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Short Paper

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Abstract

Live chat plays a significant role in online labor markets, which mitigates the information asymmetry caused by the highly customized nature of service products. This study examines the impacts of live chat on refund intention in online labor markets and how these impacts are moderated by business familiarity. We collect unique archived data from a leading online labor market in Asia and hypothesize that reply speed has a negative effect on refund intention while both politeness intensity and sentiment intensity have a U-shaped effect on refund intention. In addition, these effects are proposed to be weakened by business familiarity formed by previous transaction experience. The study not only offers theoretical contributions to the online labor market literature by providing empirical insights on the impact of live chat on refund intention but also yields managerial implications for service providers and platform operators.

Keywords: live chat, refund intention, online labor market, business familiarity, cognitive dissonance theory

Introduction

With the development of digital technologies, online labor markets represented by Freelancer, Upwork, and Amazon MTurk are attracting an increasing number of workers to join. As an intermediary connecting user groups and part-time workers, the online labor market matches employers with service providers in real time so that employers can obtain services. In online labor markets, live chat has emerged as a crucial tool for establishing real-time communication between service providers and employers (Tan et al., 2019). The widespread popularity of live chat has promoted extensive communication, thus promoting the prosperity of market transactions (Lv et al., 2018). Live chat allows employers to query information about service products through one-to-one communication with service providers. It is also seen as a powerful tool to improve consumer satisfaction and expand product sales. Given the importance of live chat, it is particularly crucial to explore how to effectively employ live chat to develop effective platform operation strategies.

Several researchers have discussed the positive impact of live chat usage on market transactions of physical products in online platforms. For traffic-to-sales conversion, enough usage of live chat can increase the

conversion rate by 9% (Sun et al., 2021). Additional evidence further indicates that the vendors can improve the purchase probability of tablets by 15.99% through live chat usage (Tan et al., 2019). Ou et al. (2014) found that the effective use of computer-mediated communication technologies can enhance swift guanxi and trust by improving buyers' perceptions of interactivity and presence, thus having a positive impact on their repurchase intentions. Kilani and Rajaobelina (2022) demonstrated that live chat capability contributes to the formation of customer behavioral intentions while enhancing customer relationship quality.

However, no studies to date have investigated the impact of live chat on the refund intention of service products. Service products refer to intangible products that are transacted in the online labor market and relate to designs or intelligence-oriented products, such as website design, logo design, and software development (Hong et al., 2021). Unlike traditional e-commerce platforms like Amazon and Taobao, online labor markets introduce a higher level of uncertainty in the decision-making process. In online labor markets, service products highly depend on service providers, and are highly customized (Lin et al., 2018), volatile, idiosyncratic, and complex (Snir & Hitt, 2003), with highly variable quality (Rust et al., 1999) because they incorporate specific configurations to meet employers' special requirements (Susarla & Barua, 2011), which are different from finished and standardized physical products. Because of the highly customized nature of service products, the refund process of service products cannot be completed without continuous communication and cooperation through live chat tools between the service provider and the employer (Hong & Pavlou, 2017; Möhlmann et al., 2021). This makes the impact of the live chat on employers' refund intention prominently important. A recent report by Forrester Research states that "live chat assists in minimizing purchasing errors and eliminating buyer's remorse, which are among the top reasons for product returns" (Leggett, 2018). Hence, to find appropriate service providers and avoid making refund decisions, employers must use live chat to understand service products more comprehensively. Meanwhile, the investigation of how live chat influences employers' refund intention can also bring insightful suggestions for platform operators and service providers.

To fill the research gap, this study seeks to examine whether, when, how, and to what extent live chat features in online labor markets influence employers' refund intention, and how these impacts are moderated by business familiarity. According to cognitive dissonance theory, we hypothesize that reply speed has a negative impact on refund intention, and both politeness intensity and sentiment intensity have a U-shaped impact on refund intention. In addition, considering that the live chat features are interpreted differently by different employers, depending on their previous transaction experience (Novak et al., 2000), we contend that these impacts are moderated by business familiarity, which is defined as the number of transactions between the service provider and the employer before signing the contract (Gefen et al., 2008). We use the linear probability model with moderating effect to analyze obtained data and test our hypotheses.

Literature Review

Online Product Refunds

Online product refunds have been studied from both the retailer's and the consumer's perspectives. From the retailer's perspective, refund policies have been associated with retailer profits. Many studies have focused on the optimal refund policy design to reduce the unavoidable cost and maximize profits (Li et al., 2022). Two components of the refund policy, namely the refund window and the refund depth, have a signal effect on product quality and service quality (Zhang et al., 2016). From the consumer's perspective, scholars have examined the influence of different refund policies on consumer repurchase intention (Wang et al., 2019) and customer perception (Bower, 2012). Consumers' refund behaviors can be classified into legitimate and opportunistic refund behaviors, and the latter is related to unethical refund behaviors (Chang & Yang, 2022). Research has shown that post-purchase dissonance plays an important role in the refund process (Chen et al., 2020; Powers & Jack, 2015). Most of the previous studies focused on the physical products of e-commerce. However, in online labor markets, service products are highly customized, which is essentially different from physical products in e-commerce platforms. Continuous communication plays an irreplaceable role in online labor markets, but previous studies did not study the influencing factors of refund intention for service products from the perspective of live chat. Thus, to fill the research gap, this paper aims to reveal the impact of live chat on employers' refund intention in the online labor market.

