Reflective report on interaction design based on the application of PACT model in design projects

Introduction

In this semester, I not only realized the importance of user - centered design in interactive design , but also learned the research method of the PACT model (people, activities, environment, technology) , which provides a systematic framework for analyzing user behavior and needs . This article will analyze three interactive design projects (crowd observation, meditation puzzle, and Sweet Air) this semester , explore how I combined the PACT model to optimize user experience design in these three design projects , and verify the effectiveness of the PACT framework through project practice , and reflect on the design guidance significance for my future design direction and application .

Describe : The core of the PACT model

I learned to apply the PACT model to the preliminary research module of my project. In this section, I will divide it into four parts (People , Activities, Contexts, Technologies) to describe how I applied this theory in my three design projects.

People

In the crowd observation project, I analyzed gender, age, occupation and behavior patterns through user portraits. For example, more than 60% of customers are elderly people who prefer outdoor seats and hot drinks (Figure.1).

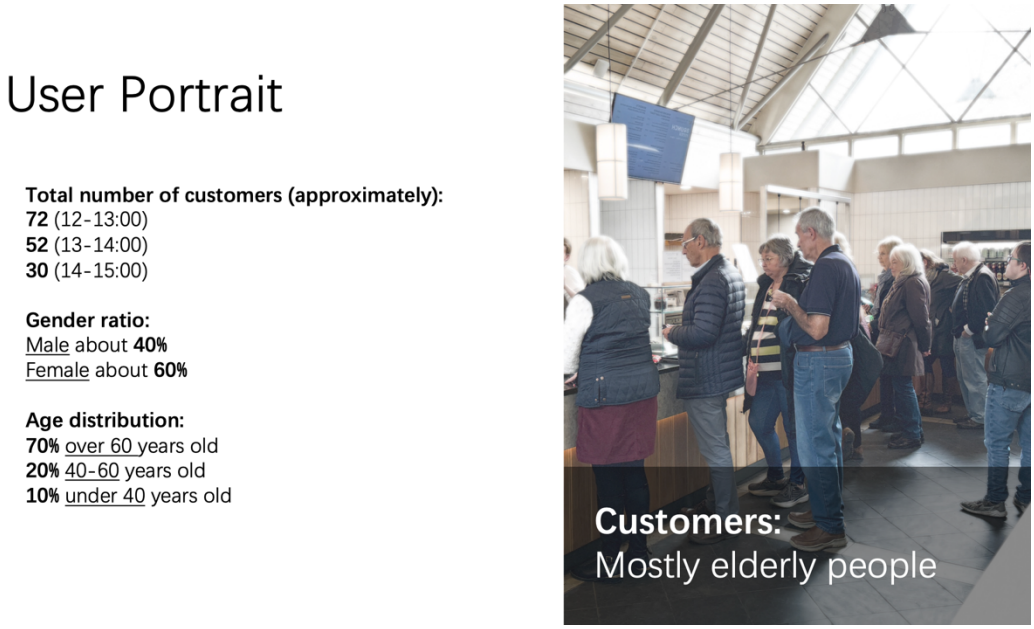

Figure.1

The meditation puzzle project focuses on the pain points of different user groups using mobile phones , such as time management problems and psychological anxiety caused by over-reliance on screens .

Activities

In the restaurant observation , I also recorded the user's activity flow in detail , such as queuing, ordering, and dining, which revealed the needs behind the user's behavior. In the meditation puzzle study, I analyzed the user's time allocation on low-value behaviors (such as watching short videos) and high-value behaviors (such as learning productivity tools) (Figure.2).

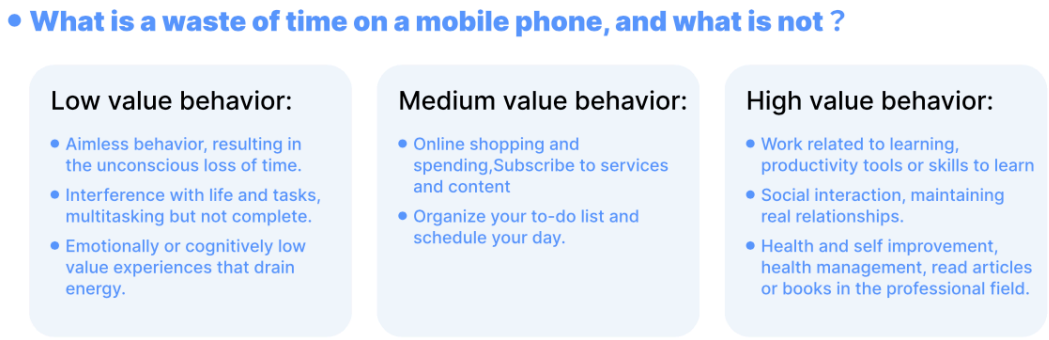

Figure.2

Contexts

In terms of environment, the restaurant observation involves the influence of factors such as indoor and outdoor layout (hand-drawn pictures are presented) , time, and weather on user choices, such as the role of weather and temperature on the demand for hot drinks. The meditation puzzle project explores how technology dependence affects user psychology and life scenarios , such as after excessive screen use, people's loneliness and anxiety gradually increase in life .

