

A Study on Interpersonal Communication Language in Family Field—Take Greetings as an Example

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doi:10.56397/JRSSH.2025.08.01

Abstract

In recent years, digital intelligence products have been widely adopted in household environments. The extensive human-machine interactions between users and these devices have fostered a new type of relationship within family dynamics—specifically, the human-machine relationship between users and smart devices. These conversations have generated bidirectional address terms that exhibit distinct characteristics compared to conventional interpersonal communication. This study examines address term usage in home-based human-machine interactions through pragmatic identity analysis, utilizing questionnaire surveys to collect linguistic data. By analyzing the patterns of these terms and the underlying human-machine relationships and psychological traits they reveal, this research aims to contribute linguistic insights for building harmonious and friendly digital households.

Keywords: family field, pragmatic identity, digital intelligence products, users, address words

1. Introduction

In recent years, China's digital intelligence market has experienced rapid growth. While many products now incorporate multimodal interaction methods like voice and visual interfaces, voice interaction remains an essential foundation and a potential upgrade factor for most devices. During user-conversational interactions with digital intelligence products, machines have replaced traditional human-to-human dialogue as a key component of conversations, giving rise to a new interaction model known as human-machine conversation.

In terms of application domains, digital intelligence products have been widely adopted in both household and public spheres. Within

the home environment, daily needs demand multi-scenario and multi-topic applications from these devices, contrasting with the singular functionality characteristic of public spaces. These conversations exhibit broader content diversity and varied formats, showcasing distinct linguistic features. As the most unstable and adaptable elements in language systems, vocabulary patterns particularly manifest in human-computer interaction through distinctive address terms that demonstrate usage preferences diverging from traditional interpersonal communication. However, this aspect of research has yet to garner widespread academic attention.

Therefore, based on relevant report analyses and

sales rankings from leading domestic e-commerce platforms, this study focuses on the terms used in human-machine interactions within household environments. Specifically examining smart speakers, intelligent assistants, and companions AI, we employ questionnaire surveys to explore distinctive features of these interactive terms in the digital age, along with their underlying causes and operational mechanisms.

2. Related Research and Theoretical Basis

2.1 Research on Terms of Address

Addressing has long been a key focus in pragmatics and sociolinguistics. Scholars such as Wu Xiuwen (2025) and Lu Yuwei (2023) have respectively demonstrated how students' choices between "teacher" and "surname + teacher" discourse strategies, influenced by social relationships, are governed by principles of power dynamics and intimacy levels. Wang Jianhua and Cen Youhui (2025) investigated speech violations in e-commerce live streaming, revealing a tripartite interaction mechanism in online pragmatic activities. Wang Xinxin (2023) examined emerging addressing terms in e-commerce live streaming from a sociolinguistic perspective, analyzing their pragmatic functions and influencing factors. While research on addressing remains highly active, with studies expanding from offline to online contexts and diversifying research subjects, a search using "human-machine addressing terms" as keywords on CNKI yields no relevant findings.

2.2 Theoretical Basis of the Study

Interpersonal pragmatics stands as a pivotal field in pragmatic studies. The pioneering concept of interpersonal rhetoric by Leech (1983) marked the first exploration of human relationships. Locher and Graham (2010) formally established the discipline, defining interpersonal pragmatics as the study of how communicators construct interpersonal relationships through language in communicative contexts. Building on these foundations, Chen Xinren (2018) introduced the pragmatic identity concept within communicative scenarios, emphasizing its communicative attributes, discourse characteristics, contextual constraints, and user agency. In practical terms, communicators adopt dynamic pragmatic identities in real-world interactions — whether authentic or fictional —

that serve as strategic tools to achieve specific goals or attain desired outcomes.

