

THE ROLE OF TIME PRESSURE AND MACHIAVELLIAN PERSONALITY IN THE EFFECT OF CHATGPT SERVICE QUALITY ON INTENTION TO USE CHATGPT

ULOGA VREMENSKOG PRITISKA I MAKIJAVELISTIČKE OSOBNOSTI U UTJECAJU KVALITETE CHATGPT USLUGE NA NAMJERU KORIŠTENJA CHATGPT-a



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Muhammed Furkan Taşcı^a, Nil Esra Dal^b, İlnur Saral^c

^a Burdur Mehmet Akif Ersoy University, 15000, Burdur, TURKEY, e-mail: mftasci@mehmetakif.edu.tr

^b Burdur Mehmet Akif Ersoy University, 15000, Burdur, TURKEY, e-mail: nilradal@mehmetakif.edu.tr

^c Burdur Mehmet Akif Ersoy University, 15000, Burdur, TURKEY, e-mail: ikorkmaz@mehmetakif.edu.tr

Abstract

Purpose – The purpose of this research study is to determine the impact of the quality of ChatGPT, an artificial intelligence-supported application, on the intention to use ChatGPT, time pressure, and Machiavellian personality traits.

Design/Methodology/Approach – To collect the data for the study, a survey was conducted on a convenience sample of 392 young consumers using ChatGPT in Turkey. The necessary statistical analyses, including frequency analysis, validity and reliability analysis, and path analysis, were performed using specialized software designed for such analyses. The quality of the ChatGPT service was assessed using the AISAQUAL scale, which encompasses five key dimensions: efficiency, security, availability, enjoyment, and anthropomorphism.

Findings and Implications – The study revealed that the dimensions of efficiency, security, and anthropo-

Sažetak

Svrha Svrha istraživanja jest utvrditi utjecaj kvalitete ChatGPT-a, aplikacije podržane umjetnom inteligencijom, na namjeru njegova korištenja, vremenski pritisak i makijavelističke osobine ličnosti.

Metodološki pristup Radi prikupljanja podataka provedeno je anketno istraživanje na prigodnom uzorku od 392 mlada potrošača koji su korisnici ChatGPT-a u Turskoj. Potrebne statističke analize, uključujući analizu frekvencija, analize valjanosti i pouzdanosti te analizu putova, provedene su pomoću specijaliziranog softvera namijenjenog takvim analizama. Kvaliteta usluge ChatGPT-a procijenjena je pomoću AISAQUAL ljestvice, koja obuhvaća pet ključnih dimenzija kao što su učinkovitost, sigurnost, dostupnost, užitak i antropomorfizam.

Rezultati i implikacije Istraživanje je otkrilo da dimenzije učinkovitosti, sigurnosti i antropomorfizma imaju značajan utjecaj na makijavelističke tendencije. Osim

morphism have a significant impact on Machiavellian tendencies. Additionally, it was found that both the efficiency and enjoyment dimensions of the AISAQUAL scale, as well as time pressure, have a positive and significant effect on the intention to use ChatGPT.

Limitations – This study is based solely on data collected from young consumers in Turkey, which limits the generalizability of the results. Furthermore, a cross-sectional design was used to gather research data, making it challenging to fully establish causal relationships. Also, it should be noted that individual perceptions may influence the measurement of Machiavellian tendencies.

Originality – This study is one of the rare works examining the impact of ChatGPT service quality on user behaviors and personality traits. Notably, the use of the AISAQUAL scale and analysis of the effects of Machiavellian personality traits and time pressure on usage intention make this study unique in the literature to date. It provides a valuable contribution to understanding consumer behavior toward ChatGPT and similar AI-supported applications.

Keywords: intention to Use ChatGPT, Machiavellian personality, time pressure, ChatGPT service quality, AISAQUAL.

toga, utvrđeno je da dimenzije učinkovitosti i užitka AISAQUAL ljestvice, kao i vremenski pritisak, imaju pozitivan i značajan učinak na namjeru korištenja ChatGPT-a.

Ograničenja Istraživanje se temelji isključivo na podacima prikupljenima od mladih potrošača u Turskoj, što ograničava mogućnost generalizacije rezultata. Nadalje, istraživački su podaci prikupljeni korištenjem kros-sekcijskog dizajna, što otežava potpuno utvrđivanje uzročno-posljedičnih odnosa. Treba napomenuti i da individualne percepcije mogu utjecati na mjerenje makijavelističkih sklonosti.

Doprinos Ovo je istraživanje jedno od rijetkih djela koja ispituju utjecaj kvalitete usluge ChatGPT-a na ponašanja korisnika i osobine ličnosti. Posebno, korištenje AISAQUAL ljestvice te analiza učinaka makijavelističkih osobina ličnosti i vremenskog pritiska na namjeru korištenja čine ovo istraživanje jedinstvenim u literaturi. Ono pruža vrijedan doprinos razumijevanju ponašanja potrošača prema ChatGPT-u i sličnim umjetnom inteligencijom podržanim aplikacijama.

Ključne riječi: namjera korištenja ChatGPT-a, makijavelistička osobnost, vremenski pritisak, kvaliteta usluge ChatGPT-a, AISAQUAL

1. INTRODUCTION

Service quality, defined as the degree to which the service level meets customer expectations (Lewis & Booms, 1983, as cited in Parasuraman et al., 1985), refers to the performance-based nature of services (Zeithaml et al., 1988). With the advent of artificial intelligence (AI), the era of smart services began, making the acceptance of AI-supported applications by consumers increasingly significant. This trend is reflected in how AI influences consumer usage intentions. Several studies (Foroughi et al., 2024; Duong et al., 2024; Jo, 2024; Tan et al., 2024) have examined the service quality of ChatGPT, a natural language processing model, and its impact on consumers' usage intentions and personality traits. Noor et al. (2022) developed AISAQUAL, a framework consisting of six sub-dimensions—efficiency, security, availability, enjoyment, contact, and anthropomorphism—designed to evaluate the quality of service provided by AI service intermediaries.

The increased time consumers spend online has altered their perception of time. Changes in time perception trigger feelings of impatience and urgency among consumers. This, in turn, gives rise to time pressure, an emotional experience characterized by awareness of insufficient time, anxiety, unease, and haste (Szollos, 2009). The performance speed of AI-supported applications can influence consumers' intentions to use these applications under time pressure. The service quality offered by ChatGPT, an AI-supported application, may be perceived by consumers as efficient and fast, potentially fostering their continuous intention to use it.

