Application of Intelligent Information Technology in Intelligent Home Decoration Design

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Abstracts: With the rapid development of social economy and the continuous progress of science and technology, people's living standards have been greatly improved, and at the same time, people have put forward higher requirements for the quality of life. Especially, with the deepening of the concept of smart home, it has become a hot research topic to combine intelligent information technology in smart home decoration design. In view of this situation, this paper focuses on analyzing the impact of this technology on the existing smart home decoration environment, and makes a detailed analysis and discussion on the intelligentization of the home environment.

Key words: Intelligent information technology, Smart home, Intelligent decoration

1. Introduction

With the rapid development of economy and science and technology, information technology, network technology, internet, etc. have also developed rapidly, and various industries have also shown a strong innovation and development trend in their respective fields [1-3]. Especially, intelligent service, intelligent life and intelligent management have gradually become the core content of smart home technology. The emergence of smart home technology has not only changed the working style of human beings, but also greatly improved the quality of human life.

In this paper, the actual situation of intelligent information home decoration is investigated and studied, and it is considered that it is an inevitable trend to use intelligent information technology to upgrade the traditional home decoration, which also meets the needs of the times. However, the existing related research lacks the corresponding application research, so this paper establishes the application research of intelligent information technology in smart home decoration design. In the research, it is found that according to the characteristics of intelligent information technology and the design concept of home decoration, the reform design scheme of the existing traditional home decoration is put forward, which effectively improves the modern design level of home decoration. Through the questionnaire survey of the corresponding personnel involved in the decoration, the analysis results show that the latest intelligent information technology home decoration scheme can
effectively enhance the overall decoration effect and increase the experience and comfort for customers.

2. Intelligent information technology and smart home decoration design

2.1 Intelligent information technology

Intelligent information technology is a new science and technology field that studies the process of information production, collection, storage, transformation, transmission, processing and wide application. For a long time, information technology, with its extensive influence and strong vitality, has become the fastest-growing field of science and technology in the present century. Intelligent information technology includes many aspects, among which information processing includes information compression, coding and encryption. The last link of information processing is information application technology, which includes display technology, control technology and so on. It can be seen that the four basic technologies in information technology are computer technology, communication technology, sensor technology and control technology, among which the two pillar technologies are communication technology and modern computer technology.

2.2 Smart home decoration design

With the development of intelligent household appliances, smart decoration has also attracted people's attention. The so-called smart home decoration is to integrate modern information technology into home decoration, and use sensor technology, electronic technology, automatic control technology, etc. to integrate the sensitive home in the home environment, so that intelligent household appliances can play a better role and make people's lives more comfortable. At the same time, the evolution of intelligent household appliances also makes the home decoration industry face transformation and upgrading. It should not only be practical as before, but also become beautiful and convenient, and combined with intelligent household appliances. And how to combine it with decorative style more beautifully and conveniently is also an important challenge to designers. For example, by connecting mobile devices such as mobile phones and smart home appliances, you can check the switch status of home appliances at any time, even in other places, which is one of the main forms of smart home decoration at present.

3. Questionnaire survey on the overall experience of home decoration design customers based on intelligent information technology

In this paper, the present situation of home decoration based on intelligent information technology is investigated and analyzed by means of questionnaire survey. By contacting and communicating with customers, design team, construction team and other participants, the design difficulty, construction difficulty and the overall experience of customers are analyzed and discussed. The survey content of this paper takes into account the comprehensive feeling analysis of customers and the scheme providing team, which ensures the survey data is scientific to a great extent.

In the investigation and study process, all the investigations are conducted independently, mainly from the aspects of design difficulty, construction difficulty and objective experience. And compare the traditional home decoration design horizontally. The survey involved 30 independent home decoration projects, and one representative was selected from customers, design teams and construction teams to conduct the survey. A total of 90 people were surveyed, 90 questionnaires were distributed and 90 questionnaires were recovered, with an effective recovery rate of 100%. The survey results are shown in Table 1. Based on the results, it can be seen that the design difficulty and construction difficulty of home decoration design using intelligent information technology have been improved, but the improvement is not significant. For customers, the customer experience and overall comfort have been greatly improved.