In human verbal communication, every utterance involves a speaker. These speakers often require referential terms (historically conflated with "addressing terms", but this paper adopts the term "referential terms" following ¹ Hu Fanzhu's assertion that "referential terms are essentially behavioral processes") to ensure clarity or fulfill emotional-cultural functions. Within household contexts, when interacting with smart devices through voice commands, traditional human speakers become replaced by digital entities—each serving as distinct participants in the conversation. Similar to human-to-human communication, device interactions involve bidirectional addressing, creating both human-device and device-human referential terms. Although these devices are human-made, their addressed terms are human-defined (by manufacturers or users), fundamentally reflecting human expectations and conceptual frameworks for the device-human relationship. Thus, referential terms in human-machine interactions construct pragmatic identities for digital engagement. This aligns with Chen Xinren's (2018) concept of communicative identity in social contexts. Guided by this theoretical framework, this study analyzes referential terms in household human-machine interactions.

3. Research design

3.1 Research Corpus and Problems

This study's corpus was generated through conversations between users and the product mentioned in the introduction within domestic interaction contexts. After defining the research subjects, we collected data via questionnaires over a two-month period. With participants' consent, we transcribed the materials while implementing secondary processing to protect privacy and noting temporal details like conversation time and location to preserve contextual relevance. Ultimately, 327 valid records were obtained (with each task cycle constituting one turn recorded based on human-computer interaction patterns), forming a small corpus. We analyzed salutation types

¹ Hu Fanzhu, also known as Hu Yi Ming. (2024). A Reassessment of the Modern Chinese Nomenclature System — Based on the Theory of New Speech Acts Analysis. *Journal of Contemporary Rhetoric*, (03), 52.

and usage frequency through tagging and statistical analysis. Building on pragmatic identity theory, this study examines salutation resources in domestic human-computer interactions and addresses two key questions:

- a. In the era of digital intelligence, what are the characteristics of human-machine interaction in family field?
- b. What kind of interaction relationship is embodied in this interaction? What are the real psychological demands of users behind it?

3.2 Research Tools and Process

This study adopts a combination of quantitative and qualitative methods to explore the use and development mechanism of address terms in human-computer interaction in family field. It consists of four steps from corpus collection to data analysis.

The first step involves corpus collection. To ensure authenticity and validity, we adopted a hybrid online-offline questionnaire approach. By reviewing industry reports and analyzing sales rankings on e-commerce platforms, we identified three digital intelligence products with high household adoption rates: smart speakers, AI assistants, and intelligent companion/chatbots. These were designated as primary survey items (listed as multiple-choice questions) to systematically collect relevant data. During the collection process, we recorded users' gender, permanent residence, age, and educational background as baseline information. Additionally, we designed a Q&A format to explore users' motivations for choosing specific address terms.

The second step involves corpus transcription, screening, and annotation. First, transcribe the raw corpus to establish a primary corpus. Next, screen for corpora containing honorific expressions to create a secondary corpus. Then, manually annotate the honorific expressions in the secondary corpus according to predefined criteria, and finally build an honorific expression corpus using Excel tables.

The third step is corpus information statistics and analysis. The use of terms is counted through the search function in Excel table, and charts are made according to the use, so as to analyze the hidden information behind the corpus data.

The fourth step was to conduct another offline questionnaire survey. The statistical

classification of user terms used for digital intelligence products was carried out, and a separate questionnaire was issued to investigate the attitudes of different age groups towards different types of terms. The number of age groups and distribution plans were 100 copies each for children, young people and the elderly, with a recovery rate of 98%.

4. Results and Discussion

In the digital intelligence era, the integration of AI-powered products has fostered human-machine interactions beyond traditional social relationships. Within these human-machine engagements, terms of address have evolved beyond conventional social contexts into novel hybrid forms. However, constrained by machine characteristics, such addressed terms often exhibit distinctive features in face-to-face communication, primarily reflecting the conceptual frameworks and current dynamics between humans and AI-driven products as distinct linguistic entities.

To facilitate analysis of address terms usage between humans and digital products in modern family contexts, this study adopts Cui Xianjun's (2012:65-73) classification framework for modern Chinese address terms, while incorporating specific characteristics of digital products. The addressed terms are categorized into nine types: official greetings, functional terms, kinship terms, role-specific terms, neutral terms, nicknames, negative terms, person-reference terms, and honorific terms. Address term selection is closely tied to social contexts including occupation, gender, social class, educational background, and usage frequency (Meng Wanchun, 2010). However, distinct patterns emerge in user-product interactions. The following discussion examines both users' addresses for digital products and the reciprocal addressing patterns between digital products and their users.

