

# Research on Product Design Based on the Emotional Needs of "Generation Z" Women Living Alone

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**Abstract.** The high-pressure and stressful life of long-term struggle in the city leads to a certain amount of pressure, anxiety, and loneliness for Generation Z women living alone, so they will pay more attention to the emotional experience of the product. At present, there are few products to analyze and study the group emotional needs of women living alone in Generation Z. Therefore, this paper studies product design from the perspective of the emotional needs of women living alone in Generation Z, proposes product design strategies based on Norman's emotional hierarchy theory, and truly understands and insights the emotional needs of women living alone in generation Z, and designs products suitable for them.

**Keywords:** Generation Z; Lone woman; Emotional need; Three-level theory

## 1 Introduction

With the development of human society, scholar Eric Klinenberg described this phenomenon in the book "Going Solo." In the future, the number of young people living alone in large and medium-sized cities will be far ahead of the number of group families, and the "single society" will gradually form. [1] The 2021 Social Blue Book predicts that China is moving towards the transition stage of a new economy and society and also indicates that the "Z generation alone youth" group represented by the post-1995 generation has become a common social phenomenon. According to the "New Youth Housing Consumption Report 2022" (later known as the "Housing Consumption Report"), the main types of living alone are shared invisible living alone, the whole rent living alone, and self-housing living alone. The reasons for this phenomenon include the acceleration of urbanization, industrial concentration of resources, and the concept of social and personal evolution. Among them, "active living alone" accounts for the majority, as shown in Table 1. Among them, young women living alone in Generation Z are a relatively particular group. Most of them are economically strong and highly educated women. Since women living alone in Generation Z live alone, the pressure of living, struggling, and working alone in the field for a long time may cause them to have specific emotional solid needs, loneliness, and lack of security at the spiritual level.

**Table 1.** Main types of youth living alone(Data from New Youth Residential Consumption Report 2022)

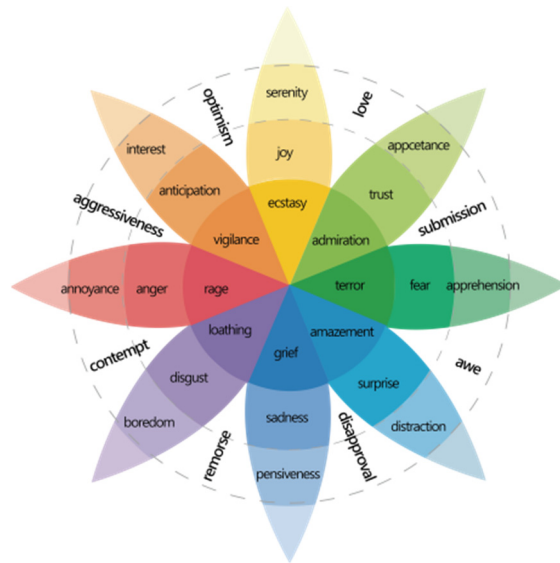
Reasons for living alone	proportion	type
Enjoy the feeling of living alone	33.6%	Proactive
Single	25.5%	Neutral casual type
Introverted personality factors	9.8%	Passive
Become independent	9.2%	Proactive
Reasons for work	15.4%	Neutral casual type
There is no other half	2.2%	Neutral casual type
Other	4.3%	Other

1. Strong emotional needs: Women are generally more robust in intuition, empathy, and other aspects [2], and their personalities are more sensitive and delicate. As "Generation Z" women who live alone, they have just left their parents' support and classmates' company to enter the workplace. Living in a single and solitary environment, "social degradation" leads to almost wireless social interaction, and "Generation Z" women living alone will have more robust emotional needs and desire dynamic compensation brought by other things.
2. The feeling of loneliness: Because women's inner surfaces are more delicate and sensitive, women living alone feel more lonely than those living alone. Although the Internet era has brought convenience to the life of Generation Z women living alone, long-term unaccompanied solitary life will still make women living alone lack psychological security. Short-term loneliness does not cause individual psychological problems, but long-term loneliness can cause some psychological issues.
3. The low security of being alone: Although women's independent solo behavior realizes their will to a certain extent, enabling them to have their own living space in the busy working life, such a state will inevitably make women alone feel lonely. What is more noteworthy is that the level of personal security will also decrease. Over time, it will not only lead to the emotional and psychological defects of "Generation Z" women living alone but also cause substantial harm to their safety. [3]

