the line length is 95.

### Overall Ability to Understand

To calculate the overall score for comprehension, the experiment adjusted the original score for each type of question to produce the total score for comprehension of the six types of questions, i.e. When making this adjustment, all questions of each type are counted as one point in the final score. Thus, the results of one-way object analysis of variance (ANOVA) show that the length of a row has no effect on the overall comprehension of the article.

### Understanding of Different Types of Problems

One-way object analysis of variance (ANOVA) shows that the type of question has a great impact on comprehension. Adjusted $F_{(3.98, 75.69)} = 10.93$, $p = 0.001$, vertical = 2.35. For all length articles, participants were asked about the structure of the articles

The answers to the questions scored significantly lower than what the article should be titled, what was in the mind, and what the facts were. The influence of the type of question on the reading score is shown in figure 3.
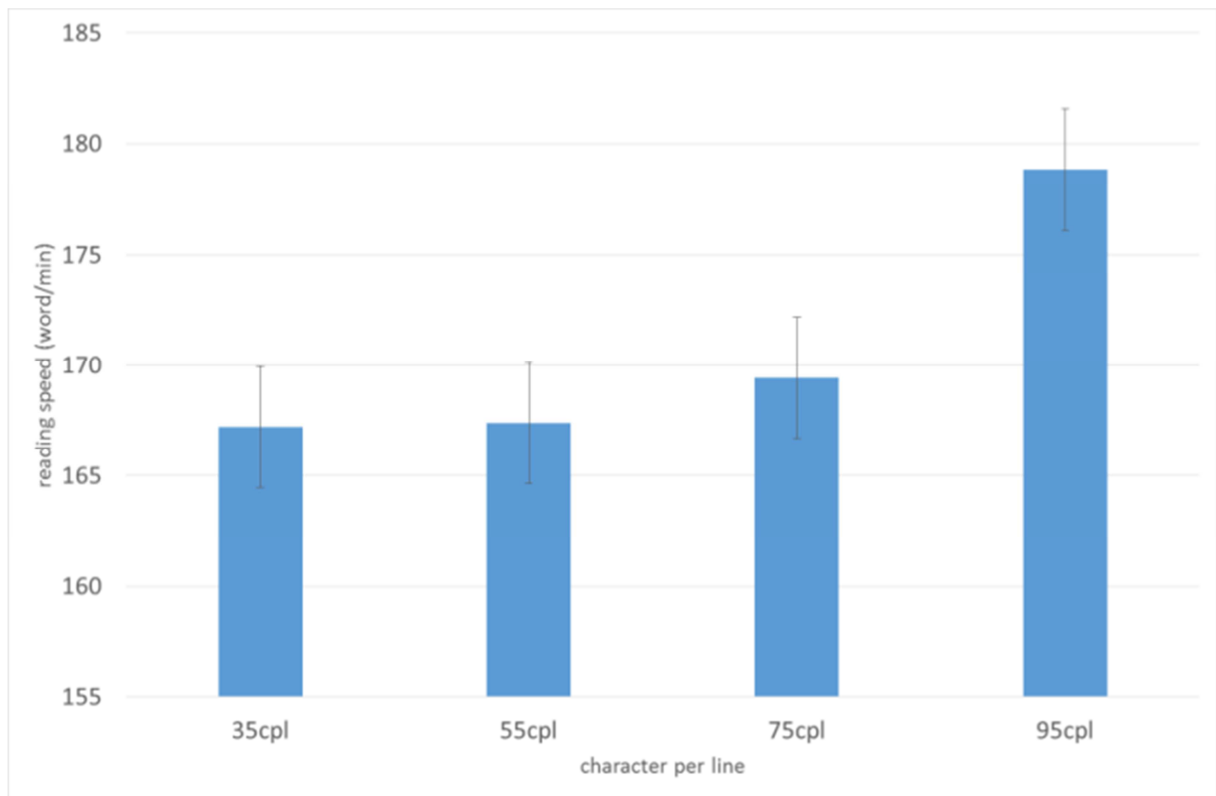
*Figure 2. Reading speed comparison between the articles of different line length.*
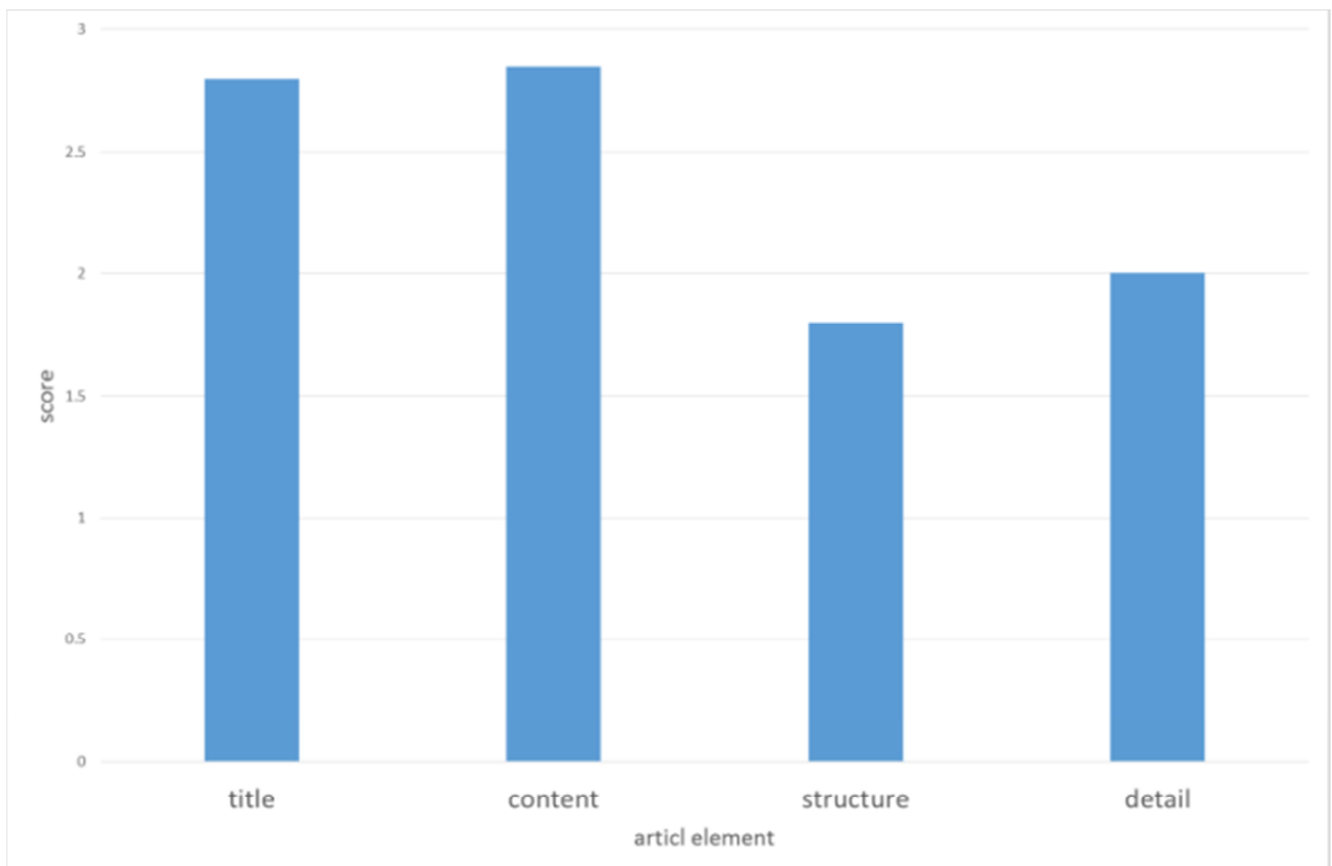


