

Challenge and Opportunity: Campus Modern Installation Art Design - A Case Study of Heilongjiang Institute of Technology and Business

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Abstract:

Objective: With the iteration and updating of technology, there are too many traditional public art works in colleges and universities in northeast China, but less modern installation art in colleges and universities. Through using six kinds of parameterized construction methods, a campus installation renovation scheme based on Heilongjiang Institute of Technology and Business was established. It can solve the problem of less modern installations in northeast campus. **Methods:** A questionnaire survey was conducted among students to define the transformation area they liked. The rhino software, Grasshopper plug-in and lumion software were combined to show the production process from modularization to modeling to effect drawing, simulating the real design process and design results. **Results:** A questionnaire survey was conducted on the design results of the completed design scheme. The questionnaire concluded that the installation atmosphere and the fun of the installation were more popular among students. At the same time, a feasible scheme based on the modern installation art design in Northeast colleges and universities was presented. **Conclusion:** In the name of an experiment, we realize that modern campus installation art can bring more vitality to students. At the same time, the whole set of research, simulation process and questionnaire setting methods of parameterized campus installation can provide reference for other Chinese universities to build modern installation art design works, and provide ideas for parameterized campus design application.

Keywords:

Parametric Design, Installation Art, College Campus, Landscape Installation, Chinese Design

1. Introduction

Installation art as a branch of public art works, it has a strong metaphorical effect on campus. With the arrival of parametric design, more and more modern campus

installation art appears. The author conducts research and analysis on traditional campus installation in Northeast China through two methods: questionnaire survey and design practice, and makes six design practices based on Heilongjiang Institute of Technology and Business from the perspective of parametric design. About the future opportunities of modern installation design and construction in Chinese campus, and about the combination of local culture and parametric design. The design practice and research process can provide new ideas for the design of modern installation art in our campus.

2. Present Situation of Public Art Works in Harbin Universities

In the course of teaching, the author found that modern installation art comes from the basic course Public Art Design, and many public design works in the textbook are too old in the form of legend presentation. Therefore, I want to conduct field investigation on the modern installation art in the university campuses of the three provinces in Northeast China, and then get the idea of transformation through investigation. There are 11 Harbin Institute of Technology, 10 Northeast Forest University, 9 Harbin Engineering University, 5 Heilongjiang University, 3 Harbin Science and Technology University, 6 Harbin Normal University, 8 University of Traditional Chinese Medicine, 6 Harbin Commercial University, 6 Northeast Agricultural University, 7 Harbin Institute of Finance, 7 Harbin Institute, 2 Harbin Medical University, 7 black science and technology, 2 black engineering, as shown in Figure 1.

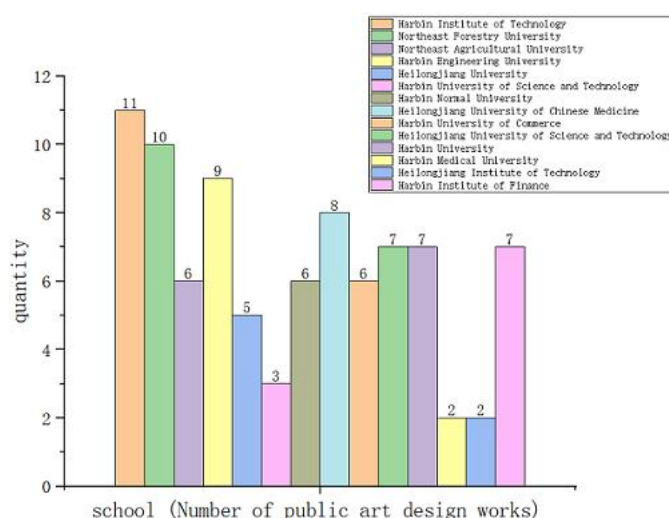


Figure 1. Analysis of the number of public art works in Harbin universities.

Through data analysis, there are more traditional public art works in Northeast China, but less modern installation art. Therefore, the construction of modern installation art has become a new direction of future development, as shown in Figure 2. The author will take the campus in Northeast China as the case to conduct parameterized simulation experiment of modern installation art, and Heilongjiang Institute of Business and Technology in Songbei District of Harbin as the reconstruction area to carry out transformation.

