



PERCEIVED TRAITS OF INTELLIGENT PERSONAL ASSISTANTS (IPAS) ON SOCIAL COMMERCE INTENTION AND ACCEPTANCE BY INCORPORATING PERSONALITY TRAITS: A RESEARCH MODEL

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Abstract

AI plays a significant role in social commerce. To foster the acceptance of AI technologies for social commerce, it is important to understand people's use of IPAs. This paper proposes a research model on the perceived traits of IPAs in relation to social commerce intention and acceptance by incorporating personality traits. The paper suggests that perceived competence, perceived intelligence, perceived playfulness, and perceived trustworthiness are the major constructs used to measure perceived IPA traits. Furthermore, the paper concludes that personality traits such as openness, conscientiousness, extraversion, agreeableness, and neuroticism moderate the relationship between perceived IPA traits and social commerce intention. Research hypotheses, research methodology, and research instruments are also presented in this ongoing research paper.

Keywords

AI, Intelligent Personal Assistants (IPAS), Social Commerce, Personality Traits, Intention and Acceptance

1. Introduction

As of April 2023, 60 percent or 5.07 billion of the world's population uses social media. Social media platforms such as Meta, YouTube, Instagram, WhatsApp, LinkedIn, and Twitter are extremely popular among social media users (Chaffey, 2024). Given that social media are peer-to-peer, involving conversations between friends, families and colleagues, businesses are sensitive on how to use social media to reach out to their potential customers, target audience, build brand awareness, and drive sales. However, a recent study from Global Web Index (GWI, 2024) on social media trends suggests that social media users are open to commercial propositions, and 'follow or find information about products/brands' is the one of the top 3 motivations for them. Moreover, those users use more social media platforms than Internet search engines when looking for brand and/or product information (GWI, 2023). Social media has become an excellent social commerce platform for buyers and sellers to interact. Social commerce is an extended version of e-commerce to the use of social media for commercial transactions that are driven primarily by social interactions and user contributions (Stephen & Toubia, 2010). Businesses indeed can leverage social media to engage with customers, promote products, brands, or services, and facilitate transactions (Huang & Benyoucef, 2013). In 2022, social commerce generated about 728 billion U.S. dollars revenues. With an expected compound annual growth rate (CAGR) of 31.6 percent from 2023 to 2030, revenues in social commerce are forecast to reach approximately 6.2 trillion dollars in 2030. (Statista, 2023). As AI technologies continue to advance, they are increasingly employed in social commerce to enhance the customer experience and drive favorable business outcomes (Ali, Abbass, & Farid, 2020). AI-powered IPAs can provide real-time personalized customer support, answer inquiries, and assist with purchase decisions. Therefore, there is a strong appeal to examine the perceived traits of IPAs on social commerce intention and acceptance. Results of this study will enrich the technology acceptance literature by expanding the research domain into personalized artificial intelligence and social commerce.

2. Perceived Traits of IPAs

Artificial intelligence (AI) describes a system's ability to interpret internal and external data correctly, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaption (Kaplan & Haenlein, 2019). Intelligent Personal Assistants (IPAs) are AI-powered agents capable of generating personalized responses, pulling from contexts such as customer metadata, prior conversations, knowledge bases, geolocation, and other data sources. In 2020, there were about 4.2 billion IPAs used in personal computers and mobile devices around the world. Popular IPAs on the market include Apple's Siri, Amazon's Alexa, Baidu's Duer, Google's Google Assistant, Samsung's Bixby, and Microsoft's Cortana (Statista, 2021). Imagine an IPA helps you as you browse – recommending products, brands, or services; options to add; answering questions about price, size/weight, availability, delivery, warranties, and more. It can engage customers with personalized and effective communication based on user preferences, behavior, and past interactions. Moreover, it can create user-specific landing pages on the social media of their choice based on customers' intent and usage patterns to complete their purchase.

The cognitive capability to perform tasks and the emotional intelligence to understand and interact with users are considered the most important for users' experience with AI-powered IPAs (Moussawi, Koufaris, & Benbunan-Fich, 2020). This paper purposes that the perceived traits of the IPA impact the intention and acceptance of social commerce. The perceived competence construct examined in perceived traits of IPAs refers to the degree to which users perceive capability, efficacy, efficiency, and ease of use in IPAs, whereas the perceived intelligence construct refers to the degree to which users' perceived caring, kindness, friendliness, patience, and personalized engagement in IPAs (Hu, Lu, Pan, Gong, & Yang, 2021; Mikalef & Gupta, 2021). Perceived playfulness is also included in the perceived traits of IPAs. Perceived playfulness or enjoyment has been extensively researched in the domain of consumer behavior. Perceived playfulness as a specific hedonic experience refers to the sensations derived from the experience of using IPAs. More and more IS research studies have been including perceived playfulness as an essential construct to enrich the studies of user acceptance of a particular technology (Venkatesh, Thong, and Xu, 2012). In addition, when users interact with IPAs, trust also plays a significant role (Song, Xu, & Zhao, 2022). Perceived trustfulness needs to be included to reflect users' increased concerns about privacy and security during online transmission of personal and sensitive information. In summary, this paper includes the following four constructs for measuring the perceived traits of IPAs:

- Perceived Competences
- Perceived Intelligence
- Perceived Playfulness and
- Perceived Trustfulness

3. Personality Traits

To foster the acceptance of AI technologies for social commerce, it is important to understand people's use of IPAs. Psychological literature suggests that human behaviors are often influenced by their personality traits. Personality traits are the enduring patterns of thoughts, feelings, and behaviors that characterize an individual's unique way of interacting with the world. They influence how we perceive and respond to situations, as well as how we relate to others. Personality traits play a significant role in shaping behavior, influencing relationships, and determining individual success and well-being. However, the literature review shows that little is known about whether the personality traits moderate the relationship between perceived traits of IPAs and social commerce intention. Research suggests that the "Big 5" personality traits include:

- Openness
- Conscientiousness
- Extraversion
- Agreeableness and
- Neuroticism

These five personality traits are remarkably universal to accurately describe users' personality (McCrae & Costa, 1987; Terzis, Moridis, & Economides, 2012). Openness is the personality trait of seeking new experience and intellectual pursuits. A high score in the personality trait of openness generally indicates that an individual is open-minded, imaginative, and receptive to new experiences; Conscientiousness refers to the tendency of individuals to be organized, responsible, and dependable in their actions and behaviors. Highly conscientiousness tends to be organized and mindful of details; Extraversion is characterized by excitability, sociability, talkativeness, assertiveness, and high amounts of emotional expressiveness. High scorers tend to be very social while low scorers prefer to work on their own; People who are high in agreeableness tend to be more cooperative while those low in

this trait tend to be more competitive; Neuroticism is a trait characterized by sadness, moodiness, and emotional instability. Individuals who are high in this trait tend to experience mood swings, anxiety, irritability, and sadness. An understanding of users' personality traits can help businesses unleash their potential for social commerce by effective marketing campaigns that target specific individuals and ultimately increase sales, customer satisfaction, and broader acceptance. Businesses can form better strategies of attracting social media users for commercial activities.

4. Research Model

AI technologies are applied in the design of IPAs to simulate how a human behaves as a conversational partner. For the past decades, researchers have proposed models and conducted many studies to explain and predict user intention and acceptance of IT (Hu, Lu., Pan, Gong, & Yang, 2021; Venkatesh, Thong, & Xu, 2012). Since IPAs are anthropomorphized with humanlike features, users may feel uncomfortable engaging IPAs, and thus decrease conversation length and reduce purchase rates (Luo, Tong, Fang, & Qu, 2019). To better understand the intention and acceptance of IPAs, it is essential to explore it in more depth from social commerce aspect by incorporating the personality traits. Thus, the following research model will be tested:

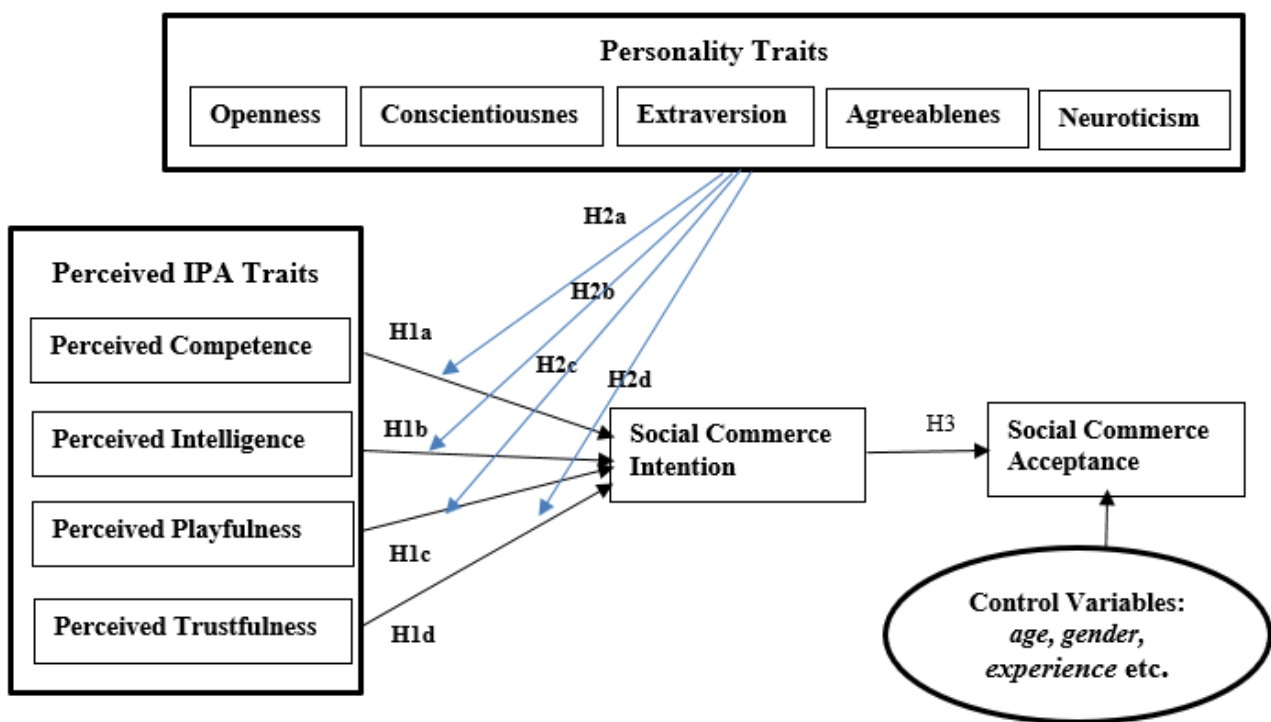


Figure 1: Research Model on the Acceptance of IPAs on Social Commerce Continuation Intention and Use by Incorporating the Personality Traits

5. Research Hypotheses

Based on the above research model, the following research hypotheses will be tested:

H1a: Perceived Competence of an IPA positively influences Social Commerce Intention.

H1b: Perceived Intelligence of an IPA positively influences Social Commerce Intention.

H1c: Perceived Playfulness of an IPA positively influences Social Commerce Intention.

H1d: Perceived Trustfulness of an IPA positively influences Social Commerce Intention.

H2a: For users of high openness, conscientiousness, extraversion, agreeableness, and low neuroticism, Perceived Competence of an IPA has stronger effect on Social Commerce Intention.

H2b: For users of high openness, conscientiousness, extraversion, agreeableness, and low neuroticism, Perceived Intelligence of an IPA has stronger effect on Social Commerce Intention.

H2c: For users of high openness, conscientiousness, extraversion, agreeableness, and low neuroticism, Perceived Playfulness of an IPA has stronger effect on Social Commerce Intention.

H2d: For users of high openness, conscientiousness, extraversion, agreeableness, and low neuroticism, Perceived Trustfulness of an IPA has stronger effect on Social Commerce Intention.

H3: Social Commerce Intention through an IPA positively influences Social Commerce Acceptance.

6. Research Methodology

To test the proposed research hypotheses and research model in Figure 1, surveys will be made available to users who are familiar with IPAs on Wenjuanxing (www.wjx.cn), a professional online questionnaire platform with a participation pool of more than 260 million users. IPAs users will be recruited to fill out the questionnaire. Research constructs will be measured with multi-item 7-point Likert scales ranging from “completely disagree” to “completely agree”. Partial Least Square procedures in SmartPLS program and other statistical techniques will be used for model testing. The author expects to distribute surveys in Summer 2024, and complete data analysis in Fall 2024. Detailed data analysis with results and conclusions of the study will be submitted to the journal for publication.

6. Survey Instruments

This survey investigates individual experience and perceptions toward using Intelligent Personal Assistants (IPA) for social commerce. If you haven't used an IPA, please do not fill out the survey.

SECTION I - BACKGROUND INFORMATION

Social Media Platform (Please put a X in front of the social media platform category you use often to explore product/brand information. Please check all that apply.)

- _____ 1. Facebook (Meta)
- _____ 2. Youtube
- _____ 3. WhatsApp
- _____ 4. Instagram
- _____ 5. TikTok
- _____ 6. Snapchat
- _____ 7. Pinterest
- _____ 8. Reddit
- _____ 9. LinkedIn
- _____ 10. Twitter
- _____ 11. WeChat
- _____ 12. Others (Please specify _____).

Intelligent Personal Assistant (IPA) Devices (Please put a X in front of the IPA category you engage most often on social media. Please check all that apply.)

