Media & Digital Technologies
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Informed Redesign of the HYPO NOE Mobile Banking App

Evaluating Usability and User Experience through a Proposed User Interface Redesign

Bachelor Thesis

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Declaration of Honour

I hereby declare that

- I have written the work at hand on my own without help from others and I have used no other resources and tools than the ones acknowledged.
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Abstract

Mobile banking apps have come to be essential tools in the everyday life of countless users, yet many existing interfaces still fall short in terms of their usability, aesthetics, and accessibility. Regulatory factors like the European Accessibility Act (EAA), which was set to take effect in June 2025, increased the need for well-designed apps which go hand-in-hand with the compliance requirements of the EAA.

!!TODO: Add Purpose, Method, Product and Conculsion!!

Contents

1 Introduction

This chapter introduces the topic area of the thesis and presents the problem and motivation. It also defines the research gap and questions, outlines the scope and limitations, and provides an overview of the research design.

1.1 Problem Statement & Motivation

User interface and user experience (UI/UX) design has had a significant shift in the last decade, evolving from purely functional interfaces to experiences that are also emotionally and aesthetically pleasing. Bollini (2017) emphasises that the beauty of an interface significantly influences user engagement, which underscores the need for designers to consider cultural and emotional aspects alongside the usability of the system. This aligns with the current trend of designing interfaces that not only serve their function but also create a meaningful connection with users.

In specific application domains, these challenges become even more complex. In the automotive sector, for instance, Meixner and Müller (2017) highlight how in-car interfaces have to balance safety with usability. Minimalistic and intuitive design, as well as amenities like voice control to minimise distraction, are key features in this context and the ultimate goal should always be ease of use. While the domain is vastly different, the underlying principle that interfaces should be quick and intuitive to operate is directly transferable to mobile banking, where users expect to complete financial tasks fast and without friction.

An increasingly important aspect of modern UI/UX design is accessibility. The European Union has even gone as far as to mandate specific accessibility rules through the European Accessibility Act (EAA; Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the Accessibility Requirements for Products and Services (Text with EEA Relevance), 2019). This act aims to improve accessibility for people with disabilities across various sectors by 28 June 2025. For banks, this means that their user interfaces must not only be aesthetically pleasing and functional but also accessible to all users. The EAA requires that public and private digital services, including banking apps, meet specific accessibility standards to ensure that users with visual, auditory, or cognitive weaknesses can effectively navigate these platforms. This makes accessibility a central

concern in any banking app redesign, as it dictates the general design constraints and requirements.

The author's personal motivation stems from being a long-term user of the HYPO NOE app and noticing various usability and aesthetic shortcomings over time. The scientific motivation is to systematically evaluate these shortcomings and to provide quantitative evidence of improvement through a redesigned prototype, thereby contributing to the body of knowledge on mobile banking UX.

1.2 Research Gap

Although the usability of mobile banking has been examined in the literature (e.g., Anagha Shinde, 2023; Komandla, 2024; Ubam et al., 2021), there is a lack of research on combining highly intuitive interface principles from other sectors, like automotive user interfaces to improve the user experience and usability of banking apps. This thesis addresses that gap by proposing an informed redesign of the HYPO NOE mobile banking app. Furthermore, few studies combine a heuristic evaluation of a live banking app with a comparative user study that measures both pragmatic usability (via the System Usability Scale) and hedonic quality (via the User Experience Questionnaire). This thesis aims to fill this gap.

1.3 Research Questions

Based on the identified research gap, this thesis addresses the following five research questions:

RQ1: What are the current usability and user experience problems of the HYPO NOE mobile app?

RQ2: What are the current hedonic (aesthetic, emotional) problems of the HYPO NOE mobile app?

RQ3: How can the HYPO NOE mobile app be improved in terms of aesthetics, usability, and overall UX while maintaining the HYPO NOE brand identity?

RQ4: To what extent does the redesigned prototype improve perceived usability compared to the current app?

RQ5: To what extent does the redesigned prototype improve hedonic/UX factors (aesthetics, attractiveness, stimulation) compared to the current app?