4.1 How Users Refer to Digital Intelligence Products

Statistical data shows that users' terminology for digital intelligence products is diverse in household settings, though no honorifics are used. The top three most frequently chosen categories are official greetings, familial terms, and nicknames, accounting for 89.4% of usage. Conversely, less common options like person references, functional labels, role-specific terms, neutral terms, and negative terms make up the remaining 10.6%.

Table 1. Features of user's terms for intelligent products

Type of address	Typical manifestations	Total/occurrences	scale/%
Official wake-up call	Little Art, Xiao Du, Tmall Genie	239	64.95
Kinship terms	Xiao Du brother, Xiao Du sister, Hei Bao	47	12.77
A nickname or greeting	Hei Zi, Dudu, Wah Zai, Little Fatty	43	11.68
A personal name is a term of address	you	22	5.98
Functioning as a greeting	Music box, story box	9	2.45
Character name	Miss Xiao Du	5	1.36
Zero greeting	understand it or not	2	0.54
Negative terms of endearment	fool	1	0.27
A term of respect	-	-	-
amount to		368	100

Among these address terms, official greetings, kinship terms, nicknames, functional titles, and role-specific terms can all appear at the beginning of sentences as standalone expressions. In contrast, person-reference terms and neutral terms must coexist with these five categories and appear within sentences. Notably, negative terms exhibit unique characteristics: the corpus analysis reveals only one instance where such terms appear at the sentence's beginning (as indicated by survey data, users perceive "idiot" as derogatory and serve as emotional release channels), with this singular case being omitted from further discussion.

The formation of this distribution pattern stems from the inherent nature of AI-powered products. Essentially, these devices are machines equipped with AI technology that require activation to perform subsequent operations (functional commands or conversational companions). Therefore, when manufacturers configure products at factory settings, they typically offer two options to enable wake-up functionality: either embedding pre-installed wake-up phrases (as seen in Xiaomi's "Xiaoke Xuexue" product name) or allowing users to customize wake-up prompts. This customization process naturally generates four types of greetings: familial terms, nickname-style addresses, function-related phrases, and role-specific salutations. These five greetings share a defining characteristic: they possess highly distinctive features that meet wake-up requirements. In contrast, humanized terms like "personified references" and "zero-reference

expressions" lack such distinctiveness, thus coexisting with the first five types while serving other conversational purposes. Building on this foundation, the following discussion will focus on analyzing and delving into these five distinctive greetings.

4.1.1 Official Wake Word

Official wake-up phrases, as a type of officially embedded naming conventions, inherently hold inherent advantages in default selection. When addressing the domestic market, these digital products predominantly adopt the "X + small" structure, which demonstrates significant productive and emotional functions, closely aligning with local cultural influences and users' psychological habits. In Chinese cultural contexts, "small" not only carries strong productive value—evolving from object size to abstract concepts contrasting with "big"—but also serves as an emotional marker, typically symbolizing cuteness and craftsmanship. This meaning has transcended physical dimensions, as seen in the cognitive association between "dog" and "puppy," where the latter evokes more endearing imagery. Other officially designed terms like Tmall Genie (Chinese form) or MOMO (English form), whether activating visual associations through everyday animal imagery or enhancing phonetic harmony through voice integration, all share similar creative brilliance with the "X + small" structure.

This naming convention facilitates rapid cognitive adaptation during human-computer interactions, enabling users to develop a gentle

and approachable pragmatic identity when engaging with controversial AI products. By helping mitigate preconceived notions of technological threats, it effectively bridges emotional divides between humans and digital systems. The predominant use of such terms primarily stems from the emotional resonance generated by the convenience of standardized naming conventions established by official guidelines.

