

Research on User Expectations for Future Community Coworking Spaces

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Abstract. Driven by the rapid advancement of Intelligent technology, work practices and scenarios have undergone structural transformations, making community coworking a new urban office model. This study conducted an exploratory future research experiment using the 'setting the stage' method to uncover users' future expectations. The findings revealed dimensions of future expectations for community coworking spaces across overall, office, and non-office areas. It summarized design strategies for creating a smart ecological community coworking landscape, building a flexible shared office-life complex, and fostering interpersonal and community connections, offering references for designing future community workplaces.

Keywords: Community Coworking Spaces; Future Design; User Experience.

1. Introduction

With information technology's rapid advancement, the hybrid work model has emerged, enhancing work flexibility[1]. Key technologies like artificial intelligence, cloud computing, IoT, and big data are merging with smart city concepts, offering new cultural and creative outlooks for future work environments. Supported by Chinese government policies, coworking spaces are evolving from urban-centric to community-focused trends[2], signaling a shift towards integrating these spaces into residential areas. This not only showcases spatial innovation but also redefines community culture[3]. As office design adapts to user demands, technology, and new work philosophies, it's moving towards more personalized and culturally inspired designs. Understanding future coworking space users in communities is key to boosting their cultural appeal and enhancing well-being. This study aims to uncover innovative design strategies for such spaces, providing insights from a user perspective to craft trendsetting, culturally enriched community offices.

2. Theoretical background

2.1 Community coworking spaces

Coworking Space (CWS) represents a recent urban phenomenon, reflecting the trend of knowledge work moving towards flexible and project-based assignments. With the development of concepts such as 'neighborhood units'[4] and 'living circles'[5], Many scholars supported equipping residential communities with essential facilities and safeguarding public spaces that maintain living scenarios, including more employment areas. In 2019, the Zhejiang Provincial Government's work report first proposed the concept of 'Future Communities.' The government strongly supports the application of the shared economy model in communities, encourages the establishment of 'community' entrepreneurship and innovation spaces, stimulates the potential of the shared economy, and improves the mechanism for attracting talented individuals with distinctive skills. Various trends have indicated that the blending of work and life represents the future's developmental trend. The integration of coworking spaces into residential communities is a future trend, aligning with government policies that support residential communities in hosting a more diverse range of living and working scenarios.

2.2 User expectations for future

Aside from their homes, the workplace is where people spend most of their time each day. Technology has driven changes in work methods and the realization of working from anywhere, leading to high expectations for the future of work environments[6]. Some scholars have pointed out that the design of future coworking spaces should shift from 'function' to 'people'[3], yet research on coworking scenarios from a user perspective remains sparse. On the other hand, designers are continuously exploring future trends, imagining what life will be like in the future. New environments create new needs, and technological advancements lead to changes in work methods, inevitably resulting in new work environments and tools. However, research indicates that users seem to have difficulty imagining and describing things that have not yet occurred[7], struggling to articulate their expectations for novel products[7][8]

To address the issues mentioned, this study introduces the 'Setting the Stage' participatory design method, aimed at creating dramatic scenarios for users to immerse and diverge their thoughts. It considers the application of intelligent technology in future workplaces from the user's perspective to explore future design directions.

3. Research Design, Process, and Data Analysis

This study utilizes the 'Setting the Stage' method[9][10] with the aim of exploring users' future expectations for community coworking spaces under different work requirements. Inspired by film and theater, 'Setting the Stage' is an experimental qualitative research method that guides participants to reflect on their interactive experiences by creating scenarios of interaction with future artifacts.

3.1 Procedure

The experiment recruited 39 participants with diverse academic backgrounds and career orientations, all of whom have experience studying and working in coworking spaces.

We constructed a low-fidelity scenario, as shown in Figure 1, aiming to create an immersive space that is both relaxed and free, yet conducive to participants' creative expression, helping to stimulate their imagination regarding specific office situations. We covered the tables with white paper to allow participants to jot down fleeting thoughts at any moment.



Figure 1. Low-Fidelity Experimental scene.

1. Preparation. Before the experiment began, we conducted a 10-minute semi-structured interview, which included reflections on daily experiences in coworking spaces and discussions on future life and the application of future Intelligent technologies. Subsequently, participants were asked to use the scenario table provided by this study to review their experiences, projecting these reviewed activities into the community coworking spaces of 2035.

