



Research article

Optimizing brand loyalty through user-centric product package design: A study of user experience in dairy industry

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ABSTRACT

Objective: With the arrival of the experience economy era, changes in the marketing environment, and the evolution of consumer psychological needs, a good user experience will bring them freshness. Based on user experience, this paper analyzes the relationship among product brand image, brand trust, and brand loyalty, aiming to promote product values and improve brand loyalty and trust.

Methods: Through case analysis, consumers' favorite brands were selected and conducted positioning analysis on brand color, image, package form, and so on. The study proposed a hypothetical model of user experience on brand loyalty and performed a questionnaire survey on 357 consumers. The relational model of the impact of user experience on consumers was verified using the SEM (Structural Equation Model) method.

Results: It is shown that sensory experience, emotional experience, behavioral experience, and thinking experience have significant impacts on brand image; brand image apparently affects brand trust; and brand trust and image remarkably influence brand loyalty.

Conclusions: Extending the concept of user experience to the fast-moving consumer goods industry will contribute to the package design of products and the theory and practice of brand loyalty. The research findings can provide effective strategies and approaches for marketers to improve product market competitiveness and enhance consumer brand stickiness.

1. Introduction

In the 1990s, American marketing scientist Robert F. Lauterborn proposed the customer-centered 4C theory [1], including Consumer, Cost, Convenience, and Communication. The 4C theory focuses on guiding consumer demands and aiming at satisfying consumers to produce products that satisfy consumers. The level of attraction to consumers and the user experience on brand contacts should be presented from the perspective of consumers. Generally, user experience drives product design to explore users' unmet needs and discover approaches for product brand design that align with its positioning.

In the context of this study, it is closely correlated with fast-moving consumer goods (FMCG). FMCG includes products that have a

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short lifespan and are relatively inexpensive and frequently purchased. Their service life is generally less than one year. These products belong to recurrent expenditure, such as food and beverages, personal hygiene products, household and daily care products, clothing and footwear, and other common products in supermarkets [2]. Due to the low price, short shelf life, and rapid consumption of dairy products, frequent consumer purchases have resulted in their high turnover rate on store shelves. Unlike durable consumer goods, such companies focus more on the packaging and marketing of FMCG to attract consumers to purchase their products [3].

In the past 40 years, South Korea's dairy industry has grown tremendously, with per capita consumption increasing from 100 g in 1962 to 88.8 kg in 2020 [4]. However, due to the slowdown in economic growth, especially the continuous decline in low fertility rates, the dairy market has stagnated in recent years. To address this issue, South Korea's dairy industry is developing various products to meet the needs of consumers, such as function-enhanced and interest-package products.

Brand design is a comprehensive reflection of a company's image, representing the value of a product brand. It can visually guide consumers' purchasing desires and stimulate product sales. Brands play an essential role in realizing commodity value and product use value. When it comes to product brand design, it is extensively presented in the form of package design. Therefore, enterprises and design teams attach enormous importance to the role of package design in production, circulation, sales, and consumption.

Therefore, this study took the milk product packages of eight representative brands currently sold in Busan, South Korea, as comparative analysis samples. Ultimately, from the perspective of user experience, one brand's products were selected for empirical analysis on visual elements, containing package shape, color, and layout design [5], to study user loyalty in product packages. First, this study aimed to probe into the role of user product design elements on brand loyalty from the relationship between user experience and brand image. Second, through analyzing target consumers, this study conducted a comprehensive and systematic survey to extract the key factors that can stimulate the response of such groups and effectively explore the potential directions of product development. Third, this study analyzed the visual components of dairy products and discussed the role of visual elements (form and color) that drive user purchases in brand design.

2. Literature review

2.1. User experience and brand image

In ISO9241-210 Ergonomics of human-system interaction, user experience is defined as all reactions and outcomes of people towards the products, systems, or services they use or expect to use [6]. It points out that user experience is generated during the interaction between users and products, including users' psychological and physical sensations and the results brought by the user experience. The experience results are mainly user perception and reaction, both emotional and physiological [7]. In fact, this paper can also be referred to as customer experience in the service field. The reason why using "user experience" instead of "consumer experience" is because the latter refers to the feeling and evaluation of customers throughout the service process, which is more holistic. Although experiences are all generated during the service process, the user experience studied in this paper tends to solve the problem of a single contact in the service. Therefore, the concept of user experience is adopted in this paper (UX) (Fig. 1).

With the arrival of the era of experiential economy, changes in the marketing environment, and the evolution of consumer psychological needs, experience-driven marketing models will "replace traditional marketing and business methods." [8] Consumer-centered experiential marketing was first proposed by Schmitt in his book "Experimental Marketing." Schmitt divided experience into sense, feel, think, act, and relate, which formed the "Strategic Experience Modules (SEMs)." [9] Brakus (2009) constructed the experiential dimension and developed a brand experience scale of four dimensions, including sensory experience, emotional experience, thinking experience, and behavioral experience [10]. Experiential marketing helps to create experiences and

