# THE ROLE OF EXPERIENCE IN AI ADOPTION: THE MODERATING EFFECT ON PREDICTORS OF CHATGPT USAGE INTENTION AMONG GENERATION Z

ANTUN BILOŠ, DAVORIN TURKALJ, IVAN KELIĆ
J. J. Strossmayer University of Osijek, Faculty of Economics and Business, Osijek, Croatia
antun.bilos@efos.hr, davorin.turkalj@efos.hr, ivan.kelic@efos.hr

The objective of this study was to investigate the role of experience in the adoption of artificial intelligence (AI) tools, with a specific focus on its moderating effect on the predictors of ChatGPT usage intention among Generation Z in Croatia. The research employed the extended UTAUT2 model, examining crucial predictors such as Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Hedonic Motivation (HM), Price Value (PV), Habit (HT), and Personal Innovativeness (PI). The moderation analysis indicated that experience significantly moderates the effect of Habit (HT) on usage intention, suggesting that users with less experience tend to rely more on habitual usage. Furthermore, Social Influence (SI) displayed a marginally significant moderation effect, which suggests that less experienced users are somewhat more affected by social norms. Comparative analysis among the three experience level groups revealed significant differences in key predictors, thereby reinforcing the role of experience in shaping AI adoption behaviours. These findings underscore the significance of habit formation and social influence in the context of AI adoption, and they emphasize that strategies aimed at enhancing the adoption of AI tools should account for user experience levels.

**DOI**
https://doi.org/10.18690/um.epf.5.2025.27

**ISBN**
978-961-286-984-7

**Keywords:**
artificial intelligence adoption, user experience, UTAUT2 Model, ChatGPT usage intention, moderation analysis

**JEL:**
M15, O33, D83

University of Maribor Press

## 1 Introduction

The rapid adoption of AI tools, particularly generative AI like ChatGPT, is reshaping digital interactions and work environments. ChatGPT, one of the most widely used AI applications, has gained significant traction among Generation Z due to its versatility in generating human-like responses across various domains (Paul et al., 2023). While existing studies have explored factors influencing AI adoption using the UTAUT2 model (Venkatesh et al., 2012), limited research has examined the moderating role of experience in shaping these relationships. This study addresses this gap by analysing how user experience influences the predictors of ChatGPT adoption among Generation Z in Croatia. Building on previous findings that identified habit (HT), performance expectancy (PE), hedonic motivation (HM), and social influence (SI) as key drivers of adoption (Biloš & Budimir, 2024; Strzelecki, 2023; Nikolopoulou et al., 2020), this research investigates whether these effects vary depending on users' prior engagement with AI technologies. By applying moderation analysis, the study provides insights into whether beginners, intermediate users, and experienced users exhibit different behavioural patterns in AI adoption. Understanding these differences is crucial for businesses, educators, and policymakers aiming to optimize AI-driven solutions for diverse user segments. The findings contribute to the ongoing discussion on AI acceptance by highlighting experience as a key contextual factor in technology adoption.

## 2 Theoretical Background

The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) is one of the most comprehensive models for explaining technology adoption, expanding on the original UTAUT by incorporating consumer-centric variables (Venkatesh et al., 2012). The model includes performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC), hedonic motivation (HM), price value (PV), and habit (HT) as key determinants of behavioural intention (BI) and actual usage (USE). Numerous studies have validated UTAUT2 in different technology contexts, demonstrating that habit, performance expectancy, social influence, and hedonic motivation are among the most significant predictors of adoption (Strzelecki, 2023; Nikolopoulou et al., 2020; Cabrera-Sánchez et al., 2021; Garcia de Blanes Sebastian et al., 2022). In the context of AI-powered applications, recent research has explored factors influencing the adoption of chatbots and

generative AI tools such as ChatGPT. Paul et al. (2023) highlighted how AI-based chatbots enhance productivity and information retrieval, while Sugumar and Chandra (2021) emphasized the role of effort expectancy and perceived usefulness in AI adoption. However, existing studies typically analyse these predictors in a generalized manner, assuming their influence is uniform across all user groups. This approach overlooks, to some extent, that experience is crucial in shaping user perceptions and behavioural patterns in AI adoption.