1.4 Scope & Limitations

This thesis focuses solely on the HYPO NOE mobile banking app. The heuristic evaluation is performed by the author as a single evaluator (and long-term user of the app); no additional expert evaluators are recruited due to the scope and timeframe of the thesis. The redesign is implemented as a high-fidelity Figma prototype rather than a fully functional application. The comparative user study is conducted via an online questionnaire in which participants interact with both the baseline replica and the redesigned prototype in Figma. These boundaries are acknowledged as limitations and are discussed further in Chapter 7.

1.5 Research Design Overview

This section provides a brief overview of the research approach. The study follows a mixed-methods design, consisting of four sequential phases:

1. **Heuristic Evaluation:** A structured evaluation of the HYPO NOE app using Nielsen's 10 usability heuristics to identify current usability and hedonic issues (Chapter 3).
2. **Baseline Prototype:** Creation of a high-fidelity Figma replica of the current app to serve as a controlled baseline for the aforementioned comparative study (Chapter 4).
3. **Redesigned Prototype:** Development of a new design concept, implemented as a high-fidelity Figma prototype. This prototype is informed by the heuristic evaluation findings and the literature (Chapter 4).
4. **Comparative User Study:** A within-subject study where participants interact with both prototypes and complete SUS and UEQ-Short questionnaires as well as open-ended questions (Chapter 5).

The results of the comparative study are presented in Chapter 6, interpreted and discussed in Chapter 7, and the thesis concludes with a summary and outlook in Chapter 8.

2 Theoretical Background

This chapter presents the theoretical basics and related works that underpin the thesis.

2.1 Usability and User Experience

This section defines key concepts of usability and user experience, including hedonic quality and aesthetics.

2.1.1 Defining Usability

This subsection covers the ISO 9241-11 definition of usability and Nielsen's 10 Usability Heuristics for User Interface Design.

2.1.2 Hedonic Quality and Aesthetics in UX

This subsection discusses Hassenzahl's model of pragmatic versus hedonic quality and the role of aesthetics in user experience.

2.2 Mobile Banking UX

This section reviews the current state and known usability challenges of mobile banking interfaces.

2.2.1 Current State of Mobile Banking Interfaces

This subsection provides an overview of how banking app interfaces currently are and have evolved over the years.

2.2.2 Usability Challenges in Banking Apps

This subsection summarises known usability challenges in banking apps across different user groups.

2.3 Cross-Domain Design Principles

This section explores design principles from the automotive domain and their potential use-cases in mobile banking.

2.3.1 Lessons from Automotive User Interfaces

This subsection reviews automotive UI design principles such as minimalism, intuitiveness, and distraction minimisation.

2.3.2 Transferability to Mobile Banking

This subsection discusses how principles of quick and intuitive interaction from automotive UI can be applied to mobile banking design.

2.4 Accessibility in Digital Services

This section covers the regulatory and practical aspects of accessibility in digital services, with a focus on banking.

2.4.1 The European Accessibility Act (EAA)

This subsection outlines the scope, requirements, and timeline of the European Accessibility Act.

2.4.2 Accessibility Requirements for Banking Apps

This subsection discusses what the EAA means specifically for banking app interfaces and different user impairment types.

2.5 Evaluation Frameworks

This section describes the evaluation methods used in this thesis.

2.5.1 Nielsen's 10 Usability Heuristics

This subsection presents Nielsen's 10 heuristics and their application in heuristic evaluations.

2.5.2 System Usability Scale (SUS)

This subsection explains the SUS instrument, its scoring, interpretation, and benchmarks.

2.5.3 User Experience Questionnaire – Short (UEQ-S)

This subsection describes the UEQ-Short instrument and its pragmatic and hedonic quality scales.

3 Heuristic Evaluation of the HYPO NOE App

This chapter describes and presents the results of the heuristic evaluation on the current HYPO NOE mobile banking app using Nielsen's 10 usability heuristics.

3.1 Procedure

This section explains how the heuristic evaluation was conducted, including the reasoning for the single-evaluator approach.