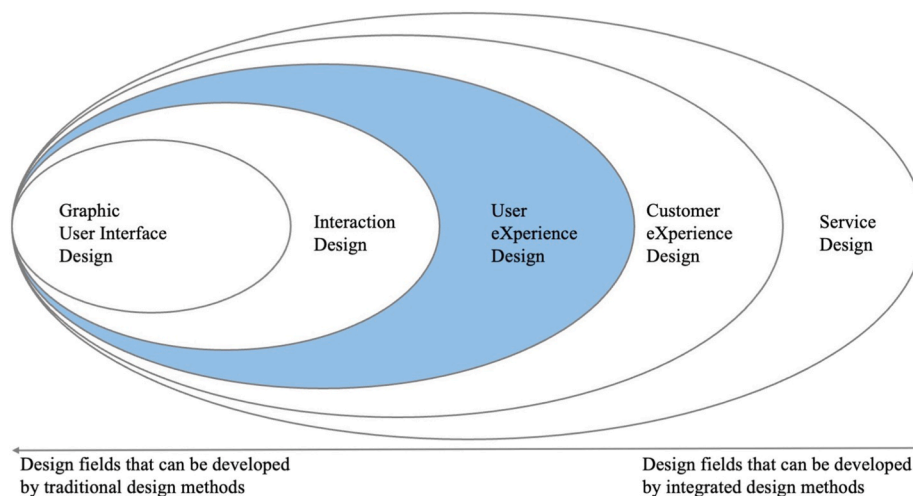


Fig. 1. Classification of experience design.

emotions for customers. The International Experience Marketing Association pointed out that experience marketing “allowed customers to engage in sensory interactions with brands, products, and services.” Therefore, experiences can be generated in various stages of interaction between consumers and brands, such as the visual impression of package design that consumers can create before purchasing, the on-site purchasing experience of consumers, and the service experience of sales.

Aaker pointed out that brand image was a collection of associations related to the brand formed by customers [11]. Keller defined brand image as a series of perceptions of the product reflected in consumers’ memories [12]. It helps consumers differentiate between products, develop a positive feeling towards the product, and continue to use it. Therefore, as a key driving force for brand assets [13], the brand image of a product is an intangible asset and has become one of the essential marketing factors in the process of product standardization management [14]. A good brand image positively affects the perceived quality and value of products and purchase intention [15]. Brand logos, names, colors, packaging, advertisements, and other elements related to the brand image affect consumers’ perception [16], while brand experience is conceptualized as a sensation, perception, and behavioral response caused by brand-related stimuli. Consumers get attached to the brand [17–19] after experiencing overall sensory stimulation, such as visual and auditory. That is to say, consumers’ perception of brand image is influenced by brand experience to some extent.

2.2. User behavior perception of consumers

Design issues are usually due to nebulous concepts from designers or clients. Designers transform client needs into products that meet their requirements. The essence of design is to create excellent services for everyone in society, regardless of gender, age, or profession. Everyone has the right to enjoy the services that good design brings to people’s lives. The purpose of user behavior and cognition research is to study target customers and use it as research feedback to solve problems arising from their behavior and cognition, promote effective communication between users and products, enable consumers to accurately understand products while receiving information, improve the relationship between users and products, and reduce losses to products and enterprises.

The research on product brand design under user experience, after clarifying the target population, defines the concept of brand scope and then examines participants’ operating habits, perception, and psychological characteristics of the product, specifically manifested in the perception, memory, thinking, judgment, deduction, decision-making, and other aspects of the target audience. It multi-dimensionally transforms the actual needs of users into the direction of product design, making the product in line with experiential cognition and usage habits. Designing after the investigation of user behavior cognition will take a good user experience and a sense of freshness to users, thus increasing product value and improving brand loyalty and trust.

2.3. Brand trust and loyalty

Dick & Basu (1994) believed that brand trust was a positive cognitive process among consumers generated from brand cognition [20]. Erdem T & Swait J (2004) considered that brand trust depended on consumers’ perceived psychological state towards the brand [21]. The generation of brand trust is actually the tendency of consumers to have confidence and recognition in a certain brand after comparing and producing expected results in front of many brands, even when facing uncertainties. Previous studies have proven that brand trust promotes the development of brand assets [22]. Meanwhile, it is conducive to the establishment of the brand-consumer relationship.

With the development of brand concepts, brand loyalty encompasses multi-level content as a dynamic concept [23], including brand relationships, brand attitudes, brand innovation, and brand experiences. According to the current changes in the market, brand loyalty has become a relationship established between stakeholders and the brand, specifically manifested in participation, cooperation, promotion, or repeat purchases [24,25]. From the perspective of consumers, the brand trust formed based on brand functional benefits (consistent product quality and reliability), social benefits (pleasure, social recognition, and self-expression), and experiential benefits (diversity, cognitive stimulation, and sensory perception) is a determining factor of brand loyalty [26].

Chaudhuri. J.R. & Holbrook. T.C. (2001) validated the driving effect of brand trust on brand loyalty in their research work. The results show that brand loyalty is a post effect of brand trust, and the stronger consumers’ trust in the brand, the more their loyalty to the brand [27]. However, among the 107 brands surveyed and studied, no investigation was conducted on dairy products, which are closely related to daily life.

Lee and Jung (2018) demonstrated that the visual elements of product package design had a partial impact on brand preference, and brand loyalty had a significant impact on product repurchase intention [28]. Consumers explore their favorite brands with rich consumption experiences and form brand loyalty. A study on the consumer group of Generation Z in the context of emerging economies confirmed that luxury brand trust had a significant impact on brand loyalty, which contributed to gaining insights into consumers in segmented markets [29]. In addition, successful product design has a positive cognitive and emotional response on consumers. Although product design cannot directly affect brand loyalty, it still enhances brand loyalty [30].