Experience, defined as the extent to which users have interacted with a technology over time, has long been recognized as an important moderating factor in technology acceptance models (Venkatesh et al., 2003). The Technology Acceptance Model 3 (TAM3) explicitly included experience as a moderator of perceived ease of use and behavioural intention (Venkatesh & Bala, 2008), while later studies confirmed that experienced users develop automatic behavioural patterns, relying more on habit (HT) and intrinsic motivation (HM) than on external factors such as social influence (SI) or facilitating conditions (FC) (Cintron, 2022; Xian, 2021). Conversely, less experienced users are more likely to be influenced by social norms (SI) and perceived ease of use (EE), as they require external validation and support to build confidence in new technologies (Cabrera-Sánchez et al., 2021; Alalwan et al., 2017).

This study builds on these insights by examining experience as a moderating variable in the adoption of ChatGPT among Generation Z in Croatia. By investigating how experience influences the strength of relationships between UTAUT2 predictors and behavioural intention, this research aims to fill a critical gap in AI adoption literature. The findings will contribute to a deeper understanding of how different user segments interact with AI, offering practical insights for developers, businesses, and educators seeking to optimize AI-driven solutions based on user experience levels.

## 3 Methodology

This study employs a quantitative research approach using survey-based data collection to analyse the moderating effect of experience on the predictors of ChatGPT adoption. The research follows the extended UTAUT2 model (Venkatesh et al., 2012; Gansser & Reich, 2021), incorporating performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC), hedonic motivation (HM), price value (PV), habit (HT), and personal innovativeness (PI) as

independent variables influencing behavioural intention (BI). Experience is examined as a moderating variable, categorizing users into three groups:

- Beginners (tried ChatGPT but used it for less than a month),
- Intermediate users (used ChatGPT for more than a month but less than three months),
- Experienced users (used ChatGPT for more than three months).

The data was collected using an online survey distributed via the Alchemer platform, targeting Generation Z respondents (born 1997–2010) in Croatia. A total of 1,159 responses were collected, of which 694 valid responses were retained for analysis after removing incomplete and disqualified responses. The sample consists of 43.7% females and 56.3% males, with 50.7% being students, 29.1% balancing study and work, and 13.8% employed full-time. ChatGPT experience levels include 45.1% beginners, 36.0% intermediate users, and 18.9% experienced users. The survey instrument was adapted from previous UTAUT2-based studies (Venkatesh et al., 2012; Gansser & Reich, 2021) and measured all constructs using a seven-point Likert scale (1 = "strongly disagree" to 7 = "strongly agree"). The PE, EE, SI, FC, HM, PV, HT, PI, and BI survey items were based on validated scales used in AI adoption research (Garcia de Blanes Sebastian et al., 2022; Strzelecki, 2023). The study employed several statistical techniques to ensure validity and reliability. Confirmatory Factor Analysis (CFA) is used to verify construct validity and factor structure, and Hierarchical Linear Regression (HLR) is used to examine the direct effects of UTAUT2 predictors on BI. Moderation Analysis was employed to test whether experience significantly moderates predictor relationships with BI, while Cronbach's alpha and composite reliability (CR) were used to assess the internal consistency of constructs. All statistical analyses were conducted using JASP and Jamovi (JASP Team, 2022; The Jamovi Project, 2022).