Live Chat in Online Markets

As a website function, live chat is used to enhance consumer trust through two main mechanisms. Firstly, live chat can provide the retailer with a communication channel to form a close relationship with consumers (Köhler et al., 2011). Secondly, live chat can alleviate information asymmetry through information provision, thus reducing the perceived risk of purchase (Hong et al., 2021). Because of the important role that live chat plays in online markets, it attracts extensive attention from researchers. Regarding the consequences of live chat usage, previous studies have shown that live chat in the online market has a positive effect on consumer purchase decisions (Kang et al., 2015; Lv et al., 2018; Tan et al., 2019), traffic-to-sales conversion (Sun et al., 2021), and online labor market hiring outcomes (Hong et al., 2021). Hong et al. (2021) found that live chat usage increases a worker's probability of being hired by 8.9% and this positive effect for workers depends a great deal on the politeness of the workers. From the perspective of vendors' behavior, Lv et al. (2018) found that reply speed, reply frequency, product fit, and product quality are positively associated with purchase decisions. Besides, Kang et al. (2020) proved that cognitive expression (message count, rather than word count) and affective expressions (in positive and negative forms) articulated by vendors have a significant impact on purchase conversion. From the perspective of consumers' behavior, Kang et al. (2020) showed that consumers' cognitive, rather than affective, expressions significantly influence purchase intentions. However, no literature has discussed how live chat impact employers' refund intention in online labor markets. Compared with online reviews and enterprise information, live chat has higher quality and credibility, which is vital in providing product information for employers and building connections between employers and service providers. Employers in online labor markets rely more on live chat than ever before in the decision-making process. Therefore, it is urgent for scholars to empirically demonstrate the emerging importance of live chat for employers' refund intention. To fill this research gap, this paper aims to study how live chat features, i.e., reply speed, politeness intensity, and sentiment intensity, affect refund intention.

Cognitive Dissonance Theory

Cognitive dissonance is a state of psychological discomfort that urges a person to reduce this dissonance. People usually tend to maintain the consistency of attitude and cognitive system. When the attitude and behavior are inconsistent, it will produce a sense of dissonance, which makes people easy to produce psychological tension. People try to reduce this tension and restore it to a consistent or coordinated state. The uncertainty of opportunity cost and decision-making causes consumers to have dissonance, and then rethink whether the decisions made are correct. Cognitive dissonance theory affects the whole process of purchase decision-making, including pre-purchase, decision-making, and post-purchase. In the pre-purchase stage, when consumers need to choose one of the alternative products and weigh whether to buy, a pre-purchase conflict occurs. In the purchase stage, consumers tend to cause psychological tension by comparing the advantages of the unselected products with the disadvantages of the selected products. In the post-purchase stage, consumers consider whether their decisions are the best, resulting in post-purchase dissonance (Sweeney et al., 2000). Post-purchase cognitive dissonance can be classified into: (1) product dissonance, which means buyers doubt whether they need to buy products; (2) emotional dissonance, which means buyers regret or have other negative feelings (Powers & Jack, 2013). Consumers choose to return the products to alleviate dissonance. Scholars have utilized cognitive dissonance theory to investigate the influencing factors of consumers' refund intention (Chen et al., 2020). However, no prior study has adopted this theory to study the impact of live chat on refund intention in online labor markets. Therefore, this paper aims to investigate the impact of live chat features resulting in cognitive dissonance on employers' refund intention, which can interpret the employers' refund decisions after purchase.

Conceptual Model and Research Hypotheses

Figure 1 provides an overview of our conceptual model. We use the cognitive dissonance theory as the theoretical foundation to derive our hypotheses. In this study, three live chat features, i.e., reply speed, politeness intensity, and sentiment intensity, are selected as the focal factors of live chat that cause employers to make refund decisions. Business familiarity is used as the moderating variable to build a conceptual model to explore the impact of live chat on refund intention.