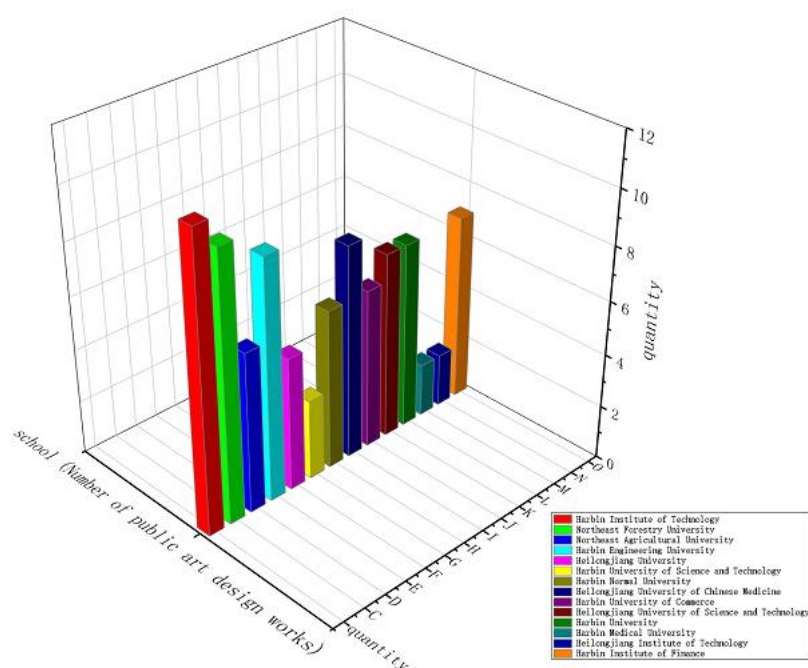


Figure 2. Analysis of the number of traditional public art works in colleges and universities.

3. Modern Installation Art

In the course of teaching, the author came into contact with the course of public art design. Public art is space culture, whose purpose is to convey ideas, pursue social significance, and convey to people's heart through semiotic language and artistic atmosphere creation, so that people can feel the cognition and shared emotion of the space, and reflect the public spirit. Contemporary public art is a reflection of public spirit and a participatory experience.

Installation art is a genre of three-dimensional works, often site-specific, that aim to change the perception of space. Generally, the term applies to internal Spaces, while external interventions are often referred to as public art, ground art or intervention art. Installation art is one of the techniques and genres of contemporary art that have been generalized in painting, sculpture, image and photograph since the 1970s. Placing objects and equipment in certain indoor or outdoor artworks creates a space according to the artist's intention, changes and breaks down, allowing the whole space and space to experience a work of art. Sometimes Spaces can be constructed by filtering video images (video devices), or by using sound and so on (sound devices).

Because the entire space is a work, the audience is expected to “experience” the entire space surrounded by the entire work, rather than “appreciate” each piece. It is an artistic technique that focuses on changing the way the viewer experiences (sees, hears, feels, thinks) the space. Starting from repeated trials in the way sculpture works are displayed, the production of land art and environmental art, and the production of performing art, it gradually broke away from the frame of sculpture and became independent and independent. As an expression technique.

Installations are often expressed in three-dimensional frames: the artist includes environmental or other factors that distinguish his work from simple ones. The work is placed within a scene and sees the off-site as a dimension not immediately visible to the viewer: the mere fact of it as a “bystander” summons up concepts of participation, immersion and drama.

4. A Questionnaire Study On the Size of the Reconstruction Area and Construction Device

We have conducted a questionnaire survey among 100 students in Jiangbei Campus of Heilongjiang Institute of Technology and Business. As for the size of installation art, 8.89% of students want to build small art, 54.55% of medium art and 36.67% of large art. For installation art placement areas: 11.1% in front of the canteen, 5.6% in front of the library, 50% in the First Teaching square, 15.6% in the Second Teaching Square, 17.8% in front of the gymnasium. As shown in Figure 3, the survey results show that students prefer medium and large scale installation art, which should be built at the entrance of the canteen, the first teaching square, the second teaching square, and the entrance of the gymnasium. Figure 4. As an earthquake refuge area, the playground area received feedback from students that there was no shelter and lack of privacy when walking at night. Therefore, we conducted experiments and designs of modern installation art design for these six campus scenes, as shown in Table 1.

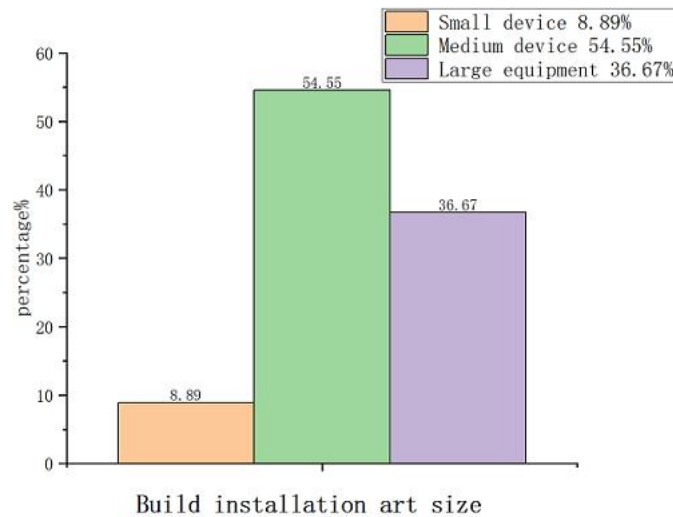


Figure 3. Business School students keen to build campus installation size ratio.