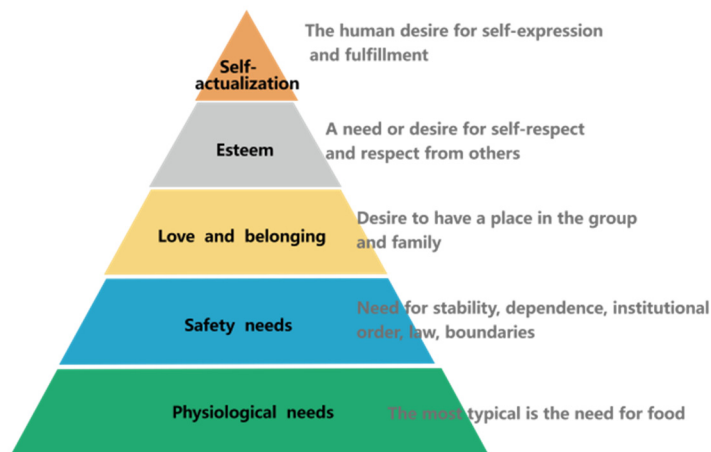
## 2 Related theoretical research on emotional needs

### 2.1 Emotions

Emotions are biological, instinctual reactions. Emotion can be concretely reflected in people's attitudes and experiences about whether objective materials meet their expectations [4], both positive and negative. In academic research, the most convincing theory on the classification of emotions is the wheel of emotions theory proposed by scholar Robert [5]. As shown in Figure 1, he divides the most basic human emotions into eight kinds: anger, nausea, fear, sadness, anticipation, joy, surprise, and trust, and divides them into three types of intensity and two styles of tendencies. It is pointed out that emotion can be aroused by various physiological mechanisms of the organism and may present different expressions.



**Fig. 1.** Plutchik's wheel of emotions



**Fig. 2.** Maslow's hierarchy of needs

## 2.2 Requirement

Demand is the mood state related to desire produced by a human subject in a particular situation. Take Abraham H. Maslow's theory of Human Motivation[6] as an example, as shown in Figure 2, in which physiological and safety needs belong to basic needs and are the needs to ensure people's basic survival. The needs of belonging and love, self-esteem, and self-actualization are considered only when a person achieves a carefree life and are called conditioned needs. The Economist has vertically compared "Generation Z" with previous generations, saying that it is a generation with higher education levels but more psychological

pressure and depression [7] and needs more emotional care. The emotional needs of users discussed in this paper are five aspects of Maslow's hierarchy of needs. In the manufacturing industry, the various needs of users are the most significant driving force for the development of product design [8]. Considering the actual situation, the real needs of target users can be met. On the contrary, the iterative updating of products can also impose new demands on consumers and form an excellent circular mechanism with commercial value, which requires designers to accurately grasp the changes in the needs of various levels of the objects used in practice. Impress users and win the market competition from the perspective of emotional and benefit needs.

### 2.3 Three levels of emotion theory

As the species with the most sophisticated body structure, human beings have cognitive, aesthetic, and emotional response attributes not possessed by other natural animals, which are caused by different levels of brain thinking, including the level of instinct to control pre-response, the level of behavior to manipulate daily activities, and the level of reflection to influence brain cognition [9]. All three belong to the relationship of control and intervention from the upper level to the lower level, constituting the most basic emotional response process in the human brain. To apply the emotion level theory to product design, designers need to transform it one by one from the perspective of these three processing levels, as shown in Table 2.