Machiavellianism, a personality trait characterized by interpersonal manipulation and associated with specific patterns of emotional and social cognitive skills (Al Ain et al., 2013), is fundamentally focused on achieving gain and success in every situation (Jones & Paulhus, 2009). Machiavellian individuals may also approach technology use with a focus on success and gain (Laakasuo et al., 2021). For instance, Ahn

(2023) found that perceived usefulness, ease of use, quality satisfaction, anthropomorphism, narcissism, and Machiavellianism influence the intentions of consumers using voice search technology. In this context, it is hypothesized that Machiavellianism may influence the intentions to use ChatGPT, as an AI tool.

The study focuses on analyzing how the dimensions of the AISAQUAL scale (Efficiency, Security, Accessibility, Enjoyment, and Anthropomorphism) influence Machiavellianism and intention to use ChatGPT and explores the impact of time pressure on ChatGPT usage intention. AISAQUAL, a vital tool for evaluating AI service quality, encompasses key dimensions crucial in shaping consumer perceptions towards digital services. The study delves into the less-explored connection between these dimensions, individual Machiavellian tendencies, and time pressure, where Machiavellianism denotes manipulative traits and time pressure reflects decision-making stress. The research aims to shed light on how factors like efficiency and accessibility in AI services can affect individuals under time pressure, offering valuable insights into the development and intensification of Machiavellian traits on digital platforms. Moreover, it is anticipated that the study's findings will influence the strategic decisions of AI service providers, enhance user experience, and provide actionable insights to enhance service quality and user engagement.

2. THEORETICAL BACKGROUND

2.1. ChatGPT service quality and Machiavellianism

Service quality, as defined by Lewis and Booms (1983, cited in Parasuraman et al., 1985), refers to the extent to which service meets customer expectations. Key characteristics include intangibility, inseparability, and heterogeneity, making service quality challenging to assess compared to goods. It is evaluated based on

the comparison between service performance and consumer expectations, considering both the service outcome and process (Parasuraman et al., 1985).

Parasuraman et al. (1988) introduced the SERVQUAL scale with 22 items across five dimensions—tangibles, reliability, responsiveness, assurance, and empathy—which has been widely used in service quality research. Other scales such as E-SQ (Zeithaml et al., 2000), SITEQUAL (Yoo & Donthu, 2001), WEBQUAL (Barnes & Vidgen, 2001; Barnes & Vidgen, 2002), PIRQUAL (Francis & White, 2002), and eTailQ (Wolfenbarger & Gilly, 2003) assess online service quality. Recent scales like AICSQ (Chen et al., 2022) and AISAQUAL (Noor et al., 2022) measure AI-related service quality. AICSQ includes seven dimensions, namely, semantic understanding and personalization, positively impacting perceived value, satisfaction, and AI-chatbot usage. AISAQUAL, with six dimensions such as efficiency and anthropomorphism, links perceived value, satisfaction, and loyalty. The AISAQUAL scale, which was developed to measure the service quality of artificial intelligence technologies, can be used as a guide for measuring ChatGPT service quality. ChatGPT, also known as the Generative Pre-Trained Transformer, was made available to users in November 2022. ChatGPT is regarded as a closely related variant of InstructGPT, which operates in a conversational manner by responding to prompts with detailed, step-by-step instructions (OpenAI, 2022). ChatGPT is a productive, AI-based chat application that enables mutual interactions and is used in different business lines. Therefore, measuring the quality of the ChatGPT service within the framework of consumer perceptions will contribute to existing literature on the topic.

Christie and Geis (1970) defined Machiavellianism as the trait of “a person who sees and manipulates others for his/her own purposes.” Based on Karpman’s (1941; 1948) concepts of primary and secondary psychopathy, Machiavellianism combines these constructs and correlates positively with both. Unlike psychopathy,

Machiavellianism emphasizes personality, social, and clinical psychology (McHoskey et al., 1998). Excessive Machiavellianism is also linked to personality disorder traits such as narcissism, paranoia, and neuroticism (McHoskey, 2001).

Niccolò Machiavelli’s *The Prince* (1513/1966) provided self-interest-driven advice on gaining and maintaining power, excluding virtues like honesty and trust. A passage states: “A deceiver will never lack victims” (Wilson et al., 1996). Inspired by these ideas, Richard Christie and colleagues identified Machiavellianism as a personality syndrome, characterized by cynical beliefs and pragmatic morality. They developed the Mach IV scale, widely used to measure manipulative tendencies, later refined into the Mach V scale (Geis, 1970; Jones & Paulhus, 2009).

Modern studies link Machiavellianism to contemporary behaviors and technologies. Those found in the literature have examined the relationship between dark personality traits, including Machiavellianism, and the Technology Acceptance Model (TAM) (Aplin-Houtz et al., 2024; Ahn, 2023). Hancock et al. (2023) noted that Machiavellianism reduces avoidance and negative emotions following service failures. Ahn (2023) showed that perceived usefulness, ease of use, quality satisfaction, anthropomorphism, narcissism, and Machiavellianism positively influence voice search adoption intentions. According to Hazari (2025), ChatGPT can contribute to students’ innovative learning styles. The author also observed that AI technologies, such as ChatGPT, can improve learning efficiency. Based on these studies, it is thought that there will be a relationship between Machiavellianism and ChatGPT service quality. In accordance with extant literature, the hypotheses of the study were formulated as follows:

H₁. The Efficiency dimension of AISAQUAL has a statistically significant effect on Machiavellianism.

H₂. The Security dimension of AISAQUAL has a statistically significant effect on Machiavellianism.

H₃. The Availability dimension of AISAQUAL has a statistically significant effect on Machiavellianism.

- H₄.** The Enjoyment dimension of AISAQUAL has a statistically significant effect on Machiavellianism.
- H₅.** The Anthropomorphism dimension of AISAQUAL has a statistically significant effect on Machiavellianism.

2.2. Time pressure and intention to use ChatGPT

In contemporary society, time shortage has become widespread, permeating the entire culture. As a reflection of this situation, people often complain about not having enough time in their daily lives while also becoming hectic and hasty (Szollos, 2009, pp. 332-333). As the pace of life accelerates, people may feel intense time pressure (Bettman et al., 1998). The literature explains time pressure in various ways, including time shortage, haste (Szollos, 2009), decision making, information processing or evaluation (Bettman et al., 1998, Edland, 1993; Kaplan et al., 1993; Suri & Monroe, 2003), the selection process (Bettman et al., 1998), and the deadline by which a task should be completed (Edland, 1993; Goodin et al., 2005; Guo et al., 2020, Strombeck & Wakefield, 2008).