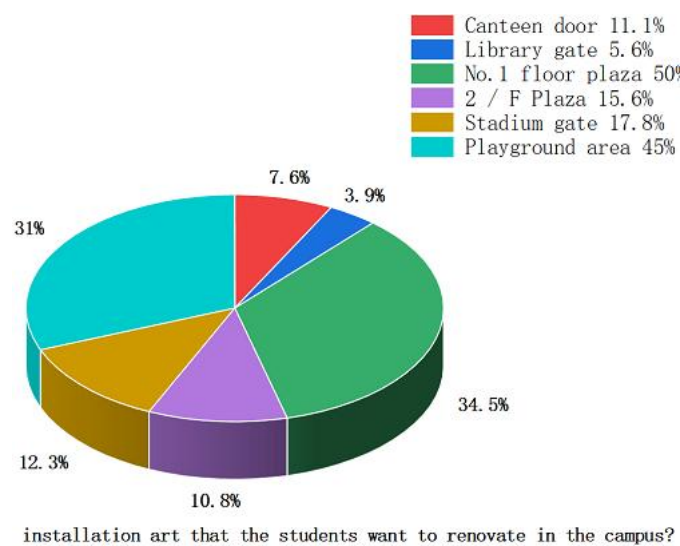


Figure 4. Specific areas where students are keen to build campus installations.

Table 1. Real picture of Jiangbei Campus Reconstruction of Business College.

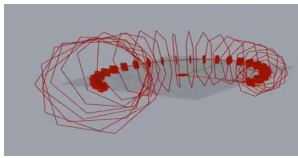
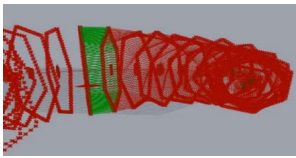
Campus renovation diagram			
legend	Libraryentrance	Gate of Building 1	Second floor
Delimit three areas at the door			
legend	Playground area	Canteen area	Gymnasium area
Demarcated three areas behind the school			

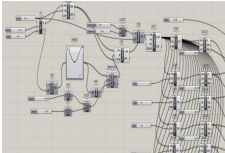
5. Business School Regional Installation Art Construction Case

5.1. Gymnasium installation art wood exhibition pavilion design

The pavilion is located in front of the gymnasium of Jiangbei Campus of Heilongjiang Institute of Technology and Business. Its purpose is to solve the problem of students' demand for leisure space and private space on campus during the epidemic period. The author wants to create a kind of installation art with a sense of movement through subdivision and reorganization, so that this area becomes a free sharing space now. The design idea is based on the process of teaching public art design, reflecting on the reconstruction of the school's facilities and site, through the parametric design to achieve the effect of space reconstruction, the design from the material, stainless steel material, as the support of the grid structure, the wire mesh using pvc network connection, safe and reliable; At the same time, in terms of color, the natural color of the device is the light yellow varnish texture of the log, which has a sense of affinity and metaphor of environmental protection theme. This area, formerly a parking area, is now converted into an art installation lawn field, which, in conjunction with the landscape design, makes the existing area a popular time slot, as shown in Table 2.

Table 2. Generation process of modern equipment in Gymnasium.

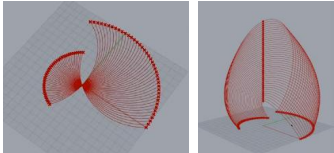
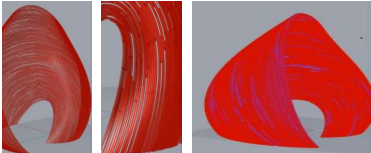
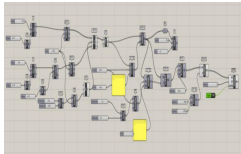
The generation process of modern equipment in sports hall		
legend	A rendering of the device	Material: Stainless steel, fiber
Modeling process		
Initial drawing		

grasshopper Battery pack		
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5.2. Rotating circular arc shell Pavilion No.1 building installation art

The pavilion is located in front of the No. 2 building in Jiangbei Campus of Heilongjiang Institute of Technology and Business. Its purpose is to highlight the innovation and change of the School of Art and Media of Heilongjiang Institute of Business and Business and reflect the design ideas. The design idea is based on the process of teaching public art design, reflecting on the reconstruction of the school's facilities and site, through the parametric design to achieve the effect of space reconstruction, the design from the material, stainless steel material, as the support of the grid structure, the wire mesh using pvc network connection, safe and reliable; At the same time, Klein blue texture is used as the inherent color of the device. This color is dynamic and full of mysterious color, which can arouse the emotions of passing students. In terms of function, the curve device of Klein Blue can create sufficient learning space for people, and is equipped with a rest area, with the same color properties of the seat for rest. This area used to be a parking area, but is now converted into an art installation lawn. With the landscape design, the existing area becomes a class clock landmark. as shown in Table 3.