**Table 2.** Translation of the Three Levels of Emotion Theory into Product Design

Three levels of emotion	function	Transformation in product design
Instinct layer	Control pre-response	The external shape, material, and color of the product Color aspect of the design
Behavioral layer	Manipulating daily activities	Products should be designed to achieve efficacy
Reflection layer	Take charge of brain cognition	Realization of products meaning and value in the mind of the user

Designing according to the emotional needs of users is both a trend and a principle. People-oriented design, which is guided by the user cognition level, such as instinct, behavior, and reflection, will eliminate the cold concept and complex interaction in the product and replace it with the "human" design world.

## 3 Product design strategies based on the emotional needs of Generation Z women living alone

For women living alone, the design of household items not only has a unique practical value but also should have a strong appeal and connotation to meet their spiritual needs. Donald A. Norman believes that human emotional needs include instinct level, behavior level, and reflection level, and he expounds on the role of emotional design in design and profoundly analyzes how to combine product design with user emotion. From the perspective of emotional design theory, the emotional needs of women living alone in Generation Z at the intuitive level are generated based on physiology and sense, the emotional needs at the behavioral level focus on the importance of experience, and the emotional needs at the

reflective level include belonging, security, independence and privacy [9]. Therefore, this paper discusses the product design strategy of the emotional needs of women living alone from three levels: instinct level, behavior level, and reflection level.

Product instinct layer design part: When we see a product, the first reaction is "beautiful." This judgment comes from the intuitive level. The emotion of instinct layer is the most direct emotion feeling and emotion experienced in the interaction between people and things. When women come into contact with products for the first time, they will be stimulated by information such as shape, color, material, size, and pattern from the formal characteristics of the visual center and instinctively feedback the first feeling of the product. Since ancient times, although women's standards for beauty have changed with The Times, the pursuit of beauty is eternal. They have their own set of "aesthetic pursuit formulas." As a generally highly educated generation, women living alone in Generation Z have their own opinions on the cognition of things, are easy to accept new things, and have a high aesthetic quality, so they have their high pursuit standards in the expression of "inner beauty" and "outer beauty" of themselves and their living environment. While beautiful things can cause emotional fluctuations in users, attaching importance to the collocation of design elements such as decoration, texture, and light in the home environment is also the expression of supplementing the emotional needs of "Generation Z" women living alone from the side [9]. The exquisite shapes, soft colors, and comfortable materials in the products are all favored by women [10]. Therefore, in the design of the emotional needs of women living alone in Generation Z, the most direct emotional experience of women should be fully considered.

Product behavior layer design part: The "ease of use" and the joy and satisfaction brought by "high efficiency" in the interaction between users and products belong to the emotion at the behavioral level. The four elements of function, comprehensibility, ease of use, and feeling are the excellent behavioral levels mentioned by Norman in Emotional Design [9]. The interactive emotion between people and products comes from the emotional resonance generated when people use products. For example, in the design of home lamps, letting the lighting mode simulate the moon's changes, combined with people's lifestyle slowly changing the lighting, will make people feel a kind of relaxation. In this design, the designer fully considers the emotional needs of people, combined with the characteristics of users, cleverly applied to creating household goods. Good behavior hierarchy design requires exploring the features of different people in their lives and understanding how the user community uses the product. Therefore, in creating products for the emotional needs of Generation Z women living alone, we must first understand their characteristics in life. Women living alone are prone to anxiety leading to insomnia, so we can start from the mood problem and reduce their stress by strengthening the interaction of products.

Product reflection layer design part: Reflective design is a kind of feedback from users on products or services, which can further meet the emotional needs of users. Reflective level design is closely related to information, culture, and the usefulness and significance of products. It includes many fields [9]. Good product interaction is an effective way to stimulate users' emotional experience at the reflective level. The novel and exciting operation mode, the critical arrangement that fits the female body structure, and the human voice prompt can all make the female users of Generation Z living alone feel full respect and happiness in using.