Table 1. Investigation and analysis of comprehensive impact of home decoration design based on
intelligent information technology

| Investigation project | Difficulty is increased (%) | Difficulty is not increased (%) |
|-----------------------|------------------------------|---------------------------------|
| Design difficulty     | 65                           | 35                              |

| Construction team |
|-------------------|
| Investigation project | Difficulty is increased (%) | Difficulty is not increased (%) |
| Construction difficulty | 63                         | 37                              |

| Client |
|--------|
| Investigation project |
| Overall experience and comfort level | Increased (%) | Not increased (%) |
| 87 | 13 |

4. Discussion

4.1 Analysis of the impact of intelligent information technology on home decoration design

It can be seen from the analysis results in Figure 1 that the home decoration design based on intelligent information technology has a great influence on the design style and indoor lighting. Through the statistical results of decoration cases and users' final experience, 85% of users think that the decoration design with intelligent information technology has changed greatly in style, but can accept this change; 88% of users think that the light after decoration is more suitable for home than the original design. According to the overall analysis, the combination of home decoration and intelligent information technology has greatly improved the comprehensive experience of customers, and can meet the various needs of customers.
Figure 1. Analysis of the influence of intelligent information technology on design style and indoor lighting in home decoration design

It can be seen from the analysis results in Figure 2 that the home decoration design based on intelligent information technology not only has a great influence on the style and lighting, but also affects the overall layout and color matching of the design to a certain extent. The change of details is often caused by many factors. In addition to the factors of design style and lighting, this paper makes an independent analysis of layout and color matching. The results show that 76% of the respondents think that the layout of the new design scheme has become more reasonable, and 80% of the respondents prefer the color matching of the new scheme. According to all the investigations, intelligent information technology can not only improve the intelligence of home, but also take into account the customer's demand for design style and other details.

![Figure 2](image)

Figure 2. Analysis of the influence of intelligent information technology on the overall layout and color matching in home decoration design

To sum up, intelligent information technology not only has great influence on design style and lighting, but also affects the overall layout and color matching of design to a certain extent. As lamps and lanterns have become one of the most important decorations in interior design. In order to meet the needs of different occasions, we can adjust the overall lighting effect through intelligent information technology. For example, the user can turn off the lights at home by using a button or mobile phone, which is very convenient. In addition, intelligent information technology will also affect the placement of indoor items, even indoor furniture and indoor colors, such as the intensity of light will make indoor furnishings show different color effects and give users different psychological feelings, and finally give users a satisfactory effect.

4.2 Features of home decoration design products based on intelligent information technology

(1) Independent design
Using smart home decoration design, users can tailor their own decoration scheme according to their own room type and taste. Every layout in the house, even the patterns on the floor, can be chosen freely. If you have the style you want, you can also improve your family environment by submitting your own model. Every place in the house can be a place for customers to show their talents. If users are not interested in DIY, the platform will also provide mainstream decoration schemes for users to choose.

(2) Multiple comparison
Faced with a wide variety of decoration companies, even smart users may have a wrong judgment, but smart home solutions provide users with a clear price list, so that users have a clear idea. Each design unit will not only give the price list, but also give users similar decoration style and price reference, so that users can show their talents and get real benefits.

(3) Simulation effect
Through intelligent information technology, users can see their desired room and decoration effect more intuitively and truly, and the real simulation way can make users have good experience. At the same time, intelligent design also promotes the communication between designers and users, and avoids communication obstacles caused by users' incomprehension of a large number of technical terms.

4.3 Modern home design and home intelligent system develop together
(1) The introduction and improvement of home intelligence system can not be separated from the development of China's interior design industry. The introduction and development of technology should not only adapt to our national conditions, but also in accordance with the position of traditional interior decoration culture in the hearts of Chinese people. If we want to popularize and promote it, we need to constantly improve ourselves, especially pay attention to the adaptability of smart home. In addition, we should strengthen international cooperation and exchanges, absorb advanced technology and management experience of developed countries, and accelerate the development of smart home in China.

(2) In modern society, the development of home intelligence system can not be separated from indoor environment. It must be closely integrated with modern interior design. Indoor environment is the stage for its full display. In addition, only the development of smart home be closely combined with indoor environment, modern people's aesthetic concept and consumption concept, can it become more tenacious.

(3) Through the analysis of this paper, if the home intelligent system is used properly in the home design, it will be able to adapt to the modern interior design and make the intelligent system and interior decoration achieve a win-win effect.

5. Conclusion
In the process of studying the application of intelligent information technology in smart home decoration design, this paper focuses on the traditional home decoration design scheme. After research, this paper thinks that in the overall development of smart home design in the future, especially the core technology based on intelligent information technology plays a vital role in the development process. The maturity of intelligent information technology determines the intelligent degree of smart home decoration. Through the questionnaire survey of the three parties involved in the home decoration design, the results show that their comprehensive experience of smart home decoration design is obtained. Most designers, constructors and customers are satisfied with the smart home decoration under the intelligent information technology. According to the analysis of this paper, it will be the future trend to combine the concept of intelligent information technology in the traditional home decoration design, and with the increasing economic strength of our country, intelligent technology can be better developed, thus realizing the informationization and intelligence of the home decoration design environment.
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