In-depth statistical analysis reveals that among the 239 official wake-up phrases, four influencing factors—gender, place of residence, age, and educational level—exhibit distinct patterns. Gender, geographic location, and educational background show minimal impact on usage frequency, while age demonstrates significant variation, predominantly concentrated in the middle-aged and young adult demographic (20-50 years old). Furthermore, these phrases exhibit varying combinations with other address terms across different age groups. For example, middle-aged and young adults typically avoid co-occurrence with other address terms, reflecting their rational thinking, concise language, clear instructions, and emphasis on functional operations. Conversely, children (3-12 years old) and seniors (60+ years old) frequently combine these phrases with other address terms, particularly person-reference address terms, indicating more complex linguistic expressions and greater focus on interactive communication in these groups.

① Xiao Ai classmate, play Jay Chou's "Blue and White Porcelain". (Age: 30)

② Xiao Yi Xiao Yi, you tell me a story. (Age: 7)

③ Xiao Ai classmate, can you sing "Lao Bao Chops Chen Shiming"? (Age: 72)

4.1.2 Kinship Terms

Kinship-derived product names primarily refer to titles containing familial terms (such as "sister" or "brother"), characterized by anthropomorphic product personification. These names mainly follow two patterns: The first combines familial terms with brand names, leveraging brand identity to highlight unique features—particularly significant for diverse household digital smart products. This pattern accounts for 74.47% of collected data, totaling 35 instances. The second approach integrates familial terms with specific product characteristics like shapes and colors, reflecting

users' perception of the product's physical appearance. However, this method is less prevalent, appearing in only 12 instances (25.53%) of the collected data.

Similar to the usage patterns of official wake-up calls, users' gender, place of residence, and educational level show minimal influence on the frequency of such address terms, though there are significant age-related differences. Unlike the "peak" characteristics observed in previous analyses, these address terms exhibit a U-shaped distribution pattern across user ages, predominantly concentrated among children (3-12 years old) and elderly individuals (60 years and above). This distribution highlights the importance of emotional companionship for these two demographic groups.

Among these two groups, children tend to use "you" as a personal pronoun, while digital devices often address them with "I". This seemingly equal relationship between speakers facilitates smooth conversations. However, elderly users frequently mix zero-person pronouns with digital devices, revealing an identity imbalance in how seniors perceive these tools. Many older adults mentally associate digital devices with their grandchildren, which sometimes disrupt communication. These divergent approaches reflect the growing need for companionship in today's aging and declining birthrate society.

④ Child: Xiao Du brother, can you dance?

Products: I practice ethnic dance and samba dance. After learning, I will show you how to do it.

Child: Xiao Du brother, you are really stupid.

Product: Don't say things like, "I'm gonna be sad."

⑤ Old man: Hei Bao'er, know "Mu Guiying as Commander"?

Product: Oh, that's beyond my understanding.

4.1.3 Nicknames

A nickname refers to a form of address with affectionate connotations, typically used in intimate relationships. These nicknames exhibit three main linguistic features: 1) combinations of characteristic words with prefixes or suffixes (e.g., "Heizi" or "Xiaofatou"); 2) pairing brand names with prefixes or suffixes (e.g., "Adu" or "Hua Zai"); 3) the use of reduplicated words (e.g., "Dudu" or "Mao Mao").

The emergence of such nicknames correlates with users' age, gender, and place of residence. Regarding age distribution, nicknames predominantly appear among younger demographics, including children and teenagers, with children showing a notable preference for reduplicated words. Gender-wise, female users outnumber male users. In terms of residential regions, northern users favor combinations of characteristic words with prefixes or suffixes, particularly the suffixes "er" and "zi"; southern users prefer brand names combined with prefixes or suffixes, where "A" and "Zai" serve as key identifiers.

In summary, children's linguistic preferences favor reduplicated words due to their catchy nature, ease of memorization, and childlike qualities that align with their psychological expectations of "playmates". Women tend to excel at crafting home environments, where affectionate nicknames help establish digital products' household status. Users in northern and southern China exhibit distinct regional characteristics in suffix selection influenced by dialects and cultural traditions. As illustrated in the example:

⑥ Child: Dudu, I want to buy a present for my father.

