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STUDY ON THE PATH OF EMOTIONAL DESIGN OF SPORTS SHOES APPEARANCE FROM THE PERSPECTIVE OF VISUAL AFFORDANCE

Driven by the continuous advancement of science and technology and the constant upgrading of industrial structure, people's consumption levels have gradually improved, and the public's aesthetic awareness has gradually awakened. While considering product comfort and performance, sports shoes users have also raised an increasing demand for the emotional value carried by product appearance design. In view of this, this study introduces the theory of visual affordance, aiming to meet contemporary users' in-depth demands for emotional and cultural connotations in sports shoes appearance design by constructing a design path connecting sports shoes appearance with users' emotions. First, taking the analysis of sports shoes appearance design elements as the starting point, this study systematically sorts out three major categories of appearance design elements including form design, material design and color design, and summarizes their design characteristics while analyzing their expression forms. Second, on this basis, combined with the analysis of classic cases, it dissects the application mechanism of this theory in sports shoes appearance design from the two dimensions of explicit visual affordance and implicit visual affordance. Finally, it summarizes and proposes three strategies for the emotional design of sports shoes appearance based on visual affordance, namely function explicitation design, cultural metaphorization design and element synergization design. The research shows that the strategies aim to strengthen design expression by integrating the theory of visual affordance into sports shoes appearance design, which can to a certain extent enhance users' sensory experience through visual design and thus arouse their emotional dependence on products. This study provides a new theoretical perspective for the development of sports shoes products that meet contemporary users' demands for the functional cognition and cultural connotations of sports shoes, and has important guiding significance for improving the perceptual value and market competitiveness of sports shoes products.

Key words: *Affordance, Visual Design, Sports Shoes Design, Appearance Design, Emotional Design.*

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ДОСЛІДЖЕННЯ ШЛЯХІВ ЕМОЦІЙНОГО ДИЗАЙНУ ЗОВНІШНЬОГО ВИГЛЯДУ СПОРТИВНИХ ВЗУТТІВ З ТОЧКИ ЗОРУ ВІЗУАЛЬНОЇ АФОРДАНСНОСТІ

За сприяння постійного розвитку науки та технологій та безперервної модернізації промислової структури рівень споживання населення поступово підвищується, а естетичне свідомість широкої публіки поступово про-буджується. Крім оцінки зручності та функціональних характеристик продукту, споживачі спортивних взут-

тів підвищують вимоги до емоційної цінності, яку несе дизайн їхнього зовнішнього вигляду. З огляду на це, у даному дослідженні введена теорія візуальної афроданності, мета якої – за допомогою формування дизайнерського шляху, що з'єднує зовнішній вигляд спортивних взуттів з емоціями споживачів, задовольнити глибокі потреби сучасних споживачів в емоційних та культурних змістах у дизайні зовнішнього вигляду спортивних взуттів. У першому чергу, беручи за точку відходу аналіз елементів дизайну зовнішнього вигляду спортивних взуттів, систематизовано три основні групи елементів дизайну зовнішнього вигляду: дизайн форми, дизайн матеріалів та дизайн кольору, а також проаналізував їхні форми вираження та узагальнив їхні дизайнерські характеристики. У другому чергу, на основі цього та з урахуванням аналізу класичних випадків застосування, розглянуто механізм застосування даної теорії у дизайні зовнішнього вигляду спортивних взуттів з двох вимірів: явної візуальної афроданності та прихованої візуальної афроданності. Нарешті, узагальнено та запропоновано три стратегії емоційного дизайну зовнішнього вигляду спортивних взуттів на основі візуальної афроданності: дизайн експліцитації функціональності, дизайн культурної метафоризації та дизайн синергії елементів. Дослідження показує, що ці стратегії спрямовані на посилення дизайнерського вираження шляхом інтеграції теорії візуальної афроданності у дизайн зовнішнього вигляду спортивних взуттів, що дозволяє в певній мірі посилити сенсорний досвід споживачів за допомогою візуального дизайну та таким чином викликати їхню емоційну залежність від продукту. Дане дослідження надає новий теоретичний погляд для розробки продуктів спортивних взуттів, які задовольняють потреби сучасних споживачів в функціональному сприйнятті та культурних змістах спортивних взуттів, і має важливе напрямуюче значення для підвищення перцептуальної цінності та ринкової конкурентоспроможності продуктів спортивних взуттів.