## 4 Results

The dataset consists of 694 valid responses from Generation Z users in Croatia. Table 1 (Appendix) presents the means, standard deviations, and reliability measures (Cronbach's alpha) for the main study variables. All constructs demonstrated high internal consistency (Cronbach's $\alpha > 0.75$), confirming their reliability. The CFA

results indicated a good model fit ($\chi^2 = 1339.26$, df = 398, $p < 0.001$; CFI = 0.935; TLI = 0.924; RMSEA = 0.058; SRMR = 0.063). The factor loadings for all items exceeded 0.60, supporting construct validity. A hierarchical linear regression (HLR) was performed to test the direct effects of UTAUT2 predictors on behavioural intention (BI). The model explained 65% of the variance in BI ($R^2 = 0.65$, $p < 0.001$). The significant predictors were: Habit (HT, $\beta = 0.409$, $p < 0.001$), Performance Expectancy (PE, $\beta = 0.341$, $p < 0.001$), Hedonic Motivation (HM, $\beta = 0.243$, $p < 0.001$), Social Influence (SI, $\beta = 0.117$, $p < 0.001$) and Personal Innovativeness (PI, $\beta = 0.091$, $p < 0.001$). Non-significant predictors included Effort Expectancy (EE, $p = 0.961$), Facilitating Conditions (FC, $p = 0.652$), and Price Value (PV, $p = 0.561$).

Interaction elements were included in the regression model to examine whether experience moderates the relationships between UTAUT2 predictors and BI. The key findings include:

- Habit (HT) × Experience (estimate = -0.077, $p = 0.034$) → significant interaction, indicating that more experienced users rely less on habitual use than beginners;
- Social Influence (SI) × Experience (estimate = -0.075, $p = 0.061$) → a marginal interaction suggesting that SI may have a greater impact on BI for beginners;
- Other interactions (PE, EE, FC, HM, PV, PI × Experience) were not significant, indicating that these predictors function similarly across all experience levels.

To conclude, HT is the most influential predictor of BI, and its effect is stronger for beginners. Similarly, SI's impact decreases with experience, indicating that social influence matters more for beginners to some extent. PE and HM remain strong predictors regardless of experience level. Experience does not moderate EE, FC, PV, or PI, indicating that these factors do not change significantly based on user expertise.

To further explore the role of experience, a one-way ANOVA was conducted to examine whether mean scores for UTAUT2 predictors (PE, EE, SI, FC, HM, PV, HT, PI) differ across the three experience groups (Beginners, Intermediate Users,

Experienced Users). The results indicate significant differences across all predictors (Table 2, Appendix). These findings confirm that experience significantly shapes how users perceive key AI adoption factors, reinforcing its role as a critical segmentation variable in AI adoption research.

## 5 Discussion

The findings of this study provide important insights into the role of experience as a moderating factor in the adoption of ChatGPT among Generation Z. The results indicate that the direct effects of the UTAUT2 predictors on BI are robust, with HT, PE, HM, SI, and PI showing significant positive relationships. In particular, Habit emerged as the strongest predictor. However, the moderation analysis shows that the effect of Habit on BI is not uniform across all experience levels. The significant interaction between HT and experience (interaction estimate = –0.077, p = 0.034) suggests that the positive influence of Habit on BI is strongest among beginners and diminishes as users gain more experience with ChatGPT. This finding implies that while initial usage may be driven strongly by habitual behaviour, over time, the additional impact of habit declines as users become more proficient. Other factors likely influence their overall behavioural intention. Similar patterns have been observed in prior research, where the strength of habit as a predictor of continued technology use tends to diminish as users develop more refined usage patterns and internalize the technology (Venkatesh & Bala, 2008; Strzelecki, 2023).

The interaction between Social Influence and experience (interaction estimate = –0.075, p = 0.061) is marginally significant, trending in the expected direction. This indicates that SI may have a relatively stronger impact on BI for beginners compared to more experienced users. This aligns with earlier studies highlighting that early adopters often rely on peer recommendations and societal cues during the initial stages of technology adoption (Cabrera-Sánchez et al., 2021; Alalwan et al., 2017). In contrast, as users become more experienced, they appear to rely less on social validation when forming their usage intentions.

In contrast to HT and SI, the interaction effects for the other UTAUT2 predictors (PE, EE, FC, HM, PV, and PI) were not significant. This suggests that factors such as Performance Expectancy and Hedonic Motivation exert a relatively stable influence on BI regardless of a user's experience level. Thus, while these predictors

are critical drivers of technology adoption, their effect does not appear to be affected by prior experience with the technology.

