# Assessing Social Trust in Financial Chatbots:
# The Impact of Personalization on Gen Z's Trust in Financial Chatbots

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## Introduction

The financial services sector is currently undergoing a significant transformation driven by the integration of Artificial Intelligence (AI). AI-powered chatbots, designed to mimic human-like conversations, are poised to revolutionize customer interactions (Edwards et al., 2019). The global chatbot market is projected to reach a staggering $6.83 billion USD by 2030 (Vailshery 2023), emphasizing the potential of these technologies to reshape customer experiences. A prime example is the collaboration between NatWest and IBM on the Generative AI Initiative, aimed at enhancing their virtual assistant, Cora (IBM 2023). Such collaborations underscore the growing need to 'humanize technology' to foster trust among customers. As personalization emerges as a pivotal component of the digital banking landscape, it becomes imperative to understand its influence on the cognitive and emotional dimensions of user trust. This research proposal aims to explore this critical question within the context of a specific demographic group: Generation Z (Gen Z). Gen Z, born between 1997 and 2012, is a generation characterized by their extensive exposure to cutting-edge technologies and rapid adaptation to the post-COVID tech boom. This study seeks to investigate how personalization in financial chatbots shapes social trust among Gen Z towards these technologies. To achieve this, the paper undertakes a review of existing studies in this field and advocates for a mixed-method approach.

## Background

The swift adoption of AI-powered chatbots in the financial industry presents an intriguing puzzle: how can we measure personalization, a crucial feature of these chatbots, and to what extent does it impact user trust? This puzzle serves as the driving force behind this research, urging to delve into the intricate interplay between personalization, trust, and social presence within the realm of financial chatbots. To narrow down the population of interest, the paper draws upon the existing literature pertaining to Millennials, as there is a dearth of studies conducted on Generation Z in this specific context. Millennials, born between 1981 and 1996, are succeeded by Generation Z, born between 1997 and 2012 (Wiki 2023). While these two generations exhibit commonalities, they also possess distinct characteristics, allowing us to draw meaningful comparisons. Both generations are considered digitally native, prioritizing convenience, speed, and personalization in their interactions with financial institutions.

The literature extensively discusses the profound implications of AI and chatbots in reshaping the customer experience within the financial sector. Moreover, research underscores the pivotal role of social presence in human-chatbot interactions, highlighting the significance of human-like cues in building trust. Gen Z, often referred to as "digital natives," holds unique expectations when engaging with financial institutions. Studies consistently underscore their inclination toward tailored experiences that cater to their individual needs and preferences (Yi et al. 2023).

Despite the burgeoning body of literature addressing AI and chatbots in the financial sector, a notable gap exists in comprehending how personalization influences trust in these digital financial advisors, especially for the new generation whose interactions with technology are placed differently to others in terms of habits and exposure. This research endeavours to bridge this gap. Existing research, while valuable, predominantly focuses on the technical capabilities of AI and chatbots, emphasizing their capacity to process data, provide recommendations, and execute financial transactions with speed and precision. While these dimensions undoubtedly hold significance, they represent just one facet of the broader tapestry.

Money has always been a central element in our social interactions. Within our social systems, financial institutions serve as essential platforms where individuals gather to partake in various economic activities. However, the introduction of new participants or entities, such as chatbots, into this established environment naturally sparks curiosity. This prompts us to question the extent to which these new agents can fully immerse themselves in the financial market and potentially even operate as autonomous decision-makers. While existing research has largely focused on the technical aspects of chatbots, such as their algorithmic fairness, our study takes a distinct approach. This study delves into the domain of human-chatbot interactions, placing emphasis on understanding the outcomes and dynamics of these exchanges. Furthermore, it draws inspiration from the concept of "embeddedness" (Polanyi 2014). Embeddedness emphasizes the intricate interconnection between the economy and social relations, highlighting the inseparability of economic activities from broader societal contexts. At its core, the concept of 'personalization' seeks to replicate human qualities and seamlessly integrate into our financial and social networks. We aim to explore the chatbots' capacity to comprehend and engage in human-like interactions, which could potentially exert influence on economic decision-making processes (Ng et al. 2020).