Ключові слова: Афроданність, Візуальний дизайн, Дизайн спортивних взуттів, Дизайн зовнішнього вигляду, Емоційний дизайн.

Problem Statement. Sports shoes as footwear worn when taking exercise, by virtue of their characteristics of comfort, convenience and high universality, are widely welcomed by the public. Therefore, sports shoes as an important category in the market, their market share remains at a high level continuously. Under this background, the categories of sports shoes are subdivided constantly, and their uses have gradually expanded from footwear worn when participating in sports events to one of the dressing and wearing garments for people's daily commuting and life leisure. With the improvement of people's living standards, the aesthetic demands of the public consumers are raised constantly, and users' consumption decisions for sports shoes are gradually dominated by practical attributes such as performance and comfort, turning to the comprehensive consideration of the aesthetic dimension of appearance design simultaneously. Therefore, to carry out in-depth research on the appearance design of sports shoes, not only contributes to responding to the demands of the sports shoes consumption market, but also has important significance for improving the design quality and product competitiveness of sports shoes.

Nowadays users' attention to emotional demands is strengthened increasingly, and whether a product can provide high-quality emotional experience has gradually become the core topic of product design research. In the field of sports shoes design, its appearance design is an important dimension of establishing the emotional connection between products and consumers from the visual level in purchase decisions. Because the appearance design of footwear has the characteristics of abstraction and diversity, it is easy to make it stay on the superficial decorativ-

ism without profound theoretical thinking, resulting in products being unable to arouse users' in-depth emotional experience effectively. Therefore, take the visual affordance theory as the cutting-in perspective, integrate it into the development of sports shoes appearance design. Through the in-depth analysis of the sports shoes appearance design elements, transform the expression of sports shoes' functional attributes and cultural connotations into intuitive visual affordance expression, in order to provide strategies for enhancing the perceptual value and user stickiness of sports shoes visual design.

Analysis of research. The continuous progress of human science and technology advances the development of the footwear industry, with the improvement of users' living standards, sports shoes are not only the footwear people wear when participating in sports events, but also become one of the important garments for the public's daily commuting and dressing matching. Therefore, sports shoes occupy an important position in the consumer market, nowadays there are various categories of sports shoes design products according to different users' wearing demands and wearing scenarios. At present, the research on sports shoes design is mainly focused on the following three aspects: the first aspect: the research on sports shoes design strategies with user demands as the core. For example Zhang et al. (Zhang et al., 2025) analyzed the female running shoe scenarios through eye movement tracking, researched and analyzed the psychological preference of users for sports shoes color design; Jakaria et al. (Jakaria et al., 2021: 25–22) based on the QFD method, from the perspective of meeting user demands and market competitiveness, constructed the sports shoes product specification design scheme

that reduces the dependence on brand awareness. The second aspect: the performance research with sports shoes products as the core. Such as: Yawar & Lieberman (Yawar & Lieberman, 2023: 128) studied the relationship between the design characteristics of running shoes and foot biomechanics from an evolutionary perspective, explored the trade-off of running shoes design between mechanical benefits and sports injuries; Kettner et al. (Kettner et al., 2025) through comparing the running shoe design with different heel heights, studied its influence on running and the injury risks and performance. The third aspect: the cultural research with sports shoes as the carrier. Such as: Shi Xiaoxi et al. (时晓曦 & 张冰, 2024: 48–55) took the Spandi brand as an example, from the design DNA level analyzed the innovative design practice path of constructing brand culture with the HED method; Matthews et al. (Matthews et al., 2021:1) based on the social identity theory, applied the semi-structured interview method to study the Sneakerhead cultural group preferences, and clarified their unique behaviors and customs.

With the development of human beings, users' demand for emotional design of products is increasingly raised. Affordance theory emphasizes that the design of products should have the characteristics of intuitiveness and ease of use, this theory helps the design and development of products to accurately meet users' emotional demands and improve user experience. For example: Vallverdú J et al. (Vallverdú et al., 2018:78) put forward the concept of emotional affordance, carry out research by the way of integrating emotional design factors with affordance theory; Andersen et al. (Andersen et al., 2021: 338–351) from the theoretical perspective of attentional affordance, study the optimized design methods for improving information processing efficiency in complex interfaces.

