07 DIEP FINAL REPORT

Title: Reflection report on the〝TickTock Puzzle〞project based on the DIEP framework

Introduction

In today's world, where information overload has become a pressing issue, young adults, particularly those between the ages of 21 and 30, are facing a growing challenge: digital dependence. The ubiquitous use of smartphones and social media has ensnared this generation in the digital realm, resulting in various psychological issues such as "digital addiction," "information anxiety," and "technological fatigue" **(Carr, 2010)**. In response to these challenges, I designed an app called TickTock Puzzle, which aims to reduce users' reliance on smart devices by encouraging better time management and fostering behavior change.

This application encourages users to engage more in real-world, non-digital activities, offering a solution to the rising problem of screen addiction. By integrating game mechanics and behavioral

psychology, TickTock Puzzle attempts to break the cycle of smartphone overuse by providing an enjoyable, rewarding way for users to manage their screen time effectively.

D - Description

During the development of TickTock Puzzle, I conducted user research through interviews and surveys to explore the digital dependence challenges faced by my target group (young adults aged 21 to30). I specifically focused on how they manage their time and reduce smartphone usage. The research revealed that excessive reliance on technology has led to various mental health issues, such as "digital addiction," "information anxiety," and "technological fatigue" **(Carr, 2010; Rosen, 2017)**. Based on these findings, I decided to design an app aimed at helping users reduce screen time and improve time management, with the goal of breaking the vicious cycle of smartphone overuse by encouraging real-world activities **(Zichermann & Cunningham, 2011)**.

The core concept of TickTock Puzzle is to engage users through an entertaining puzzle game format, encouraging them to participate in non-digital, real-world activities. The app offers rewards and positive feedback upon task completion, incorporating emotional design principles **(Norman, 2004)** to

ensure that the process is not only functional but also emotionally satisfying. Additionally, I applied the PACT framework **(Benyon & Davil, 2005)** and affordance theory **(Gibson, 1979)** to ensure that the app strikes an optimal balance between user-friendliness and efficiency.

As shown in Figure 1, the stages of the design process I followed closely resemble the structured stages outlined in Engineering Design Methods **(Cross, 2008)**, which is a widely cited framework for understanding the design process. The figure1 shows the evolution of the design from concept to development and detail design, emphasizing the iterative and non-linear nature of the process, which was crucial to refining TickTock Puzzle.

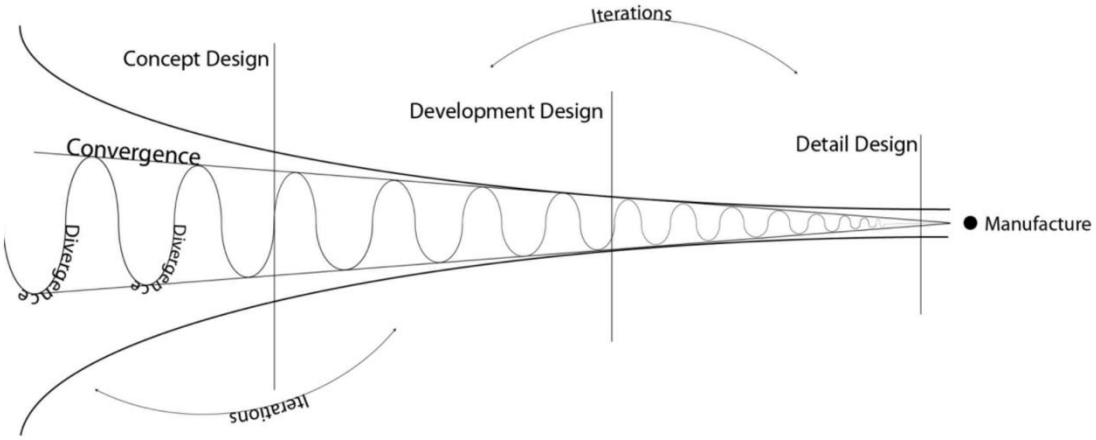

Figure 1： Engineering Design Methods (2008) - Nigel Cross

I - Interpretation

Designing TickTock Puzzle helped me realize that creating a

functional app is not enough; the real challenge lies in effectively influencing user behavior, especially at the emotional and motivational levels. The introduction of emotional design made me understand that design should not only address functionality but also create emotional resonance with users. As Steve Jobs famously said, **"You have to start with the customer experience and work back toward the technology,"** which reinforced the importance of centering the design process around user needs and behaviors.