Product: Okay, that's a great idea.

⑦ Young man: Heizi, sing us a song.

Product: Ok, here's the play of "Boundless".

⑧ Youth: A du a du, how to make chicken

wings at home.

4.1.4 Functional and Role Terms

Functional terms refer to the terms used by users focusing on product functions. These terms are mainly seen in children's terms for smart speakers and chatbots. These products have prominent functions, such as chatbots developed for children, whose main function is to tell stories. For example:

⑨ Story box, I want to hear Wolf Came Back.

Role-based epithets are social identifiers that construct positive product identities, typically associated with proactive and uplifting personas. These terms predominantly appear in children's education settings and elderly communities, sharing functional similarities with utility-based epithets in their focus on practical product value. Examples include:

⑩ Miss Xiao Du, how to solve the problem of chicken and rabbit in the same cage?

4.2 How Digital Intelligent Products Refer to Users

Statistical data shows that digital intelligence products use four main types of user addresses, ranked by frequency: personal references> honorifics> neutral terms> role-based addresses. While personal and honorific references have similar usage rates, both significantly outpace neutral and role-based terms. Notably, role-based addresses are the least frequently used, accounting for merely 5.12% of total usage.

Table 2. Features of user names for intelligent products

Type of address	Typical manifestations	Total/occurrences	scale /%
Official wake-up call	-	-	-
Kinship terms	-	-	-
A nickname or greeting	-	-	-
Negative terms of endearment	-	-	-
A personal name is a term of address	you	142	42.77
Functioning as a greeting	-	-	-
Character name	master	17	5.12
Zero greetings	request	46	13.86
A term of respect	nin	127	38.25
amount to		332	100

Personification refers to the use of personal pronouns to address people or objects. In Xian

Dan Chinese, common personifications include first-person (self-reference), second-person

(addressing others), and third-person (referring to subjects). Digital products predominantly use the second-person “you” in user interactions, without displaying variability features like plural forms such as “you all.” This indicates that digital products default to addressing a single conversational subject during language embedding. The usage remains consistent throughout conversations, unaffected by preceding linguistic expressions. As demonstrated in Example 11 and 12, the product consistently responds with “you” regardless of whether the question explicitly specifies a person. This addressing pattern has not elicited varied user reactions.

11 User: You can stay here for now.

Product: No problem, I’ll always be here waiting for you. If you have any other needs in the future, whether you need to search for information or solve problems, you can talk to me anytime.

You can tell me anything you need to know, whether it’s breathing or a problem.

12 User: Which is more recommended, “How to sigh” or “Spring is not late”?

Product: What did you just say? How about trying to put it another way?

Distinguished from personal pronouns, honorifics in interpersonal communication serve multifaceted pragmatic functions—maintaining harmonious relationships, reflecting cultural etiquette, and demonstrating communicators’ modesty. These terms exhibit rich diversity in structure. In smart device interactions, the “nin” form remains prevalent, though its use in human-machine communication has diminished its social relevance. The acceptance of honorifics varies across age groups, with notable disagreements: 56% of children find it “weird,” 23% of youth consider it “affected/pretentious/annoying,” while elderly users particularly favor it in northern China as a sign of politeness.

In human-machine interactions, the use of “master” as a title carries both formal respect and emotional dependency, emphasizing the subordinate position of the self-proclaimed “master”. This linguistic practice essentially reimagines human-machine relationships as traditional master-servant hierarchies. Similar to honorific terms, perceptions vary across age groups and remain contentious: 78% of children

accept the term as appropriate, while 19% of young adults find it “pleasant” though 51% consider it “affected”. Notably, 73% of elderly users describe it as “chaotic” or “uncomfortable”.

Zero-form address refers to a conversational approach in communication where specific salutations are omitted, allowing direct engagement with content. In interpersonal interactions, this is typically accompanied by body language and facial expressions. Digital devices often lack physical gestures, and their address patterns for users typically involve using particles like “please” to form imperative sentences. This addressing style predominantly occurs in function-oriented conversations, as demonstrated by examples 13 and 14. Such communication patterns have not elicited varied user responses.