3. Hypotheses development

Scholars believe that the interactive dynamics of a brand can generate active communication with consumers. It is particularly important that consumers participate in brand building through this interaction [31]. Meanwhile, brands are increasingly valuing experiential methods. Schmitt et al. realized that reactions triggered by brand experiences across multiple channels and media during consumption could affect perceived brand authenticity [32]. Additionally, Jimenez-Barreto et al. indicated that the authenticity of a brand could come from consumers’ personal brand experiences [33]. Essentially, the experiences during the consumption process and

after purchase all contribute to enhancing the authenticity of the brand. The authenticity of a brand is closely related to its perceived value [34]. Meanwhile, over time, consumers will reshape their brand image based on their level of interaction with the brand. Although consumers perceive brand image in various ways, manufacturers are more concerned about forming a consistent or passionate brand image [35]. Lu et al. believed that consumers' actual perception was significantly positively correlated with their brand image and awareness of restaurants, which contributed to the development of brand image [36]. It can be inferred that user experience dimensions have an impact on brand image. Various dimensions of consumer experience prove to be more efficacious in enhancing consumers' purchase intentions. This suggests that intensifying the sensory impact on consumers and fostering a deeper connection between products and consumers can significantly influence consumers to discern and appreciate the brand image [37]. Based on the above discussion, this paper proposes the following assumptions:

H1. Sensory experience has a positive impact on brand image.

H2. Emotional experience has a positive impact on brand image.

H3. Action experience has a positive impact on brand image.

H4. Thinking experience has a positive impact on brand image.

Brand image plays a crucial role in brand research and practice. In the past few decades, massive studies have examined whether there is a positive relationship between brand image and consumers [38–40]. Product names, logos, and other related information, eye-catching colors, images that draw consumers' interest, and font styles that are closely related to brand image can usually attract consumers' attention [41]. To cultivate consumer loyalty towards a brand, establishing an attachment relationship alone is insufficient, it is imperative for consumers to concurrently develop trust in the brand [29]. Extensive research has investigated external information and helped establish trust in the brand [42]. Brand image is of significant importance in the brand promotion process. Generally, providing a brand image compatible with consumer cognition facilitates promoting brand communication, thus encouraging consumers to repeatedly purchase these brands [43]. It is a justifiable conjecture that a favorable brand image is more prone to garner acceptance among consumers, consequently fostering heightened customer satisfaction and engendering brand loyalty [44]. Therefore, this study proposes the following assumptions to extend this discovery:

H5. Brand image has a positive impact on brand trust.

H6. Brand image has a positive impact on brand loyalty.

Researchers have discovered that brand trust helps establish customer loyalty to the brand [45,46]. Zeren. D and Kara. A revealed that the existence of brand trust abated consumer discomfort, affected consumer cognition, emotions, and behavior toward the brand, and promoted purchase decisions [47]. The augmentation of consumer awareness regarding the brand instills a sense of tranquility and contentment in the user, thereby reducing the perceived distance between the brand and the consumer. This, in turn, engenders positive brand emotions, propelling heightened brand awareness and fostering an elevated intention to purchase the brand [48]. Trust is primary for achieving cooperation. When one party has confidence in the reliability of partners, trust brings a higher level of loyalty [49]. Brand loyalty is not solely influenced, either directly or indirectly, by factors such as perceived quality and user satisfaction. Rather, it is more immediately impacted by the level of trust consumers place in the brand [50]. Based on the above arguments, solid brand trust constitutes a primary foundation for consumer loyalty to the brand. Therefore, the following hypothesis is proposed:

H7. Brand trust has a positive impact on brand loyalty.

4. Research design

4.1. Quantitative research methods

First, by reviewing the previous research data on consumer demands and visual consumer cognition psychology, the theoretical concepts required for this study were obtained. Second, based on market research results, a case analysis was carried out on dairy product brands. Finally, the research hypotheses were validated by distributing a survey questionnaire to consumers. This study took people living in the South District of Busan who have bought milk products within six months as the research subject. The study employed structural equation modeling to formulate a model elucidating consumers' intention towards usage. It posits affirmative hypotheses elucidating the impact relationships between each independent variable and the dependent variable. Subsequently, hypothesis testing is conducted through reasoned exploration and quantitative analysis.

4.2. Research subjects

The research subjects of this study were the package design of dairy products and the satisfaction of consumers with the product through their purchasing experience. Due to the explosive growth of the dairy market and fierce promotion competition in the industry, enterprises not only develop new products but also carry out strategies to improve consumer preferences through various communication channels, such as product design and advertising. Therefore, the package design experience of dairy products was selected as the research subject.

4.2.1. Dairy market analysis

With consumers' increasing awareness of health, the abundance of organic milk categories, and the popularity of B2B e-commerce, although the dairy market has inevitably declined due to the epidemic, high-end markets such as organic milk still steadily expand. It is expected that the global organic dairy market will grow by about 50 % in the next four years. At the summer seminar themed "The Future of Agriculture in South Korea - Diagnosis and Prescription" held by the Korean Society of Animal Sciences and Technology and Gyeongsang National University, Professor Kim Mingyeong, with the title of "Consumption and Marketing Trends of Dairy Products in South Korea," discovered the consumption trend of market segmentation and diversification of Korean dairy products by observing consumer demand trends for dairy products. For millennial consumers who pursue pleasure and convenience, being able to easily purchase popular private brand (PB) products at convenience stores is one of the consumption trends. Moreover, with changes in dietary structure, there has been explosive growth in the cheese consumer product page. In addition, according to the Dairy Statistical Yearbook, the supply and demand of white milk has remained stable, while the demand for processed products such as fermented milk and cheese has been continuously increasing during the same period. The dairy industry is keeping up with changes in the consumer market by developing new products based on white milk and expanding the dairy market through diversified business operations. Under the current market situation, it is particularly critical to develop products meeting user needs.