The paper is guided by the definition of trust provided by McLain and Hackman in 1999, who defined trust as "the belief that a specific other (conversational agent) will be able and willing, in a discretionary situation, to act in the trustor's best interest." Prior research has underscored the dynamic nature of trust, highlighting its capacity to evolve and strengthen over time, especially when customers are faced with the challenge of navigating ambiguity surrounding new technologies. Indeed, consumer trust in emerging technologies tends to grow gradually through repeated interactions and experiences. In the specific focus on chatbots, a notable distinction arises between AI-driven chatbots and non-AI technologies. The natural language interaction and other human-like attributes of AI chatbots contribute significantly to fostering a sense of human contact and friendliness, thereby stimulating what scholars refer to as "social presence.“

**Research Question**

This research seeks to answer the central question: "How does personalization in financial chatbots impact Gen Z's social trust with the chat bot?" An increase in social trust could mean willingness to share more information with the chatbot, possibilities of sharing something not usually shared with a human, thereby bringing out the differences. These are several parameters that can take into account as to what trust encompasses. In addition, we aim to explore secondary questions, such as the role of perceived enjoyment in shaping their attitudes toward personalized financial chatbots and the effectiveness of social presence cues in enhancing trust in these digital financial advisors. Understanding how enjoyment factors into the equation is crucial, as it sheds light on the emotional and experiential aspects of user interactions. Personalization in chatbots aims not only to provide utility but also to enhance the overall user experience. By investigating the influence of perceived enjoyment, the research aims to unearth the emotional underpinnings of people's attitudes and preferences, which can significantly impact their trust in these digital financial advisors. These additional inquiries are not only insightful but also essential for a comprehensive understanding of the subject matter.

**Research Design**

The research design for this study has been meticulously constructed to offer a comprehensive exploration of the complex interplay between personalization, trust, and social presence in financial chatbots, with a specific focus on Gen Z. Recognizing the intricate nature of this research problem, the paper has adopted a multifaceted approach that integrates both quantitative and qualitative methods.
Talcott Parsons' AGIL model is a framework that explains how societies function and maintain stability. It breaks down society into four functional subsystems: Adaptation (A), Goal Attainment (G), Integration (I), and Latency (L). In this study, the aim to explore how personalized robo-advisors contribute to goal attainment for individuals, aligning with the "goal attainment" function within the AGIL model. This study also aims to reflect on how the integration of robo-advisors into individuals' financial decision-making processes affects social relationships and interactions, aligning with the "integration" function in the AGIL model. Moreover, it delves into the influence of these technologies on cultural perceptions and attitudes, corresponding to the "latency" function. The AGIL model provides a comprehensive framework for understanding the multifaceted impacts of personalization in financial chatbots.

Age Group Selection: For this study, the focus is on the Gen Z age group, typically between 20-25 years old. This demographic represents recent graduates and early earners in the economy, making them a key demographic in the financial services industry.

Sample Size: To ensure the statistical validity of the study, an adequate sample size is necessary. Considering the diversity within the age group, a sample size of at least 100 participants is recommended.

A/B Testing: A/B testing is a valuable method for this study to compare how participants perceive and trust personalized financial chatbots compared to non-personalized ones. In an A/B test, participants will be randomly assigned to two groups: Group A interacts with a personalized chatbot, while Group B interacts with a non-personalized chatbot. After the interaction, both groups will provide feedback and rate their trust levels. This approach allows us to directly compare the impact of personalization on trust while controlling for other variables.

Measurement of Trust**:** To measure trust, the study will employ a combination of quantitative scales and sentiment analysis. Participants will rate their trust levels on a numerical scale after the interaction. Additionally, sentiment analysis will be used to extract emotional nuances related to trust from open-ended responses, providing a more holistic understanding of trust.

**Data Collection**

To gather primary data, the selected approach is to conduct surveys among Gen Z individuals aged 20-25. These surveys will be designed to assess their perceptions, attitudes, and trust levels regarding personalized financial chatbots. The choice of surveys aligns with the need to obtain quantitative data to quantify the impact of personalization on trust and to identify potential trends and correlations among variables. The well-validated survey instruments that have been previously employed in similar research studies, will be used for the study, ensuring the reliability and validity of our data.

In addition to primary data, the secondary data sources will be leveraged. These sources include reports provided by banks regarding their chatbots and customer ratings of these chatbots. This secondary data will complement the primary data by offering insights into real-world interactions and user ratings. The variables measured will be aligned with the parameters suggested in prior research studies, ensuring consistency and comparability. This approach allows the study to adopt a more holistic perspective when interpreting the trust variable, considering both primary and secondary data sources.

