Balancing Personalization and Privacy: Towards Personalized Saving Experience in Banking Apps for Young Adults

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This pilot study investigates how personalized content can be used in banking applications to encourage shaping good saving habits and increase overall financial literacy among young people. The preliminary result are recommendations including providing clear and personalized saving goals, incorporating educational content on investing and financial planning, and implementing features for tracking and categorizing expenses. Some trade-offs in usage that are presented are to minimize the use of personal data to what is necessary for personalization purposes, treat the data on a group level or increase transparency of data usage. The pilot study concludes that personalization is likely to be beneficial for both banks and their customers, given personal data is handled carefully and used in a sound financial consumer protection framework.

Keywords:
personalization, online privacy, personal data, banking apps, digital nudging

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1 Introduction

Navigating the financial world can be a daunting task for young adults. Potential insecurities in financial matters, coupled with the burden of debts like student loans, contribute to financial stress among this group (Lindgren et al., 2023). The multi-faceted concept *financial literacy* relates to "a person's competency for managing money" (Remund, 2010, p. 279) and is often overlooked by young adults, which might lead to inadequate financial literacy in the future (OECD, 2020). In today's global economic instability (IMF, 2023), financial literacy and buffers are crucial. For example, in Sweden, 25% lack a safety net for unexpected expenses (SBAB, 2024). Having a savings account early in life is emphasized, serving as a steppingstone to current and future financial health (Friedline et al., 2014). Parents shape young adults' financial decisions and including children in financial discussions influences their saving attitudes (Sinnewe & Nicholson, 2023; Te'eni-Harari, 2016). Generally, savings lead to asset ownership, psychological benefits, and social mobility (Heckman & Hanna, 2015). Furthermore, it offers financial security and young savers experience better well-being and less distress (Helm et al., 2019; O'Neill, 2009). However, achieving financial goals requires clarity and emotional investment (Caceres-Santamaria, 2023).

To promote savings, personalized services in banking apps can cater to users' individual financial needs. Large-scale personalization in personal finance requires effective, user-centered solutions and well executed, banking apps can offer a cost-effective solution. AI plays a key role in meeting changing customer preferences for quick, personalized responses (Noreen et al., 2023) and robo-advice (Gomber et al., 2017), AI-based financial planning and investment services, are today used by banks for savings and investment plans. Targeting young adults who have the capacity to save but face obstacles, banking apps can use personalization to guide users towards informed financial decisions. This approach predicts customer behavior, fosters financial discussions, and builds loyalty (Brodski et al., 2019). According to Walstad & Wagner, 2023, financial education, whether mandatory or self-chosen, positively impacts saving behavior, with repeated exposure enhancing this effect. Furthermore, those receiving personality-tailored interventions by an automatic service are many times more likely to reach the savings goal (Matz et al., 2023).

This pilot study investigates the balance between personalization and user privacy in banking apps for young adults aged 18–30. The future aim of this research is to start a discussion on guidelines for designing apps that promote savings for young adults in a non-intrusive manner. The pilot study is based on a survey of 37 respondents (49% male and 51% female) with 56% students, 39% full-time employees, and 5% part-time employees.

2 Theoretical approach

Nudging is a design approach where the users' decisions is guided towards their intended direction and can be implemented using a variety of techniques (Kahneman et al., 1991; Mirsch et al., 2017; Schneider et al., 2018; Thaler & Sunstein, 2008). Nudges serve as a valuable instrument in shaping digital design, particularly when decision-making proves challenging (Mejtoft, Ristiniemi et al., 2019). Hansen and Jespersen (2013) describe different types of approaches to nudging in relation to the *Automatic System* and the *Reflective System* described by Thaler and Sunstein (2008) and the level of transparency of the nudge. According to the ethical guidelines by Meske and Amojo (2020), nudges need to be transparent to be justified. Non-transparent and automatic nudges should be clearly prompted, e.g., by working with intentional friction in the user interface, so-called design friction (Mejtoft, Hale et al., 2019; Mejtoft, Parsjö et al., 2023). Personalization in digital systems impose a possibility to increase the effect of nudges (Mills, 2022; Peer et al., 2020). A main concern regarding personalization and the opportunities it brings is that for content to be truly personal, a system must have extensive knowledge about the user. Aguirre et al. (2016) denotes this the personalization-privacy paradox and refer to the fact that high personalization can enhance the user experience as well as diminish the engagement with a firm.

Nudging should be considered in contrast to concepts such as deceptive design (Brignull, 2013), which are techniques that are created intentionally to deceive users by implementing a type of non-transparent nudges (cf. Hansen & Jespersen, 2013) that are not in the user's best interest (Gray et al., 2018). In its simplest form this could be to, e.g., trick users to accept cookies by the design of cookie prompts (Mejtoft et al., 2021; 2023).

3 Results and discussion

Most of the respondents perceived the knowledge regarding their personal economy as average or above average (Figure 1) and they were confident in taking actions regarding financial planning (41%). However, regarding investing money, 46% of the respondents were unconfident or very unconfident.