Intention refers to the motivational factors that influence behavior. It indicates the level of effort individuals are willing and planning to exert to carry out the behavior (Ajzen, 1991). Intention can indicate the level of goal or behavior and reflect a person's level of commitment (Sheeran & Webb, 2016). Time pressure plays a significant role in decision-making and selection processes (Edland, 1993; Bettman et al., 1998). People experiencing time pressure try to simplify information and decision-making situations due to stress and focus on the usefulness and ease of use of technology, which may affect their intention to use technology (Gelbrich & Sattler, 2014). Therefore, individuals often make decisions based on a specific deadline. The time constraint required to make a decision may result in time pressure (Edland, 1993). Time pressure can be indicated by the perceived limitation of available time when making a decision or evaluating information (Suri & Monroe, 2003). It can

also occur when the time required to complete a task is approaching or when the available time is exceeded (Strombeck & Wakefield, 2008). In this context, time pressure refers to the perception that there is insufficient time to complete a necessary task (Guo et al., 2020). According to Kaplan et al. (1993), time pressure can arise when individuals are unable or unwilling to allocate time for complex and demanding tasks. However, Goodin et al. (2005) argue that it is incorrect to assume that individuals are experiencing time pressure based solely on their free time. It is important to note that time pressure is a situation that individuals create for themselves based on their own desires. In the study conducted by Hazari (2025), it was determined that ChatGPT engenders benefits in terms of efficiency and accessibility by reducing the time and effort expended by students in completing their assignments and providing expeditious access to the requisite information.

Time pressure and time shortage are concepts that have been studied in various disciplines, including sociology, economics, anthropology, medicine, occupational health, and business administration (Szollos, 2009, p. 334). Consequently, time pressure, a concept that has been examined in various fields, was also investigated in relation to its impact on ChatGPT usage in this study. This investigation led to the formulation of hypothesis H₆ as follows:

- H₆.** The time pressure variable has a statistically significant effect on the intention to use.

2.3. Machiavellianism and intention to use ChatGPT

Theory of Mind (ToM) is a theory that uses the ability of humans to attribute mental states to themselves and others in explaining behavior. The topic of ToM, which is thoroughly examined in the disciplines of artificial intelligence and robotics, plays a pivotal role in facilitating human-robot collaboration and deciphering human desires, convictions, and intentions. It also assists in the formulation of plans to achieve

objectives and their systematic execution. With the widespread adoption of Large Language Models (LLMs) such as the GPT series, interest in ToM in AI is expected to increase in the future. Furthermore, the mind-reading abilities provided by ToM can also be seen as a powerful tool in explaining the so-called dark triad traits, which include psychopathy, narcissism, and Machiavellianism structures (Sgorbissa et al., 2024). Laakasuo et al. (2021) found that Machiavellianism positively influenced attitudes toward mind-uploading technology through utilitarian moral attitudes. Blair et al. (2022) observed that Machiavellianism, along with narcissism and psychopathy, positively affects attitudes, purchases, and recommendations for utilitarian and hedonic products. Stylianou et al. (2013) found that Machiavellianism impacts unethical IT reporting intentions, moderated by gender and programming expertise. Fehr et al. (1992) described Machiavellian motivation as instrumental and selfish, with individuals pursuing typical goals like achievement and sociability through manipulative methods. Stylianou et al. (2013) found a relationship between Machiavellianism and consumers' intention to use unethical IT applications. In this context, the seventh hypothesis of the study takes the following form:

H₇. The Machiavellianism variable has a statistically significant effect on the intention to use.

2.4. ChatGPT service quality and intention to use ChatGPT

ChatGPT, a text-based generative AI tool, has been studied for its service quality and usage intentions (Bonsu & Baffour-Koduah, 2023; Camilleri, 2024; Duong et al., 2024; Jo, 2024; Niloy et al., 2024; Tan et al., 2024; Xu & Thien, 2025; Zou & Huang, 2023) and user traits (Foroughi et al., 2024; Jo, 2024). Bonsu & Baffour-Koduah (2023) conducted a study on students' perceptions and intentions towards the use of ChatGPT in higher education. The study found that students have a positive perception of ChatGPT and intend to use it. Camilleri (2024) discovered a significant correlation between source reliability and

ChatGPT's expected performance, perceived interaction, and intention to use ChatGPT. Duong et al. (2024) found that service quality and information positively affect satisfaction, trust, and continuance intention among students. Tan et al. (2024) highlighted that satisfaction, driven by factors like system and service quality, impacts continuous ChatGPT use. Foroughi et al. (2024) identified factors like hedonic motivation and learning value that drive usage intentions, although personal innovativeness negatively moderates these effects. Jo (2024) revealed that perceived usefulness influences satisfaction, which in turn affects willingness to pay for advanced features, moderated by personal innovativeness.

Niloy et al (2024) highlighted the importance of seven extrinsic variables in their study investigating the intentions of higher education students to use ChatGPT. Among these variables, time saving and task management, inseparability of content, ease of access, assisted learning, cognitive stinginess of the user, and peer pressure variables had a significant effect, while the technical knowledge of the program variable was not found to have a significant effect. Xu and Thien (2025) conducted a study on students' intention to use ChatGPT for learning English. They found that effort and performance expectancy, perceived enjoyment, and social influence had a positive correlation with the intention to use ChatGPT for learning English. Zou & Huang (2023) conducted a study within the TAM framework, finding not only that doctoral students have a high intention to use ChatGPT for writing, but that attitude, perceived ease of use, and perceived usefulness have an effect on their intention to use as well. In the context of literature, it has been posited that AI-related service quality exerts an influence on the intention to utilize ChatGPT. The following hypotheses have been formulated:

H₈. The Efficiency dimension of AISAQUAL has a statistically significant effect on the intention to use.

H₉. The Security dimension of AISAQUAL has a statistically significant effect on the intention to use.

H₁₀. The Availability dimension of AISAQUAL has a statistically significant effect on the intention to use.

H₁₁. The Enjoyment dimension of AISAQUAL has a statistically significant effect on the intention to use.

H₁₂. The Anthropomorphism dimension of AISAQUAL has a statistically significant effect on the intention to use.

3. RESEARCH METHODS

In the study, a scale adapted from the literature was used for each construct. The variables used in this study were adapted from the scales well-grounded in the existing literature that have been validated in various studies. The AISAQUAL scale, developed by Noor et al. (2022), is a comprehensive measurement tool that includes dimensions such as efficiency, security, availability, enjoyment, and anthropomorphism. The Machiavellianism variable was derived from the scale detailed in the study by Özsoy et al. (2017). Time pressure was measured using a scale introduced by Guo et al. (2020), which served as a foundation for this construct in the study. The intention to use was integrated into our study by adapting the scale developed by Lee et al. (2005). A seven-point Likert scale, ranging from "strongly agree (7)" to "strongly disagree (1)," was used to evaluate each item. These scales were carefully selected and adapted to fit the purpose of the research.

