Applying a Kano-FAST Integration Approach to Design Requirements for Auditorium Chairs

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The design of auditorium chairs can directly reflect the image of public spaces. At present, the development of public furniture is relatively slow compared to household and office furniture. The design of auditorium chairs on the market is severely homogenized, relying on past experience and lacking scientific guidance. In order to create a better indoor public activity environment for users, from the perspective of user needs, first of all, 21 user needs for auditorium chairs were obtained through semi-structured interviews. Then, the Kano model was used to determine the attribute positioning of each demand. Finally, the FAST method was used to transform user demands into functions, assisting in the design optimization of hall chairs and promoting the future development of public furniture. The results indicate that the design of auditorium chairs must meet safety and stability, and the comfort and rechargeability of the seats are the most important needs of users. In the future, the functional design of auditorium chairs also needs to consider intelligent applications. The study applies a Kano-FAST integration method to the design innovation of auditorium chairs, providing data support for the development of furniture enterprise auditorium chairs and promoting product upgrading and optimization.

DOI: 10.15376/biores.19.3.5825-5838

Keywords: User demands; Auditorium chair; Kano model; Functional design

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INTRODUCTION

Furniture is an indispensable tool for people's daily life, work, and social activities. According to the usage environment, it can be generally divided into three categories: household furniture, office furniture, and public furniture. Public furniture can be divided into outdoor public furniture and indoor public furniture. Among them, public seats are a type of public furniture that satisfies the sitting and leaning function (Zhou 2005), and are the material basis for determining the function of public space and an important element for expressing the form of public space. Their design greatly affects the shaping of social activity environment, so they are increasingly receiving attention and attention from public furniture enterprises and researchers. However, research on public seats mostly has focused on outdoor public seat design in urban culture (Wang and Ma 2011; Wu and Xing 2022) and campus environments (Hu and Zhu 2023), lacking research on seat design in indoor public spaces. Overall, compared to household and office furniture, the development speed of public furniture is slow.

Auditoriums and lecture halls are indoor public spaces for various conferences, academic exchanges, and speeches. They are important social activity environments and

are commonly found in schools and government institutions. As a type of public seat suitable for auditoriums and lecture halls, auditorium chairs are composed of five parts: seat, backrest, armrests and standing legs, and writing board. The standing legs and armrests are integrated to form a firmly installed armrest frame. In recent years, many public furniture companies have begun to invest a lot of research and development efforts in the design of auditorium chairs. Traditional auditorium seats are usually fixed on the ground in rows and cannot be moved or rotated freely. With the development of social activities, the concept of "mobile forums" has also emerged, which is to use foldable and movable auditorium chairs for different usage scenarios in the same public space. However, the technical nature of the auditorium chair is strong, and the overall space design needs to be considered. Currently, it only meets the needs of a particular niche. A few companies have started to establish their own research and development teams. However, research on auditorium chair design is often superficial and relies on past experience. The design of new products is guided by subjective aesthetics and internal needs, without paying attention to market and user needs, resulting in a waste of a lot of research and development resources. There is a lack of scientific research methods to explore innovative functions of auditorium chairs in the context of modern demands.

The design concept of "People-oriented" is the core and starting point of modern furniture design (Liu and Guan 2004). It emphasizes starting from human needs and designing products that not only meet functional needs but also aesthetic and cultural needs. With the development of society and the improvement of quality of life, consumers are no longer satisfied with mere functionality when choosing furniture. They will comprehensively consider appearance, material (Liu *et al.* 2024), and comfort, and the selection of auditorium chairs is no exception. Moreover, the nature of the auditorium chair has a significant impact on the design of the entire public space.

The Kano model was created by Noriaki Kano, a Japanese quality management expert, to classify and prioritize user needs (Nie *et al.* 2010) and to determine the attributes of various user needs to assist in improving furniture design (Xiao and Liu 2021; Yu and Cheng 2022). The Kano model systematically evaluates the nonlinear relationship between product elements and user experience. Li *et al.* (2024) evaluated the functional requirements of electronic sports chairs using the Kano model and explored the main attributes of user preferences for electronic sports chairs. The Functional Analysis System Technology (FAST) can decompose and map user demands to various basic functions in a hierarchical and progressive manner, achieving the transformation from user demands to design functions. It is widely used in product functional design research (Huang and Wu 2013; Li and Miao 2018). The combination of the Kano model and FAST method can determine user demand attributes and transform them into specific functional designs (Liu and Li 2022), which is beneficial for innovative product design and improving user satisfaction.