Beyond its moderating effect, experience also influences how users perceive key adoption factors, as evidenced by significant ANOVA results across all UTAUT2 predictors. More experienced users exhibit stronger habit formation, higher performance expectancy, and greater enjoyment of ChatGPT compared to beginners. On the other hand, beginners rely more on social influence and perceive ChatGPT as more effort-intensive to use. Facilitating conditions and price value also differ across experience groups, suggesting that resource availability and cost-benefit perceptions shift as users become more accustomed to AI tools. These findings suggest that experience is a critical segmentation variable in AI adoption research, reinforcing the need for tailored strategies that address the unique needs of beginners, intermediate users, and experienced adopters.

The results of this study provide insights for businesses, educators, and AI developers seeking to enhance AI adoption strategies. Since habit is crucial for inexperienced users, AI applications like ChatGPT should encourage engagement through gamification, personalization, and habit-forming design strategies (e.g., reminders, content recommendations). Since social influence is critical for beginners, AI adoption campaigns should leverage peer testimonials, influencer endorsements, and community engagement to attract first-time users. Understanding that experience reduces the reliance on social influence suggests that AI literacy programs should focus on building early familiarity with AI tools, enabling users to make independent adoption decisions.

While this study offers valuable insights, several important limitations should be noted. The sample consists exclusively of Generation Z users in Croatia, limiting generalizability to other populations. Future studies should examine whether these moderation effects hold across different generations and cultural contexts. In addition, the study relies on self-reported survey data, which may introduce response biases. Future research could integrate behavioural tracking data to validate self-reported AI usage patterns. This study focused on experience as a moderator, but future work could explore other potential moderators, such as education level or personality traits.

## 6 Conclusions

This study examined the role of experience in AI adoption, focusing on its moderating effect on key predictors of ChatGPT usage intention among Generation Z. By applying the extended UTAUT2 model, the research confirmed that habit (HT), performance expectancy (PE), hedonic motivation (HM), social influence (SI), and personal innovativeness (PI) are the most significant factors influencing behavioural intention (BI) to use ChatGPT. However, the study also demonstrated that experience is a crucial variable that both moderates adoption behaviours and differentiates user perceptions of AI adoption factors. The moderation analysis demonstrated that while Habit (HT) is a key driver of BI, its relative influence is more pronounced among less experienced users. Conversely, social influence (SI) is more important for beginners, indicating that first-time users rely on peer recommendations and societal norms when adopting AI. Additionally, ANOVA results showed significant differences across experience levels for all UTAUT2 predictors, further reinforcing the notion that individual predictors and prior user exposure shape AI adoption. As AI tools continue to evolve, understanding how different user segments interact with them is critical. This study underscores the importance of experience in shaping AI adoption behaviours, paving the way for more targeted and effective AI adoption strategies in business, education, and technology development.

**References**

Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. International Journal of Information Management, 37(3), 99–110. https://doi.org/10.1016/j.ijinfomgt.2017.01.002

Biloš, A., & Budimir, B. (2024). Understanding the Adoption Dynamics of ChatGPT among Generation Z: Insights from a Modified UTAUT2 Model. Journal of Theoretical and Applied Electronic Commerce Research, 19(2), 863-879. https://doi.org/10.3390/jtaer19020045

Cabrera-Sánchez, J. P., Villarejo-Ramos, Á. F., Liébana-Cabanillas, F., & Shaikh, A. A. (2021). Identifying relevant segments of AI applications adopters—Expanding the UTAUT2's variables. Telematics and Informatics, 58, 101529. https://doi.org/10.1016/j.tele.2020.101529

Cintron, J. J. V. (2022). Factors Influencing IT Managers' Acceptance of Artificial Intelligence (AI) in Digital Transformation (Doctoral dissertation, Capella University).