*Figure 3. Influence of the type of question on the reading score.*

## Reading Satisfaction and Preference

Row length had no significant effect on overall satisfaction. Participants also showed no significant differences in personal preferences. However, 60% of them chose an article with a favorite line length of 35cpl (30% of participants chose CPL =35) or 95cpl (30% of participants chose CPL = 95) as their best choice. On the other hand, all participants were least likely to choose an article with a length of 35cpl (45% with CPL = 35) or 95cpl (55% with CPL = 95).

## Discussion

In order to write good medical popular science articles and give full play to their functions of spreading, popularizing and popularizing medical knowledge and medical technology, it is necessary to master the following writing essentials. So the mechanism of reading should be investigated [8]. The pertinence of medical popular science creation is especially outstanding compared with other popular science creations. The occurrence, development, spread and prevalence of diseases are closely related to season, region, population and other environmental factors, and have certain regularity. Only in accordance with the actual needs of different genders, ages, professions, cultural levels and regions in different seasons, can medical popular science creation receive due social benefits. For example, for different age groups, should focus on popularizing the knowledge of prevention and treatment of common diseases and difficult diseases of different age groups. It is necessary to popularize the knowledge of occupational disease prevention among different occupational groups [9]. The knowledge of prevention and treatment of endemic diseases should be popularized according to the population in different areas. According to different seasons, the knowledge of epidemic prevention and treatment should be popularized. Another example is writing for different popular science readers from the perspective of cultural level and psychological needs. The advanced medical theory knowledge should be introduced to the high-level readers for the purpose of understanding scientific research information. New and interesting medical knowledge should be introduced to middle-level readers aiming at exploring new knowledge. In order to focus on their own health or the health of others for the purpose of the initial level of readers, should introduce some easy to understand, easy to learn, easy to practice practical knowledge and technology. On the other hand, the topic should also consider the author's own reality, should write their own work in practice, familiar with the content, can be successful experience, can also be a lesson of failure. Only with deep experience and feeling can the writing be fleshed out and the readers can chew it. From the subjective and objective aspects of the selection of topics, will greatly strengthen the targeted works [10-11].