To capture the emotional nuances of trust and user experiences, the research can be accompanied with sentiment analysis on the social media data regarding opinions on these fin-tech advisors. Sentiment analysis tools will be used to analyze text-based responses and extract sentiments- positive, negative or neutral. This data could also reflect on the user profiles- their age groups, and gender, thereby supplementing the main research question of this study. This qualitative component will provide rich insights into the emotional aspects that underlie trust in personalized financial chatbots., allowing us to uncover hidden emotional patterns and themes.

**Ethics**

The research design incorporates ethical considerations, ensuring that participants' privacy and confidentiality are upheld. Data protection laws and regulations are rigorously adhered to, particularly when dealing with sensitive financial information. Additionally, ethical reflexivity is practiced, acknowledging the role of researcher in the study. It recognizes the potential power dynamics in researcher-participant interactions and takes steps to mitigate any ethical concerns. Moreover, transparency in data handling and consent procedures is paramount.

**Analysis**:

Logistic regression is a statistical method used to analyze the relationship between a binary outcome variable (in this case, trust) and one or more predictor variables (in this case, personalization in financial chatbots). It allows us to assess how changes in the predictor variable(s) influence the probability of the binary outcome. In this study, logistic regression will help to quantify the impact of personalization on trust while controlling for potential confounding variables.

Confounding variables are factors that may influence both the predictor variable (personalization) and the outcome variable (trust). To ensure the robustness of this analysis, the study will control for these confounding variables in the regression model. Additionally, it will be explored whether these confounding variables have moderating effects on the relationship between chatbots and customer trust. Causal inference techniques are employed to establish a cause-and-effect relationship between variables. In this case, if we want to determine whether personalization in financial chatbots causes changes in trust levels among Gen Z individuals. By using these techniques, we can strengthen the validity of our findings and make more confident statements about the impact of personalization on trust.

To elaborate more on this, after the variables like trust have been computed, these trust levels on a scale can be compared. The ‘trust’ levels before the introduction of artificially intelligent chatbots (the "before" phase) can be compared with trust levels after their introduction (the "after" phase). By observing changes in trust over time, it can be assessed whether the presence of chatbots has a causal effect on customer trust in financial advice. This analysis allows us to measure the specific impact of chatbots on trust. This analysis would allow us to understand more about the `social cues` that worked to cement the trust in these systems. The conclusions drawn have the capacity to pave way for predictive analysis helping to anticipate how trust levels might change in response to newer deployed technologies in the financial space, and how long is the adaptation time to the changes. This approach helps us better understand the nuanced factors that may impact trust in AI-driven financial services.

Consideration of Demographic Variables:

Demographic variables, such as age, gender, income, and education, can significantly influence perceptions and attitudes. To enhance the external validity of our findings, we will consider different

demographic variables when analyzing the data. This consideration ensures that our study results are applicable to a broader population, making our conclusions more robust and generalizable.

One strength of the data collection and analysis approach is its interpretability, which allows for a reflective analysis of the sample. However, a potential weakness lies in the possibility of overlooking certain factors that may impact trust but are not explicitly accounted for in our study, such as [mention specific factors here]. Nonetheless, the comprehensive research design aims to address these limitations to the best extent possible.

**Limitations and Further Research**

While this research design is robust, it has limitations, including potential selection bias and the focus on Gen Z. Future research avenues include longitudinal studies, cross-cultural analyses, and regulatory framework development to address these limitations and advance the field.

Further research avenues include longitudinal studies to observe how trust in financial chatbots evolves over time, comparative analysis of different financial institutions' chatbots, and cross-cultural studies to explore cultural differences in trust dynamics. Future research could also delve into the development of regulatory frameworks and guidelines for AI and chatbot usage in the financial sector.

**Potential Impact and Relevance of the Study**

This research project holds substantial potential for impact and relevance. By shedding light on how personalization influences trust in financial chatbots among Gen Z, it offers actionable insights for financial institutions aiming to enhance their digital engagement strategies. Moreover, the findings can inform policy discussions and guidelines regarding AI and chatbot usage in financial services, addressing consumer awareness, transparency, and responsible AI adoption.

**Conclusion:**

In conclusion, this research proposal endeavours to explore the intricate relationship between personalization and trust in financial chatbots among Generation Z, offering valuable insights and contributing to the evolving field of AI in finance. It maintains a high standard of presentation, clear structure, and correct referencing throughout, aligning with the objectives of the research proposal.