Table 3.Generation process of installation art in Building 1.

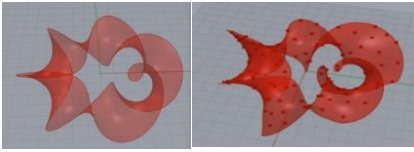
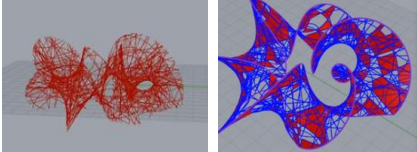
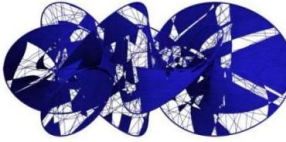
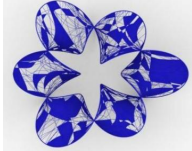
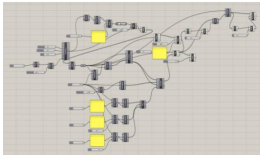
Building 1 - Installation art generation process		
legend	A rendering of the device	Material: Stainless steel, fiber
Modeling process		
Initial drawing		
grasshopper Battery pack		

5.3. Klein Blue random cross curve device in Building 2

The pavilion is located in front of the No.1 building of Jiangbei Campus of Heilongjiang Institute of Technology and Business. Its purpose is to highlight the founding history of Heilongjiang Institute of Business and Business combining work with work and the change from a traditional school to an intelligent school. The author wants to create an abstract installation art through a non-linear form, so that the temporary parking lot in this area becomes the current time slot. The design idea is based on the process of teaching public art design, reflecting on the reconstruction of the school's facilities and site, through the parametric design to achieve the effect of

space reconstruction, the design from the material, stainless steel material, as the support of the grid structure, the wire mesh using pvc network connection, safe and reliable; At the same time, Klein blue texture is used as the inherent color of the device. This color is dynamic and full of cheerful color, which can arouse the enthusiasm of passing students to go to school in the morning. In terms of function, the curve device of Klein Blue can create sufficient learning space for people, and is equipped with a rest area, with the same color properties of the seat for rest. This area, formerly a parking lot area, is now converted into an art installation lawn. With the landscape planning and design, the existing area becomes a time slot for students to gather.as shown in Table 4.

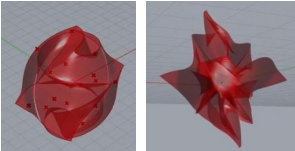
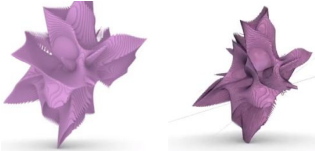
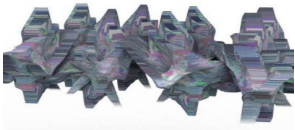
Table 4. Library device generation process.

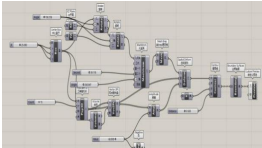
Library device generation process		
legend	A rendering of the device	Material: Stainless steel, fiber
Modeling process		
Initial drawing		
grasshopper Battery pack		

5.4. Surreal installation Art in School of Art and Communication

The pavilion is located in front of the second building of Jiangbei Campus of Heilongjiang Institute of Technology and Business. Its purpose is to highlight the change of innovative ways and the reflection of design ideas of the School of Art and Media of Heilongjiang Institute of Business and Business. The author wants to show the inclusive and surreal style of new materials through emergence theory, so that students can have forward-looking learning and thinking, as shown in Table 5.

Table 5. Installation generation process of No.2 Building of Art College.

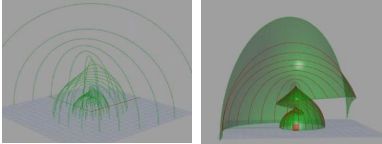
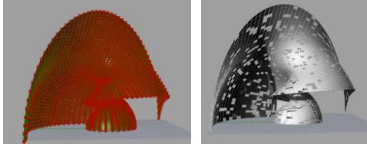
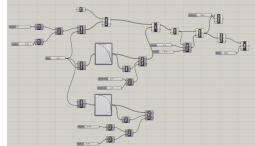
Installation generation process of No.2 building of Art College		
legend	A rendering of the device	Material: stainless steel, pvc material
Modeling process		
Initial drawing		

grasshopper Battery pack		
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5.5. Playground shelter installation art rotating arc structure pavilion

The pavilion is located on both sides of the stadium on Jiangbei Campus of Heilongjiang Institute of Technology and Business. Its purpose is to provide students with their own private space area at night, and have the effect of earthquake, protection and other shelters, as shown in Table 6.