Garcia de Blanes Sebastian, M., Sarmiento Guede, J. R., & Antonovica, A. (2022). Application and extension of the UTAUT2 model for determining behavioral intention factors in the use of artificial intelligence virtual assistants. Frontiers in Psychology, 13, 993935. https://doi.org/10.3389/fpsyg.2022.993935

Gansser, O. A., & Reich, C. S. (2021). A new acceptance model for artificial intelligence with extensions to UTAUT2: An empirical study in three segments of application. Technology in Society, 65, 101535. https://doi.org/10.1016/j.techsoc.2021.101535

JASP Team (2022). JASP (Version 0.16.2) [Computer software].

Nikolopoulou, K., Gialamas, V., & Lavidas, K. (2020). Acceptance of mobile phone use by university students for their studies: An investigation applying UTAUT2 model. Education and Information Technologies, 25, 4139-4155. https://doi.org/10.1007/s10639-020-10157-9

Paul, J., Ueno, A., & Dennis, C. (2023). ChatGPT and consumers: Benefits, pitfalls, and future research agenda. International Journal of Consumer Studies, 47(4), 1213-1225. https://doi.org/10.1111/ijcs.12928

Strzelecki, A. (2023). To use or not to use ChatGPT in higher education? A study of students' acceptance and use of technology. Interactive Learning Environments, 1-14. https://doi.org/10.1080/10494820.2023.2209881

Sugumar, M., & Chandra, S. (2021). Do I desire chatbots to be like humans? Exploring factors for adoption of chatbots for financial services. Journal of International Technology and Information Management, 30(3), 38-77. https://doi.org/10.58729/1941-6679.1501

The Jamovi Project (2022). Jamovi. (Version 2.3) [Computer Software]. Retrieved from https://www.jamovi.org.

Venkatesh, V., & Bala, H. (2008). Technology Acceptance Model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273-315. https://doi.org/10.1111/j.1540-5915.2008.00192.x

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS Quarterly, 27(3), 425-478. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. MIS Quarterly, 36(1), 157-178. https://doi.org/10.2307/41410412

## Appendix

**Descriptive Statistics and Reliability Measures**

| Construct | Mean | SD | Cronbach's Alpha |
|---|---|---|---|
| Performance Expectancy (PE) | 5.25 | 1.22 | 0.84 |
| Effort Expectancy (EE) | 5.99 | 1.02 | 0.89 |
| Social Influence (SI) | 3.98 | 1.57 | 0.92 |
| Facilitating Conditions (FC) | 5.72 | 1.02 | 0.75 |
| Hedonic Motivation (HM) | 5.73 | 1.15 | 0.89 |
| Price Value (PV) | 4.91 | 1.27 | 0.88 |
| Habit (HT) | 2.84 | 1.63 | 0.89 |
| Personal Innovativeness (PI) | 4.36 | 1.59 | 0.86 |
| Behavioural Intention (BI) | 4.35 | 1.57 | 0.85 |

Source: Authors' research

**Descriptive Statistics and Reliability Measures**

| Construct | ANOVA | Key Finding |
|---|---|---|
| Habit (HT) | $F = 90.02$, $p < 0.001$ | Experienced users exhibit significantly higher habitual use compared to beginners. |
| Social Influence (SI) | $F = 42.41$, $p < 0.001$ | Beginners rely more on social influence than experienced users. |
| Performance Expectancy (PE) | $F = 68.12$, $p < 0.001$ | Experienced users perceive ChatGPT as more useful than beginners. |
| Hedonic Motivation (HM) | $F = 25.46$, $p < 0.001$ | Experienced users derive more enjoyment from ChatGPT than beginners. |
| Effort Expectancy (EE) | $F = 22.22$, $p < 0.001$ | Beginners find ChatGPT more difficult to use than experienced users. |
| Facilitating Conditions (FC) | $F = 18.54$, $p < 0.001$ | Experienced users perceive better access to necessary resources. |
| Price Value (PV) | $F = 29.59$, $p < 0.001$ | Perceived cost-benefit of ChatGPT varies across experience levels. |
| Personal Innovativeness (PI) | $F = 51.31$, $p < 0.001$ | Experienced users are more willing to experiment with AI tools. |

Source: Authors' research