## 4 Design practice

In view of the emotional needs of women living alone in Generation Z, combined with Norman's emotional three-level theory, this study comes up with an innovative design based on the existing aromatherapy machine. With women living alone in Generation Z as the main object of use, the sleep music aromatherapy machine is designed to relieve the psychological pressure of women living alone in Generation Z, so that users can place their emotions on the product and release their emotions. Its lovely shape is like the spirit in the forest appearing on your bed. When you open the product, the smoke floating out is like the shape of music, and the smell of aromatherapy also seems to make the music taste. This design combines smell and hearing, which can help you fall asleep slowly and immerse yourself in your dreams.

Product instinct layer design part: From the perspective of the overall external form of the product, as shown in Figure 3, curves with more female aesthetic taste are extracted as essential elements according to the trend of female aesthetic modeling, and aggressive structures such as right angles are removed to fit the psychology and habits of single-family women of generation Z [11]. Secondly, in terms of material and color, to better serve the aesthetic of "Generation Z" for home products, the whole lamp body is set to the texture of white frosted plastic, and the visual use of purple to highlight the part of the aroma spray, not only plays an eye-catching role but also provides users with a multi-layer sub-emotional experience; Finally, compared with other aroma machines, the overall footprint of the base is small, which fits the needs of "Generation Z" women living alone in the home environment to move and place the product. From the aspect of the use atmosphere of the product: First, the product is set with sound holes on the product to meet the demand for music. In the process of use, music can be played by controlling the switch button and the parameters of the mobile app.



Fig. 3.Product scene picture



Fig. 4. Product concept

Product behavior layer design part::The product divides the user's emotional needs into two parts: The sound perception and smell perception are shown in Figure 4, and the carriers are set in the product structure. The product application process is shown in Figure 5. In response to the problem of insomnia and anxiety of women living alone, the product adopts the design concept of hearing and smell so that women living alone in Generation Z can enjoy music while feeling the aroma of aromatherapy. It adds a pleasant experience for female users.

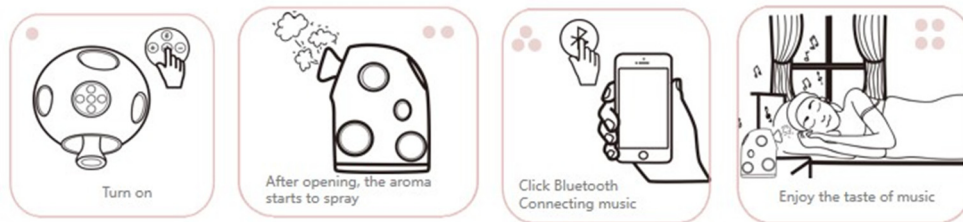


Fig. 5. Product usage process

Product reflection level design part: It mainly focuses on the two aspects of personal emotions and personal values of women living alone in Generation Z. First, aroma and music relieve the psychology of women living alone and make them feel relaxed. Secondly, in terms of enhancing the sense of self-worth of women living alone, according to the physiological characteristics of women, reduce the weight of the product considering the proportion of product size and space to make it more convenient to move.

## 5 Conclusion

In the current environment and trend of The Times, living alone has become a manifestation of women's social life in the new era, which represents the power of urban and market innovation. To achieve long-term development and better realize their value and social value, female groups work alone in different places. However, it is inevitable that women living alone will have psychological and emotional problems, such as pressure and anxiety at work, loneliness, and insecurity in life. Designers should pay attention to their emotional needs. Therefore, the design of this product fully considers the needs of the group of women living

alone in Generation Z, and relieves the solid emotional needs, loneliness, and anxiety of Generation Z women living alone. For the Z generation living alone, the female generation has a small taste of life, enhances happiness and security, and provides positive emotional value.

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