4.2.2. Package design analysis of dairy products

Package design fuses science and art. The transformation of the digital age is driving traditional package design towards diversification. This study investigated the package design experience of white milk products at different stages of use and analyzed which important contacts resonated emotionally: selecting products on supermarket shelves, opening packages, consuming products, and so on. From this point of view, consumer behavior will be influenced by the product personality and brand image before shopping, the performance and quality of products during shopping, and the brand service after shopping [51]. The user behavior under this mechanism can better reflect consumers' attitudes toward product brand selection.

With the significant improvement in the development speed of dairy products, the classification of milk has also become diverse. Common milk can be divided into whole milk, semi-skim milk, and skim milk based on their milk and protein content. According to disinfection methods, it is divided into pasteurized milk, ultra-high-temperature sterilized milk, and sterilized milk. Based on the existing milk packages in the market, this study divided them into gable top type, sterile package, and PET bottles.

4.3. Analysis of user experience elements of dairy products

4.3.1. Sensory experience

When consumers first come into contact with a brand, they form a preliminary understanding of the brand, which is based on their various senses, including sight, hearing, touch, smell, and taste. Through sensory experience, consumers recognize the various features of a product, such as its identification, package, shape, and color. This is the direct brand experience for consumers.

Fenko, Schifferstein, and Hekkert (2009) found that vision was the most important during the product purchase stage [52]. Clarence Parrow concluded that visual expression could most effectively convey facts, forms, and ideas. Visual language is the easiest medium to convey that any user can understand. The shape and color of the package play an important role in retail shelves [53]. Consumers can see the approximate visual effect of the product from a distance in the supermarket corridor, no need to approach it for detailed visual elements [54]. DuPont's law states that 63 % of consumers choose products based on packages.

The visual elements of package design for dairy products [55,56] mainly include brand identification, graphics, illustrations, product names, product descriptions, bar codes, and package forms [57,58]. For the analysis and selection of factors that affect consumer visual perception, this study summarizes some literature, as shown in Table 1.

The experimental results of Martin Reimann (2010) indicate that consumers' concept of product selection tends to be triggered by packages with aesthetic significance [51]. Visual language is one of the main distinguishing attributes for consumers to make choices and preferences. This article believes that brand experience is the perception, attitude, cognition, emotion, and other reactions of consumers triggered by stimuli related to the brand created by enterprises. Brand-related sensory stimuli include products, brand design, and packages [59], while emotional stimuli include sales, purchasing environment, and related experiences. Brand experience runs through various stages of consumption, containing search, purchase, and use. Therefore, according to Brakus et al. (2014), this

Table 1
Visual elements of packaging design.

Title	Author	Visual Elements
A Study on the Expression of Package Designs to Form a Brand Image	Kim, Kyung-hyun	Logotype, colour, illustration, layout
Effects of Package Design Form Factors on Brand Trust and Brand Loyalty	Jeong, Seok-jin	logotype, brand subdivider name, brand emphasis, colour, illustration, photo, character, icon, pattern
Visual elements analysis of PB product package design in Korea and Japan convenience store	Bion, Giong-won	colour, illustration/photo, logo, layout, organicform, image
Research of Functional Milk by Segmentation Strategy	Lee, Chong-woo	brand, logo, colour, character, typography, layout, illustration
Research on Effective Package Design for Target Marketing	Joo, Young-nam	logotype, color, illustration/pattern, layout

paper categorizes brand visual elements as sensory experience dimensions in brand experience and uses the Brand Experience Dimension Scale to collect and verify customer sensory experience information about milk product brands.

In the user experience industry, competitive analysis is no longer limited to the analysis of competitive products but to the analysis of the same types of products, especially when it comes to analyzing product interaction experience and visual performance. Competitive analysis is the analysis and discussion of the same types of products developed and provides analogical induction analysis results to understand the relevant information of existing products and apply it to the research and development of products.

There are 12 types of white milk products in Seoul, meeting the needs of all age groups, from young children to the elderly. According to different needs, there are a total of nine packaging capacities, including 2.3L, 1.8L, 1,000 mL, 930 mL, 900 mL, 500 mL, 200 mL, 180 mL, and 100 mL, which can meet the needs of different scenarios and populations. In terms of brand visual strategy, different products have different package images. However, the same category of products has a highly unified visual language, which can distinguish different categories of products and promote the brand image well. Seoul Milk has the best user perception experience, thus dominating the market share.

As a leading brand in the industry, Daily Milk has four series of white milk products, which cannot fully build a brand strategy. The unity of visual elements needs to be strengthened, and the scattered combination effect separates the brand value chain. However, Daily Milk has launched a new package design strategy using preservation bags. Unlike existing milk packages, in addition to keeping the product fresh, the series color design increases recognition, and the slim bottle design adds delicacy and enhances the grip, making it easy to be held in one hand. Ultimately, Daily Milk achieved the goal of attracting the target customer groups to generate good experiences with the product.

The white milk product line of Nanyang Dairy has not expanded to many categories and tends to be concentrated. The overall visual effect is relatively unified. Positioning product characteristics through different colors is an effective method. The current product positioning is clear, and future development can start with product specifications to meet the requirements of various people.

Busan Milk has a foothold in the South Gyeongsangnam region with the concept of “trustworthy.” There are a total of 11 types of white milk, among which three series of products achieve excellent product image unity. Due to different positioning, other products’ packages differ from the classic image of Busan Milk, which can easily damage the brand’s unity.

