



# Application Analysis of Multimedia Design Principles in Information Interaction

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## Abstract

At present, with the development and popularization of multimedia technology, multimedia design has attracted more and more attention. In the new media era, a good multimedia design can attract the audience, bring a good experience to the audience, and produce a huge communication effect and commercial value. Using multimedia design principles in new media information dissemination to provide a good information dissemination environment for the design of interactive graphic information can not only integrate the characteristics of various media but also use the characteristics of artistic relevance to develop digital information dissemination in multi-radial and three-dimensional interactive media dissemination. Using multimedia design principles, we can closely associate media information, reasonably integrate different communication modes, redundantly process visual information, and optimize media transmission results. This paper mainly analyzes and discusses these design principles from two aspects of information principle and interaction principle, and further expounds on how to apply these design principles to multimedia design combined with specific cases. This paper first introduces the basic concepts and related theoretical knowledge of multimedia design, then summarizes the principles of multimedia design, and finally analyzes the application of these principles in multimedia design, aiming to improve people's understanding of the importance of multimedia design, deepen people's understanding of multimedia design principles, and better apply these principles to guide practical work.

## Keywords

Multimedia design principles; Information interaction; Application measures

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Multimedia design is an art and design discipline that studies information dissemination and reception. Multimedia includes not only sound, light, and other media but also computer graphics, images, and digital information technology. With the continuous development of Internet technology, a variety of new multimedia products emerge endlessly. In this information age, people use computer networks, radio and television, mobile phones, and various intelligent terminals to carry out various communication activities. At the same time, many people release their personal updates through social networking sites, microblogs, and other web media. Multimedia design has gradually attracted more and more attention. With the development of society, the demand for multimedia design in all walks of life is also growing. Relying solely on traditional design methods cannot solve this problem, so we must use advanced multimedia design methods. Multimedia design is an interactive communication mode that takes visual effects as the core and presents them in the form of sound effects, text, video, and other forms. It integrates sound, image, and text, and has strong appeal and impact.

## 1. Overview of the basic theory of multimedia

Multimedia refers to the use of sound, image, text, and other information media to transmit information. Multimedia is to combine text, graphics, video, audio, etc. into a new form of expression in an interactive interface so that users can get the maximum degree of communication and communication.

### 1.1 Information design

Information design is to provide the target audience with information content suitable for their cognitive level according to the information type and information value orientation. It includes two aspects: first, determine the theme and theme of the information; Second, select information content reasonably, that is, how to organize and reflect useful information (Cheng Shunda, Zhu Jie, & Guan Shengjiang, 2025).

The primary task of information design is to clarify the type and value orientation of information. According to different information types, information designers can divide their works into several levels: easy to understand, medium level of understanding, and hard to understand, thus forming a pyramid structure. For example, we can help people quickly understand a concept or knowledge by providing visual media such as pictures, images, and text. Such content is called "shallow information"; If this concept is complex, it needs to be expressed in more intuitive forms such as more pictures, animations, and charts, which are called "depth information"; If the information to be conveyed is professional, it is best to present it in more clear and concise forms such as charts, flow charts, and formulas, so that readers can accurately grasp the connotation and extension of the entire information system. Such content is called "high information". After a designer makes an in-depth study of an object or topic, he can determine the main information points contained in it and the relationship between them. At the same time, we should also consider the possible significance and value of this information in the eyes of the audience, because it will affect the way and degree of reception of the audience. Only by combining the above three factors can we create a complete, reasonable, and convincing information design.

### 1.2 Interface design

Interface design mainly refers to the overall layout and style design of applications or websites, as well as the design of human-computer interaction functions. Interface design is an important part of information dissemination. It complements the content design and completes the user's access to information. In multimedia, the interface is mainly divided into two categories: one is the system operation interface with the man-machine interface as the core; The other is the image display interface with the visual interface as the core. In the software field, many people think that the interface is the collection of icons, buttons, and other graphics and characters displayed on the computer screen, which is obviously a mistake. Because in all interactive devices, the software interface is only one of many "interfaces", and its position is very important. However, most people are not aware of this. In fact, we need to understand the interface from another perspective, that is, what information is contained in the interface? What kind of logical relationship does this information contain? If the meaning of the interface cannot be accurately grasped, the information design cannot be carried out well. A good interface will bring people a pleasant feeling, so designers must fully consider the psychological feelings of users when designing (Cao Liling, Liu Junli, & Jin Shengye, 2024). For example, when we browse the web, there are generally two situations: the first is that you shop online or inquire about information; The second is to chat with others in the Internet chat room. For the first case, we need to provide a clear interface as much as possible, so as to improve the browsing speed and reduce the occurrence of errors.

## 2. Review and analysis of multimedia design principles

In the early stage of the development of computers and the Internet, many software designers did not pay attention to the research of design work but paid more attention to the development of programs, code writing, etc. However, as users' requirements for product experience become higher and higher, only relying on software with powerful functions and beautiful interfaces cannot meet the needs of users (Zhang Xiaotong, Li Yuelin, & Xin Ran, 2024). Therefore, how to make users satisfied has become an important goal of product design. In a sense, user experience is the feelings and behavior of users in the process of using products, that is, the impact of product design on users. Product design no longer only considers whether it can be used, but also whether it can be used well. The quality of product design largely depends on whether designers can use scientific design principles to guide product design.

Therefore, mastering scientific multimedia design principles is of great significance for product design.