In recent years, research on auditorium chairs has mainly focused on their sound absorption characteristics and seat density (Barron and Coleman 2001; Rubacha *et al.* 2012; Choi *et al.* 2015), lacking research on the appearance and functional design of the chairs themselves. In this study, the Kano–FAST integrated model was applied to the design of Auditorium Chairs for users. This analysis allows us to determine the attributes of each requirement, and then transforming the core demands into product functions, the design elements of auditorium chairs are obtained, in order to provide theoretical guidance for enterprises, optimize the design of auditorium chairs more effectively, and provide people with a comfortable and high-quality social activity environment.

Product Research on Auditorium Chairs

In order to obtain the current design status of domestic and foreign auditorium chairs in the market, this survey conducted a visit to the 51st China Home Expo Office Environment and Commercial Space Exhibition, and combined with online and offline channels, surveyed a total of 8 domestic auditorium chair brands and 5 foreign auditorium chair brands. Thirty auditorium chair styles worth analyzing were selected and sorted out, with the Italian brand Aresline as the representative in foreign countries and Guangdong brand OSJ as the representative in China. It can be seen that Aresline's auditorium chair design is mature, with a complete product line. It has transitioned from the product design of auditorium chairs to the system design of auditorium chairs. Its design is based on modular theory, and various components can be replaced with different materials. It can provide multiple solutions in different scenarios according to customer needs. In addition, in the context of the intelligent era, multimedia smart systems have also been installed on the auditorium chairs. However, its comfort is insufficient, and the design of the seats and backrests often adopts straight lines, especially several foldable small auditorium chairs. Although they are more flexible and lightweight, they ignore the user's experience.

Many foreign products are similar to them. OSJ's auditorium chairs focus on comfort, and the backrest adopts a curved design to enhance the user's sitting experience. However, the appearance and function continue to use traditional styles, and each auditorium chair is equipped with a writing tablet. Only by changing the structure of the writing tablet can competitiveness be improved in the market, lacking innovation and considering the application of spatial scenarios, resulting in a design that follows the structure and an excess of design.

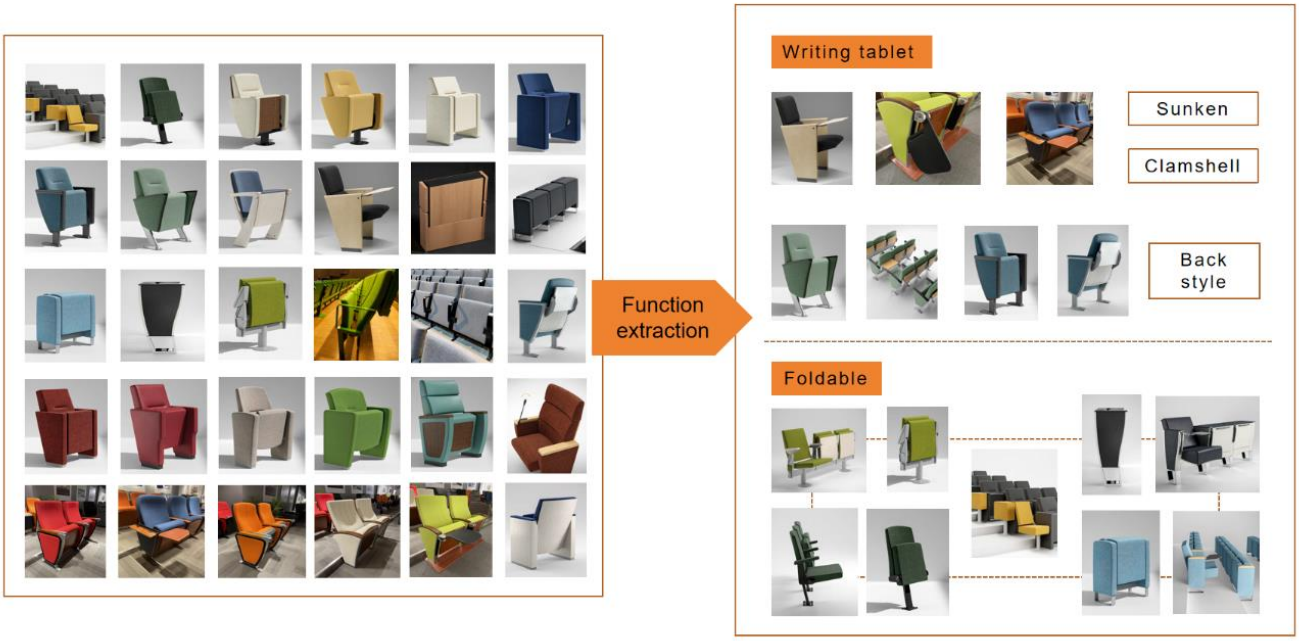

Fig. 1. Analysis of the current functional status of auditorium chairs.