3.1. Aim and significance of research

The primary aim of this research is to examine the effects of AISAQUAL scale dimensions (efficiency, security, availability, enjoyment, and anthropomorphism) on Machiavellianism and the intention to use ChatGPT, as well as to reveal the impact of the time pressure variable

on the intention to use ChatGPT. AISAQUAL is a widely used scale for assessing AI service quality, encompassing the scale's critical dimensions (Noor et al., 2022) outlined above. These dimensions play a significant role in shaping consumer perceptions and forming attitudes towards digital services. Specifically, how these dimensions influence individuals' Machiavellian tendencies and time pressure remains an underexplored topic in the literature. Machiavellianism is a personality trait that refers to manipulative and self-serving behavior tendencies (Özsoy et al., 2017), and there is limited evidence on how this trait develops and intensifies, particularly in digital platforms. Time pressure, on the other hand, refers to the time constraints and stress levels individuals experience during decision-making processes (Guo et al., 2020). Understanding how dimensions such as efficiency and availability, offered by the quality of AI services, affect individuals experiencing time pressure could make a significant contribution to extant literature.

This research study is aimed at providing a new perspective in the literature on understanding ChatGPT usage intentions by examining the effects of the AISAQUAL scale's dimensions on Machiavellianism, as well as the combined effects of these dimensions and time pressure on the intention to use ChatGPT. By addressing the role of personality traits such as Machiavellianism in shaping these intentions, the study seeks to make both theoretical and practical contributions. It offers insights into how these personality traits influence user behavior, which can further inform strategies for improving user engagement and service quality in AI-based platforms. The intention to use is a key indicator of the adoption and continued use of AI services (Lee et al., 2005), yet how Machiavellian tendencies and time pressure influence this intention has not been extensively addressed in the literature to date. In this context, our research highlights the importance of the AISAQUAL scale in the ChatGPT context, while also examining the effects of Machiavellianism and time pressure on individuals' intentions to use AI. The findings

from this study are expected to contribute to shaping the strategies of AI service providers and enhancing user experience, providing practical insights for improving service quality and user engagement.

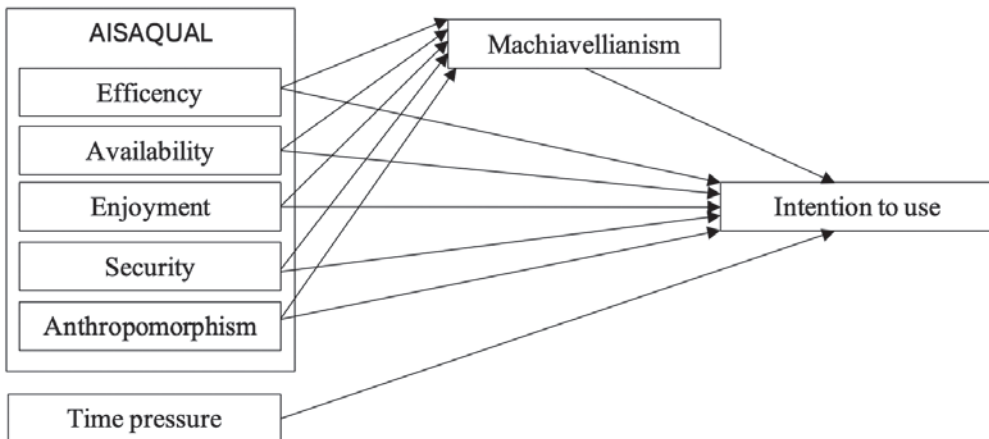
3.2. Research model and hypotheses

The theoretical model of this study examines the effects of AISAQUAL scale dimensions on Machiavellianism and the intention to use ChatGPT, while also exploring the impact of the time pressure variable on the intention to use ChatGPT. In the literature, the decisive role of service quality in shaping user behaviors is frequently emphasized (Parasuraman et al. 1988; Zeithaml, 2002b). Noor et al. (2022) observed that features of digital services, such as efficiency, security, enjoyment, availability and anthropomorphism, significantly shape users' perceptions and attitudes toward the service. Machiavellianism is a personality trait that describes individuals' tendencies toward manipulative, self-serving, and egocentric behaviors (Christie & Geis, 1970). There is evidence suggesting that Machiavellianism can influence individuals' attitudes toward technology and their intention to use digital services (Özsoy et al.,

2017). Within this framework, the study focuses on the effects of the AISAQUAL dimensions on consumer Machiavellianism and how Machiavellianism, in turn, affects the intention to use. Additionally, the impact of time pressure on the intention to use ChatGPT is also examined. Time pressure refers to the time constraints individuals face during decision-making processes, and its effects on technology use have been widely discussed in the literature (Liu, et al., 2022). Another focal point of this study is how features such as availability and efficiency offered by digital services influence the intention to use these services under time pressure. In this context, the research model used is presented in Figure 1.

This model has been developed to examine the effects of AI service quality on Machiavellianism and the intention to use ChatGPT, as well as the impact of the time pressure variable on the intention to use ChatGPT. The aim is to fill a gap in the literature within this theme, providing insights into how the quality of AI services, specifically through ChatGPT, is perceived in relation to these variables. By doing so, this research study seeks to contribute to a deeper understanding of how users' personality traits and external pressures influence their intentions to adopt and engage with AI services.

FIGURE 1: Research model



Source: Authors' own research.

3.3. Sample and procedure

The study employed a purposive sampling method to target young consumers with high technology interest, specifically undergraduate and graduate students in artificial intelligence, information technology, and related fields at Turkish universities. According to Patton (2002), this approach allows for the selection of participants with relevant expertise, thereby enhancing research validity. Data collection was conducted using an online survey through Google Forms. The survey included questions measuring AISAQUAL scale dimensions, Machiavellianism, time pressure, intention to use, and demographic information. The survey link was distributed to participants representing the target sample. To ensure data quality, researchers provided guidance during completion, with all responses being collected exclusively through the online platform. Participation was voluntary, and ethical standards regarding confidentiality and data use were maintained throughout the process.