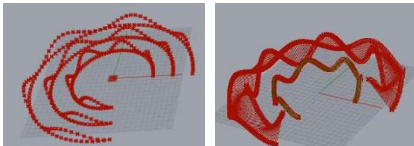
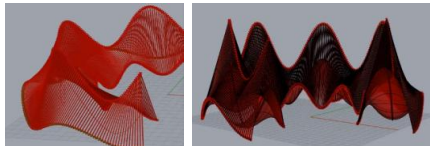
Table 6. Generation process of modern equipment in playground.

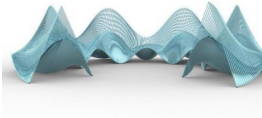
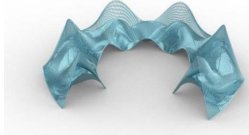
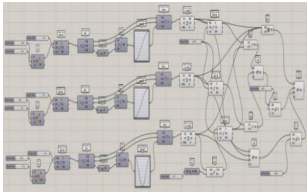
Generation process of playground modern device		
legend	A rendering of the device	Material: Stainless steel, fiber
Modeling process		
Initial drawing		
Grasshopper Battery pack		

5.6. Canteen gathering installation art

In the past, there was indiscriminate parking at the entrance of the canteen, and the flow of students and teachers was extremely unsafe. This open space should play the role of diverting the crowd and dredging the crowd at the same time. This device is a metaphor for the rapid fluctuation of time, which can make people feel lively, so the flow rate of people in this area is accelerated. At the same time, the pavilion can create a gathering atmosphere. There are enough landmarks from the apartment to the canteen. The ice-blue skin shows the ice and snow characteristics of the Art School of Heilongjiang Institute of Technology and Business, which is one of the representatives of the campus culture, as shown in Table 7.

Table 7. Generation process of modern device in canteen.

The generation process of modern device in canteen		
legend	A rendering of the device	Material: stainless steel, wood
Modeling process		

Initial drawing		
grasshopper Battery pack		

6. Design Result Analysis

After conducting a questionnaire survey on the design renderings of six campus installations, the results show that 62.35% of students like the installation at the gate of the canteen, 68.24% like the installation at the gate of Building 1, 56.47% like the installation at the gate of Building 2, and 76.47% like the installation at the playground area. There are 58.82% students like the stadium gate installation, 54.12% students like the library gate installation. At the same time, the author conducted a second questionnaire from the six perspectives of shape, atmosphere, color, interest, material and functionality of each installation to find out why students like these modern installation art designs, as shown in Figure 5.

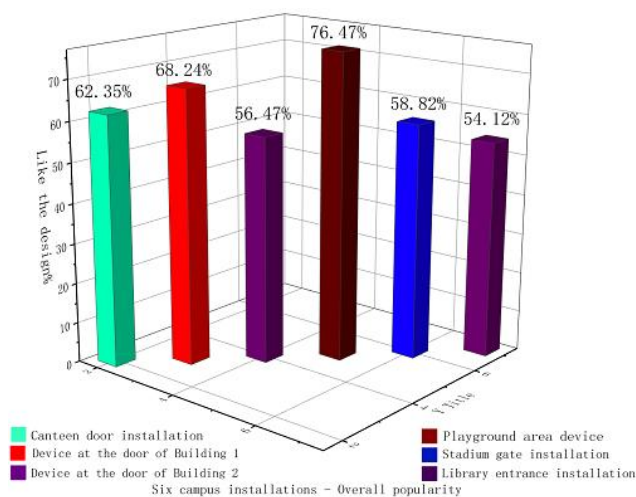


Figure 5. Proportion analysis of the popularity of six campus installations.

In order to reach the conclusion of the overall popularity of these six designs, it cannot directly draw the conclusion of the modern devices with parameterized design in what aspects attract people. Therefore, a second questionnaire survey was conducted on the six designs. First of all, what attracts you about the entrance installation of the canteen? According to the data obtained, the influencing factors are 68.13% of the shape of the device, 75.82% of the atmosphere brought by the device, 54.95% of the color of the skin of the device, 70.33% of the fun of the display of the device, 32.97% of the material of the device, 37.36% of the function of the device. In the modern installation design at the entrance of the canteen, the shape of the installation, the sense of atmosphere brought by the installation and the fun of the installation display attract more people's attention, as shown in Figure 6.