Pasteur Milk adopts Tetra Pak bags and PET bottles instead of the classic gable-top box package. It is related to its brand strategy, focusing on the production of high-quality dairy products and preferring organic milk.

Denmark Milk tends to use illustrations in its package image. Different series of products use different illustrations, forming their unique brand images, which significantly differ from other brands. This brand’s products can be quickly identified in supermarkets. However, various illustration styles can easily disperse the aggregation of brand image.

Although Purmil Milk does not have many categories of white milk, a good package visual adds some credit to the brand image. However, using “splashing milk” as the main package image inevitably leads to homogenization with competitors.

As a local brand, Vilac Milk should adopt a strategy of serving the local market. Although its product quantity is lower than Seoul Milk, it has the same excellent package design, not losing brand personality due to intense market competition.

4.3.2. Emotional experience

Emotional experience mainly refers to the experience of consumers’ emotions influenced by emotional stimuli (events, media, and so on) during consumption or communication. The purpose of emotional experience is to spur consumers’ inner emotions.

Consumers do not always adopt purchasing behavior in a rational manner. Sometimes the purpose of purchasing goods and services is to be novel and interesting or acquire emotion. For example, impulsive shoppers may purchase products they do not need solely for emotional reasons. People usually switch brands that they originally felt satisfied with to receive stimulation because new things bring them joy and surprise. During the purchasing process, consumers will generate positive emotions for products and services that meet their desires and actual needs. Joyful emotional experiences can enhance consumers’ purchasing intention and promote the occurrence of purchasing behavior. Emotional experience marketing deepens consumers’ understanding and emotions of the brand through emotional communication, naturally improving product satisfaction, popularity, and customer loyalty.

In the emotional experience of the product, customers have a good impression of the brand by obtaining emotional appeals, which leads to consumer behavior. The general response of consumers to emotional experiences is: it can stimulate my emotional reactions, try to make me accept and like it, make me feel that it is very friendly and is an emotional brand, and give me a feeling of pleasure.

A good product is no longer a passive observation of its effectiveness but rather a gradual study of emotional factors such as mood, emotions, intuition, and feelings during use. Through the study of the emotional relationship between people, objects, and information, a positive interaction combining material and intangible elements is constructed. For example, “Seoul Milk” is the first enterprise in the industry to indicate the expiration and production date, thereby enhancing customer confidence. Seoul Milk Company confirms that the most important criterion for purchasing milk is “freshness” by observing consumer behavior. Through unique marketing, it attracts consumers’ attention. By marking the production date, it meets their purchasing informed needs, and by using trusted celebrities as advertising models, it makes consumers emotionally trust the brand.

4.3.3. Action experience

Action experience refers to enriching consumers’ lives by increasing their physical experience, pointing out that they can have other ways of doing things and different lifestyles and interactions, and motivating them to actively change their lifestyles. The feeling that the action experience brings to customers is that this brand emphasizes communicating with people, so when they come into contact with this brand, they can enjoy a unique service experience. They will have physical behaviors and actions that inspire them to want to own this brand’s products. By using this brand’s products, they can change their original lifestyles to be more colorful.

Through action experience, consumers can personally feel the advantages and disadvantages of the milk brand, which can provide on-site opinions for the brand and increase consumer awareness of the brand, and deepen their understanding of the brand's functions. For example, "Namyang Milk" developed a marketing strategy targeting the younger generation and launched the "Delicious Milk GT" series of products, which retain the original taste of milk through technologies and are committed to eliminating specific ingredients to enhance its unique taste. The re-emphasis on the value of the 'taste' attribute, which exists but has lost its focus, has changed the constant concern on health in the consumer attitude model, allowing consumers to gain a deep sense of brand use and increase their action experience.

4.3.4. Thinking experience

Thinking experience is the process of inspiring people's intellectual reactions, increasing cognitive experiences, and generating divergent or convergent rational thinking among consumers. When first facing a specific milk brand, consumers may have various thoughts about its marketing methods, market position, and reuse functions. The brand experience stimulates their curiosity to explore these functions, bringing them a lot of novelty and evoking their innovative thinking. This is the feeling brought to consumers by the thinking experience in the brand experience.

Thinking experience is rational. It inspires people's intelligence and creatively provides consumers with insights into problems and problem-solving experiences. It stimulates people to think and generate unique ideas through a series of strategies and temptations. For example, the children's creative competition event held by Seoul Milk, "Dairy Container Recycling Creation Contest," concentrated on constructing creative models with recycled dairy containers, aiming to inspire children to create works, cultivate their creativity, and enhance their awareness of environmental protection to understand the importance of the environment and resource recycling. Meanwhile, a series of measures of Seoul Milk, such as IoT collection boxes and goodwill stores, can also stimulate consumers' thinking about product reuse.

After a detailed analysis of user experience elements for the above brands, this study conducted a group analysis of existing products. The horizontal axis was set as the level of innovation of the product, and the vertical axis was set as the economic level of the product. As shown in Fig. 2, in the brand positioning map, products can be classified into general, traditional, children's, enhanced, low-fat, and organic milk. It can be seen that general household milk prefers dark green and gable-top box packages, while organic milk is usually packaged in light green and PET bottles. The general and low-fat market products are relatively saturated. In contrast, there is still broad development space in the high-end market.



Fig. 2. Brand positioning map.