3.4. Data collection process and technique

Before conducting the research, its ethical appropriateness was reviewed. In this context, ethical approval was obtained from the Non-Interventional Ethics Committee of Burdur Mehmet Akif Ersoy University on April 3, 2024. Data for the research was collected through an online survey using Google Forms between July 20, 2024 and August 20, 2024, with participants being asked whether they had used ChatGPT before. Those who responded "Yes" continued with the survey, while 137 participants who answered "No" were excluded from the study. The survey form included questions about the version of ChatGPT participants used (paid/free), how frequently they used it, and their purposes for using it, along with demographic information. After that, the scale statements in Appendix 1 were presented to the participants.

Before being provided with the survey form, participants were informed about the purpose of the research and the confidentiality of their data. In this process, 392 valid responses were obtained from participants who agreed to take part in the study. This sample size exceeds the minimum sample size recommended in the literature for Structural Equation Modeling (SEM) (Hoelter, 1983; Garver & Mentzer, 1999), providing sufficient statistical power for analysis. This rigorous data collection process enhanced the validity of the research and ensured the reliability of the data obtained.

3.5. Data analysis

3.5.1. Descriptive statistics

A total of 535 participants took part in the study. Of this number, 6 obtained survey forms were deemed invalid, while 137 participants who indicated they had not used ChatGPT were excluded. As a result, the final number of participants included in the research was 392. The demographic information of the participants (age, education level, gender, personal income), their previous experience with ChatGPT, the version of ChatGPT they used, and their purposes for using ChatGPT were identified and evaluated. Of the participants, 55% were male and 45% were female, with the majority (63.3%) being between the ages of 19 and 21. Participants aged 25 and older accounted for 10.8% of the sample. Most participants (91.2%) were at the undergraduate or associate degree level; 57% had a personal income of 5,000 TRY (114.42 EUR) or lower, while 12% reported a personal income of 20,000 TRY (445.70 EUR) or more. The vast majority (96%) used the free version of ChatGPT, primarily for purposes such as information gathering, personal assistance, and support, as well as learning and educational activities.

3.5.2. Partial least squares structural equation modeling

The choice of a statistical analysis method depends on the dataset and research objectives,

rather than the inherent superiority of any approach (Rigdon, 2012; Sarstedt et al., 2021). In social sciences, accurate model structure and data quality are critical (Hair et al., 2022). Covariance-based structural equation modeling (CB-SEM) is traditionally used for theory testing and confirmatory research (Garson, 2016; Kline, 2023), whereas partial least squares SEM (PLS-SEM) has gained popularity since the 2010s for its flexibility in exploratory research and handling complex models (Hair et al., 2019; Sarstedt et al., 2021). PLS-SEM is advantageous for small sample sizes and less stringent distribution assumptions (Hair et al., 2022). While CB-SEM excels in reflective models and confirmatory modeling, PLS-SEM is preferred for formative models and predictive analysis. Both methods can complement each other depending on the research objectives (Sarstedt et al., 2023; Hair et al., 2022). This study employed PLS-SEM with SmartPLS 4, which was chosen for its suitability to the research model. Reliability was assessed using Cronbach's alpha and Composite Reliability (CR), while convergent validity was evaluated using factor loadings and Average Variance Extracted (AVE) (Hair et al., 2013). Discriminant validity was verified applying the Fornell-Larcker criterion and the Heterotrait-Monotrait Ratio (HTMT), methods increasingly preferred in recent studies (Henseler et al., 2015; Voorhees et al., 2016). The MIMIC model was utilized for external and internal validity in formative constructs (Diamantopoulos & Winklhofer, 2001), while reflective constructs were evaluated with alternative metrics (Peng & Lai, 2012). Results demonstrated psychometric robustness, aligning with study objectives and contributing to the understanding of statistical modeling practices.

3.5.3. Validity and reliability of the scales

Before proceeding with the analysis of the research model, the validity and reliability of the constructs included in the study were examined. In this context, internal consistency reliability, convergent validity, and discriminant validity were evaluated. To measure internal

consistency reliability, Cronbach's alpha coefficient and CR values were analyzed. For the assessment of convergent validity, factor loadings and AVE values were taken into account. Factor loadings are expected to be ≥ 0.708 , Cronbach's alpha and composite reliability coefficients ≥ 0.70 , and the AVE value ≥ 0.50 (Hair et al., 2017; Fornell & Larcker, 1981). The results related to the internal consistency reliability and convergent validity of the constructs included in the study are presented in Table 1.

According to results in Table 1, all factor loadings exceeded the minimum threshold of ≥ 0.708 as suggested by Hair et al. (2017), with values ranging from 0.726 to 0.931. The lowest factor loadings were observed for Time pressure-1 (0.726) and Anthropomorphism-3 (0.736), while all other items demonstrated higher loadings. Hair et al. (2017) recommend that items with factor loadings between 0.40 and 0.70 be removed from the model if their AVE and CR values are also below the threshold. However, since all factor loadings in this study exceeded the 0.708 threshold and the relevant AVE (≥ 0.50) and CR (≥ 0.70) threshold values were met for all constructs, no items were removed from the measurement model. Cronbach's alpha coefficients, which assess internal consistency reliability, ranged between 0.762 and 0.908 and with CR coefficients in the range of 0.861 to 0.942, all meeting the recommended threshold of ≥ 0.70 (Bagozzi & Yi, 1988; Hair et al., 2017), internal consistency reliability has been achieved. Additionally, a review of the AVE coefficients, which measure the amount of variance captured by constructs relative to the measurement error, showed their values in the 0.649–0.845 range; thus, they clearly exceeded the ≥ 0.50 threshold (Fornell & Larcker, 1981), confirming that convergent validity was established.

According to the Fornell and Larcker (1981) criterion, the square root of the AVE values for the constructs in the study should be higher than the correlation coefficients between these constructs and others. The results of the analysis based on this criterion are presented in Table 2.

The values in parentheses represent the square roots of the AVE values. Upon reviewing the results, it is expected that each construct's AVE square root will be higher than the correlation coefficients with other constructs. The Hetero-trait-Monotrait Ratio (HTMT) coefficients, as

proposed by Henseler et al. (2015), represent the ratio of the average correlation between items of different constructs to the geometric mean of the correlations between items of the same construct. The authors suggest that, for constructs that are theoretically similar, the

TABLE 1: Reliability and validity values of variables

Variable	Factor load	Cronbach's alpha	CR	AVE
Efficiency-1	0.738	0.822	0.882	0.651
Efficiency-2	0.838			
Efficiency-3	0.815			
Efficiency-4	0.833			
Security-1	0.895	0.902	0.931	0.772
Security-2	0.900			
Security-3	0.895			
Security-4	0.823			
Availability-1	0.917	0.908	0.942	0.845
Availability-2	0.931			
Availability-3	0.909			
Enjoyment-1	0.919	0.903	0.933	0.779
Enjoyment-2	0.923			
Enjoyment-3	0.755			
Enjoyment-4	0.922			
Anthropomorphism-1	0.837	0.891	0.917	0.649
Anthropomorphism-2	0.816			
Anthropomorphism-3	0.736			
Anthropomorphism-4	0.889			
Anthropomorphism-5	0.750			
Anthropomorphism-6	0.797			
Machiavellianism-1	0.847	0.883	0.919	0.740
Machiavellianism-2	0.842			
Machiavellianism-3	0.877			
Machiavellianism-4	0.874			
Time pressure-1	0.726	0.762	0.861	0.676
Time pressure-2	0.832			
Time pressure-3	0.899			
Intention to use-1	0.866	0.845	0.907	0.764
Intention to use-2	0.903			
Intention to use-3	0.853			

Source: Authors' own research.