Fogg's Behavior Model (2009) further clarified that influencing user behavior relies on balancing motivation, ability, and triggers. TickTock Puzzle was designed with this in mind, incorporating rewards, positive feedback, and well-timed triggers to enhance motivation, build user confidence, and prompt the right actions at the right times. Additionally, the PACT framework **(Benyon & Davil, 2005)** encouraged me to consider not only user needs but also the context, tasks, and technical constraints, providing a multi-dimensional perspective that enhanced my confidence in tackling design challenges and refining the app step by step.

E - Evaluation

Reflecting on my experience with TickTock Puzzle, I gained a

clearer understanding of the significant value of emotional design, user motivation, and behavior change models in the design process. Specifically, in the area of emotional design **(Norman, 2004)**, I used reward systems, positive feedback, and task visualization to enhance user engagement on an emotional level. Feedback from users confirmed the effectiveness of this approach; many expressed that the sense of achievement and rewards after completing tasks made them more motivated to continue using the app.

However, the design process was not without challenges. One significant issue was finding the right balance between user autonomy and system constraints. Too many restrictions could lead to user frustration, while too few might result in poor goal execution. The **5C Model (Friis & Gelting, 2007)** emphasizes the importance of balancing the five critical elements: User, Content, Context, Technology, and Task. This model suggests that achieving a harmonious balance between these components is essential for effective design. Therefore, finding the ideal balance between freedom and control remains a key area for future improvement. Additionally, while the gamification elements **(Zichermann & Cunningham, 2011)** effectively attracted users in the short term, their long-term engagement was relatively weak.

This realization pointed out the need for more personalized and long-term motivational strategies in behavior change.