3.2 Evaluation Criteria (Nielsen's Heuristics)

This section details the application of each of Nielsen's 10 heuristics to the current HYPO NOE app, including the severity rating scale used.

3.3 Findings

This section presents the identified usability and hedonic issues. They will be organised by heuristic, along with severity ratings and supporting screenshots.

4 Design and Implementation of Prototype

This chapter describes the creation of the baseline Figma replica and the redesigned prototype, including key design decisions informed by the heuristic evaluation findings.

4.1 Baseline Figma Prototype (Current App Replica)

This section explains the rationale for creating a high-fidelity replica of the current app and describes the main screens and navigation flows that were replicated. (Main flows for the upcoming comparative user study, dummy data used, etc.)

4.1.1 Rationale for a Baseline Replica

This subsection justifies the need for the controlled baseline version to ensure consistent testing conditions.

4.1.2 Screens and Navigation Flows

This subsection details which screens and flows were replicated and how dummy data was used.

4.2 Redesigned Figma Prototype

This section presents the redesigned prototype, covering the design decisions, how previously identified issues were addressed/changed, and how the HYPO NOE brand identity was maintained.

4.2.1 Design Decisions

This subsection outlines the key design decisions based on the heuristic evaluation findings and the literature.

4.2.2 Addressing Identified Usability and Hedonic Issues

This subsection maps each identified problem to its corresponding design solution in the redesign.

4.2.3 Maintaining HYPO NOE Brand Identity

This subsection describes how the brand colours, typography, and tone of voice were preserved in the redesign.

4.3 Redesign Overview

This section provides a summary of the most significant design changes and a before/after comparison of key screens.

4.3.1 Key Design Changes

4.3.2 Before/After Comparison of Key Screens

5 Comparative User Study

This chapter details the design, procedure, and instruments of the within-subject comparative study conducted to evaluate the redesigned prototype against the baseline.

5.1 Participants and Sampling

This section describes the recruitment strategy, sample size, and inclusion/exclusion criteria.

5.2 Study Design

This section explains the within-subject design, the alternating prototype order, and the reasoning behind these choices.

5.3 Tasks and Procedure

This section lists the banking tasks participants completed and describes the step-by-step procedure.

5.4 Instruments (SUS, UEQ-S, Open-Ended Questions)

This section presents the post-prototype questionnaires and qualitative instruments used.

5.5 Data Analysis

This section describes the quantitative and qualitative analysis methods applied to the collected data.

6 Results

This chapter presents the quantitative and qualitative findings from the comparative user study.

6.1 Participant Demographics

This section summarises the demographic characteristics of the study participants.

6.2 SUS Scores: Baseline vs. Redesign

This section reports and compares the System Usability Scale scores for both prototypes.

6.3 UEQ-S Scores: Baseline vs. Redesign

This section reports and compares the UEQ-Short scores for the pragmatic and hedonic quality scales.

6.4 Qualitative Feedback

This section presents the key topics and notable comments from the open-ended participant responses.

7 Discussion

This chapter interprets the results, systematically addresses each research question, and discusses the broader implications and limitations of the study.

7.1 Interpretation of Heuristic Findings

This section discusses what the heuristic evaluation results reveal about the current app and how the findings relate to the existing literature.

7.2 Interpretation of Comparative Study Results

This section interprets the SUS and UEQ-S score differences and examines how the qualitative feedback aligns with the quantitative data.

7.3 Addressing the Research Questions

This section provides a systematic answer to each research question (RQ1–RQ5) based on the collected results.

7.4 Implications for Mobile Banking Design

This section discusses broader takeaways for mobile banking design, including cross-domain design transfer and accessibility considerations.

7.5 Limitations

This section acknowledges the limitations of this study and their potential impact on the findings.

8 Conclusion

This chapter summarises the main contributions of the thesis and outlines directions for future work.

8.1 Summary of Contributions

This section recaps the main findings and contributions of the thesis.

8.2 Future Work

This section suggests directions for extending and building upon this research.

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