HTMT coefficient should be below 0.90, while for constructs that are theoretically distinct, the

HTMT coefficient should be below 0.85. The relevant coefficients are shown in Table 3.As

TABLE 2: Fornell and Larcker / HTMT coefficients

Fornell and Larcker criterion								
	A	G	K	KN	Mak	V	Z	ZB
Anthropomorphism (A)	0.806							
Security (G)	0.507	0.879						
Availability (K)	0.366	0.446	0.919					
Intention to use (KN)	0.366	0.317	0.512	0.874				
Machiavellianism (Mak)	0.364	0.222	0.069	0.149	0.860			
Efficiency (V)	0.358	0.471	0.577	0.505	0.050	0.807		
Enjoyment (Z)	0.405	0.381	0.624	0.609	0.147	0.550	0.883	
Time pressure (ZB)	0.219	0.146	0.211	0.347	0.389	0.198	0.285	0.822
HTMT coefficient								
	A	G	K	KN	Mak	V	Z	ZB
Anthropomorphism (A)								
Security (G)	0.562							
Availability (K)	0.398	0.492						
Intention to use (KN)	0.413	0.358	0.584					
Machiavellianism (Mak)	0.409	0.245	0.083	0.168				
Efficiency (V)	0.413	0.539	0.663	0.597	0.076			
Enjoyment (Z)	0.448	0.419	0.685	0.692	0.169	0.620		
Time pressure (ZB)	0.280	0.181	0.249	0.417	0.495	0.243	0.337	

Source: Authors' own research.

seen in Tables 2 and 3, the threshold values for the relevant criteria and coefficients have been met without any critical issues. It was determined that all requirements were fulfilled, both in terms of the Fornell and Larcker (1981) criterion and the HTMT (Heterotrait-Monotrait Ratio) coefficients. According to the Fornell and Larcker criterion, the square roots of the average variance extracted (AVE) values were found to be higher than the correlation coefficients between the constructs and others. Additionally, the HTMT coefficients, as proposed by Henseler et al. (2015), were below the specified threshold values of all constructs. These results indicate that the discriminant validity of model constructs is at a satisfactory level and that the overall validity of the model was established.

3.5.4. Research model and results testing

The PLS-SEM method was employed in the analysis of the research model, with data analyzed using the SmartPLS 4 statistical software. The PLS algorithm was utilized to calculate linearity, path coefficients, R^2 , and effect size (f^2) for the research model. Additionally, the blind-folding analysis was performed to determine the predictive power (Q^2). To evaluate the significance of the PLS path coefficients, t-values were calculated based on 5000 subsamples using the bootstrap resampling method. The VIF, R^2 , adjusted R^2 , f^2 , and Q^2 values related to the research findings are presented in Table 3.

TABLE 3: Research model values

Variable	VIF	R-square	R-square adjusted	f2	Q2
Anthropomorphism	1.452			0.099	
Security	1.594			0.009	
Availability	1.950			0.005	
Efficiency	1.770			0.010	
Enjoyment	1.870			0.005	
Machiavellianism		0.152	0.141		0.440
Time pressure					
Intention to use		0.481	0.464		0.127

Source: Authors' own research.

When examining the VIF values among the variables, it was observed that all values are below 5, indicating that there is no multicollinearity issue between the variables (Hair et al., 2017). To assess the variance of the variables in the model, the R² value was measured both in its adjusted and unadjusted forms. Upon evaluating the R² values, it was found that the variables explain the variance of the dependent variables within the range of 0.152 to 0.481. While it may not be easy to claim that these values are very close to each other, it was determined that they demonstrate a certain level of effect size and exhibit adequate model fit (Cohen, 2013). Sarstedt et al. (2017) suggest that when the effect size coefficient (f²) is below 0.02, it is not possible to speak of a significant effect. According to Cohen (1988), this coefficient is classified as low when it stands at 0.02 or above, medium when it is 0.15 or above, and high when it is 0.35 or above. The predictive power coefficients (Q²) calculated for the endogenous variables indicate that when Q² values are greater than zero, the model has predictive power over the endogenous variables (Hair et al., 2017). As seen in Table 3, the fact that the Q² values are greater than zero demonstrates that the research model has predictive power over the variables of Machiavellianism and intention to use. In this context, hypothesis tests for the model, which is assumed to possess predictive power, were conducted.

The path coefficients of the direct effects in the research model are shown in Table 4.

As shown in Table 4, the subdimensions of Efficiency (β=-0.125; p<0.05), Security (β=0.114; p<0.05), and Anthropomorphism (β=0.159; p<0.001) were found to have statistically significant effects on the Machiavellianism variable. The Anthropomorphism subdimension was also found to have a significant effect on the Machiavellianism variable (β=0.349; p<0.05), and Time Pressure was found to have a significant effect on the Intention to use variable (β=0.159; p>0.05). Additionally, the Efficiency subdimension (β=0.177; p<0.05) and the Enjoyment subdimension were shown to have significant effects on the Intention to Use variable. In this context, hypotheses H1, H2, H5, H6, H8, and H11 were supported, while hypotheses H3, H4, H7, H9, H10, and H12 were not supported.

4. DISCUSSION AND CONCLUSION

This study analyzed the influence of AISAQUAL dimensions—efficiency, security, availability, enjoyment, and anthropomorphism—on Machiavellianism and the intention to use ChatGPT. The results highlight the multidimensional nature of service quality and its distinct interactions with personality traits and user adoption behaviors. Efficiency and security emerged as significant predictors of Machiavellian tendencies. While efficiency mitigates self-serving behaviors, security appears to reinforce them, reflecting the nuanced relationship between perceived service quality and personality traits (Noor et al., 2022).