4.4. Questionnaire design and data collection

Berry (2000) proposed a service branding model and emphasized the importance of customer experience in the process of brand formation. This study explored the measurement of users' brand experience based on Brakus' (2009) Customer Experience Scale and made appropriate adjustments based on the specific situation of dairy product users. For brand trust, four questions on brand trust developed by Johnson and Grayson (2005) were used. Based on the scale developed by Aaker (1996), three questions for brand image and four questions for brand loyalty were generated from perceived value and brand personality of brand association. The final version of the questionnaire consists of three parts. The first is the measurement of brand experience. The second is the measurement of brand image, brand trust, and brand loyalty. The third is to collect the demographic information of the respondents and make statistics on the gender, age, income, education level, and other relevant information of the respondents. After interviews and exploratory surveys, a formal questionnaire was obtained. This study used the 5-level Likert scale. The respondents graded questions according to their real situation. "1" means "very disagree," "2" means "disagree," "3" means "average," "4" means "agree," and "5" means "very agree."

According to the data from the market research firm Nielsen Korea, "Seoul Milk" still shows strong growth momentum despite the sluggish market. Therefore, the best-selling brand "Seoul Milk" was selected for empirical research. The formal survey was conducted between May and June 2023, employing a stratified sampling approach. A subset of this sample underwent street intercept interviews in public locations, including major shopping malls and park plazas within Nam District of Busan. This selection utilized the convenience sampling method. Concurrently, another subset of the sample was purposively selected through a non-probability sampling method, such as snowball sampling, and through the distribution of questionnaires via social media platforms and alternative channels. After clearly explaining the purpose of the study to the respondents, data collection was completed within 20 days to ensure consistency in the sampling time range. According to Kyriazos (2018), sufficient statistical sample size is conducive to observing the true relationship of the data [60]. A structural equation modeling with a sample size of over 300 is considered good, and a sample size of over 500 can be regarded as an excellent evaluation study. Therefore, in this study, a total of 380 questionnaires were sent out during the formal survey, and 357 valid questionnaires were collected, with a recovery rate of 93.9%. The sample size meets statistical power.

Ethics approval

In accordance with ethical guidelines, this study obtained approval from the Jinling Institute of Technology (approval number, jit-b-202230). The study was conducted following the guidelines set forth by this committee, and all participants provided informed consent prior to participating in the experiments. The Jinling Institute of Technology Institutional Ethics Committee provided the necessary ethical approval for the research.

5. Results

SPSS 25.0 and AMOS 25.0 were used to conduct multivariate statistical analysis on survey data to demonstrate the effectiveness of the research results.

5.1. Respondent's demographic profile

The respondent's demographic profile is presented in [Table 2](#).

Table 2
Descriptive statistics of the respondents (n = 357).

Variable	Categories	N	%
Gender	Male	156	43.69
	Female	201	56.30
Age	18–25	112	31.37
	26–30	89	24.93
	31–40	104	29.13
	41–50	39	10.92
	51–60	12	3.36
	61 and above	1	0.28
Educational level	High school and below	48	13.44
	Junior college	143	40.06
	Undergraduate	154	43.14
	Graduate	12	3.36
Income	3000 ¥	66	18.49
	3001-5000 ¥	73	20.45
	5001-7000 ¥	110	30.81
	7001-9000 ¥	66	18.49
	9001and above	42	11.76

5.2. Reliability and validity

This study used confirmatory factor analysis to verify the adaptability of the data based on the respondents' brand experience, brand image, brand trust, and brand loyalty. As shown in Table 3, the Cronbach's α values of all measured concept items were above 0.7, indicating good reliability and internal consistency of the scale.

This study confirmed the good convergence validity of each variable in the model through Average Variance Extracted (AVE) and factor analysis results. That is to say, if the factor load value of each questionnaire item exceeds 0.7 on the corresponding constituent variable, convergence validity can be ensured. As shown in Table 3, the factor load values of all questionnaire items exceed the standard value. As a reference standard for convergence validity, the AVE value must exceed 0.5. Table 4 shows that the AVE values of constituent variables measured in this study range from 0.658 to 0.673 and exceed the standard value, implying good convergence validity.

5.2.1. Verification results

To verify the impact of user experience on brand trust and brand loyalty of dairy brands, the suitability of the research model was determined through the Structural Equation Model (SEM) analysis. The parameters of the model were inferred (Fig. 3).

The overall fit index of the structural equation model is 2.313, conforming to the ideal level of less than 3. $RMSEA = 0.061 < 0.08$; $CFI = 0.901 > 0.90$; $IFI = 0.902 > 0.90$; $TLI = 0.885 < 0.90$; $NFI = 0.839 < 0.90$; $AGFI = 0.886 > 0.80$; and the model is basically acceptable.

From the significance of the path coefficients in Table 5, the P -values of paths are greater than 0.05, indicating that the hypotheses H1/H2/H3/H4/H5/H6/H7 are verified.

6. Conclusions

This paper aims to explore the impact of user experience on brand trust and brand loyalty in dairy products and how to use product packaging as a medium to enable consumers to interpret and experience the brand. It assumes that user experience is a prerequisite for influencing brand image. The results verify that sensory experience, emotional experience, action experience, and thinking experience significantly affect brand image.