Through literature analysis, it can be seen that the current relevant research on sports shoes design is mainly carried out with user demands, product performance and cultural connotations as the core aspects, these achievements promote the development of this field from the aspects of functional adaptation, biomechanical optimization and meaning construction respectively. And affordance theory emphasizes the internal relationship between product attributes and users' perception and behavior. Therefore, this study introduces affordance theory, from the perspective of visual affordance, take sports shoes as the research object to explore the research on the path of emotional design of its appearance. It aims to explore how the appearance of sports shoes stimulates users' emotional resonance and cognitive acceptance through visual attributes, thus provide theoretical basis and practi-

cal reference for the emotional innovative design of sports shoes.

Purpose of the article. This study aims to take the concept of visual affordance as the core theory, take sports shoes as the research object, and explore the path of emotional innovative design of their appearance. In view of the development status of the footwear market, on the premise of ensuring the performance of sports shoes, this study conducts in-depth research and applies visual design methods to enable users to intuitively understand the uses and characteristics of the product, and express the corresponding design concepts and thematic culture from the appearance design. By analyzing the appearance design elements and their characteristics of sports shoe products, and combining with the systematic combing of the visual affordance theory in the field of sports shoe design, this study constructs an affordance-oriented appearance innovative design method system for sports shoes. It provides theoretical support for the design and practical innovation of sports shoes in the context of modern consumption.

Research analysis. As one of the common equipment when people participate in sports projects, sports shoes at the beginning of design were mainly used to protect wearers to avoid sports injuries and to a certain extent assist them in improving performance. With the enhancement of the public's health awareness and the daily popularization of sports, people's requirements for the quality of sports experience continuously improve, which requires that the functional design of sports shoes products becomes more specialized and conforms to the sports laws of corresponding projects. That is, the design and development of sports shoes are carried out according to multiple dimensions such as user foot type characteristics, application scenarios, mobility needs, and personalized functions, to satisfy users' needs in an all-round way. Nowadays, the categories of sports shoes products are continuously refined; besides professional sports shoes designed for single sports projects, they also include diverse sports shoes categories such as comprehensive types and leisure types. Some sports shoes, due to their classic appearance design or beautiful appearance design, have gradually crossed the category of sports equipment, and users will also use them in the wear and matching of daily life and commuting. This indicates that besides physical performance, users' attention to sports shoes appearance design is also continuously rising, and visual comfort and emotional experience have therefore become indispensable key dimensions in sports shoes design.

or the appearance design elements of sneaker design, they are mainly divided into three major

categories: form design elements, material design elements, and color design elements. Under each category, it covers corresponding design elements and their expression forms in the specific design and development of sneaker products; through the design expression of these elements, an emotional connection between the product and the user can be established to a certain extent, enhancing the perceived value and experience depth of the product. The classification of sneaker appearance design elements and their corresponding expression forms are shown in Tab. 1.

Due to the characteristics of the sports shoes category, its appearance design compared to other footwear categories is on the whole relatively complex, therefore the appearance design of existing products has rich design expression and style positioning. Based on the analysis of design elements of the three categories of sports shoes appearance design form, material, and color as well as their expression forms, the systematic characteristics presented in sports shoes appearance design are summarized and sorted out. In terms of form design, it possesses the characteristic of the combination of form and functionality. Sports shoes form design, under the premise of following ergonomics, through the combination changes of different silhouettes, lines, and various components of sports shoes, forms recognizable sports shoes modeling expression, giving consideration to practical performance, aesthetics, and uniqueness. In terms of sports shoes material design, it possesses the expression of craft and texture. The selection of materials and craft treatment, while guaranteeing the physical and characteristic functions of shoes and boots, also through visual texture conveys the product's different uses and style expression, utilizing material characteristics to interpret the design theme. In terms of color, it possesses systematic style guidance. Sports shoes color design is the viewer's primary visual cognition level, is a direct means to express design style and concept, and through the layout of color and unity of tonality can guide user emotions while strengthening brand recognition. In terms of the whole, it possesses

multi-element synergy. Sports shoes form, material, and color design are not carried out in isolation, but coordinate with each other in design to jointly construct a unified visual feeling and emotional atmosphere, forming an expressive sports shoes appearance design.