Through product research, it can be seen that recent design innovation of auditorium chairs mainly has focused on appearance changes and innovative writing board structures. A small number of products have added multimedia system design, while most products lack innovation, suffer from serious homogenization, and do not consider the real

needs of users, resulting in a stagnant development speed and product quality of auditorium chairs.

With the enrichment of social activities and changes in lifestyle habits, the design of auditorium chairs not only needs to meet the basic functions of sitting and leaning, but also needs to clarify the usage needs of people in the information age. Traditional auditorium chairs must obtain real feedback from users in order to break through innovation.

Based on market research results, this article developed a hierarchical model of auditorium chair design requirements from the user's perspective using a Kano-FAST integration method and transformed it into functional optimization opportunities, providing scientific guidance for future design innovation of auditorium chairs and promoting the development of public furniture.

EXPERIMENTAL

Kano Model

The Kano model analysis method mainly uses standardized questionnaires for research, categorizes the attributes of each factor based on the research results, and solves the problem of locating demand attributes to improve user satisfaction (Fig. 2).

In Kano's model, the product features are divided into five types of attributes: Attractive Quality (A), One-dimensional Quality (O), Must-be Quality (M), Indifferent Quality (I), and Reverse Quality (R) (Baki *et al.* 2009). Attractive Quality (A) refers to the fact that if such features are not provided, user satisfaction will not decrease, but when such features are provided, satisfaction will greatly improve, sometimes ensuring the competitiveness of the product; The One-dimensional Quality (O) refers to the increase in user satisfaction when providing such features, and the decrease when not provided; The Must-be Quality (M) is that when providing such functions, user satisfaction will not significantly improve, but when not providing such functions, satisfaction will significantly decrease, which is a basic requirement that must be guaranteed; The Indifferent Quality (I) refers to the fact that regardless of whether such features are provided or not, there will not be a significant change in user satisfaction. In limited conditions, such functions may not be prioritized; The Reverse Quality (R) refers to the fact that users do not have this feature, and providing it may actually lead to a decrease in satisfaction; The appearance of suspicious results may be due to respondents not understanding a certain question well or answering incorrectly.

For example, it can be determined whether the auditorium chair needs a "cup holder" function. If the activity venue can carry food, then the auditorium chair has a "cup holder" function, which will increase user satisfaction with carrying water cups or drinks. However, not providing "cup holder" function may reduce user satisfaction. Therefore, the "cup holder" function can be defined as the One-dimensional Quality (O).

If food is prohibited from being carried in the activity venue, then the customer satisfaction with whether the auditorium chair has "cup holder" function will not change significantly, and the "cup holder" function can be defined as the Indifferent Quality (I). These five attributes can better determine whether a certain feature of the product is necessary for development.

