Community Identity: Value Construction, Design Expression and Statistical Analysis of Cultural and Creative Products in Universities

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Abstract
Based on the theory of community identity, this paper analyzes the inner logic and expression levels of the value construction of university cultural and creative products to promote community identity, constructs a design framework for a series of cultural and creative products of Wuhan University of Science and Technology oriented to industrial culture identity, and obtains the design expression of university cultural and creative products to promote community identity. The design was divided into two generations of products before and after, and spss was used to process the scores of the characteristics of the two generations and to determine whether there was a significant difference between the means of the two overall products and which characteristics were significantly improved through an independent sample t-test; subsequently, an independent sample t-test was used to determine whether the overall characteristics were better than those of the initial generation. The results show that university cultural and creative products can promote the cultural identity of university communities, enhance university cohesion and improve the influence of universities.

Keywords-*cultural and creative products; university community; community identity; value construction; design expression*

1. INTRODUCTION

In the 21st century, China is moving towards the goal of building a strong country of higher education, and the issuance of university souvenirs and the development of cultural and creative products have become one of the important elements of campus culture construction in major universities nowadays [1]. "As one of the complex modern communities, the university needs community identity to build consensus internally and promote communication externally, forming an endogenous dynamic and development synergy. Cultural and creative products are one of the most intuitive and powerful carriers to promote the identity of university communities. In the context of the era of university cultural construction, it is important to explore the association and interaction between cultural and creative products and university communities, to explore the value construction of university cultural and creative products to increase community members' participation and promote community integration, as well as the design expression path, which can help promote universities to improve their cultural heritage and innovation level, innovative service capacity and sustainable high-quality development.

2. UNIVERSITIES HAVE AN INHERENT CLAIM TO COMMUNITY IDENTITY

2.1. Conceptual Identification and Foundational Characteristics of University Communities

The German scholar Ferdinand Tönnies (1887) first introduced the concept of 'community' to describe a community of social life with shared values and close

ties. The term 'university' is derived from the Latin word 'UNIVERSITAS', meaning 'community of teachers and scholars'. As an innovative base for the training of higher education personnel and the inheritance and dissemination of excellent culture and values, higher education institutions form a collection of closely connected populations organized around a specific university area and form a kind of interdependent interaction, which has both territorial and relational properties, and differs greatly from foreign "university communities" that have no obvious boundaries.

In domestic studies, universities and communities are often considered as parallel concepts, and those who have explicitly studied "university community" include Chen Qiqi, Chen Chun and Chen Yuming (2021) and Zhang Qingdan (2020), who regard it as a residential community in the evolution of unit community; Shi Changjiang and Xu Xuqing (2003) and Liu Run (2021), who focus on the nurturing function of "university student community" and its expansion. This study is based on the fact that the "university community" is a complex modern community (mainly domestic), and sees it as a place of origin and a cultural ecological space for the cultivation of higher talents and the inheritance and dissemination of cultural excellence [2], Sharing and identification are essential features.

2.2. Theoretical Traceability of Community Identity in Higher Education

Community identity is an important mechanism for accomplishing community bonding, and its strength or weakness reflects how strong or loose this bonding is [3]. Community identity based on organizational identity theory and cultural identity theory [4], is the self-identification and othering of individuals and community members in a network of community relationships; Fostering a sense of community belonging helps to perpetuate the cultural spirit of the community and ensure its vitality.

Community identity and organizational identity. Ashforth and Mael (1989) proposed a framework of factors influencing organizational identity based on social identity theory [5]. Ahearne (2006) emphasizes the importance of co-participation [6], Qian Minghui (2021) believes that community recognition is relatively loose [7].

Community identity and cultural identity. American scholar Jonathan Friedman (2004) sees cultural identity as a social identity based on specific cultural constructs [8]; Han Zhen (2005) points out that the purpose of cultural identity is to seek homogeneity, stability and continuity of ways of being [9]. Ouyang Kang (2011) explores the existence of a cultural identity hierarchy of recognition, acceptance and integration of cultural identity [10]. Cultural identity can be native or constructed and has three levels: cultural form identity, cultural norms identity and cultural values identity [11]. Specifically in community studies, Wu (2011) and Peng (2012) argue that community identity is the most important proposition for communities and that cultural development helps residents to form a community identity [12], and with "Chinese experience"[13]. Gao Yubo (2021) points out that the decline of community identity in modern society stems from the fact that people's interest in community tends to disappear[14].