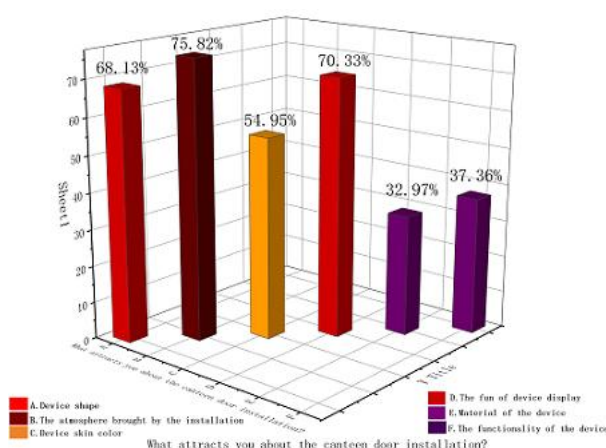


Figure 6. What factors influence the attraction degree of modern installation in the canteen.

Question 2: What attracts you about the installation at the gate of Building 1? According to the data obtained, the influencing factors are 62.35% of the shape of the device, 63.53% of the atmosphere brought by the device, 57.65% of the color of the skin of the device, 69.41% of the fun of the display of the device, 38.82% of the material of the device, 38.82% of the function of the device. In the installation design of No.1 building, it is more attracted by the shape of the device, the sense of atmosphere, the skin color and the fun of the device. Compared with the entrance to the canteen, people's requirements on the skin color of the device increased by 2.7%, the material quality of the device increased by 5.85%, and the functionality increased by 1.46%, as shown in Figure 7.

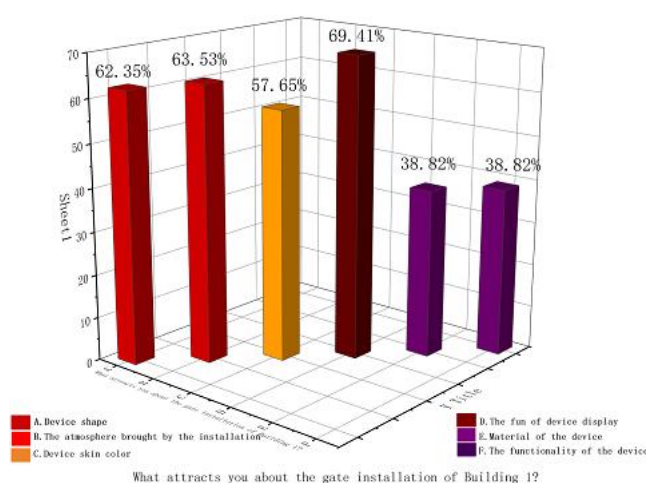


Figure 7. What factors affect the attractiveness of installations in Building 1.

Question 3: What attracts you about the installation at the gate of Building 2? The design is a surreal installation art. According to the data, it is found that students' interest in the surface of the installation has increased by 2.35%, and interest in the material of the installation has increased by 10.59, which is a significant improvement, indicating that the surrealistic skin and abstract material are more attractive to students, as shown in Figure 8.

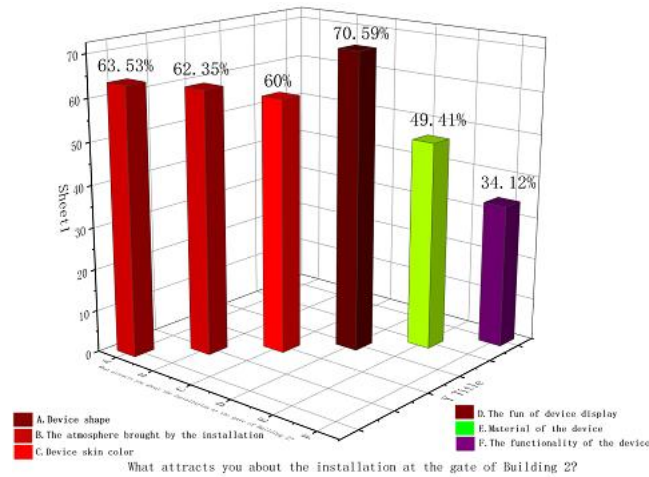


Figure 8. What factors affect the attractiveness of installations in Building 2.

Question 4: What attracts you about the playground area installation? The sense of atmosphere brought by the device is 73.63%, an increase of 11.28% compared with that of the device in Building 2. People pay more attention to the sufficient sense of shelter and privacy in the playground at night, and feel uncomfortable about the empty space, which further explains the importance of constructing shelter devices in the playground. The fun of the device also reached 72.53%, 1.94% higher than that of the device in Building 2, which indicates that the students who are active in the playground during the day need the device to bring enough fun to bring more colors to the plain life, which can trigger an association or a metaphor as shown in Figure 9.