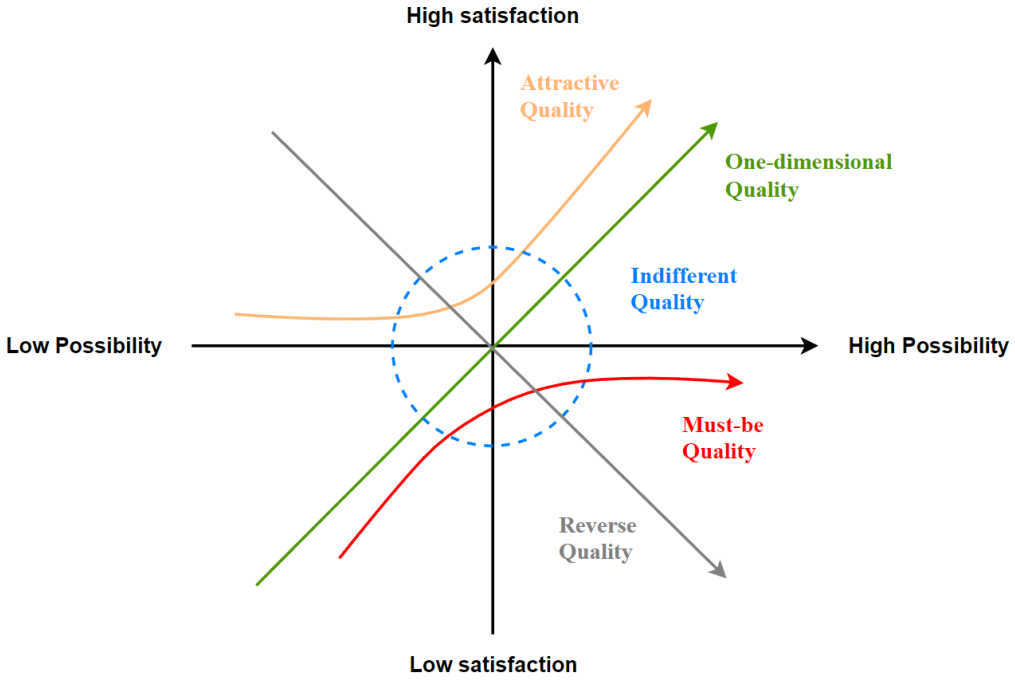

Fig. 2. Kano two-dimensional quality model

Functional Analysis System Technology

The FAST method systematically analyzes and understands the functions of a product from the user's perspective through question and answer, determines the primary and secondary relationships between product functions, and expands and optimizes product functions (Shi and Tong 2023). From user needs to the specific design implementation process, designers often rely on subjective ideas based on past design experience, resulting in products that are disconnected from user needs and losing consumer trust. The early stage of product development and design process cannot be separated from sufficient competitor analysis and consumer demand investigation. As an improvement design for auditorium chairs facing the actual market, it is necessary to break traditional forms and adapt to the new era of social activities. By establishing the FAST feature tree model, designers can grasp the key to product feature openness (Wang *et al*. 2023), find the best design solution between functional demands and design expression, and ultimately develop products that meet user needs.

Data Collection and Processing

Semi-structured interviews were conducted with 10 employees of the auditorium chair company and 10 users who frequently use auditorium chairs. Participants were asked to write down their needs for auditorium chairs at multiple levels on cards, with each person writing 3 to 5 items. Then, the contents of all cards were collected to obtain a total of 60 user needs for auditorium chairs. By using the KJ method, similar content can be classified into one category. As user needs are based on their own expectations for different dimensions of the product, they need to be refined, analyzed, and transformed into real user needs that align with the positioning of the auditorium chair product. In the end, this process identified 3 demand dimensions and 21 demand indicators, which were numbered and integrated, as shown in Table 1.

Table 1. Classification of User Demand for Auditorium Chair

Demand Dimension	Number	Demand Indicator
Use Demand	D1	Comfortable sitting
	D2	Safe and stable
	D3	Easy to clean fabric
	D4	Moderate sitting distance
	D5	Convenient storage
	D6	Comfortable material
Functional Demand	D7	Multimedia system
	D8	Voting system
	D9	Backstrap screen
	D10	Adjustable back
	D11	Rechargeable
	D12	With writing board
	D13	With foot rest
	D14	Storage function
	D15	Heat dissipation function
	D16	Minimalist appearance
Aesthetic Demand	D17	Natural elements
	D18	Rich colors
	D19	Beautiful design
	D20	Modularity
	D21	Get rid of traditional appearances

Based on these 21 user demand indicators, a user survey questionnaire was designed. The questionnaire content was designed from both positive and negative aspects. For example, for demand item D1, a positive question was composed: "What is your feeling when the auditorium chair has a comfortable sitting experience ? "; And the reverse question: "What is your feeling when the auditorium chairs do not have a comfortable sitting experience ?" The answers to the questions were divided into "Satisfied", "Basic", "Indifferent", "Reluctantly accepted", and "Dissatisfied". User satisfaction corresponds to different needs attributes, as shown in Table 2. The questionnaire was distributed online, and a total of 141 questionnaires were collected. After manual screening, 135 valid questionnaires were obtained.

Table 2. Kano Requirement Analysis Evaluation Table

Demand Indicator		Reverse question				
		Satisfied	Basic	Indifferent	Reluctantly accepted	Dissatisfied
Positive questions	Satisfied	Q	A	A	A	O
	Basic	R	I	I	I	M
	Indifferent	R	I	I	I	M
	Reluctantly accepted	R	I	I	I	M
	Dissatisfied	R	R	R	R	Q

The population distribution for filling out the questionnaire was 80 women, accounting for 59.3% and 55 males, accounting for 40.7%. The population filling out this questionnaire is concentrated among students and government officials, with students

accounting for the largest proportion at 76.8%, of which graduate students and above accounted for 47.8%. College students accounted for 15.9%, and high school students accounted for 13.0%. 92.5% of these people have used auditorium chairs, and 63.7% of the population frequently uses them, with an average of once a month or more. There are many public spaces equipped with auditorium chairs in the social activity environment, which are most common and relatively frequently used in meetings, lectures, and other scenes of universities and government agencies. Therefore, the focus of this survey is also on university students and government personnel, and this group of people is the fastest to understand cutting-edge technology and industry trends, which can better represent the general needs of modern society.