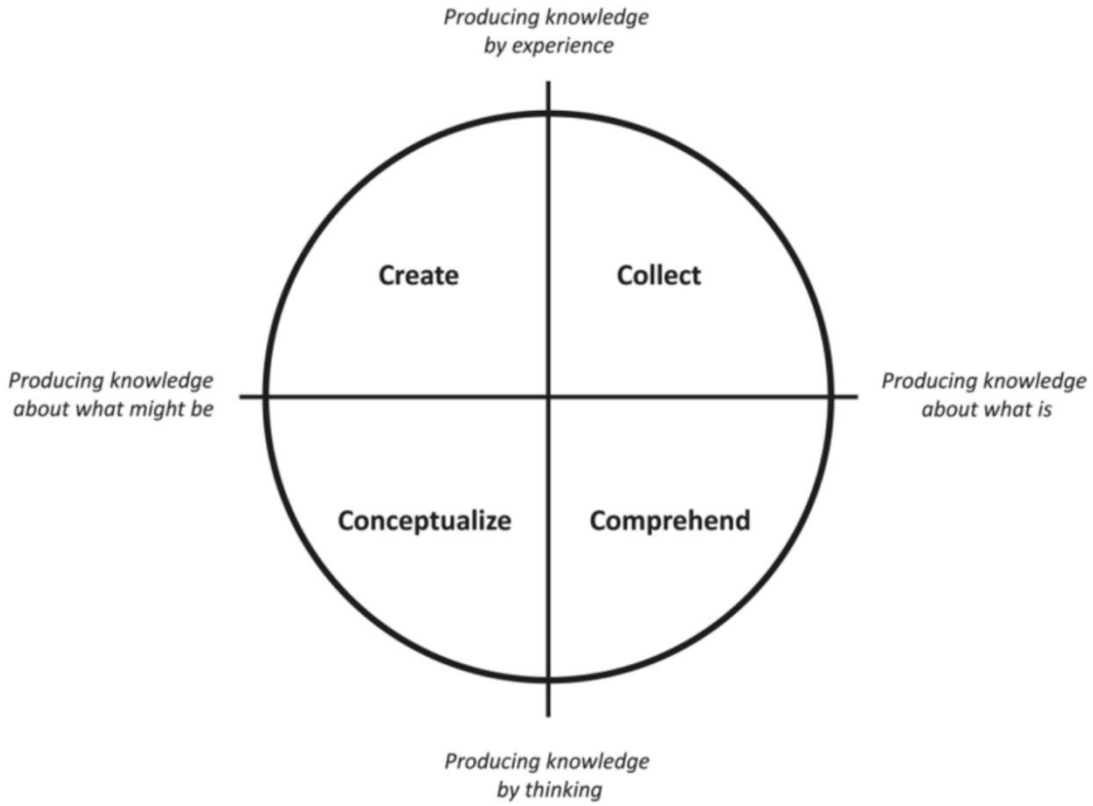

Figure 2: The 5C Model - Friis and Gelting (2007)

From a course perspective, combining user research **(Dix et al., 2004)** with iterative prototyping **(Brown, 2009)** was critical to the success of this project. The constant feedback and iterative design process allowed me to identify issues early on and make necessary adjustments, eventually creating a highly interactive and user-centered product.

P - Plan

Reflecting on the TickTock Puzzle project, I have identified several

key areas that I aim to improve in my future design practice:

1. Long-Term User Engagement and Behavior Change: I will place greater emphasis on integrating personalized motivational strategies into my designs, ensuring users remain engaged and experience long-term behavior change.

2. **Deepening Emotional Design:** In future projects, | will delve deeper into emotional design elements, such as providing more customized emotional feedback to strengthen users' emotional connection to the app and enhance its attractiveness and stickiness.

3. Balancing Freedom and Control: I will continue to explore how to better balance user autonomy with system constraints, improving the user experience while ensuring the effectiveness of behavior change.

4. Data-Driven Design Optimization: In future design practices, I will place greater emphasis on leveraging big data and user behavior analysis to refine product experiences. By analyzing user data, I can better understand usage patterns, preferences, and pain points, which will inform the iterative development of features and design improvements. This data-driven approach will be central to future digital product innovation, enabling more personalized and intelligent user experiences.

5. Cross-Disciplinary Innovation Integration: The future of design extends beyond the integration of technology and user needs; it also involves cross-disciplinary collaboration. As technology rapidly evolves, designers need not only technical expertise but also an understanding of psychology, sociology, and cultural studies to create products that have a lasting impact on users. Therefore, I plan to expand my learning and collaborations across various fields to foster comprehensive design innovation.

6. Globalization and Diversity in User Needs: In today's increasingly globalized world, the diversity and inclusivity of product design have become crucial. Going forward, I will focus more on understanding the needs of users from different cultural backgrounds, lifestyles, and contexts, ensuring that my designs meet the requirements of a global audience. This consideration will inform not only language and functional design but also visual presentation, as recognizing and respecting the diversity of user needs will be a key factor in my future work.

Conclusion

Through the design and reflection on the TickTock Puzzle project, I have deepened my understanding of key theories, such as design methodology **(Brown, 2009)**, user research **(Dix et al., 2004)**, and

emotional design **(Norman, 2004)**. I have also learned how to apply these theoretical frameworks in real-world design contexts. In particular, the PACT framework **(Benyon, Davil, 2005)**, emotional design **(Norman, 2004)**, and behavior change models **(Fogg, 2009)** have been invaluable in guiding the design process, helping me effectively address user needs while achieving the design objectives.

Looking ahead, I will continue to apply these insights in my future design practice, focusing on enhancing user engagement, refining designs, and implementing personalized motivational strategies. As technology evolves and user needs shift, designers must constantly adapt their strategies to create digital products that meet both functional and emotional needs. The experience gained from the TickTock Puzzle project has provided me with invaluable insights and practical skills that will serve me well in my future career, enabling me to create products that genuinely meet users' needs and add meaningful value.

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Figure

• ***Engineering Design Methods*** *(2008) – Nigel Cross*

• ***5C Model*** *– Friis and Gelting*