13 User: I want you to continue to sing next?

Product: Ok, I’m always here, 0 call me if you need anything. Bye.

14 User: Hello, XX, I have a class at 3:00 this afternoon.

Product: XX does not support adjusting the course time yet. 0 can usually manually add courses in my schedule today to make sure any classes won’t miss.

4.3 Comparative Analysis

In the family field, users’ terms for digital intelligence products and digital intelligence products’ terms for people have different expressions, forming a two-way calling pattern (as shown in Table 3). Under this pattern, there are three prominent phenomena.

Table 3. Comparison of distribution patterns of address terms

Type of address	User → digital intelligence product	Smart products → users
Official wake-up call	+	-
Kinship terms	+	-
A nickname or greeting	+	-
Negative terms of endearment	+	-
A personal name is a term	+	+

of address		
Functioning as a greeting	+	-
Character name	+	+
Zero greetings	+	+
A term of respect	-	+

First, the emotional investment in product nomenclature differs significantly. User-identified digital intelligence products exhibit both functional and emotional attributes, contrasting with the reverse emotional inversion in product-to-user communication. Rooted in traditional Confucian culture, users maintain the “father-son” familial bond and extend this relational framework to product interactions, personifying products within social communication circles. Conversely, products adopt more flattened addressing patterns that prioritize functional programming and formulaic responses, with honorific terms failing to gain widespread acceptance among user communities.

Second, the use of address terms reveals an imbalance in human-machine identity construction. The terms used by digital products to address users are essentially human-imposed, mirroring how users address products themselves — both reflecting the proactive role of humans in this communicative relationship. Within these constructed identities, terms like “nin” that strictly adhere to face-saving principles and politeness demonstrate the sense of distance and unfamiliarity between humans and machines. Terms like “idiot” or “master”, which reflect power dynamics, fundamentally reveal human attitudes toward machines: subconsciously, machines are not seen as symbiotic partners but rather as tools for psychological compensation.

Third, the cultural asymmetry between users and digital products. In user interactions with intelligent digital products, culturally embedded terms exhibit kinship-like linguistic features and dialectal characteristics. When users actively employ cultural deconstruction techniques to challenge authoritative responses, these cultural elements remain inadequately integrated into the products. For instance, when users address digital interfaces using distinctive dialectal expressions like “Hua Zai” (a Cantonese

nickname), the product still responds with standardized templates rather than dialectally tailored responses. As dialects serve as crucial tools for building intimate relationships, this deficiency in responsive mechanisms highlights an underdeveloped aspect in human-computer interaction evolution.

In summary, the asymmetric distribution of human-machine address terms within family contexts reveals how digital civilization is reshaping traditional family structures and relationships. These phenomena reflect a facet of the complex power dynamics between humans and machines. Notably, divergent responses from different groups toward existing address terms demonstrate that the ideal family-machine relationship remains underdeveloped with significant gaps. Moving forward, while adhering to family ethics, we should prioritize constructing pragmatic identities within familial spheres through contextualization, subjectivity, emotional engagement, and differential order principles. By bridging the divide between technological rationality and humanistic warmth, address terms may become crucial transformational codes, helping build a new digital family that integrates functional, emotional, and cultural dimensions.

5. Conclusion

This study examines the forms and characteristics of bidirectional address systems between users and smart devices within contemporary household contexts through a pragmatic identity construction lens. The findings reveal that user-initiated addresses predominantly feature official greetings, kinship terms, and nicknames, blending functional utility with emotional resonance while demonstrating cultural influence on naming conventions. Conversely, device-initiated addresses show higher prevalence of person-reference expressions and honorifics, exhibiting formalized patterns with residual power dynamics in other address types. This bidirectional communication pattern reflects current human-machine relationships and digital household development trends. Future efforts should focus on refining address systems to preserve familial significance in the digital age, ultimately fostering more harmonious human-machine interactions within smart home ecosystems.

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