The brand image composed of symbols, graphics, texts, colors, materials, and other elements covered by product packaging provides consumers with sensory experiences, establishes consumer perception, and promotes emotional recognition of the brand [61, 62]. Dairy products can enhance brand image by continuously optimizing consumers' visual experience, that is, advancing the aesthetics and visual uniqueness of the product. Although thinking experience is also a powerful tool for dairy products to establish a good brand image in this study, it did not exhibit remarkable impacts. The reason may be that FMCG presents a consistent positioning, image, personality, appearance, and feeling to better adapt to the market, resulting in consumers' inadequate thinking about brand clarity [63,64]. It is found that consumers tend to identify with the behavioral experience of dairy products. It is mainly because products touching customers' hearts and satisfying their personalized needs are provided, which can trigger people to purchase with great action experiences, thereby establishing a better brand image than before. This finding agrees with other studies on brand experience and brand relationships [31,65]. This conclusion is essential for many dairy products because organizing promotional activities and relying on consumers' behavioral experience to purchase are just the primary experience mode of fast-moving consumer goods such as dairy products. The paper believes that consumer behavioral experience can remarkably improve brand image. Therefore, providing consumers with high-quality behavioral experience related projects in dairy products will be not only beneficial for profitability but also for brand shaping. Emotional experience also has an impact on the brand image of dairy products because only

Table 3
Scale Reliability test results.

Item	Sensory Experience	Emotional Experience	Action Experience	Thinking Experience
SE1	.831			
SE2	.694			
SE3	.772			
EE1		.569		
EE2		.781		
EE3		.852		
AE1			.826	
AE2			.819	
AE3			.808	
TE1				.847
TE2				.841
TE3				.837
AVE	.589	.553	.669	.708
Cronbach α	.722	.713	.763	.808
Eigen Value	2.08	1.88	2.04	2.21
Variance (%)	17.33	15.62	17.03	18.40
Cumulative (%)	17.33	32.95	49.98	68.37

Table 4
Confirmatory factor analysis results.

Item	Brand Image	Brand Trust	Brand Loyalty
BI1	.788		
BI2	.851		
BI3	.811		
BT1		.838	
BT2		.81	
BT3		.823	
BT4		.811	
BL1			.807
BL2			.804
BL3			.807
BL4			.827
AVE	.668	.673	.658
Cronbach α	.774	.845	.841
Eigen Value	2.09	2.73	2.71
Variance (%)	18.98	24.83	24.67
Cumulative (%)	18.98	43.81	68.48

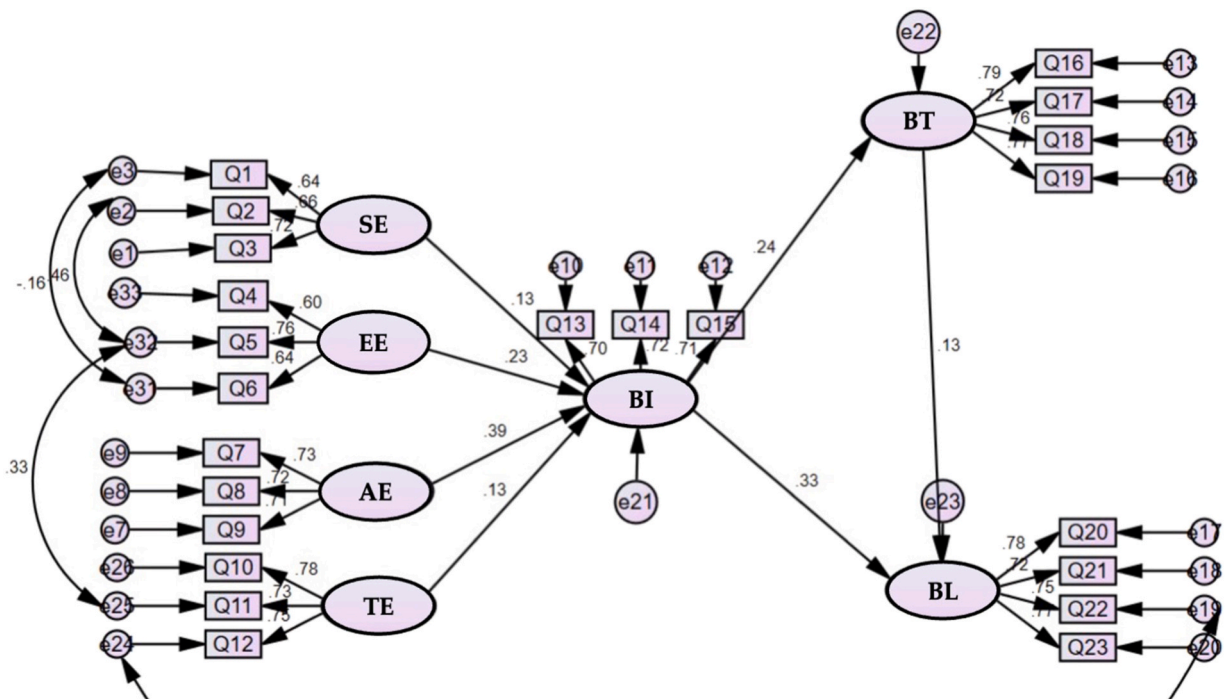


Fig. 3. Structural equation model analysis results.

Table 5
Path coefficient and hypothesis verification results.

Hypothesis	β	P	Decision
H1	.135	.045	Accept
H2	.229	***	Accept
H3	.389	***	Accept
H4	.135	.033	Accept
H5	.241	***	Accept
H6	.328	***	Accept
H7	.135	.032	Accept

products that truly impress consumers can promote customer loyalty, This is also consistent with existing research that brand emotional attachment leads to consumers being more willing to maintain a lasting connection with the brand [66]. Furthermore, this study found that the sensory experience of products was more easily influenced by emotional experiences. Shahid & Paul et al. suggested that a unique and unforgettable brand experience could trigger strong emotional reactions and leave a deep emotional impression on consumers. Therefore, this work enriches previous research findings [67]. Thus, H1\H2\H3 and H4 hypotheses supported the study by showing significant positive relationships. A positive brand experience not only creates a lasting impression on the consumer but also establishes the foundation for an enduring relationship between the brand and the consumer.