In product design based on affordance theory, designers through selecting and combining design elements, exert their characteristics to enhance the product's user experience, making users through affordance items able to obtain product functional information and operation information, etc. (白仲航 et al., 2025: 1355–1366). In sports shoes appearance design, it refers to sports shoes products providing perceptual experience to viewers through their visual attributes; among them, the form, material, and color visual design elements not only stay at the decoration level but are also affordance items conveying the sports shoes product's functional attributes, usage methods, and emotional meanings. According to sports shoes appearance design elements and their characteristics, visual affordance in sports shoes appearance design is mainly divided into two categories: explicit visual affordance and implicit visual affordance.

In terms of explicit visual affordance, it mainly through the visual design level intuitively presents the product's uses, core performance, etc., to users. This method mainly relies on the explicit forms of form structure and color material to carry out design expression, establishes a direct association between sports shoes and user needs through targeted appearance design, and helps users intuitively understand product attributes. While acting on users' immediate perceptual judgment, it also runs through the process of their purchase decisions and wear and matching choices, constituting the communication between the product and the user. For example, the appearance design of Nike's Air Max 97 sports shoes, see Figure 1. Its upper streamline modeling and mesh material layer combination design fuse the appearance design expression of modeling and material elements, conveying the performance imagery of lightweight,

Table 1

Sports shoes appearance design elements

Classification	Specific elements	Expression forms
Form design elements	Shoe shape silhouette, line trend, structural segmentation, sole modeling, decorative components, etc.	Overall and local relationship of form, visual momentum and rhythm, shaping of volume sense, etc.
Material design elements	Fabric type, texture treatment, craft details, light transmission, etc.	Visual texture combination of materials, craft expression and detail layers, etc.
Color design elements	Tone selection, pattern decoration, color distribution and proportion and reflective effect, etc.	Systematicity of color matching, visual focus guidance, unity of color emotional tonality, light effect treatment, etc.

breathability, and speed vitality from the appearance; its sole air cushion unit through the rear air cushion exposed structure design directly presents the physical structure of the cushioning system on the appearance level, visually intuitively highlighting the product's cushioning design while also conveying the functional perception of good elasticity to users, strengthening the product's high-performance imagery.



Fig. 1. Nike Air Max 97 series sports shoes

In terms of implicit visual affordance, it mainly utilizes visual design expression to indirectly convey the cultural connotation expected to be expressed by the product, brand, or designer. This method, through the metaphor, symbol, etc., of design elements, transforms abstract cultural concepts, emotional appeals, and identity recognition into perceptible appearance design, triggering the emotional resonance of users and viewers. Outside of the practical functional attributes of sports shoes, it endows the product's design with meaning depth and emotional thickness. For example, the appearance design of Li-Ning Wudao 3.0 series sports shoes, see Fig. 2. Its upper design transforms the Eastern Tai Chi balance philosophy into the shoe upper dividing line to interpret Tai Chi rhythm with asymmetrical modeling; the overall modeling design follows the concept of simplifying complexity, conveying the implicit charm of Eastern aesthetics with smooth and restrained lines paired with asymmetrical form language; the toe cap utilizes a wide-head foot last to release the forefoot, and the sole design is relatively thin fitting the real form of the human foot at the front end, taking liberating both feet's bare foot as the concept implying a simple and natural lifestyle. Utilizing appearance design means to indirectly highlight the design concept of the blending of Eastern philosophical thinking and contemporary fashion of this product, is the emotional expression of the aesthetics of culture integration into design.



Fig. 2. Li-Ning Wudao 3.0 series sports shoes

In sports shoes appearance design, explicit visual affordance design and implicit visual affordance design jointly construct a visual system containing functional expression and thematic expression. In sports shoes product design and development, designers can comprehensively utilize these two aspects of visual affordance thinking, making them penetrate and coordinate with each other in design practice. This kind of multi-level affordance expression starting from the appearance of sports shoes not only enriches its product emotional design path and improves user experience, but also enriches the design application value dimension with sports shoes design as the carrier.