The above research provides a research basis and construction ideas for strengthening the community identity of universities. By placing the design of university cultural and creative products in the perspective of "community identity" and exploring their symbiotic relationship with university communities, it is conducive to promoting the value of university cultural and creative products and their application in a wider scope.

3. CULTURAL AND CREATIVE PRODUCTS IN HIGHER EDUCATION PROMOTE THE VALUE CONSTRUCTION OF COMMUNITY IDENTITY

With campus culture as the core, the university's cultural and creative products are used to spread humanistic spirit, educational philosophy and behavioral patterns, and are a carrier for value identification, information circulation, emotional exchange and elemental links within the community. The design of "material-experience-services" has broken through the traditional concept of "objects" and upgraded it to become a carrier for linking community relations in universities, with the function of spreading community culture and cultivating community identity. The community identity discussed in this paper is mainly focused on the members of the university community (Table.1).

TABLE 1. CLASSIFICATION OF MEMBERS OF HIGHER EDUCATION COMMUNITIES AND CULTURAL ACCEPTANCE

Type of member ship	Crowd compos ition	Behavior al character istics	Community Identity Approach
Commu nity member s	Student, teacher, Alumni	High relevance, engageme nt, interaction	Proactive acceptance
Outside member s	Visitors	Limited relevance, interaction	Guided acceptance
	Social workers	Less relevance, interaction attention	Passive input

3.1. Focusing on the Cultural Core of Community Identity in Higher Education

In the cultural and ecological space of the university community, campus cultural and creative products carry the cultural imprint of a specific era, facilitate the retention of homogeneous group memory and are the basis for the formation of stable and sustained behavior. The spiritual core represented by campus cultural and creative products helps to express abstract consciousness in a concrete way and experience it in a situational way, and through building the details of life in the "cultural field" of the university community, meaning, consciousness and knowledge are constantly occurring in the psychological mechanism of people, thus building the value consciousness of the cultural world [15]. At the same time, campus cultural and creative products create a "behavioral field" for community consumption. In the community cultural context shaped by cultural symbols, cultural landscapes and cultural services, university students complete community cultural cognition, experience and socialization through cultural consumption in daily contexts, accept the cultural information expressed by the products, complete the assimilation of reality, understand the issue of belonging to the "self", and thus gain a sense of identity with the university community culture. They look for emotional support and focus on social needs, and their cultural consumption is an assimilation of reality, a tribal consumption behavior [16].

3.2. Expanding the Communication Dimension of Community Identity in Higher Education

Community identities are often implicit and crystallized through different mediums of communication. Creative products on campus help to expand the dimension of communication in a modern society of fragmented information [17], carries out the function of a medium in the field of communication. Continuously enhancing the influence and dissemination of university cultural and creative products, which helps to promote the active acceptance of community culture and shape community identity among community members. At the same time, it triggers an instinctive integration reaction and self-identification between different communities within the community, thus strengthening the sense of belonging to the university culture and enhancing the cohesion of the community members, and thus completing the good communication of the university culture construction [18].

3.3. Covering the Full Range of Levels of University Community Identity

Cultural identity in higher education is an active, conscious, purposeful and organised cognitive and behavioural process in which community members develop a sense of community through interactive participation and achieve community identity through three levels: recognition, acceptance and integration. "Acknowledgement" refers to community members' recognition of the university's identity; "Acceptance" is the active behaviour of community members to identify with the university's cultural values; "Integration" is the highest level of cultural identity, where community members will seek to align themselves with the values of the university's culture, and even make the necessary cultural behavioural adjustments and even create[10]. The university's cultural and creative products are repeatedly used and consumed by community members to complete community cultural awareness and experience, forming a common sense of "recognition" and "acceptance". Social attributes further strengthen the consensus and effectively promote 'inclusion' (Figure 1), which is conducive to the living innovation of university community culture.
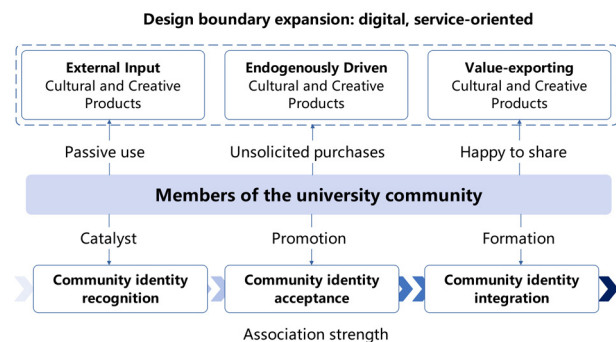
Figure1. The basic form and inner logic of cultural and creative products for community identity hierarchy in higher education