As a part of product design, the design principles of multimedia design can also refer to the design principles in the field of industrial design, such as the three interaction principles summarized by Don Norman, a famous American interaction designer: (1) Consistency principle; (2) The principle of simplicity; (3) Readability principle. These principles are mainly put forward for the problem of information transmission in the process of interaction, which aims to ensure that users can carry out information interaction smoothly and make full use of the functions of the product. At present, there are many kinds of multimedia products, and the design principles applicable to different multimedia products are also different, so this paper will elaborate on the design principles in multimedia design from two aspects information and interaction. As we know, interaction design plays a leading role in multimedia design, because it is directly related to user experience. Through the analysis of a large number of excellent multimedia works, we can find some basic design principles (Shi Mingfeng, Gan Yonggen, & Zhao Yuke, 2024). These basic design principles are not only the basic requirements of interaction design but also the most basic principles. Only by following these basic design principles can we ensure that the designed products can bring a good experience to users. Specifically, these basic design principles include the following five aspects: simplicity, readability, consistency, relevance, and practicality. Now we will analyze and elaborate these principles in combination with cases.

Multimedia design is a comprehensive discipline, which integrates the knowledge of visual communication design, interface design, psychology, aesthetics, and many other disciplines, and has a certain complexity. The five design principles proposed in this paper provide a good reference and guidance for us to solve the problems in multimedia design from different angles. For example, the principle of brevity tells us how to make the information clearer, the principle of readability tells us how to make the information easy to read, the principle of consistency tells us how to make the information transmission between users and the system consistent, the principle of relevance tells us how to make the information more interesting, and the principle of practicality tells us how to make the design meet the needs of users. However, these principles are relatively macro concepts, which should be flexibly applied according to the actual situation in the specific design. At present, the research on multimedia design principles in the academic community is relatively small. Although some literatures have conducted preliminary discussion and Research on these principles, there is a lack of in-depth and comprehensive analysis (Zhu Yimeng, 2024). Future scholars can further explore the theoretical basis behind these principles and expand them to other related fields. At the same time, combined with the current development of Internet technology and the popularity of mobile devices, they can update the design principles to adapt to the development of the times. In addition, the application should also be adjusted according to China's cultural background and social environment to make it conform to China's national conditions. In short, multimedia design is a process of continuous development and improvement. Only by mastering the correct design principles can we create excellent multimedia design schemes.

### 3. Multimedia design principles and interaction design

Interaction design refers to the design of interactive products to support communication and interaction in people's daily lives and work. Interaction design can enhance the sense of user experience and enrich people's ways of communication and interaction (Wang Yuanling, 2024). In the process of designing different aspects of the product, different terms are used, mainly including user interface design, software design, and graphic design. For example, in the process of web page design, graphics, text, audio, and video are comprehensively used, and redundant and complicated material information is abandoned. New media information can be more intuitive and accurately conveyed, and multimedia design principles can be fully presented in web page interaction design.

Interaction design is the basis of design in many disciplines and fields. The differences between other disciplines of interaction design include product design methods, concepts, and perspectives. Through the use of iteration, designers can improve the design work according to user feedback information. Using iterative requirements in series with design activities can optimize the effect of design innovation.

We will continue to develop new media technology, and begin to use various information technologies in new media research to provide assistance for relevant learners and users. Combined with multimedia design principles, we can provide technical help for new media learners. The effective use of multimedia can reasonably simplify the graphic design and help the audience accurately accept information. The use of multimedia principles can accurately convey the actual design goals, reasonably reduce the information load of the audience, and closely link learning information and real-world experience. In addition, the multimedia design principle can comprehensively transmit relevant audio and visual instructions, so that the audience's information transformation ability can be improved. In

the development of vision, printing, and video, multimedia communication information resources can be used to improve the overall communication speed, and the interactive design can be realized in the process of using new media, highlighting the timeliness of communication through the two-way flow of information.

Integrate graphic design in the visual art communication specialty, and integrate multimedia information design principles in the Omnimedia application environment in the process of designing new media interaction platforms. In the design process, the complicated database classification was abandoned in the interactive interface design. In the interactive design stage of the media interface, based on the dynamic visual sequence, the associated sections of the detailed page were gradually expanded, which was conducive to user understanding and highlighted the diversity of information dissemination (Liu Jiaqi & Chen Gang, 2024). The interface is highly interactive and can clearly display the interface information, which conforms to the principle of multimedia design. Using these design principles can ensure the integrity and accuracy of user information interaction.

The interactivity and navigation of multimedia design play an important role. The use of good interactivity is conducive to promoting user information interaction and enhancing the sense of information experience. Navigation can assist users in obtaining the information they need in time. Therefore, in the process of multimedia design, it is necessary to ensure the simplicity and operability of information interaction, so that user participation and satisfaction can be improved. In the stage of integrating multimedia design principles, users' psychology and habits need to be combined. Because the psychological cognition and habits of different users are quite different, it is necessary to follow these cognition and habits and optimize the user experience. For example, in the process of web design, it is necessary to comprehensively analyze users' browsing habits to improve the convenience of users' browsing web content. In addition, it is necessary to enhance the attractiveness of visual and auditory elements, make rational use of visual and auditory elements, improve user participation, and optimize the overall communication effect. For example, in video design, dynamic visual factors and interesting sounds need to be comprehensively utilized to facilitate users' in-depth understanding of information.

#### 4. Conclusion

In the process of new media information dissemination, the multimedia design principle is used to provide different media for the design of interactive graphic information, optimize the information dissemination environment, and use the full three-dimensional interactive media in digital information dissemination. Through the use of multimedia design principles, we can closely focus on forest media information, reasonably integrate different communication modes, design information in multiple dimensions, redundantly process multiple holographic visual information, and optimize the effect of information transmission.

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