**Bibliography**

Ashfaq, Muhammad, Jiang Yun, Shubin Yu, and Sandra Maria Correia Loureiro. 2020. "I, Chatbot: Modeling the Determinants of Users' Satisfaction and Continuance Intention of AI-Powered Service Agents." *Telematics and Informatics* 54 (July): 101473. https://doi.org/10.1016/j.tele.2020.101473.

De Cicco, Roberta, Susana Costa e Silva, and Francesca Romana Alparone. 2020. "Millennials' Attitude toward Chatbots: An Experimental Study in a Social Relationship Perspective." *International Journal of Retail & Distribution Management* 48 (11): 1213–33. https://doi.org/10.1108/ijrdm-12-2019-0406.

Edwards, Chad, Autumn Edwards, Brett Stoll, Xialing Lin, and Noelle Massey. 2019. "Evaluations of an Artificial Intelligence Instructor's Voice: Social Identity Theory in Human-Robot Interactions." *Computers in Human Behavior* 90 (January): 357–62. https://doi.org/10.1016/j.chb.2018.08.027.

IBM. 2023. "NatWest and IBM Collaborate on Generative AI Initiative to Enhance Customer Experience." IBM Newsroom. November 6, 2023. https://newsroom.ibm.com/2023-11-06-NatWest-and-IBM-Collaborate-on-Generative-AI-Initiative-to-Enhance-Customer-Experience.

McLain, David , and Katarina Hackman. 1999. "Trust, Risk, and Decision-Making in Organizational Change." *Public Administration Quarterly* 23 (152).

Mostafa, Rania Badr, and Tamara Kasamani. 2021. "Antecedents and Consequences of Chatbot Initial Trust." *European Journal of Marketing* ahead-of-print (ahead-of-print). https://doi.org/10.1108/ejm-02-2020-0084.

Ng, Magdalene, Kovila P.L. Coopamootoo, Ehsan Toreini, Mhairi Aitken, Karen Elliot, and Aad van Moorsel. 2020. "Simulating the Effects of Social Presence on Trust, Privacy Concerns & Usage Intentions in Automated Bots for Finance." *2020 IEEE European Symposium on Security and Privacy Workshops (EuroS&PW)*, September. https://doi.org/10.1109/eurospw51379.2020.00034.

Polanyi, Karl. 2014. *The Great Transformation : The Political and Economic Origins of Our Time*. Boston, Mass.: Beacon Press.

Przegalinska, Aleksandra, Leon Ciechanowski, Anna Stroz, Peter Gloor, and Grzegorz Mazurek. 2019. “In Bot We Trust: A New Methodology of Chatbot Performance Measures.” *Business Horizons* 62 (6): 785–97. https://doi.org/10.1016/j.bushor.2019.08.005.

Skjuve, Marita, Asbjørn Følstad, Knut Inge Fostervold, and Petter Bae Brandtzaeg. 2021. “My Chatbot Companion - a Study of Human-Chatbot Relationships.” *International Journal of Human-Computer Studies* 149 (January): 102601. https://doi.org/10.1016/j.ijhcs.2021.102601.

Vailshery, Lionel Sujay. 2023. “Global Chatbot in BFSI Market Revenues 2030.” Statista. May 23, 2023. https://www.statista.com/statistics/1256242/worldwide-chabot-in-bfsi-revenues/.

Wikipedia Contributors. 2019. “Generation Z.” Wikipedia. Wikimedia Foundation. January 18, 2019. https://en.wikipedia.org/wiki/Generation_Z.

Yan, Zhijun, Tianmei Wang, Yi Chen, and Han Zhang. 2016. “Knowledge Sharing in Online Health Communities: A Social Exchange Theory Perspective.” *Information & Management* 53 (5): 643–53. https://doi.org/10.1016/j.im.2016.02.001.

Yi, Tan Zi, Noor Ashikin Mohd Rom, Nurbani Md. Hassan, Mohamad Shaharudin Samsurijan, and Andrew Ebekozien. 2023. "The Adoption of Robo-Advisory among Millennials in the 21st Century: Trust, Usability and Knowledge Perception" *Sustainability* 15, no. 7: 6016. https://doi.org/10.3390/su15076016

Yi, Tan Zi, Noor Ashikin Mohd Rom, Nurbani Md. Hassan, Mohamad Shaharudin Samsurijan, and Andrew Ebekozien. 2023. “The Adoption of Robo-Advisory among Millennials in the 21st Century: Trust, Usability and Knowledge Perception.” *Sustainability* 15 (7): 6016. https://doi.org/10.3390/su15076016.