Technologies

In the application design of the meditation puzzle project , I introduced behavior tracking and feedback technology . The application will help users optimize their daily time management and minimize low-value behaviors through data analysis. In the Sweet Air project, I used the results of the survey (social loneliness and social psychological stress of international students) to design new products and applications , closely combining user needs with innovative technologies , and striving to solve real social problems (Figure.3).

Figure.3

Interpret : The significance of the PACT framework

The application of PACT in my project and the profound understanding of the user-centered design concept are of great significance. First of all, the significance of the PACT framework in the project is reflected in the comprehensive preliminary research and analysis of people, activities, environment, and technology, which allows me to have a deeper understanding of user behavior. For example, the restaurant observation revealed the impact of the environment (such as temperature) on the user's drink selection , and the meditation puzzle helped users reduce distraction and digital interference through technical tools (such as screen time countdown mode), thereby enhancing time management. Compared with other user research methods, the advantage of the PACT model lies in its comprehensiveness and the ability to focus on multiple dimensions at the same time .

The PACT framework provides a structured approach to understanding user behavior, needs , and the interaction between their environment and technology. As Benyon et al. (2005)

explain, the framework ensures that designers account for the interconnectedness of people, activities, contexts, and technologies in the design process, addressing real-world complexity effectively. This approach considers four main dimensions , so it can basically ensure that the designed solution can be targeted at real- world scenarios and meet user needs . By focusing on "People", I can analyze user characteristics, preferences, and behavior patterns to create solutions that resonate with different audiences in the project . As Norman (2013) emphasizes, understanding the users—their needs, goals, and constraints—is the cornerstone of good design, making the People dimension vital in the PACT framework. The Activities dimension helps me summarize user behavior , distinguish between low-value and high-value behaviors, and give users a better experience . Contexts explores different environmental and scenario factors that affect user choices , such as location, time, and cultural influences. Finally, the Technologies dimension examines the technologies and functions that interact with users to ensure that these technologies meet user needs or develop innovative products . This comprehensive view allows me to understand the gap between theory and practical application , resulting in more adaptable designs.

Evaluate: PACT Framework in Action

The findings and results of my design projects . It has helped me gain a deep understanding of user needs in terms of screen time and the needs of international students, and has also provided me with corresponding ideas and methods to solve this social phenomenon. This concept has enhanced my multi-directional insights in design.

PA CT framework in three projects has proven its effectiveness in improving user experience. In the "People Watching" project, the changing patterns of user behavior were revealed, such as the difference in the proportion of users choosing indoors or outdoors in different time periods, and the time distribution of peak ordering (Figure.4). A detailed feature analysis of restaurant customers (age, weather, seat preferences, etc.) was also conducted to guide service optimization.

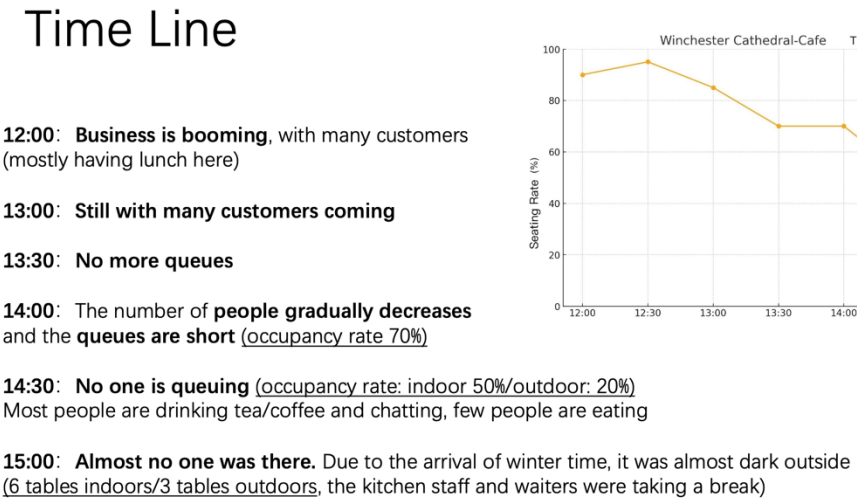

Figure.4

In the "Meditation Puzzle" project, behavior tracking and feedback technology are used to identify and solve screen time management problems (Figure.5). As Lopez-Fernandez (2019) highlights, mobile phone addiction is associated with mental health issues such as anxiety and depression, making interventions like behavior tracking and time management tools crucial for promoting healthier habits. Helping users reduce low-value activities and improve concentration. This aligns with Böhmer and Krüger's (2013) findings that behavior tracking provides valuable insights into how users interact with their devices, enabling designers to refine tasks and reduce inefficiencies. Through user testing methods , the application is iteratively upgraded to improve user satisfaction with the final application .