The questionnaire results were compared by use of the Kano model classification table to determine the proportion of each functional requirement attribute. Based on the analysis results, the satisfaction influence coefficient SI (better) and dissatisfaction influence coefficient DSI (worse) were calculated for each indicator. The proportion values of each attribute were substituted into the calculations to obtain the satisfaction influence value. The calculation formulas are as follows:

$$SI=(A+O)/(A+O+M+I) \quad (1)$$

$$DSI=-1\times(O+M)/(A+O+M+I) \quad (2)$$

The Better-Worse coefficient represents the sensitivity of this indicator to user satisfaction. The larger the calculated SI value, the greater the user's satisfaction with the demand, while the smaller the DSI value, the smaller the user's dissatisfaction with the demand.

RESULTS AND DISCUSSION

According to the survey results, five types of attribute values and suspicious results for 21 user demand items were obtained, as shown in Table 3. The number of suspicious values was very small, indicating that the questionnaire results had high credibility. Comparing the calculation results of the five types of attributes, the attribute with the highest value was designated as the positioning result of the demand item and its Better-Worse value was calculated. Finally, 21 auditorium chair user demand attributes were determined, as shown in Table 4, including 1 Must-be Quality(M), 10 Attractive Quality (A), and 10 Indifferent Quality (I). The M attribute is safe and stable; A attributes include comfortable sitting, comfortable material, convenient storage, adjustable back, rechargeable, with foot rest, minimalist appearance, natural elements, beautiful design, and modularity; the I attributes include easy to clean fabric, multimedia system, voting system, backstrap screen, with writing board, storage function, heating function, heat dissipation function, rich colors, and get rid of traditional appearances.

In general, the priority for product feature development was found to be: Must-be Quality (M)> One-dimensional Quality (O)> Attractive Quality (A)> Indifferent Quality (I) (Wu *et al*. 2023). Based on the positioning results of user needs and Better Worse values, 21 demands were prioritized. M attributes, O attributes, and A attributes are key considerations in the design. Among them, comfortable sitting, safe and stable, convenient storage, and comfortable material belong to the use demand dimension, adjustable back, rechargeable, and foot rest belong to the functional demand dimension, while minimalist

appearance, natural elements, beautiful design, and modularity belong to the aesthetic demand dimension. Considering 11 user demands in the design of auditorium chairs can greatly improve user satisfaction.

Table 3. Results of the User Demand Questionnaire for Auditorium Chairs

Number	Demand Indicator	A	O	M	I	R	Q
D1	Comfortable sitting	0.2963	0.2370	0.1630	0.2889	0.0000	0.0148
D2	Safe and stable	0.0889	0.3111	0.4741	0.1185	0.0000	0.0741
D3	Easy to clean fabric	0.2370	0.1852	0.1333	0.4370	0.0000	0.0741
D4	Moderate sitting distance	0.2815	0.2370	0.1704	0.3037	0.0000	0.0741
D5	Convenient storage	0.4222	0.1111	0.0296	0.4222	0.0741	0.0741
D6	Comfortable material	0.3926	0.2074	0.0815	0.3111	0.0000	0.0741
D7	multimedia system	0.4593	0.0370	0.0000	0.5037	0.0000	0.0000
D8	Voting system	0.4148	0.0148	0.0148	0.5407	0.0741	0.0741
D9	Backstrap screen	0.4222	0.0296	0.0000	0.5407	0.0000	0.0741
D10	Adjustable back	0.4593	0.0667	0.0370	0.4148	0.0741	0.0148
D11	Rechargeable	0.6741	0.0370	0.0741	0.2741	0.0000	0.0741
D12	With writing board	0.2889	0.0741	0.0370	0.5852	0.0741	0.0741
D13	With foot rest	0.4593	0.0444	0.0148	0.4593	0.0222	0.0000
D14	Storage function	0.4371	0.0741	0.0370	0.4444	0.0000	0.0741
D15	Heat dissipation function	0.4296	0.0667	0.0148	0.4741	0.0741	0.0741
D16	Minimalist appearance	0.4593	0.0593	0.0444	0.4370	0.0000	0.0000
D17	Natural elements	0.5185	0.0148	0.0222	0.4444	0.0000	0.0000
D18	Rich colors	0.3185	0.0370	0.0148	0.5926	0.0370	0.0000
D19	Beautiful design	0.4815	0.0889	0.0296	0.3926	0.0741	0.0000
D20	Modularity	0.4889	0.0593	0.0370	0.4148	0.0000	0.0000
D21	Remove traditional appearances	0.4444	0.0444	0.0222	0.4815	0.0741	0.0000