Presentation of the main material. In the context of contemporary consumer culture, sports shoes have crossed the boundary of sports equipment and gradually evolved into one of the carriers of public lifestyle and personality expression. For modern consumers, a pair of excellent sports shoes not only needs to possess excellent physical performance, but more needs to trigger users' intuitive love and good feelings on the appearance. Therefore, after clarifying the analysis of the three direction design elements and design characteristics of sports shoes appearance design, summarized and sorted out the explicit affordance design field and implicit affordance design field of visual affordance in sports shoes appearance design. Aiming at the wide variety of sports shoes design, this study constructed a set of systematic sports shoes appearance design emotional strategies proposed based on the visual affordance perspective. The specific design strategies are as follows:

(1) Function explicitation design strategy

The function explicitation strategy of sports shoes appearance design is based on the explicit visual affordance principle, aiming to through the means of appearance design from the visual level intuitively reduce users' cognitive obstacles to sports shoes product functions, making users when browsing this product able to have a relatively clear judgment on its core performance and uses. Under the guidance of the function explicitation strategy, in sports shoes appearance design it requires designers to break the single decorative thinking, transforming the implicit functional design and abstract engineering technology covered by the product into intuitive visual design expression. Specifically, at the beginning of sports shoes product design, designers should clarify the design focus of the product, according to uses, usage scenarios, benchmarking users, etc. condense one or several design highlights for carrying out explicitation design in appearance design. For example, emphasizing the cushioning resilience of this product shoe then uses exposed air cushion, exposed cushioning midsole mate-

rial design, letting viewers intuitively feel the elastic structure design; emphasizing the wrapping property of this product then makes the embedded wrapping structure into exposed design, letting users intuitively understand the structure; emphasizing anti-rollover performance then from the vision moves the visual center of gravity of the shoe upper design to the opposite direction, giving viewers a visual emotion of being difficult to roll over; emphasizing lightweight quality then uses active or relatively light colors etc., from the aspect of color psychology making users feel relaxed. This strategy utilizes visual perception to directly act on users' immediate perceptual judgment, through the visual language of what you see is what you get reducing users' cognitive load, making appearance modeling able to accurately display its physical performance, thereby on the user psychological level establishing a sense of security and sense of efficacy for product functions, effectively assisting their purchase decisions.

(2) Cultural metaphorization design strategy

The cultural metaphorization design strategy of sports shoes appearance design is based on the implicit visual affordance principle, aiming to through the means of appearance design from transcending the intuitive sports shoes physical appearance, through symbolized design expression and metaphor endow the product with deeper-level connotation, stimulating users' emotional resonance and identity recognition. In sports shoes design this strategy mainly takes its appearance design as a carrier, indirectly conveying the cultural implication, emotional value, and identity symbol, etc., expected to be expressed by the brand or designer. Under the guidance of the cultural metaphor design strategy, in sports shoes appearance design designers can according to the seasonal theme, brand design concept, product series style, etc., emotional imagery needed to be conveyed, translate it into modeling composition, special structural form, pattern texture decoration, or symbolic significance color matching, etc., in sports shoes appearance design, finally transforming the abstract designer's emotional appeal to users, thematic expression of cultural trends, etc., into visually perceptible appearance design. For example, inheriting national cultural elements then carries out deconstruction etc. re-design of this element to fuse with modern sports shoes design, and coordinates the use of innovated traditional folk crafts as well as color matching, etc.; emphasizing brand culture then according to brand concepts carries out design conception under the visual framework of this brand, and combines the display of brand classic elements, etc.; calling for users' sustainable green thinking then through design empowerment means combines the application of sustainable materials,

with high-quality, personalized appearance advocating users to choose green designed sports shoes products. This design strategy transcends the basic physical attributes of sports shoes, through the unique details of appearance design constructs design narrative context, can better express design themes and concepts while satisfying users' emotional demands for personality transmission and self-expression, thereby endowing the product with profound meaning depth and emotional stickiness.