TABLE 4: Direct effect path coefficients of the research model

Hypotheses	Variables	Standard-ized β	Standard deviation	t-value	p-value	Final result
H ₁	Efficiency-> Machiavelianism	-0.125	0.062	2.025	0.043	Accepted
H ₂	Security-> Machiavelianism	0.114	0.058	1.965	0.049	Accepted
H ₃	Availability-> Machiavelianism	-0.095	0.060	1.581	0.114	Rejected
H ₄	Enjoyment-> Machiavelianism	0.087	0.062	1.404	0.160	Rejected
H ₅	Antropomorfism-> Machiavelianism	0.349	0.058	6.025	0.001	Accepted
H ₆	Time pressure-> Intention to use	0.159	0.049	3.241	0.001	Accepted
H ₇	Machiavelianism-> Intention to use	-0.010	0.045	0.226	0.821	Rejected
H ₈	Efficiency-> Intention to use	0.177	0.053	3.376	0.001	Accepted
H ₉	Security-> Intention to use	-0.040	0.054	0.736	0.461	Rejected
H ₁₀	Availability-> Intention to use	0.098	0.059	1.673	0.094	Rejected
H ₁₁	Enjoyment-> Intention to use	0.336	0.067	4.985	0.001	Accepted
H ₁₂	Antropomorfism-> Intention to use	0.091	0.050	1.824	0.068	Rejected

Source: Authors' own research.

These findings expand upon prior research that underscores the effectiveness of the AISAQUAL scale in evaluating digital service quality. Efficiency and enjoyment were identified as key drivers of ChatGPT adoption. The utilitarian value of efficiency aligns with users' preference for quick, functional solutions, particularly under time pressure (Guo et al., 2020); meanwhile, enjoyment enhances hedonic value, emphasizing the importance of entertainment and availability in fostering technology adoption (Zeithaml et al., 2002a; Meyer-Waarden et al., 2020). In contrast, dimensions like security, availability, and anthropomorphism, as well as Machiavellianism, showed no significant direct impact on adoption intentions. These findings suggest that users prioritize efficiency and enjoyment over

secondary factors, highlighting the dual utilitarian and hedonic appeal of AI-based services (Van Der Heijden, 2004). Moreover, the positive effect of time pressure on adoption reinforces the importance of practicality in technology use. Overall, the study contributes to the broader understanding of the role service quality plays in shaping user satisfaction and adoption behaviors, aligning with the literature on digital service quality and user engagement (Parasuraman et al., 1988; Lin & Hsieh, 2011).

While this study primarily examined direct effects, the research model structure allows for the assessment of potential mediation pathways following established mediation analysis principles (Baron & Kenny, 1986; Hayes, 2017). For mediation to occur, three conditions must

be met: (1) the independent variable must significantly affect the mediator, (2) the mediator must significantly affect the dependent variable, and (3) the independent variable must affect the dependent variable. Examining our results, efficiency, security, and anthropomorphism significantly influenced Machiavellianism (H1, H2, H5 accepted), establishing the first mediation condition. However, Machiavellianism showed no significant effect on intention to use ChatGPT (H7 rejected, $\beta=-0.010$, $p=0.821$), violating the second condition for mediation. According to Zhao et al. (2010), when the mediator does not significantly predict the outcome variable, mediation effects are absent regardless of other pathway significance. Therefore, while efficiency and enjoyment directly influence usage intentions (H8, H11 accepted), these effects operate through direct pathways rather than being mediated by Machiavellian tendencies. This finding suggests that service quality perceptions among users shape their ChatGPT adoption, primarily through utilitarian and hedonic evaluations rather than through personality-based manipulative tendencies.

The non-significant effect of Machiavellianism on ChatGPT usage intention (H7 rejected) may reflect the instrumental nature of ChatGPT as a tool-oriented technology rather than a social platform designed for interpersonal manipulation. While Machiavellianism demonstrated significant associations with specific AISAQUAL dimensions (efficiency, security, anthropomorphism), indicating that personality traits do influence service quality perceptions, the translation of these perceptions into behavioral intentions appears to follow different pathways. Machiavellian individuals may evaluate ChatGPT service qualities through their characteristic lens but ultimately base their usage decisions on pragmatic considerations rather than strategic manipulation opportunities. This finding suggests that for AI assistant technologies, utilitarian factors override personality-driven motivations in determining adoption intentions; this

aligns with established technology acceptance research, demonstrating the dominance of perceived usefulness in tool adoption contexts (Davis, 1989b). Similarly, the non-significant effects of availability (H10) and security (H12) on usage intention may indicate that these dimensions are perceived as baseline expectations rather than differentiating factors for ChatGPT adoption. Given that 96% of survey participants utilized the free version, availability concerns appear to be minimized, rendering this dimension less salient in driving usage intentions. Correspondingly, security considerations may be viewed as being adequately addressed for typical ChatGPT usage scenarios, thereby directing user attention toward more experientially relevant service quality factors, such as efficiency and enjoyment that directly enhance perceived value and user satisfaction.

The rejection of several hypotheses provides valuable theoretical insights into the nuanced relationships between AI service quality dimensions and user behavior. The non-significant effects of availability and enjoyment on Machiavellianism (H3, H4 rejected) suggest that these service quality dimensions do not inherently trigger manipulative personality tendencies. This finding indicates that Machiavellian traits are more responsive to dimensions that offer strategic advantages (efficiency, security) or human-like interactions (anthropomorphism) rather than basic service accessibility or hedonic experiences. The rejection of security, availability, and anthropomorphism effects on usage intention (H9, H10, H12 rejected) reveals that users prioritize functional and experiential benefits over foundational service attributes when deciding to adopt ChatGPT. These results are in line with technology acceptance theories emphasizing the primacy of perceived usefulness and enjoyment (Davis, 1989a; Van Der Heijden, 2004) in driving adoption decisions.

4.1. Practical implications

From a managerial perspective, these findings offer actionable insights for ChatGPT developers and AI service providers. Organizations should prioritize enhancing efficiency features through faster response times, more accurate outputs, and streamlined user interfaces that minimize cognitive effort. Enjoyment can be enhanced by incorporating interactive elements, personalized responses, and gamification features that make the user experience more engaging and satisfying. While security, availability, and anthropomorphism showed limited direct impact on adoption intentions, these features should not be neglected as they influence user perceptions and may serve as competitive differentiators. The significant role of time pressure in driving usage intention suggests that marketing strategies should emphasize ChatGPT's ability to provide quick solutions and time-saving benefits. Additionally, the finding that Machiavellianism influences service quality perceptions but not usage intentions indicates that AI developers should focus on functional excellence rather than attempting to appeal to users' strategic or manipulative tendencies.