Table 4. User Demand Attribute Positioning and Satisfaction Value

Number	Demand Indicator	Kano Classification	SI	DSI
D1	Comfortable sitting	A	0.5414	-0.4060
D2	Safe and stable	M	0.4030	-0.7910
D3	Easy to clean fabric	I	0.4254	-0.3209
D4	Moderate sitting distance	I	0.5224	-0.4105
D5	Convenient storage	A	0.5414	-0.1429
D6	Comfortable material	A	0.6045	-0.2910
D7	multimedia system	I	0.4963	-0.0370
D8	Voting system	I	0.4361	-0.0301
D9	Backstrap screen	I	0.4552	-0.0299
D10	Adjustable back	A	0.5379	-0.1061
D11	Rechargeable	A	0.7164	-0.0448
D12	With writing board	I	0.3684	-0.1128
D13	With foot rest	A	0.5152	-0.0606
D14	Storage function	I	0.5149	-0.1119
D15	Heat dissipation function	I	0.5038	-0.0827
D16	Minimalist appearance	A	0.5185	-0.1037
D17	Natural elements	A	0.5333	-0.0370
D18	Rich colors	I	0.3692	-0.0539
D19	Beautiful design	A	0.5746	-0.1194
D20	Modularity	A	0.5481	-0.0963
D21	Remove traditional appearances	I	0.4925	-0.0672

The Better Worse value can more intuitively display the positioning results of product functions. Since there is only one M attribute and no O attribute in the positioning results, and the function with I attributes have little impact on user satisfaction, the satisfaction coefficient value of A attributes function were selected for analysis, as shown in Fig. 3. For example, D11 (rechargeable) has the highest SI value and a smaller DSI value, indicating that users are most satisfied with the charging function provided by the auditorium chair; The DSI value of D1 (Comfort sitting) is the highest, indicating that if the auditorium chair does not have comfort, users will not be able to accept it, and the importance of this function is also significant.

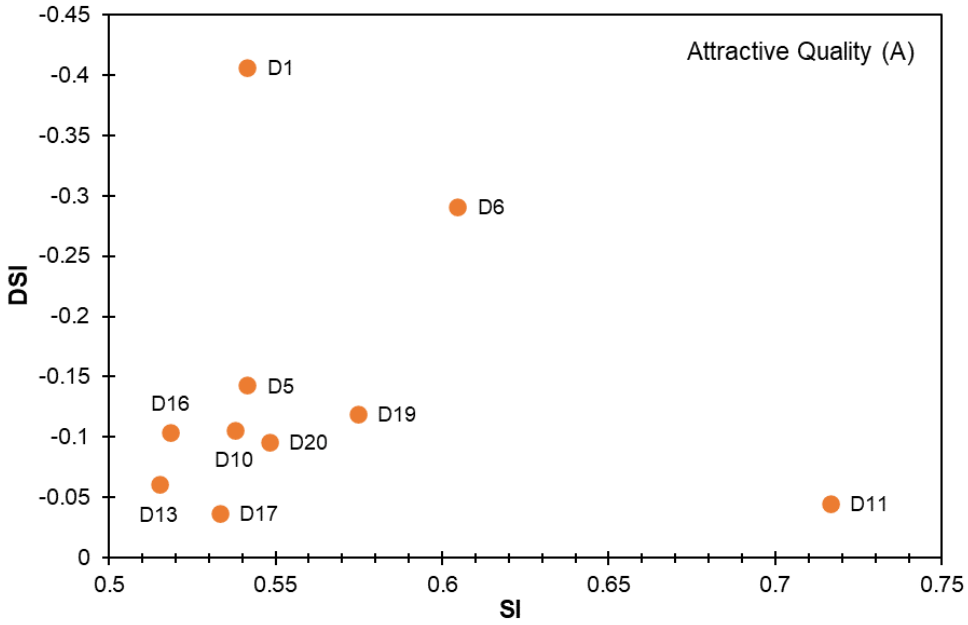

Fig. 3. Analysis of satisfaction coefficient for A attributes

Sorting all demand items according to the demand dimension can obtain the priority in each demand dimension, as shown in Table 5. Safe and stable, material comfort, and seating comfort were found to have higher priority in the use demand dimension, indicating that users attach great importance to the comfort and safety of auditorium chairs. Therefore, the design of auditorium chairs should consider safety factors and stability to avoid accidental injuries during user use. For example, the corners of the auditorium chairs should be designed with rounded edges to avoid collision and injury, especially for auditorium chairs equipped with writing boards; The materials and surface treatment of furniture should also comply with safety standards to avoid harm to human health; The height and depth of the seat should be suitable for the sitting posture of the human body, and the seat back should be designed with a curved curve to avoid fatigue or discomfort caused by long-term use.