(3) Element synergization design strategy

The element synergization design strategy of sports shoes appearance is based on its systematic characteristics, based on the coordination and integration of explicit visual affordance and implicit visual affordance principles, emphasizing the overall planning collaboration and emotional design synergy of the three of form, color, and material in sports shoes appearance design, aiming to blend function explicitation design with product implicit emotion mutually to establish a unified emotional design tone, finally enhancing the visual appeal of appearance design to optimize user experience. According to the characteristics of sports shoes appearance design, the element synergization design strategy is not the independent expression of a single element, but requires multi-dimensional design elements to coordinate with each other, act together, and actively construct users' emotional recognition of the product. Under the guidance of the element synergization design strategy, designers need to establish the core emotional design goal at the initial stage of sports shoes design and take this as the guide to plan overall various design elements. For example, in form design utilizing function explicitation design to carry out display of the sports performance of this product, meanwhile through the combination of silhouette and lines from the vision creating dynamism conforming to the design theme; color design on the whole conforms to the use and style set in the early stage, meanwhile utilizing ways such as color ratio embellishment and pattern elements to display brand and design theme; in material design, while satisfying the performance needs of this product, reasonably utilizing visual textures such as texture and luster to stimulate users' emotional associations with the product. Through this kind of multi-dimensional coordinated operation, making explicit functional design and implicit cultural metaphor penetrate each other, constructing a highly unified visual field thereby maximizing the enhancement of the product's perceptual value and experience depth.

In summary, the three major strategies of function explicitation design, cultural metaphorization design, and element synergization design jointly construct the

path of sports shoes from visual perception to emotional recognition. Design strategies based on visual affordance make sports shoes product function and cultural information able to be expressed in a way conforming to user cognitive laws, to a certain extent matching users' psychological expectations and aesthetic preferences, making sports shoes while being sports equipment also able to trigger users' deep-level psychological resonance.

Conclusion. This study starts from the appearance-oriented decision-making tendency of the modern sports shoes market, takes visual affordance as the core theory, and deeply explores the sports shoes appearance emotional design path. Taking sports shoes as the research object, it analyzes the expression forms and design characteristics of the three major design elements of form, color, and material, and combines case analysis to demonstrate the fusion mechanism of sports shoes appearance design elements and visual affordance theory. On this basis, it proposes sports shoes appearance emotional design strategies in the three directions of function explicitation, cultural metaphorization, and design element synergization. Research shows that good sports shoes

visual affordance appearance design is essentially the rational utilization and reconstruction of the user's visual attention mechanism; through the organic combination of the above strategies, it can help designers establish a logical association between users' deep-level emotional needs and sports shoes product design expression, and can to a certain extent provide strategic guidance with theoretical depth for enhancing the perceptual value and user stickiness of sports shoes products.

The current focus of this study lies in constructing a general sports shoes appearance design methodology based on the visual affordance concept; the main research is reflected in case analysis and theoretical deduction, and it has not yet carried out in-depth all-round quantitative empirical study and design practice targeting a single specific sports shoes subdivided category or specific product. Therefore, in future research, it can be based on the design strategies proposed in this study, further focus on specific styles of sports shoes to carry out specific product practice, and evaluate its emotional design pros and cons and actual market conversion value with a corresponding evaluation system.