The task of practical medical popular science writing is to popularize medical professional knowledge among the masses, make it serve the people's health and the national economy, so as to produce social and economic benefits. Popularization has a wide range of practical value, popularization can create huge material wealth, science and technology is through the means of popularization and become productive forces. MAO yisheng also praised that "popular science is the bridge and boat to transmit science and technology", and it is "the development and continuation of school education, which can not only fill the shortage caused by the limitations of school education, but also combine with the majority of young people to become educated through self-study and train talents for the society". Medical popular science writing undoubtedly has this kind of social function and has strong practicability. People read popular science articles mainly to solve practical problems, and practicality is the common reading psychology of popular science readers. The practicability of medical popular science articles mainly depends on their pertinence, scientificity, popularity and popularity. This requires that medical popular science writing must choose the health problems concerned by the masses, and the knowledge and technology introduced must be true and accurate. It is easy to understand, easy to learn and easy to use. It has the functions of popularization, explanation, guidance, training and enlightenment. With the rapid development of medical science and technology, the knowledge structure and content are constantly updated. As the environment changes, new health problems arise. Science writing pace to keep up with The Times, to meet the readers' and exotic, let's psychology, arouse readers seeking knowledge desire, we must seize the real life and new phenomena and new problems in the field of medical research and new hot spots, reflects the new development of medical research, medical technology, new results, new trend, reflecting the nutrition, health, rehabilitation, health care and other aspects of the new knowledge, new ideas, new measures and new methods. If you choose a subject that has been written before, you should also remove the stale content, add new materials, find a new Angle, and adopt new methods to express it, so as to write a new idea and increase the freshness.

The content is ideological, intellectual and scientific. While imparting medical knowledge and introducing methods of disease prevention and treatment to readers, medical popular science writing is also shouldering the task of propagating scientific thought, scientific spirit and scientific attitude, breaking feudal superstition, eliminating ignorance and cultivating good social morality. Write medical science article, therefore, must hold the dialectical materialism viewpoint and position, a clear purpose, consider social impact, can't leave China's national conditions and reality, not to cater to some readers interests, their mood, to

write low-level, vulgar, grandstanding, prevent medical science popularization creation tendency of commercialization.

The purpose of knowledge-based medical popular science writing is to popularize medical knowledge, and the more knowledge a medical lipp article provides, the higher its value will be. When writing, therefore, not only as a pure experience narration, facts reported and an introduction to the technology and method, should at the same time to clarify the scientific truth, tell me about the medical basic knowledge and basic principle, let the reader not only learning, and know the why, to better understand the knowledge and methods of prevention and cure. For example, when introducing the health hazards of a high-salt diet, it is important to explain not only what the hazards are, but also why they occur. Again be like, average person knows tea can be invigorated, but few people know tea is invigorated because there is coffee alkali in tea, coffee alkali has excitement and stimulative effect, less person knows to make tea two minutes hind coffee alkali oozes out almost entirely, so head opens tea to be invigorated the effect is best. Only clear up these principles, will give readers more harvest. Readers learn basic medical knowledge and theories. Can be inspired, master the method, with the theory of disease prevention and treatment, avoid blind practice, backfire.