In the dimension of functional demands, rechargeable, adjustable back, and foot rest were found to have higher priority, which are currently the most desired functions for users. With the continuous development of information technology and the Internet, smart devices such as mobile phones and tablets have become indispensable tools in people's learning, social networking, and work activities. People often feel anxious when their mobile phones are out of power, while most public activities in the lecture hall and other places take a long time. Therefore, people attach great importance to the charging needs of

electronic devices, and the functional design of hall chairs can consider adding charging devices. In addition, the adjustable angle of the back and the addition of foot rest also reflect people's pursuit of comfort in public seats, and the functional design of the auditorium chair also needs to consider ergonomic principles. Although some requirement indicators in the functional demand dimension are classified as Indifferent Qualities (O) by the Kano model, it can be seen from the specific data that their Indifferent Qualities (O) corresponded to high values, indicating that many users believed that those functions can make them more satisfied, such as backrest screens, multimedia systems, voting systems, and auditorium chairs with digital screens added behind the backrest can provide a better perspective experience for participants in the back row. Multimedia systems and voting systems can improve user engagement and learning experience. The technology of traditional auditorium chairs cannot meet the needs of people in the Internet era. The functional design of future auditorium chairs needs to be integrated with digital and intelligent equipment.

In the dimension of appearance demands, beauty, modularity, and natural elements were found to have higher priority. Modular design is a popular sustainable design method, and the use of modular design concepts can meet the actual needs of users and achieve spatial configurability (Lee 2010). By selecting and combining functional modules, different auditorium chair products can be formed to meet the diverse needs of users for public spaces. For example, more personalized solutions can be provided by replacing the materials of armrests and seat backboards, or by adding headrests to improve the comfort of auditorium chairs. This design method not only can shorten the product development and manufacturing cycle, quickly responding to market changes and improving the sustainability of furniture, but it also can help reduce waste and environmental pollution. When a module is no longer needed, it can be recycled or used to build new furniture combinations. Current users have a certain aesthetic demand for the design of auditorium chairs and are beginning to pay attention to the expression of product semantics.

Based on the analysis, there was one M attribute and three A attributes in the use demands, three A attributes in the functional demands, and four A attributes in the aesthetic demands. Overall, user satisfaction with the use of auditorium chairs is no longer limited to the design of functional demands, and the usage and aesthetic demands are gradually receiving attention from users.

Table 5. Priority Ranking of Three User Demand Dimensions for Auditorium Chair

Demand Dimension	Priority Sorting of Demands
Use Demand	Safe and stable> Comfortable material> Comfortable sitting> Convenient storage> Moderate sitting distance> Easy to clean fabric
Functional Demand	Rechargeable> Adjustable back> With foot rest> Storage function> Heat dissipation function> > Backstrap screen> Voting system> With writing board
Aesthetic Demand	Beautiful design> Modularity> Natural elements> Minimalist appearance> Get rid of traditional appearances> Rich colors

Based on the user demand weight results obtained from the above analysis, the demand features can be iterated into functional attributes to construct a product functional model. Based on the user weight and demand attribute results obtained from the Kano model, the features were discussed with 5 auditorium chair designers to clarify the main and auxiliary demands, and eliminated the lower weight and undifferentiated demands (Zhang *et al.* 2023). Then, using the FAST method, the user demands were transformed

into product functions, as shown in Fig. 4. The user needs of auditorium chairs were translated into specific functional design demands, many of which are not currently met by products. These research conclusions have the potential to improve the product differentiation of auditorium chairs, assist designers in innovative design of auditorium chairs and improve user satisfaction.