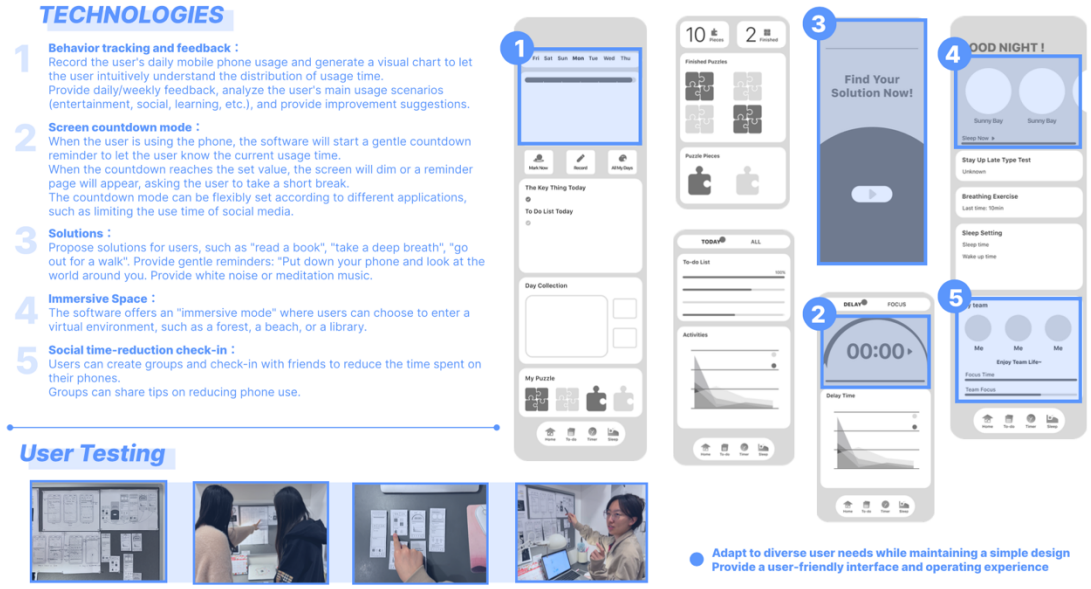

Figure.5

In the "Sweet Air" project, user behavior is integrated into innovative product design, enhancing the interaction between technology and the environment. It demonstrates the potential of interactive design and the environment, such as capturing user behavior or emotions through sensors , providing new ideas for innovative product design (Figure.6). As illustrated in DUXU (2019), case studies show that integrating frameworks like PACT with user behavior insights can lead to innovative solutions in human-computer interaction, improving both functionality and user satisfaction.

Figure.6

The value of the PACT framework lies in identifying user needs and optimizing solutions. Although there are still challenges with limited data scope and diverse user scenarios , I think other research methods can be used in combination to supplement this research method (user journey map, pain point analysis, questionnaire survey, in-depth interview) . As Stickdorn et al. (2018) suggest, combining multiple user research methods enhances the understanding of diverse needs and ensures more reliable design solutions, making it an essential complement to PACT. These three projects have verified the potential of PACT to improve design results in different situations.

Plan : Future research and improvement

In the future, when conducting similar research , I will pay more attention to the diversity and comprehensiveness of data collection, especially the wide coverage of user samples. In the crowd observation project, questionnaires and interviews can be used to further explore the psychological motivations behind user behavior; in the meditation puzzle project, the user testing process can be optimized to introduce more representative user groups; in the Sweet Air project, environmental factors and technical design can be more deeply combined to explore adaptability in different scenarios.

Therefore, in terms of future research, the relationship between user behavior and technology needs can be further explored in response to the problems found in the project research . The PACT model can be applied to more complex scenarios, such as smart shared spaces or virtual reality design. The PACT framework can be applied to a wider range of user scenarios, such as developing technology-dependent solutions for psychotherapy , or designing smart city services based on user behavior analysis. In the social reality problems caused by future urban renewal, the PACT model and user-centered strategies can be integrated to continuously promote innovation and optimization of interaction design.

Conclusion

Finally, through this reflection paper, I realized my strengths and weaknesses in the design project. The advantage is that I can comprehensively analyze user behavior and needs through the systematic PACT framework, and transform the research results into design solutions that meet the needs . The disadvantage is that my ability to handle complex data needs to be improved, especially in cross-scenario and cross-technology research, the amount of data is too large and the technical problems are difficult to interpret in depth. In the future, I will try to optimize the data analysis methods, such as making user journey maps , more comprehensively analyzing and recording user behavior data, and increasing the understanding and depth of reading literature .

In interactive design, a comprehensive analysis of user behavior and needs through the PACT research framework can provide theoretical and practical support for project design and optimization. Through the design and research of three projects, I have verified the importance and potential of the PACT model in optimizing user experience. Therefore, in future designs, I will continue to study and apply the PACT model and user-centric strategies

to further promote the development and optimization of user experience in my projects .

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