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Discussion on children's intelligent learning products under big data

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Abstract

This paper investigates the existing market of children's intelligent learning products in China, and analyzes the development trend of children's intelligent learning products in the domestic and foreign markets combined with the development of children's learning education in other countries. Through a certain amount of research and Analysis on China's children's education product market, we hope to attract the attention of the product market research direction, expand the design direction of children's intelligent learning products, standardize the product market and improve the quality of children's products, so as to achieve a situation beneficial to education and market efficiency.

Keywords

Big data; 5G; intelligence; market; quality; children's products.

1. Introduction

At present, the world has ushered in the era of big data. What will be the educational products in our era of big data? How should our children's learning product design be developed from this ship equipped with big data and existing 5G technology? With these questions in mind, the author will take big data to analyze and study the development direction of children's intelligent education products under the existing 5G technology, consider the role and guidance of existing big data on children's intelligent education products, and discuss big data Whether the following products are conducive to the all-round development of children.

Until now, there is no children's intelligent education product that can really combine education and entertainment in the domestic and foreign markets. Compared with adults, children not only like products with strong fun, but also like to play and assemble things. They will disassemble and assemble by themselves. Therefore, the market development of children's education products is very large, and children occupy the most important position in the hearts of most parents. Educational products are not only beneficial to improve children's brain development, but also prevent them from indulging in electronic products such as computers, televisions and game consoles. They can also enhance the development of children's physical and mental health, and advocate children's positive, sunny and upward lifestyle and entertainment, so as to promote their physical and mental health.

Thus, designing a learning product that combines education and entertainment through contemporary big data is very responsive to today's market demand.

2. Current situation of intelligent learning products at home and abroad

2.1. Status of children's intelligent learning products in China

At present, China's children's intelligent learning product market is mainly learning watches, point readers, learning tablets and more others. most of these products are cartoon images and simple shapes. Although there are many products, the price and quality are uneven. There are many types of children's intelligent learning products in the market, including robots, learning

pens for reading and learning, instant questions (taking tmall elf as an example), photo analysis and answers, video and audio, and tablet computers (taking the learning tablet produced by Bubugao group as an example). Although there are many products, the form of intelligent learning products on the market is very single, and there is no learning product that combines education, fun and intelligence. Chinese children's learning products are mainly point readers in the market, which is very lack of innovation, and even problems such as inaccurate translation and wrong question type analysis due to insufficient question bank or quality problems. Therefore, the market is extremely lack of a learning product that can make full use of children's curiosity and arouse children's fun and play an educational role.

2.2. Status of children's intelligent toys abroad

In foreign countries, due to the economic environment and other factors, the overall development of preschool intelligent children's learning products is relatively perfect, and the base used by foreign preschool children in learning products is relatively large. In the research and development and research of relevant children's learning products, western developed countries attach great importance to children's physical and psychological development and the characteristics of all ages. The research of foreign intelligent products is advanced in China. Compared with China, foreign intelligent products have high cost, perfect technology development and complete functions. They also use artificial intelligence technology and social big data more mature. Internationally, the intelligence of learning products is much higher, and intelligent education products are also very popular. For example, Anki Cogni toys, Sony mesh, alpha dog intelligent robot launched by Google, and steam's programming education products.

3. Introduction of the concept of big data

At present, children's intelligent education products should be a product of a high combination of education, high technology and entertainment, which is popular in the market and guided by certain data. By using the latest Internet big data, we can analyze what children really need and how to guide children to use it correctly and analyze what kind of experience intelligent learning products under big data bring to children. Children's intelligent learning products are different from traditional products. They integrate big data data with existing technologies and traditional products, provide an interactive product use environment, and users and products can complete preset tasks through two-way interaction. I believe that with the promotion of 5g technology, our lifestyle will be gradually changed and children will be more affected. The "big data" studied in this paper uses the design concept to combine the products with the data collected under the current big data and integrate the 5g technology with the user's needs. On the basis of the existing products, 5g technology is added to present different children's education products, so that the products can meet the functional needs and the psychological needs of users. While analyzing user needs in combination with big data, it also inherits traditional products and realizes other new functions.

4. Design and application of big data in children's education products

While confirming the project, analyze the design requirements, conduct market analysis from the user as the center, and study the corresponding attributes of children and their guardians (analyze their income, demand, requirements for product size, color, etc.) and the attributes of users themselves in combination with big data. According to the current technology, the process of resource integration combined with big data to obtain design points from massive data or information. Taking intelligent children's education products as an example (after studying the relevant attributes of children, we should also study the guardians and relatives such as children's father, mother, grandfather and grandmother) we need to fully understand

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the users, including their potential needs, and analyze them based on the user's needs, because the accuracy of market research determines the accuracy of the products meeting the user's needs.

Integrate and analyze the recovered survey data. A large amount of data analysis will be the data support of the product, but it is still necessary to analyze the data carefully.

Extract the required keywords in the data integration, and brainstorm the keywords of the data and relevant scenes. While brainstorming, open your mind, contact different scenes, characters and situations to spread the thinking tree. When encountering bottlenecks, you can also carry out reverse thinking development, and more people should exchange ideas, In this way, we can better stimulate the thinking collision between teams and maximize the value of brainstorming.

Use the keywords obtained from data analysis to sort out and select interesting and novel keywords for the combination of different scenes and characters, so that the products can be used in different ways.

Creative sketch creation requires bold creation, expanding thinking and opening up open thinking. There is no theme and scope. You can use everything around you, such as buildings, toys, props, environment, cars, plants, bags and so on.