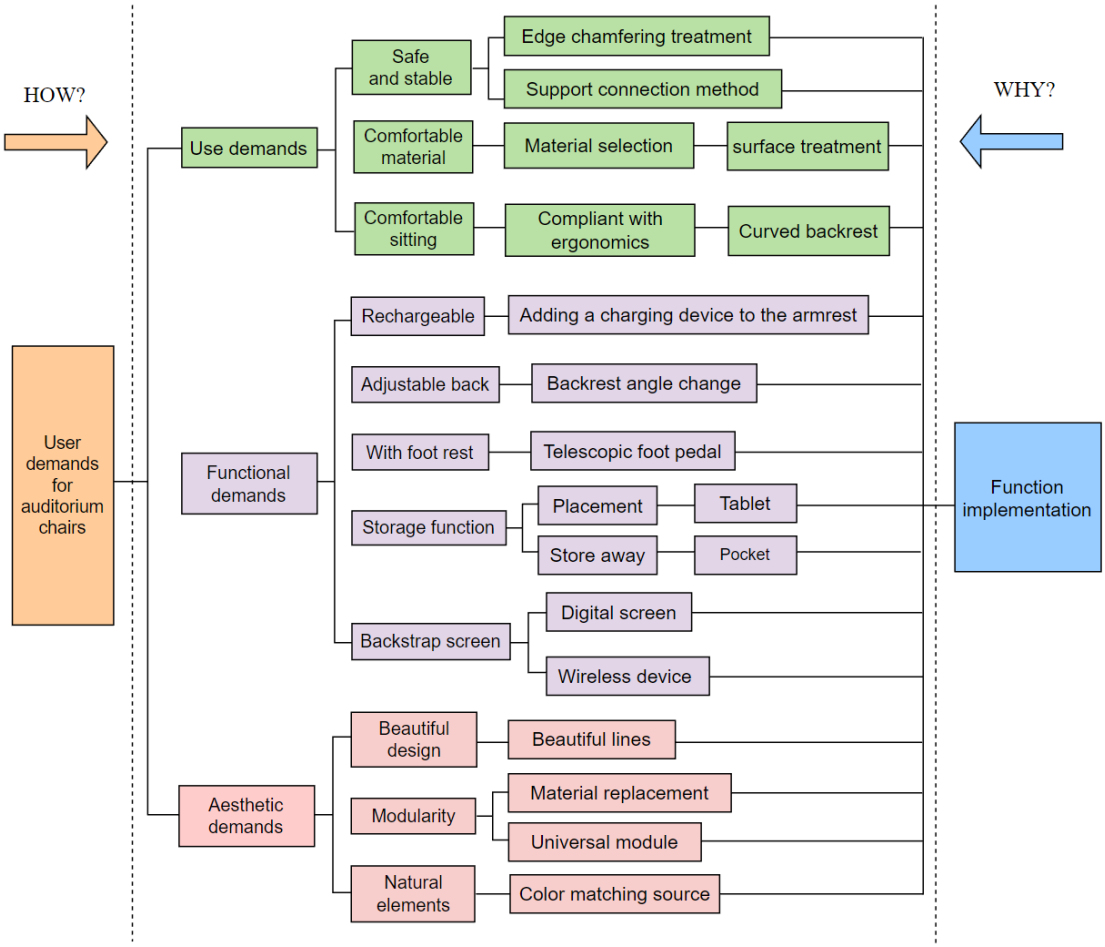

Fig. 4. FAST functional structure model of auditorium chairs

CONCLUSIONS

This article analyzed the current situation of auditorium chair design through market research methods and then used qualitative and quantitative research methods to collect user demand data for auditorium chairs. The Kano-FAST integrated model was used to locate and rank user needs, screen out relatively important needs, and perform functional transformation, providing data support for innovative design and optimization of auditorium chairs. It is known that user research methods can play an important role in the design of public furniture.

1. Among the three user demand dimensions of auditorium chairs, the "attractive quality" (A) attributes were relatively high in terms of usage and aesthetic demands, indicating that users are no longer limited to functionality in their design demands for auditorium chairs, but are beginning to focus on user experience and aesthetic value. The design

of auditorium chairs should be more comfortable and ergonomic.

2. Among the 21 user demands for auditorium chairs, there was one essential requirement and 10 charismatic demands, namely: safe and stable, comfortable sitting, comfortable material, convenient storage, adjustable back, rechargeable, foot rest, minimalist appearance, natural elements, beautiful design, and modularity. Integrating these elements into the design and development of auditorium chairs can enrich the product functions of auditorium chairs and improve user satisfaction.
3. In the era of information technology, users need more intelligent auditorium chairs. Traditional auditorium chairs equipped with ordinary writing boards are no longer suitable for the current public environment needs. The functional design of auditorium chairs can consider adding charging devices and digital screens to increase differentiation.
4. Modular design is an important method for the sustainable development of auditorium chair furniture enterprises. In the future, the design of auditorium chairs not only needs to consider the product itself, but also the needs of the spatial environment. Modular methods can enable auditorium chairs to come up with multiple solutions according to the space.

ACKNOWLEDGMENTS

This research was sponsored by Qing Lan Project (Su Teacher's Letter [2022] No. 51).

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Article submitted: May 29, 2024; Peer review completed: June 20, 2024; Revised version received and accepted: June 23, 2024; Published: July 12, 2024.
DOI: 10.15376/biores.19.3.5825-5838