Scientific science is the life of medical science articles, without scientific science can't be called scientific articles. How the scientific nature of medical science articles is directly related to people's physical and mental health, life safety, improper publicity will have a greater social impact. So, should be taken when writing extremely serious scientific attitude, be sure to spread the tested and proved to be correct medical knowledge, be sure to promote the success of those who do practical medical technology and method of cutting can't hype for economic interests, but without the pharmacological test drugs even content and reliable materials shall not be any play, exaggerated rendering or biased reports. There should be no rush to publicize medical knowledge, techniques and methods that are still being explored or in dispute. So as not to endanger the public, though sometimes in order to enlighten the mind and stimulate the interest in the exploration of medical knowledge, the problems in the exploration phase are occasionally introduced to the readers. We must also adopt a prudent, scientific and objective attitude and reflect the situation in a practical and realistic way. We must pay attention to guiding the readers' thinking to the path of scientific exploration and never disseminate some hypocritical anti-science things for the sake of novelty. The selected materials should be made clear and well-understood, and they should not be copied mechanically, understood only in a half way, nor should false things be treated as science merely by hearsay. In terms of expression, we should accurately use concepts, facts, data and language. Medical science articles should have strong ideological, intellectual and scientific nature. In addition to the author's serious attitude, accurate and rigorous expression, the more important thing is that the author should have high professional attainments, academic level and profound knowledge. For this reason, medical popular science writers must constantly update their knowledge and accumulate writing materials. Only in this way, writing will have a source of fresh water, will be handy.

Popular medical and health knowledge services wide, it involves all walks of life. Related to each person's life, old illness and death, so the medical science article readers are extremely broad, most of the readers for the general public, the cultural level is not high. Therefore, medical popular science writing should face the public, in the language expression must be simple, easy to understand. If the technical terms are too complex, the words are too obscure, and the reasons are too difficult to understand, the general reader will "indigestion", or even refuse to accept chuan. How do you popularize? In the author's opinion, non-literary and artistic medical popular science exposition can adopt the methods of definition, interpretation, summarization, comparison, example, subsection, chart, question and answer, quotation, data and metaphor to popularize the profound knowledge. Make it specific and intuitive, easy to understand. And the thinking method such as imagination, association, even fantasy can be used in literary and artistic medical popular science articles, and metaphor and personification can be used more often to illustrate the abstract scientific principles.

The readers of refined medical popular science articles generally have the psychology of seeking short time, hoping to gain more medical knowledge in a short time. Long, miscellaneous articles are not easily accepted by the masses. Medical popular science articles are different from textbooks. An article generally only needs to explain a scientific phenomenon, introduce a kind of scientific knowledge, explain a difficult problem and explain a medical truth. It does not need to be comprehensive, systematic and all-inclusive. Non-literary medical science exposition less artistic processing and text emollient, often direct narrative of its matter, straight Chen qili, concise and to the point, short space; Medical essays and other literature and art exposition length can't be too long, generally required in 2 (xX) word or so, in order to quickly and timely reflect the new things in the medical field, the new dynamic. Therefore, the medical popular science writing should introduce the medical knowledge and technology with single content in a targeted way, and try to tailor the floating words to be concise and concise.

On the one hand, artistic medical popular science works should be written accurately and succinctly; on the other hand, they should also be written in a vivid and lively way to enhance the interest and readability of the articles and improve their attractiveness and appeal. Famous scientist Jia Zuzhang said: "a good science works like a QuQingQuan, a spring waters, useful, gurgling streams, east must scientific terms can't be block rock of flowing water, is not provoked a swirl of reef, but the water ripples, current FanYing, drifting out of, hagdon ups and downs, is one of nature's necessary ornament". This is a vivid description of the artistic requirements of popular science works. Of course, the medical science article art degree is different.

Literary and artistic medical popular science works, such as medical sketches, medical fairy tales, medical novels, medical poetry, medical art, etc., use literary expression techniques to popularize medical knowledge and medical technology with vivid images. Non-literary and artistic medical popular science exposition is far less artistic than literary and artistic popular science works, but also requires a lively form, vivid language, shallow. Therefore, on the premise of not violating the scientific nature, medical popular science articles are advocated to make some artistic treatment, integrating the knowledge, science and interest in one. As the saying goes: "a good title half article", the title of novel and interesting, help to attract readers to read the following.

## Conclusion

Based on a semi-quantitative research, this paper proposes a writing method for medical popular science articles. When the row length was 95cpl, the researchers were able to read at a fairly high speed while maintaining a high reading efficiency. Despite the fact that there was no significant difference in user satisfaction across the lines, the length of the lines that enabled people to read faster had an impact on the overall experience of those who read on the web.

Since association often by people are more familiar with or interested in things to talk about, it can seize the reader, lead everyone wins. Flexible use of figurative, personification and other figurative explanation methods, can be the original boring medical knowledge to write lively and interesting. In terms of expression, the writing of medical science popularization is mainly based on vivid narration and explanation, but appropriate description and discussion can also be made when interpreting the object, so as to note the author's feelings. Language should pay attention to temper, carefully choose those vivid, image, beautiful words and clear rhythm, catchy sentences, to enhance the readability of the article.

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