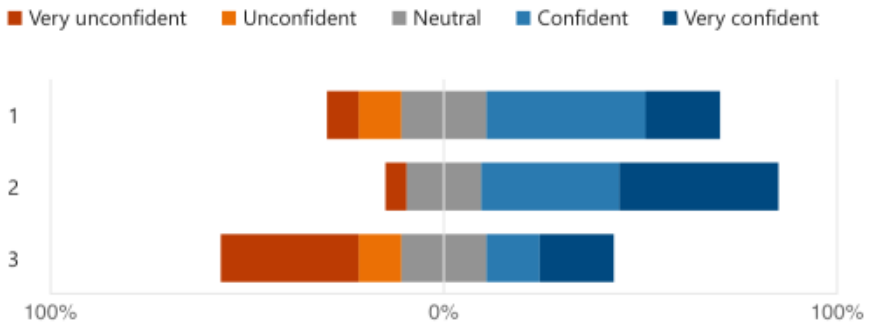

Figure 1: Confidence in acting regarding 1) financial planning, 2) saving money on a regular savings account, and 3) investing money (in mutual funds, stocks etc.)
Source: Own

Most respondents (76%) saved money on a regular basis. However, the remaining (24%) did not save money regularly, but when they feel like it. The most frequent reasons for saving were economic buffer and long-term goals.

3.1 Nudging towards saving goals

Regarding application of personalization to support saving goals, the respondents' answers could be divided into categories of personalization. The first category is *financial planning and recommendations*, consisting of answers that suggest a recommended savings amount based on fixed expenses. Other suggestions are prioritizing saving when the salary is deposited and providing personalized encouragement when saving goals are approached.

The second category is *expense tracking and budgeting*. This category consists of answers that suggest that personalization can give a better understanding of where money is spent in order to give users better control over their expenses and cut costs of

unnecessary consumption, such as tobacco or energy drinks, is also suggested. Another suggestion is data visualization, e.g., expenses for different months can be overviewed and compared, providing clear milestones for financial goals, and forecasts for saving habits. With increased knowledge about spending patterns, digital nudging could support users by both making savings part of the automatic system as well as spending part of the reflective system using design friction.

The last category of answers consists of *investment guidance and knowledge acquisition*. Respondents state they feel insecure about investing in stocks or funds and believe a personalized way to get a better understanding of this topic could help them make better decisions. This applies to all current levels of knowledge, as personalization addresses individual needs. Since the respondents stated uncertainty towards e.g. financial investments, reflective nudging is necessary for a high transparency and gradually increased knowledge around this topic.

Many of the respondents agreed that a summary of personal spending is desired, and one suggestion was that it could be analyzed to find room for improvement. Other suggestions are to give recommendations of cheaper options for products or services that cost a lot of money, tips on investing to reach certain goals, and a visual representation of the balance between income and expenses.

In terms of personalization, the results show that support is needed regarding financial planning, financial recommendations, expense tracking, and budgeting. Since the respondents were divided in their opinion, it should be taken as an indication of a slight resistance towards the use of personal data, meaning one solution could be to treat data on a group level instead of individually tailoring each user's content. The trade-off here is not easily managed (cf. Noreen et al., 2023), as users demand quick responses with personalized content. By reducing the use of personal data, therefore potentially reducing the personalization opportunities in the banking app, users may not receive the support to be nudged towards a healthier economic structure and savings routine. The suggestion is therefore to use personalization when the financial literacy and awareness of the individual are sufficient.

3.2 Privacy

The respondents are not overly concerned about the use of their personal data (Figure 2). It should, however, be used with caution and care (cf. Aguirre et al., 2016). One reason for not being concerned might be the laws to protect personal data, e.g. the GDPR, that have been introduced over the last decade. Nevertheless, the respondents stated that they do not have good knowledge about the actual use of their data, and they believed that it is fairly important to minimize the use of personal data.

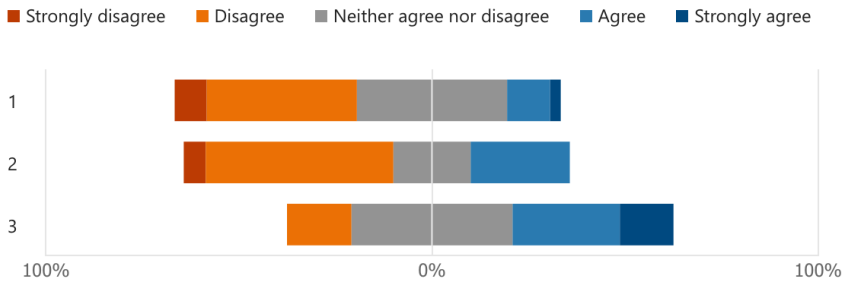

Figure 2: Privacy assumptions among the respondents regarding 1) I have good knowledge of how my personal data is used, 2) I am worried about the use of my personal data, and 3) It is important to minimize the use of personal data

Source: Own

Risks in using personal data in banking apps fall into two categories. The first being *privacy and security*, with concerns about data leaks, account hacking, unauthorized access, and personal information being used for scams or frauds. Some respondents also object to banks knowing their spending habits and money sources. The second category involves *bias and misuse*. Respondents fear that personalization could narrow financial perspectives, limit diverse options, and promote banks' interests. They're also concerned about the banks' use of their predicted spending patterns for targeted advertising. This is in line with the respondents being afraid of deceptive design in the applications.

4 Towards design recommendations

The increased use of personal data in financial services can be positive for consumers if it takes place in a sound financial consumer protection framework and is matched by sufficient financial literacy and awareness. Digital nudging can be used to support young adults to increase their financial literacy and by combining automatic and reflective decisions.

The following design recommendations for personalization of financial applications are proposed based on the results of this paper:

- Provide the user with clear and personalized saving goals and recommendations. A common desire amongst the respondents was to get a better, more visual connection to the savings goal.
- Include personalized educational content on investments and financial planning, as it can provide important tools to acquire a better savings routine. To make the nudging transparent it is important that the application gradually increases the financial literacy among the users and that nudges are constantly aligned with the users' level of financial confidence.
- Use features for tracking and categorizing expenses. This leads to a better overview of the personal economy and makes it easier to optimize savings. Transparent design in terms of data use is important to avoid users feeling deceived.

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