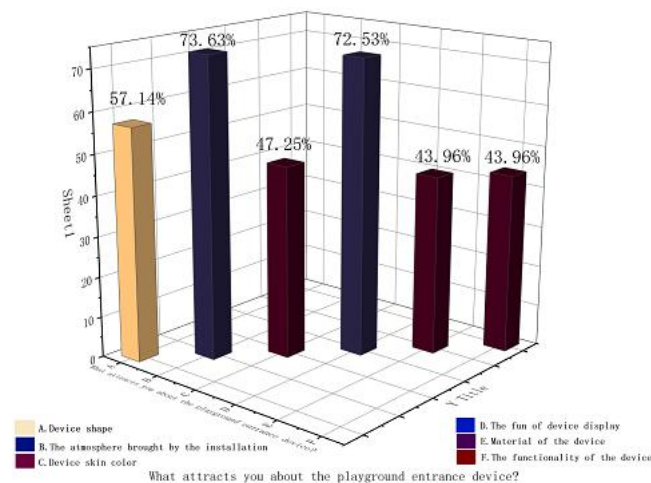


Figure 9. What factors influence the attractiveness of playground installations.

Question 5: What attracts you about the stadium gate installation? The device in the gymnasium is a thin wire frame device. Through the data, it is found that the highest values at both ends are 69.41% for the sense of atmosphere brought by the device, and 74.12% for the fun displayed by the device. The students hope to feel the spirit of sports, the speed of running, the concentration when shooting, and the passion and blood burst out for sports at the gate of the gymnasium. At the same time, in terms of fun, it is loved by the students. More importantly, it can let us see that the sports pavilion is like learning on the way of learning. Every morning, we have the energy to drive our rhythm to complete the learning task every day. More students saw the movement gene and speed element of the device metaphor, as shown in Figure 10.

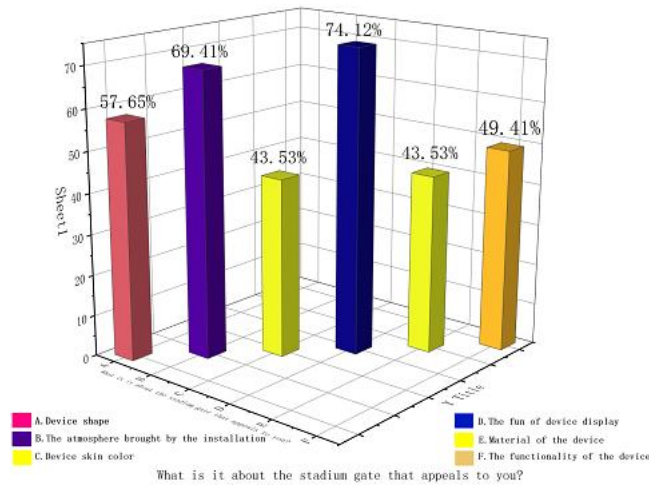


Figure 10. What factors affect the attraction level of Stadium installations.

Question 6: What attracts you about the library entrance installation? In the installation art of library, students are more concerned about whether the shape of the installation is connected with books, whether it can make students calm down and think, or trigger knowledge seeking. At the same time, they pay enough attention to the color of the installation, whether it can make people see the installation or study around to create a learning atmosphere, whether they can be immersed in it, and whether the fun of the installation is improved. The students also want to make the library site more interesting and make reading more dynamic through the library installation, which can create a kind of outdoor reading pavilion and increase the possibility for people to sit on the floor and study in summer, as shown in Figure 11.

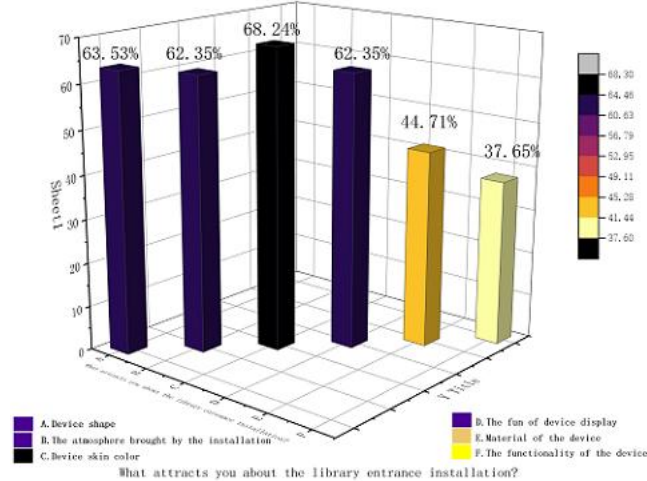


Figure 11. What factors influence the attractiveness of library installations.

Through the comparative analysis of the data of 6 groups of popular design factors, it can be concluded that the highest points of the 6 groups of design are the atmosphere sense of device B and the fun embodied by device D. People pay more attention to the atmosphere sense and the fun of device in campus installation design, as shown in Figure 12.