4.2. Research limitations

This study acknowledges several limitations that may affect the generalizability and interpretation of findings. First, the cross-sectional design limits the ability to establish causal relationships and temporal sequences between variables. Second, the sample was restricted to young Turkish consumers, primarily students in technology-related fields, which may limit the applicability of findings to broader populations and cultural contexts. Third, the study relied on self-reported measures, which may be subject to social desirability bias, particularly

for sensitive constructs like Machiavellianism. Fourth, the research focused exclusively on ChatGPT, and findings may not be generalized in respect of other AI applications with different characteristics or use cases. Fifth, the predominantly free-user sample (96%) may not represent behaviors and perceptions of premium users who have different engagement levels and expectations. Finally, individual differences in technology literacy and prior AI experience, while partially controlled through sample selection, may still influence the observed relationships.

4.3. Future research directions

Several avenues for future research emerge from this study's findings and limitations. Longitudinal studies examining the evolution of user perceptions and usage intentions over time would provide deeper insights into the dynamic nature of AI adoption. Cross-cultural research investigating how cultural values and technology acceptance patterns influence the relationships between service quality, personality traits, and usage intentions would enhance the generalizability of findings. Future studies should also examine alternative personality traits such as openness to experience, conscientiousness, or digital nativity that may better predict AI adoption behaviors. Research incorporating both free and premium users would provide a more comprehensive understanding of how payment models influence user expectations and behaviors. Additionally, investigating the mediating and moderating roles of factors such as trust, perceived risk, and user experience would enrich theoretical understanding. Finally, experimental designs manipulating specific service quality dimensions could establish causal relationships and provide more definitive guidance for AI service development.

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APPENDIX 1: Scale Items

Variable	Scale items (English version)	Scale items (Turkish version)
	AISAQUAL	AISAQUAL
	1st dimension: Efficiency	1. Boyut: Verimlilik
Efficiency-1	ChatGPT works properly on the first try.	ChatGPT ilk denemede düzgün çalışıyor.
Efficiency-2	I can get my work done quickly with ChatGPT.	ChatGPT ile işimi kısa sürede halledebiliyorum.
Efficiency-3	ChatGPT's interface provides information clearly.	ChatGPT'nin ara yüz tasarımı, bilgileri net bir şekilde sağlar.
Efficiency-4	ChatGPT meets my needs adequately.	ChatGPT ihtiyaçlarımı yeterince karşılıyor.
	2nd dimension: Security	2. Boyut: Güvenlik
Security-1	There is no risk of loss when sharing personal information with ChatGPT.	Kişisel bilgilerin ChatGPT ile paylaşılmasıyla ilgili herhangi bir kayıp riski yoktur.
Security-2	I feel safe when providing sensitive information to ChatGPT.	ChatGPT'ye hassas bilgiler sağlama konusunda kendimi güvende hissediyorum.
Security-3	I believe the information ChatGPT holds about me is protected.	ChatGPT'nin benim hakkımda sahip olduğu bilgilerin korunduğuna inanıyorum.
Security-4	I believe my personal information on ChatGPT will not be misused.	ChatGPT'deki kişisel bilgilerimin kötüye kullanılmayacağına inanıyorum.
	3rd dimension: Availability	3. Boyut: Kullanılabilirlik
Availability-1	ChatGPT is always ready for use.	ChatGPT her zaman kullanıma hazırdır.
Availability-2	ChatGPT is always available enough to respond to my requests.	ChatGPT her zaman isteklerime yanıt verecek kadar müsaittir.
Availability-3	ChatGPT is always accessible.	ChatGPT her zaman erişilebilir.
	4th dimension: Enjoyment	4. Boyut: Zevk
Enjoyment-1	Using ChatGPT is enjoyable.	ChatGPT'yi kullanmak keyiflidir.
Enjoyment-2	Using ChatGPT is fun.	ChatGPT'yi kullanmak eğlencelidir.
Enjoyment-3	Using ChatGPT is interesting.	ChatGPT'yi kullanmak ilginçtir.
Enjoyment-4	Using ChatGPT is entertaining.	ChatGPT'yi kullanmak eğlendiricidir.
	5th dimension: Anthropomorphism	5. Boyut: Antropomorfizm
Anthropomorphism-1	ChatGPT has human-like characteristics.	ChatGPT insani özelliklere sahiptir.
Anthropomorphism-2	ChatGPT has a personality.	ChatGPT'nin kişiliği vardır.
Anthropomorphism-3	ChatGPT gradually gets to know me.	ChatGPT git gide beni tanır.
Anthropomorphism-4	ChatGPT can behave like a human.	ChatGPT bir insan gibi davranabiliyor

Variable	Scale items (English version)	Scale items (Turkish version)
	AISAQUAL	AISAQUAL
Anthropomorphism-5	ChatGPT provides personalized responses.	ChatGPT kişiselleştirilmiş cevaplar verir.
Anthropomorphism-6	ChatGPT can communicate like a human.	ChatGPT bir insan gibi iletişim kurabiliyor.
	Machiavellianism	Makyavelizm
Machiavellianism-1	I tend to manipulate others to get what I want.	İstediğimi elde etmek için başkalarını manipüle etmeye eğilimliyim.
Machiavellianism-2	I have used deception or told lies to get what I want.	İstediğimi elde etmek için hileye başvurmuşluğum ya da yalan söylemişliğim vardır.
Machiavellianism-3	I flatter others to get what I want.	İstediğimi elde etmek için pohpohlamaya başvururum.
Machiavellianism-4	I tend to use others for my own benefit.	Kendi çıkarım için başkalarını kullanmaya eğilimliyim.
	Time pressure	Zaman Baskısı
Time pressure-1	I feel rushed to do all the things I need to do.	Tamamlamam gereken şeyleri yapmak için acele ettiğimi hissediyorum.
Time pressure-2	I don't have enough time to do everything.	Her şeyi halletmek için yeterli zamanım yok.
Time pressure-3	I feel like most of my time is restricted.	Çoğu zaman zamanımın kısıtlı olduğunu hissediyorum.
	Intention to use	Kullanma Niyeti
Intention to use-1	I plan to continue using ChatGPT in the future.	Gelecekte ChatGPT kullanmaya devam etmeyi planlıyorum.
Intention to use-2	I expect that my use of ChatGPT will continue in the future as well.	ChatGPT kullanımımın gelecekte de devam etmesini bekliyorum.
Intention to use-3	I will strongly recommend to others to use ChatGPT.	Başkalarına ChatGPT kullanmalarını şiddetle tavsiye edeceğim.