Similarly, the present study finding user experiences can influence brand loyalty as well as brand trust through brand image. After all, user experiences do not directly impact brand trust and brand loyalty. Customers' perception of brand quality throughout the purchase process contributes to the enhancement of the brand image, fostering brand trust, and cultivating brand loyalty. Consequently, when retailers implement strategies such as discounts, promotions, and other marketing activities for branded products, they incentivize consumers to undergo an enriched shopping experience, aiming to augment their perceptions of the brand image, and ultimately cultivate brand trust and value. Therefore, H5 and H6 hypotheses supported the study. This provides a great perspective for milk products to enhance their brand image from the perspective of user experience. The real experience of a brand helps consumers establish trust in the brand image [68]. For dairy products, brand image significantly affects brand trust [61]. Consumers' positive attitude towards the brand will enhance their trust and loyalty to the brand [69]. Hence, to meet consumer demand for the brand, the brand endeavors to fortify the connection between the customer and the brand by strategically emphasizing the consumer's attitude towards the brand's products. Trust in a brand is one of the essential prerequisites for establishing and maintaining consumer loyalty [70]. Consumers tend to be loyal to the brand they trust and recognize their reliability. Thus, H7 hypotheses supported the study. A varied presentation of product brand images targeted at consumers typically enhances the resilience of brand identity, wherein brand trust significantly shapes brand loyalty. This correlation underscores the inclination for recurrent purchasing behavior among consumers who have cultivated an extensive understanding and trust in the brand.

Ultimately, consumers can demonstrate loyalty to a brand through various perceptual dimensions, as distinct brand experiences contribute to a more profound understanding of the brand image. Consequently, for highly engaged consumers, the interplay between brand experience and brand image assumes a pivotal role in shaping brand trust and fostering brand loyalty. It is evident that as brand experience and brand image wield a substantial influence on the consumer, a correspondingly positive attitude towards the brand emerges, thereby elevating brand trust and brand loyalty.

6.1. Theoretical significance

This article investigates the effects of brand experience and image on consumers' brand trust and loyalty. According to the research results, brand experience can affect brand image, and brand image can influence brand trust and have a positive impact on brand loyalty. These findings enhance the theoretical contribution and validate the consumer brand experience theory in FMCG, which facilitates establishing a conceptual model foundation. Therefore, this paper broadens previous research by building brand experience, brand image, brand trust, and brand loyalty in the FMCG retail environment.

As the increase in consumer expectations for the brand experience, the emotional experience of the brand experience should be appropriately enhanced. This paper validates the theory of brand experience through elaboration and empirical research, expanding the deep understanding of brand experience theory. The ultimately proposed model can effectively promote the next frontier research on the progress of brand experience.

6.2. Management significance

This paper provides significant findings in establishing brand loyalty in enterprises. The consumer group of dairy brands is vast. Customers' experience of the brand is an effective means to recognize and be loyal to the brand. In terms of establishing brand loyalty, enterprises must actively guide consumers' cognition. Therefore, it is recommended that enterprises upgrade design factors that can improve consumer experience promptly to address the perceived quality of products during the consumption process. Providing elements with brand experiences in product packaging can effectively enhance consumers' trust in existing brands. Therefore, determining the sensory, emotional, behavioral, and thinking experiences of product packaging for consumers can construct the brand's unique style and ensure competitiveness in the market. Moreover, designers must be aware that before guiding consumers to purchase, high-quality and storytelling sensory, emotional, and other experiences of product packaging should be established. In the brand communication stage, marketing should clarify the experiential strategies of brand activities in terms of actions and thinking. Therefore, this paper emphasizes the directive function of brand experience strategies, providing a new direction for broader experience design innovation in the FMCG market. This study demonstrates that it is feasible to build a good brand image and then establish good brand trust in the fast-moving consumer goods industry. Brand image and brand trust will affect the brand loyalty of dairy products, which provides ideas for dairy products to enhance brand loyalty.

6.3. Limitations, future research

There are still some shortcomings and future directions for improvement in this study. First, this paper only examines the impact of the experience of milk products on customer behavior. Whether these research conclusions can be extended to other fast-moving consumer goods needs further validation. Although the dairy industry is changing with the upgrading of quality, consumer

demands for products create more innovation opportunities. For future research, it is necessary to shift attention to the broader FMCG market to expand the applicability of research findings. Second, the survey samples in this paper have certain limitations. The subjective bias of group cognition may have caused deviations in the research results. Future research can expand the scope and number of samples to increase the external validity of the conclusions. Third, it should be noted that the prerequisite for this study is the users' perception of FMCG under brand experience. Currently, research on factors related to brand image, brand trust, and brand loyalty may be influenced by missing mediating variables, resulting in biased results. Therefore, future research should continue investigating whether other factors will affect the study. This study mainly focuses on the experience of products in use and consumption. However, consumers actually have already obtained experiences from the moment they come into contact with the product. The brand is the sum of customer experiences of the product. Throughout the entire life cycle of a relationship, it is passed on in every interaction with the customers. For example, the impact of the experiences formed by advertising, during the purchase process, and after purchase on consumer behavior is also worth discussing.

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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CRediT authorship contribution statement

Fa Wang: Data curation, Conceptualization, Funding acquisition, Investigation, Methodology, Writing - original draft, Writing - review & editing. **Yujue Wang:** Methodology, Investigation. **Yuan Han:** Resources, Methodology. **Joung Hyung Cho:** Supervision, Validation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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