2. Implementation. Participants entered the low-fidelity experimental environment and were asked to imagine the learning and working scenarios in community coworking spaces ten years into the future. Throughout the process, researchers encouraged participants to express their interactions with the space, people, and objects involved in interactions. (Figure 3) Participants were asked to verbally, and without reservation, express their needs and future expectations for community coworking throughout the experiment. Additionally, we provided various sizes of paper and pens, allowing participants to record their thoughts through physical expression, writing, and drawing.

3. Review and Discussion: After the experiment concluded, we conducted a supplemental questionnaire.



Figure 2. The figure that participants interacted with the scene.

3.2 Data Analysis

Researchers transcribed the original verbal statements from the video recordings into written form. The textual data were segmented into verbal descriptions with the same discourse themes based on semantic analysis of the Chinese language, ultimately generating 666 samples suitable for qualitative analysis. This study employed Thematic Analysis (TA)[11] to inductively code and identify emerging themes. The qualitative analysis data, segmented through transcription, were analyzed in six stages (see Figure 4): familiarizing with the data, coding the data, developing themes, reviewing potential themes, defining and naming themes, and generating the report[[12].

| Phase | Description of the process |
|--|---|
| 1. Familiarizing yourself with your data | Carefully review processed original verbal statements and record initial thoughts. |
| 2. Generating initial codes | Systematically integrate similar participant data into preliminary codes |
| 3. Searching for themes | Group similar codes into potential themes and have the research team review them to remove bias. Independently coded by two experts, codes are then compared and merged into preliminary themes. |
| 4. Reviewing themes | Review the initially generated themes to ensure all codes are organized into relevant themes. Two experts further examine the themes and the data sets under them, and after discussions with the lead researcher, finalize the revised themes. |
| 5. Defining and naming themes | Analyze the details of each theme and the overall story they tell, generating definitions and names for each theme. |
| 6. Summarising the thematic network | Summarize the theme network, select vivid excerpt examples, analyze the codes within the themes, link the analysis to the research question and literature, and generate the final report. |

Figure 3. Thematic analysis process of this study.

4. Results and Discussion

To clearly present expectations, we grouped the 669 collected participant statements by similarity in meaning and purpose, ultimately forming dimensions of user needs for different areas of future community coworking spaces.(Figure 5)

| Division | Theme | Sub-theme |
|--|--|---|
| Expectations for Overall Areas | Reasonably Segmented and Flexible Space Layout (37) | <ul style="list-style-type: none"> • Rational Space Segmentation (17) • Flexible Space Layout to Meet Diverse Needs (20) |
| | Intelligent and Personalized Adjustment of the Environment (37) | <ul style="list-style-type: none"> • Natural and Comfortable Indoor Environment(17) • Environmentally Intelligent(4) • Personalized Environmental Adjustment(16) |
| | Augmented Privacy and Security in Spatial and Product Experiences (65) | <ul style="list-style-type: none"> • Spaces Privacy Protection(52) • Device Privacy Protection (13) |
| | Integrating Community Elements into Space Style with Support for Smart Customization(42) | <ul style="list-style-type: none"> • Creating a Space Atmosphere with Livability and Community Features(37) • Intelligent Customization of Space Style (5) |
| | Integrating Systematic Community Resources: Providing Convenient Services and Management (166) | <ul style="list-style-type: none"> • Providing Systematic Convenience Services(129) • Providing Emotionally Engaging Services (8) • Enriching Community Culture and Interactive Sharing (29) |
| | Intelligent Space Facilities (106) | <ul style="list-style-type: none"> • Intelligent Applications of ICT(50) • Futuristic Human-Computer Interactions (20) • Office Automation (8) • Robot Service Management (28) |
| Expectations for Shared Meeting Spaces | Smart Meeting assistance (50) | <ul style="list-style-type: none"> • Enhancing Collaborative and Immersive Experiences(43) • Intelligent Atmosphere Adjustment for Meetings (1) • Intelligent Meeting Management(6) |
| Expectations for Individual Office Areas | Integrated and Digital Office Media (21) | <ul style="list-style-type: none"> • Integrated Office Media (14) • Digital Office Media(7) |
| | Autonomous Customization of Environmental Settings (27) | <ul style="list-style-type: none"> • Autonomous Customization of Environmental Settings (27) |
| Expectations for Non-Office Areas | Creating Leisure Services to Support Work-Life Balance (58) | <ul style="list-style-type: none"> • Providing fitness and entertainment facilities (20) • Providing Comfortable Rest Areas (25) • Efficient and Inclusive Reading Amenities (13) |
| | Providing Community Care Services(12) | <ul style="list-style-type: none"> • Providing Community Care Services(12) |
| | Offering Convenient Public Amenities (45) | <ul style="list-style-type: none"> • Offering Convenient Public Amenities (45) |

Figure 4. Figure of user expectations dimension.