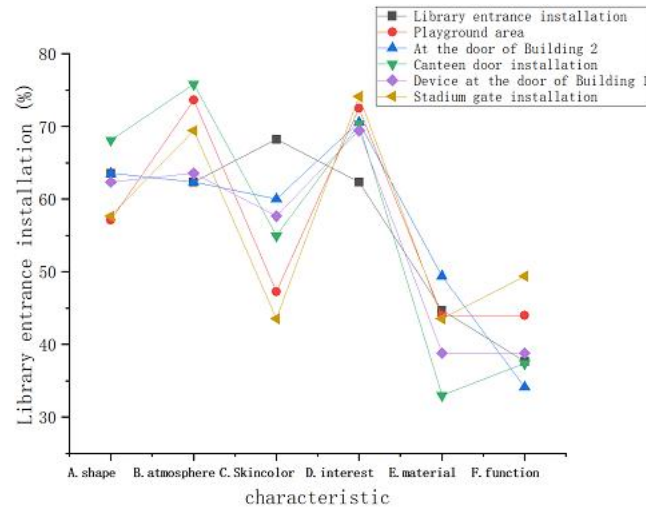


Figure 12. Comparative analysis of popularity factors of six groups of devices.

7. Opportunities and Challenges of Modern Installation Art Design On Campus in the Future

The art design of the campus installation of Heilongjiang Institute of Technology and Business is in accordance with the six characteristics of the parameterized design method and combined with the location and functional needs of the campus canteen, gymnasium, playground, building 1 and building 2. However, the author has produced an opportunity for the future design of campus installation after the design practice. Based on the "Limitless" installation of Beijing Foreign Studies University discovered in the course of teaching, it is found that the parametric installation design of Chinese campus in the future should combine campus culture, highlight campus characteristics, highlight campus spirit, and at the same time, the skin should be related to the color of surrounding buildings, as shown in Figure 13.

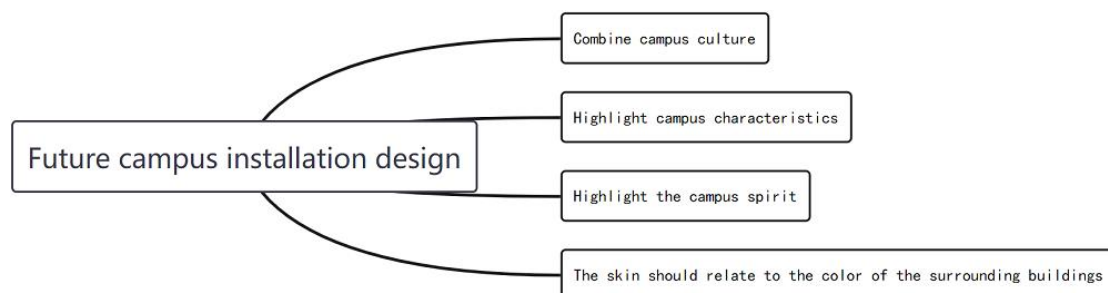


Figure 13. future campus installation design frame.

At the same time, after the 20th, it emphasized to speak Chinese culture well, should highlight the Chinese characteristics, and adopt the Chinese design language recognized by us. Therefore, it derived another four new opportunities, respectively, the adoption of installation art skin in the future can combine with the symbols of traditional Chinese culture. As well as Chinese local cultural symbols as the connotation of constructing installation art, materials containing Chinese elements combined with parametric design are used to construct installation art, such as bamboo materials, as shown in Figure 14.

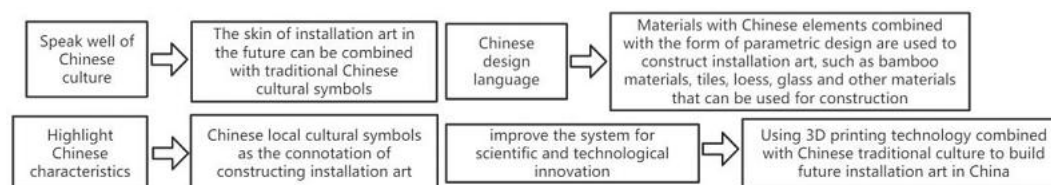


Figure 14. Parametric design framework of future China.

8. Conclusions

This paper first introduces the concept of campus installation art and its importance in the campus. At the same time, it puts forward the construction of modern campus installation in colleges and universities in Northeast China and takes Heilongjiang Institute of Technology and Business as an example. It also designs a set of research and simulation design methods of parametric installation design in colleges and universities in Northeast China. The survey shows that the characteristics of students like modern devices include the sense of atmosphere and the fun brought by the devices. At last, the author puts forward some derivative thinking after the design practice, and presents three kinds of thoughts on building campus parametric device in domestic colleges and universities, and four kinds of proposals put forward by four programs of building campus parametric device art in our country. The entire design practice research method and the proposed parametric design method of four Chinese languages can open up a road of parametric design belonging to Chinese design for our country's industrial design development in the future new era.

Conflicts of Interest

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