3.4. Design Analysis for Promoting Community Identity in Higher Education

Existing domestic university cultural and creative product designs have experimented with tapping into cultural genes, adding emotional value, building the image of the university and spreading campus culture. For example, the Nanjing University "Nanda Stories" series of notebooks are designed around the "Nanping House", a symbol of Nanda's exclusive memory. Beijing Forestry University "Seeds of Faith" acceptance letter, highlighting "forestry" features; Shenzhen University has created an innovative and ceremonial series of circulars. The cultural identity and thematic continuity of these cultural and creative products have contributed, to varying degrees, to the identity of the university community and have greatly enhanced the reputation and visibility of the university.

4. DESIGN EXPRESSION STRATE GIES FOR PROMOTING COMMUNITY IDENTITY IN CULTURAL AND CREATIVE PRODUCTS IN HIGHER EDUCATION

4.1. Design Methodology

Symbolization of typical images. Mobilizing and tapping into the memory symbols of the university community members, symbolizing the typical images of the campus culture and forming a logo to express the historical origin, cultural heritage, common values and aesthetic tendencies of the university community.

Narrative design serialization. Narrative design is used to set the theme, express the content and design the plot of the product, and convey the story through the process of use; the series design facilitates a more focused and systematic presentation of the cultural connotation, and strengthens the recognition and influence of the university's cultural and creative products.

Ritualization of value identity. The values promoted by universities are different, and abstract concepts need to be expressed through the use of creative design imagery to generate emotional resonance and express common ground in the process of interactive rituals, thus forming a characteristic representation.

4.2. Innovation Pathways

It is an important basis for community cohesion to enhance the influence of the university's cultural and creative brand; to let the university's cultural and creative products "tell stories" through the brand, expressing the unique lifestyle of the community, spreading the community's value proposition, triggering the inner resonance of community members, attracting community members to actively experience and steadily consume them.

Build brands, gradually expand and promote consumption. Relying on the cultural connotations of universities and existing IP to build and develop university cultural and creative brands as well as a number of sub-brands, develop different types of series of products in phases, and continuously derive them to form brand resonance and stimulate consumption by community members in multiple forms.

Optimizing brands, joint development and strengthening stickiness. The joint development of more brands, mutual cooperation and integration of resources will create a win-win situation of "1+1>2". Make full use of media integration to promote the university's cultural and creative brand and implant it in all kinds of activities as a contact point to gain goodwill and strengthen brand stickiness.

5. EMPIRICAL EVIDENCE ON THE DESIGN OF CULTURAL AND CREATIVE PRODUCTS FOR INDUSTRIAL CULTURAL IDENTITY IN HIGHER EDUCATION

Wuhan University of Science and Technology (WUST) is a typical representative of modern industrialization in China specializing in the training of industrial talents. Its heritage and development are inseparable from the steel industry, resulting in a distinctive "steel quality". The campus cultural and creative products highlight the characteristics of "steel quality" and help to further promote community recognition and expand the social influence of the university.

5.1. Design Framework

By placing the relationship between the design objects in the framework of the identity of the university community and highlighting the theme of "industrial culture" and the element of "steel", the series of campus cultural and creative products are designed in the context of the times, campus culture, lifestyle and the five senses of experience, using the timeline of "entrance season - break-up season - living season - activity season - graduation season": enriching the forms of expression, strengthening the expression of the cultural core, increasing the frequency of use and participation of community members, creating an image outside and gathering people inside (Figure. 2).
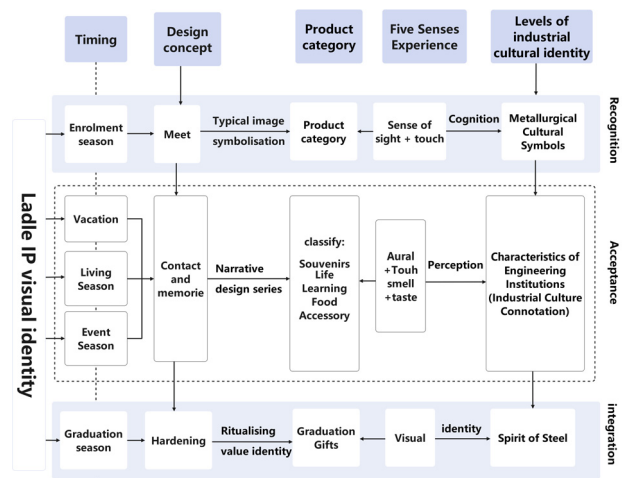