4.1 Shaping a Smart Ecological Community Coworking Landscape

Adopting Intelligent technology in the workplace has become an irreversible trend[13]. In this study, participants wish for Intelligent technology to be integrated into the overall community office landscape to support and enhance its role as a center for work and communication. They anticipate smart technology to streamline office operations and knowledge sharing, and be integrated into design and management to enhance community services, management quality, and individual comfort.

Future community coworking spaces will rely more on the integrated application of technology to adapt to the changing work environment and dynamic user needs.(1) In terms of spatial environment, users expect an adaptive adjustment and personalized control of the environment through smart space management systems, enhancing overall comfort. Additionally, virtual technology could customize space styles, creating fresh, attractive community offices. (2) For office productivity, users anticipate the automation of processes, secure and convenient information access, and real-time cross-spatial communication through ICT technology. Participants are keenly interested in the smoothness of office operations and the security of flexible work models, hoping technological advancements support efficient, seamless communication and cross-spatial interaction at any time. Authentication and encryption technologies ensure data security and smooth data transmission. (3) In space services and management, the future will naturally integrate robots, IoT, and smart sensing technologies for efficient prediction and response to potential community emergencies and user needs, leading to intelligent community service and management. Overall, the future work landscape will feature an intelligent office ecosystem, with highly integrated smart technologies enhancing the user office experience and community service management, adding new dimensions to community coworking spaces.

4.2 Building a Flexible Shared Office-Life Complex

This study reflects a rethinking of the workplace, with future community coworking spaces evolving beyond traditional office uses to become comprehensive shared living environments. (1) Flexible Working Scenarios: Participants desire future community coworking spaces to be flexible, catering to the evolving balance between work and life.

This involves accommodating diverse community activities, offering multifunctional and transformable areas. (2) Livable Working Scenarios: Participants wish for community coworking spaces to encompass richer living scenarios, integrating work, study, and leisure areas to support a work-life balance. In a hybrid working environment, dual-career families need to balance work and home responsibilities, especially childcare. Participants also look forward to incorporating 'a touch of life' into interior designs, focusing on aesthetics that blend community characteristics with local natural ecologies, creating unique community-specific styles. The intertwining of greenery and cultural elements aims to forge natural, humanistic community office scenes. For special holidays and events, the spaces are expected to adopt thematic atmospheres and decorations, offering fresh spatial experiences.

4.3 Building Interpersonal and Community Bonds

This research reinforces the desire for stronger organizational connections for better community integration. Future community coworking spaces aim for comprehensive connectivity, not just enhancing interpersonal interactions but also facilitating access to and between resources. (1) In terms of interpersonal connections, future community coworking spaces are expected to offer more social opportunities through community incubation, cultural events, and spaces or facilities designed to promote communication. (2) Regarding the link between people and resources, participants hope future spaces will leverage community advantages to systematically integrate and share resources, providing broader and more inclusive access and reducing user acquisition costs. Incorporating more community cultural elements into interior design to promote community features and development plans aims to strengthen community cultural construction and enhance the psychological satisfaction of community users. (3) For resource-to-resource connections, participants wish for future community coworking spaces to overcome spatial limitations and share across the entire city. Ensuring information security while enabling the interconnectivity of books, user data, and other resources. The construction of multidimensional community connections aims to create a harmonious, shared environment where every member can find value in communication and resource flow.

5. Conclusion

Previous research has primarily focused on critiquing and reflecting on current work environments. It's essential to recognize that user experience opportunities dynamically evolve with social, economic, and technological changes. The advancement of Intelligent technology and shifts in work practices pose a significant challenge: designing for future well-being in work. The main contribution of this study is providing workplace managers and designers with guidance on design strategies, enabling them to plan or refine community workplace designs based on user preferences and future expectations. By employing the 'setting the stage' methodology, we establish a connection between the environment and users, allowing us to better capture future needs that integrate user perspectives with real-world situations.

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