- _____ 1. Alibaba's AliGenie (Tmall Genie)
- _____ 2. Apple's Siri
- _____ 3. Amazon's Alexa
- _____ 4. Baidu's Duer
- _____ 5. Google's Google Assistant
- _____ 6. Huawei's Xiaoyi
- _____ 7. Microsoft's Cortana
- _____ 8. Samsung's Bixby
- _____ 9. Tencent's Xiaowei
- _____ 10. Xiaomi's Xiaoai
- _____ 11. Others (Please specify _____).

Your experience with IPAs (Please fill up the blanks or circle your choice):

1. I have engaged with IPAs through social media for
 (1) ≤ 1 year (2) 1-2 years (3) 3-5 years (4) ≥ 5 years
2. The main purpose(s) of engaging an IPA during a day on social media (Please check all that apply):
 - _____ 1. Call or text someone.
 - _____ 2. Search for information.
 - _____ 3. Search for shopping.
 - _____ 4. Ask for recommendations.
 - _____ 5. Engage natural conversation.
 - _____ 6. Ask for automating tasks.
 - _____ 7. Others (Please specify _____).

Your demographics: (Please fill up the blanks or circle your choice):

1. Your age: (1) ≤ 20 years (2) 21-30 years (3) 31-40 years (4) 41-50 years (5) ≥ 51 years
2. Gender: Male/Female
3. Education: High school; College/University; Graduate or Above. _____
4. Occupation: Manual worker; Line employee; Unemployed; Self-employed; Managerial; Professional; Educational; Student.

SECTION II - YOUR PERCEPTIONS

Please read the following items carefully and CIRCLE one choice for each item on the scale. For measurement these scales are used: 1 - **SD** (Strongly Disagree); 2 - **D** (Disagree); 3 - **FD** (Fairly Disagree); 4 - **N** (Neutral); 5 - **FA** (Fairly Agree); 6 - **A** (Agree); 7 - **SA** (Strongly Agree).

IPA Traits - Perceived Competence

1. The IPA is more accurate than human beings in services.
2. Information provided by the IPA is more accurate with less human errors.
3. The IPA provides more consistent service than human beings.
4. The IPA is more dependable than human beings.
5. Service provided by the IPA is more predictable than human beings.
6. Interacting the IPA requires little of my mental effort.
7. I found it is easier to get the IPA to do what I want it to do.
8. Learning to use the IPA is easier than expected.

IPA Traits - Perceived Intelligence

9. The IPA can often understand how I am feeling.
10. The IPA can usually realize quickly when I am angry.
11. The IPA can usually realize quickly when I am happy.
12. The IPA is usually aware of my feelings.
13. The IPA gets caught up of my feelings easily.
14. I found the IPA was caring during the interaction.
15. I found the IPA was kind and friendly during the interaction.

IPA Traits - Perceived Playfulness

16. My interaction with the IPA brings me pleasure.
17. Interacting with the IPA makes life fun.
18. Using the IPA makes me feel happy and relaxed.
19. Using the IPA is exciting.

20. I have enjoyed interacting with the IPA.

IPA Traits - Perceived Trustfulness

21. I generally have faith for the IPA.

22. I feel that the IPA is generally reliable.

23. When interacting with the IPA, I am sure I will be notified if personal information is collected.

24. When interacting with the IPA, I am sure I will be allowed to access the data collected from me.

25. When interacting with the IPA, I am sure that I will have a choice to opt-in and/or opt-out my personal information with third parties.

26. When interacting with the IPA, I am sure that the data collected from me will be securely stored.

27. When interacting with the IPA, I am sure that the data collected from me will be securely managed.

Personality Traits

28. I have a vivid imagination on using the IPA.

29. I am fine with the IPA instead of a human agent to assist me during my online shopping.

30. I generally have a specific goal in mind when interacting with the IPA.

31. I am very mindful of details when interacting with the IPA.

32. I generally talk a lot during my interaction with the IPA.

33. I dominate and control the conversation with the IPA.

34. I generally follow recommendations made by the IPA.

35. I am not interested in most of the IPA's recommendations.

36. I have frequent mood swings when interacting with the IPA.

37. I get upset easily when interacting with the IPA.

Social Commerce Intention and Acceptance

38. I intend to continue using IPAs in the future.

39. I plan to use IPAs more in the future.

40. I expect my use of IPAs to continue in the future.

41. All things considered, using IPAs is a good idea.

42. All things considered, using IPAs is a wise move.

43. I am pleased with my use of IPAs.

44. It is fully acceptable to me to use IPAs on social media.

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