BIBLIOGRAPHY

1. Andersen E., Goucher-Lambert K., Cagan J., Maier A. Attention affordances: Applying attention theory to the design of complex visual interfaces. *Journal of Experimental Psychology: Applied*. 2021. Vol. 27, № 2. P.338-351. DOI:10.1037/xap0000349
2. Jakaria R. B., Purnomo H., Iswanto. Designing Products Sports Shoes Using the Quality Function Deployment (QFD) Method: Perancangan Produk Sepatu Olahraga dengan Metode Quality Function Deployment (QFD). R.E.M. (Rekayasa Energi Manufaktur) Jurnal. 2021. Vol. 6, № 2. P. 15-22. DOI:10.21070/r.e.m.v6i2.877
3. Kettner C., Stetter B., Stein T. The effects of running shoe stack height on running style and stability during level running at different running speeds. *Frontiers in Bioengineering and Biotechnology*. 2025. Vol. 13. 1526752. URL: <https://doi.org/10.3389/fbioe.2025.1526752> (Last accessed: 10.12.2025).
4. Matthews D., Cryer-Coupet Q., Degirmencioglu N. I wear, therefore I am: Investigating sneakerhead culture, social identity, and brand preference among men. *Fashion and Textiles*. 2021. Vol. 8, № 1. P. 1. DOI:10.1186/s40691-020-00228-3
5. Vallverdú J., Trovato G., Jamone L. Allocentric Emotional Affordances in HRI: The Multimodal Binding. *Multimodal Technologies and Interaction*. 2018. Vol. 2, № 4. P. 78. DOI:10.3390/mti2040078
6. Yawar A., Lieberman D. E. Biomechanical Tradeoffs in Foot Function From Variations in Shoe Design. *Exercise and Sport Sciences Reviews*. 2023. Vol. 51, № 4. P. 128. DOI:10.1249/JES.0000000000000322
7. Zhang J., Yao J., Hu H., Zhao X. Visual insights into personalizing women's running shoes: A consumer psychology perspective. *Acta Psychologica*. 2025. Vol. 253. 104767. URL: <https://doi.org/10.1016/j.actpsy.2025.104767> (Last accessed: 10.01.2026).
8. 时晓曦, 张冰. 运动设计中的系统性创新与设计DNA——以斯潘迪运动鞋设计为例. *装饰*. 2024. Vol. 373, № 5. P. 48-55.
9. 白仲航, 赵瑞, 张旭, 李林洋, 丁满, 张新新. 基于特征映射的情感与可供性融合的产品设计方法. *图学学报*. 2025. Vol. 46, № 6. P. 1355-1366.

REFERENCES

1. Andersen, E., Goucher-Lambert, K., Cagan, J., & Maier, A. (2021). Attention affordances: Applying attention theory to the design of complex visual interfaces. *Journal of Experimental Psychology: Applied*, 27(2), 338–351. <https://doi.org/10.1037/xap0000349>
2. Jakaria, R. B., Purnomo, H., & Iswanto. (2021). Designing products sports shoes using the quality function deployment (QFD) method: Perancangan produk sepatu olahraga dengan metode quality function deployment (QFD). R.E.M. (Rekayasa Energi Manufaktur) Jurnal, 6(2), 15–22. <https://doi.org/10.21070/r.e.m.v6i2.877>
3. Kettner, C., Stetter, B., & Stein, T. (2025). The effects of running shoe stack height on running style and stability during level running at different running speeds. *Frontiers in Bioengineering and Biotechnology*, 13. 1526752. <https://doi.org/10.3389/fbioe.2025.1526752>

4. Matthews, D., Cryer-Coupet, Q., & Degirmencioglu, N. (2021). I wear, therefore I am: Investigating sneakerhead culture, social identity, and brand preference among men. *Fashion and Textiles*, 8(1), 1. <https://doi.org/10.1186/s40691-020-00228-3>
5. Vallverdú, J., Trovato, G., & Jamone, L. (2018). Allocentric emotional affordances in HRI: The multimodal binding. *Multimodal Technologies and Interaction*, 2(4), 78. <https://doi.org/10.3390/mti2040078>
6. Yawar, A., & Lieberman, D. E. (2023). Biomechanical tradeoffs in foot function from variations in shoe design. *Exercise and Sport Sciences Reviews*, 51(4), 128. <https://doi.org/10.1249/JES.0000000000000322>
7. Zhang, J., Yao, J., Hu, H., & Zhao, X. (2025). Visual insights into personalizing women's running shoes: A consumer psychology perspective. *Acta Psychologica*, 253, 104767. <https://doi.org/10.1016/j.actpsy.2025.104767>
8. Shi X. X., Zhang B. (2024). Yùndòng Shèjì Zhōng de Xitóngxíng Chuàngxīn yǔ Shèjì DNA——Yì Sīpāndí Yùndòngxié Shèjì Wéi Lì. [Systematic Innovation and Design DNA in Sports Design: A Case Study of Spandi Sports Shoe Design] *Zhuāngshì*, 373(5). 48–55. [in Chinese]
9. Bai Z. H., Zhao R., Zhang X., Li L. Y., Ding M., Zhang X. X. (2025). Jīyú Tèzhēng Yingshè de Qínggǎn yǔ Kègōngxìng Rónghé de Chǎnpǐn Shèjì Fāngfǎ. [Product Design Method Integrating Emotion and Affordance Based on Feature Mapping] *Túxué Xuébào*, 46(6). 1355–1366. [in Chinese]

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