3D modeling and display; Designers can more intuitively observe the product shape, structure and details. While modeling, it also tests whether the designer has fully considered the conditions for product landing in the early stage, If the product cannot be landed, they need to go back to step 5.

Sample proofing; The required parts can be printed on the 3D printer on the basis of big data. 3D printing can more accurately judge whether the shape meets the needs of the early stage, and detect whether it meets ergonomics while printing, which will save the cost and time of factory proofing in the later stage.

In the last stage of mass production; The damage rate and sales effect of mass production all depend on the maturity of the preliminary design.

5. Design strategy of children's intelligent education products under big data

5.1. Foundation layer - combination method

Combination method refers to the applicable law of using the details, principles, technologies, and more. of two or more products to form new textures, new details, new principles, new technologies and new products. Combination method is a rule applicable to all things, which is generally used in electronic products, furniture, toys and so on. At present, with the rapid development of artificial intelligence, it is a process of resource integration combined with contemporary big data to obtain design points from a large amount of data or information.

Take the little genius learning watch in Example 1 as an example. The product adopts satellite positioning and wireless connection technology to integrate the watch and learning. It can not only check homework and ask questions in learning, but also analyze the positioning of children in life, prevent children from being abducted and trafficked, and contact their parents in time. This intelligent product not only enhances interaction, but also has certain defense and contact functions. This smart watch is also based on the analysis of Internet big data. Designers can use big data to get the styles, colors and functions that children like to design, so as to make this product more attractive.

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Fig.1. little genius learning watch (from the official website of little genius watch)

5.2. Core layer - emotional experience design method

In the design process of emotional experience, designers can use learning products to let users get children's daily data through interaction and experience, and explore the reasons for children's strong curiosity and favorite colors, shapes, products and animation through big data, so as to develop children's intelligent education products in the direction of interactive experience. Therefore, using contemporary artificial intelligence technology to trigger emotional experience is a very applicable design law and an important element of a successful children's education product. If designers can combine emotional experience with modeling, function and other elements, it must be a children's education product with more emotional connotation.

5.3. Peripheral layer - Application of the combination of animation IP and artificial intelligence

Taking the Fig 2 maker block MBot programming education robot as an example, the biggest advantage of MBot is to attract children's interest. Only when children like it can they learn well. Therefore, first of all, on the packaging cover, the lovely style full of children's interest is used instead of the ordinary engineering drawing style. The packaging and products of this product can use the IP combination of characters such as animation, comics and cartoons, and analyze the characters of animation, comics and cartoons loved by children of different ages and men and women in combination with big data,Then combine the IP of these characters with the products for design, and use the core technologies of artificial intelligence while transforming animation, including intelligent sensing, pattern processing, character recognition, voice control and other technologies. These core technologies are the basis of the development of intelligent education products, which must provide a lot of imagination space and technical support for the design of educational products. Only in this way can children have the desire to play. Intelligent children's education products need to have certain core development strategies. In this product, the designer's design focus needs to explain the functional scope of technology, as well as the development and application mode of technology.

There are many kinds of IP image combination design in the market, including direct combination, simulation scene combination, character combination and so on. Today, most animation derived intelligent education products generally use simulation scene reproduction,

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combined with the overall modeling function, to convert the IP image into 3D, and realize teaching in fun through offline intelligent technology, and can also view the learning situation. Take this set of entry-level programming robot as an example. It combines many elements that children like and appears as cartoon characters. First, let the child install it according to the tutorial. If there are difficulties, let the parents help, which will help to improve the child's sense of achievement. This product is also equipped with makeblock app and other programming software. Children can combine simple graphical IP programming interface, learn programming on mobile phones, and unlock different playing methods and knowledge points, It also helps parents to check children's learning at any time, which not only increases the interaction and entertainment between toys and children, so as to reduce children's loneliness and enhance children's sense of belonging.

Fig 2: makerblock programming robot (from the official website of makerblock)

5.4. Extension layer - social environmental protection value mining

At present, the educational product market has been very rampant. Many learning products have high similarity and single function. They are trying to impress the public by making great efforts in packaging and advertising, but none of them has a combination of education and entertainment. In the current era of big data, children's education products not only need to have learning value, but also need to develop children's intelligence, educate children to establish correct ideas and fear nature, but also need to have correct values of public welfare, environmental protection and ecology. Thus in the process of children's learning products in line with the current technology development, it should also have the value of social public welfare. For example, in terms of ecological value, children's intelligent toys can use the law of biological development to enable children to learn the learning of natural life and natural development while obtaining entertainment, and establish the awareness of environmental protection and sustainability.(Such as, When children use the learning product, this product can analyze what kind of animals and plants this kind is, the season they like, or where they generally grow). These data will be expressed in the form of pictures, words and so on. In this way, this educational product can not only teach for fun, but also guide children to establish correct values.

6. Conclusion

Children's cognitive, thinking and brain development abilities will increase with age, and each age stage has its own characteristics. Children's hyperactivity, curiosity and playfulness are

accompanied by the development of children's brain, Therefore, when designing toys for children's learning products, we should take into account the ideas, behaviors and abilities of children of different ages, the psychological and brain development of children of that age, as well as children's thinking and imagination patterns, and obtain children's needs and pain points in combination with the current big data analysis, so as to make children's intelligent learning products truly develop to guide children's cognition, thinking Intelligence and other all-round development.

Considering the above background, it is reasonable to design a children's intelligent learning product that combines teaching with fun in combination with big data.

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