Figure2. Design framework for an industrial culture identity-oriented WUST cultural product series

5.2. Image Design

The IP image design (Figure 3) of Wuhan University of Science and Technology (WUST) is based on the "steel ladle", which has a deep impression on the society, highlighting the industrial culture and tradition, and laying a visual image foundation for community identity.
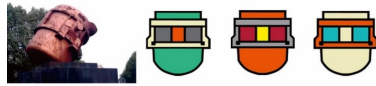

Figure3. Steel ladle IP symbol design

5.3. Prototype Design

5.3.1. Recognition: design expressions for new students

New students need to change roles, identity, and objectively exist for the life needs of their new environment, providing space for design expressions of outside input-based cultural and creative products. New student enrolment pack[19]IP symbols visual design based on the aesthetic tendencies of the 'Z Generation'.The use of the ladle IP symbols in campus products demonstrates the culture and facilitates mutual recognition and identity among students, contributing to an early sense of community integration and a greater sense of cultural identity and belonging.

5.3.2. Acceptance: Design Expressions for Everyday Use

In order to raise the level of community identity to 'acceptance', community members need to be motivated to change from passive use of products to active, spontaneous purchase of products, and to promote community identity through consumer identity. Cultural and Creative Products "WUST Series"[20]. Focusing on the use and connection of everyday contexts, the design focuses on seasonal lifestyle products with a high repurchase rate, high demand and strong promotion, and completes the design expression by combining the five senses of experience. The design was based on data from an in-school survey to select stationery, food and other household items. The ladle symbol is used repeatedly to reinforce the IP image and to promote community members to draw closer to each other and to recognize the cultural values of the university community in the process of consumption.

5.3.3. Integration: Design Expressions that Trigger Emotion

Cultural and creative products as a vehicle for community identity Cultural[2] and creative products are

the carrier of community identity and one of the important touch points of the event to highlight the sense of ritual, in line with the "interactive ritual chain" theory which states that individuals form stable emotional symbols and behavioral codes in the process of interactive rituals[21]. As graduation is one of the most important moments during university, community members are very likely to be inspired by cultural and creative products (activity touchpoints) to generate emotional energy and cultural memories, and are more likely to develop a sense of inclusion and a high degree of emotional resonance. The graduation gift box design draws on typical campus scenarios to create emotional chains between groups, triggering attention to identity symbols and reinforcing alumni identity and industrial cultural identity while sharing on social media.

5.4. Design Iterations

5.4.1. User Interviews

Based on the target audience of the WUST series, focus group interviews were conducted with students on campus and single person interviews were conducted with teachers and alumni. The students' concerns were ranked in three areas: reasons for purchase, design imagery and product evaluation (Table. 2).

TABLE 2.   EVALUATION FORM OF DESIGN RESULTS

Evaluation classification	Reasons for purchase	Design Intent	Product Reviews
Ranking of Concerns	Practical Commemorative Gift	School motto school emblem Steel Zhang Zhidong	Biscuit Erasers Brooches Stam

By recording the needs and suggestions of faculty, staff, alumni and recruitment office staff in single interviews (Table. 3), the next generation of products will be designed in series for group segmentation, so that the cultural symbols of product representation, multi-dimensional sensory and contextual experiences are organically integrated and work together to promote community identity.

**TABLE 3.**   "FEEDBACK AND SUGGESTIONS ON THE WUST SERIES" PRODUCTS

Crowd	Teaching Staff and Alumni	Admissions Office
Demand	Higher demand for gifts	Showcasing the theme of "beautiful school", Weak steel elements
Suggestion	Showcasing the characteristics and innovative forms of campus steel culture	Steel culture and newborn new in distance, not suitable for use in products

5.4.2. Design Improvement

The interview analysis and statistics suggest the following directions for improvement in the subsequent design

Firstly, the visual message is strengthened and the contemporary expression of the industrial culture message is focused. The second generation of the "Steel Good" series (Figure. 4) emphasises the characteristics of the times, and the design expression focuses on extending the ways to feel the spirit of industrial culture: The design of audio, masks and puddings is a way to deepen the media memory of the products and to connect them with the life of the times.
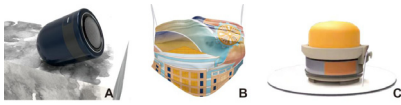
Figure4. "Steel Good Series (A Desktop Audio, B Mouthpiece, C Pudding)

Secondly, the introduction of digital technology keeps memories alive. The design of the graduation gift box is based on the theme of "A Hundred Pieces of Steel" (Figure 5). AR technology is used to present a realistic view of the campus, completing the 'nostalgia' theme in an interactive way; the design of the tea set uses steel ladle elements, accelerating the spread of industrial culture and strengthening the graduates' sense of belonging to the university.

Figure5. Graduation Gift Box

Thirdly, it optimises the user experience and creates a context-specific interactive ritual. The "Steel Goodies" gift box (Figure.6) is designed to target the alumni homecoming session, using silk scarves to express the symbolic meaning of both strength and flexibility, and the act of wearing them adds a sense of ritual to the gathering session, focusing on social and contextual experiences, providing a touchpoint for the "cultural happening" and triggering active communication.

Figure6. Graduation Gift Box

Faculty, alumni and students were selected to score the products before and after iteration on their interestingness, modernity, collection value, practicability and cultural embodiment (1-5), and the data was processed using SPSS (Table.4). In all rating indicators, the second generation products were rated higher than the first generation products, and the ratings of modernity and practicality climbed the most.

TABLE 4. PAIRED SAMPLE TEST

Evaluation content	Samples	N	Average	Standard deviation	Std. Error Mean
Interesting	1	75	3.3867	1.17282	0.13543
	2	75	3.6000	1.05267	0.12155
Modernity	1	75	3.2000	1.19684	0.13820
	2	75	3.5867	1.06661	0.12316
Practicality	1	75	3.4667	0.14622	0.14622
	2	75	3.9600	0.10473	0.10473
Collection value	1	75	3.3333	1.16634	0.13468
	2	75	3.5600	0.98968	0.11428
Cultural representation	1	75	3.4133	1.27442	0.14716
	2	75	3.6000	1.06543	0.12302

The differences in each of the evaluation components in the products before and after the iteration were tested using independent samples t-tests, and the results of the tests are shown in Table 5: the p-values for fun, modernity, practicality, collectability, and cultural embodiment were 0.013, 0.000, 0.000, 0.003, and 0.005 respectively, all of which were less than 0.05. This indicates that there are significant differences in the professional performance of the first and second generation products, and that the performance of the second generation products is significantly different. The second generation product was substantially optimised in all areas.

TABLE 5. INDEPENDENT SAMPLES T-TEST

Evaluation content	Average	Standard Deviation	Standard Mean error	t	Sig
Interesting	-0.21333	0.72211	0.08338	-2.559	0.013
Modernity	-0.38667	0.71458	0.08251	-4.686	0.000
Practicality	-0.49333	0.82811	0.09562	-5.519	0.000
Collection value	-2.2667	0.64877	0.07491	-3.026	0.003
Cultural representation	-0.18667	0.56217	0.06491	-2.876	0.005

5.5. Design Evaluation

Twenty volunteers were selected to rate the

industrial culture identity shown by the product before and after the iteration. The statistics show that the identity, emotional identity, value identity and practice reinforcement mean scores of the second generation product are higher than those of the first generation product, proving the effectiveness, sameness, stability and continuity of the product optimisation(Figure.7).
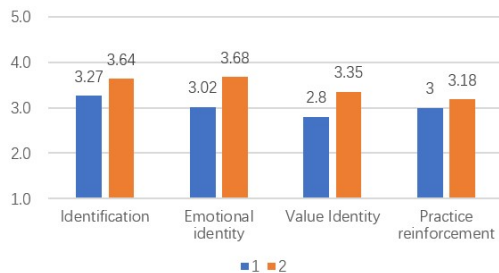
Figure7. Comparison of the industrial culture identity scores of the two generations References

6. CONCIUSION

Through the consumption and embodied perception of university cultural and creative products in the context of daily life, it helps to promote deep cultural identity, cultural heritage and innovation, innovative service capacity and brand influence of universities in contemporary Chinese university communities.

Future research and practice could strengthen the following areas: First, to strengthen information design research, focus on the integration with physical interactive narratives[22], explore the application value of digital technology through scene design, and further promote the construction and linkage of community "cultural fields" and virtual cultural memory spaces. Secondly, in-depth research on brand design thinking, focus on the generation of new meaning of cultural symbols, break through the traditional cognitive paradigm, promote the extension of the value of university community culture, and form a brand design thinking that carries cultural meaning[23]. The third in-depth design feedback study, with the help of eye tracking technology and other quantitative studies, ensures that the feedback information is accurate and facilitates the further realisation of effective iterations.

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