Figure 1. The Conceptual Model
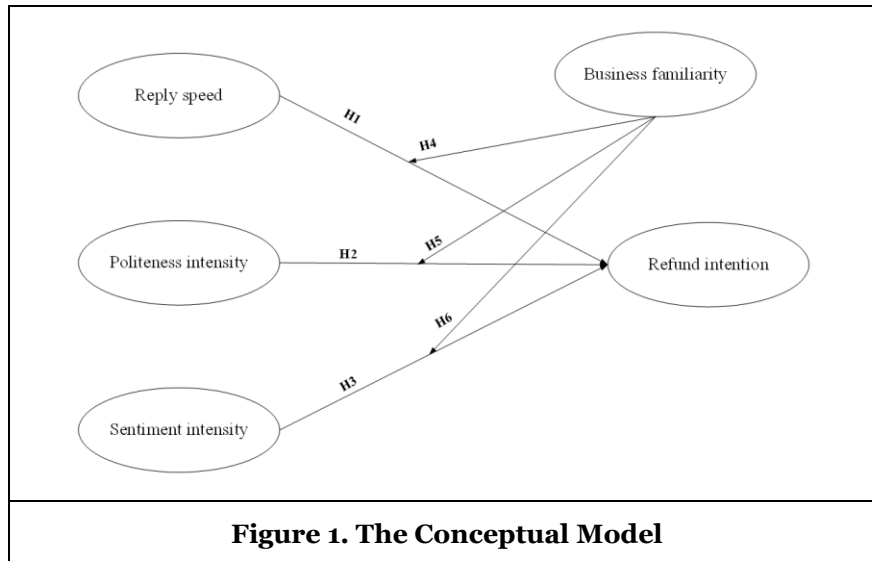
Impact of Reply Speed on Refund Intention

Effective communication and coordination are prerequisites for signing service contracts in online labor markets (Hong et al., 2017). Service providers' timely replies help employers immediately reduce their doubt and gain comprehensive product information. As a result, reply timeliness mitigates the negative impact of uncertainty. Employers will obtain more interactivity when service providers reply to their questions more rapidly (Song & Zinkhan, 2008). Interactivity can help employers build trust with service providers (Basso et al., 2001), thus mitigating uncertainty and reducing cognitive dissonance. On the contrary, if the service provider's reply speed is slow, employers may feel dissatisfied and perceive poor customer service, resulting in cognitive dissonance, which may lead to them canceling orders or submitting refund requests. Based on the above discussions, reply speed is expected to negatively influence refund intention. Therefore, we propose the following hypothesis:

Hypothesis 1 (H1): *Reply speed has a negative effect on employers' refund intention.*

Impact of Politeness Intensity on Refund Intention

The politeness of live chat reflects the persuasive effect. Politeness can meet employers' needs for positive feelings and satisfaction, which can help improve perceived product quality or value in online labor markets (Hong et al., 2021). Politeness is a necessary condition to persuade the audience, and conversation with high politeness is more persuasive. The politeness shown in service providers' messages can establish and maintain a relationship with employers, and often improve their trust perception and create a sense of safety, which reduces cognitive dissonance (Lee et al., 2019). On the contrary, if service providers are impolite when chatting, their credibility will decline. If the credibility of employers' perceived information is low, the persuasive effect of live chat will be weakened. The credibility of live chat determines the employers' information adoption and learning effect, thus affecting the willingness to refund. The lower the credibility of live chat, the more difficult it is for employers to perceive the real quality of products, and the increased perceived risk and purchase uncertainty leads to cognitive dissonance, which results in refund intentions. Therefore, politeness can be considered an important factor that reduces refund intention.

However, politeness can reduce cognitive dissonance only to a certain extent (Lee et al., 2019). Within the acceptable range of politeness in certain situations, service providers can choose to be more polite thus increasing the intimacy of interpersonal relationships. Once out of range, politeness can increase social distance. This negative impact of politeness has been proved in previous literature. For example, excessively polite expressions result in a sense of untruthfulness or deception (Zhang et al., 2020). Thus, too much politeness can make employers feel unreal and hard to communicate with the service providers smoothly, which strengthens cognitive dissonance. Accordingly, politeness intensity in service providers' messages has a U-shaped effect on employers' refund intention. Therefore, we propose the following hypothesis:

Hypothesis 2 (H2): *Politeness intensity has a U-shaped effect on employers' refund intention.*

Impact of Sentiment Intensity on Refund Intention

Research has shown that cognitive dissonance is the initial motivation of consumers to refund. In the post-purchase stage, consumers compare the purchased products with the unselected alternative products. If the comparison results are not satisfactory, it is easy to produce emotional discomfort, and consumers will try to alleviate this state. In addition, the purchased products do not meet the consumers' expectations, and the advantages of the unselected products cause a counterfactual concept in the minds of consumers, thus increasing product dissonance. Dissonance causes consumers to refund to withdraw their regretted choices after purchasing service products.

However, extremely positive sentiment may lead to negative outcomes (Yin et al., 2017). Positive sentiment intensity results in high perception of warmth but low perception of service ability, and service ability affects the trust perception of employers as well (Wang et al., 2017). Additionally, when employers read texts with extremely positive sentiment, they may doubt that the service providers are trying to convince them through exaggeration or even deception. Thus, sentiment intensity in live chat content may have a U-shaped impact on employers' cognitive dissonance. Within limits, the higher the sentiment intensity is, the less cognitive dissonance the employers will have, and the less likely the employer will decide to refund. However, if the sentiment intensity exceeds the limit, the cognitive dissonance will be enhanced, and it will positively affect the willingness to refund. Therefore, we propose the following hypothesis:

Hypothesis 3 (H3): *Sentiment intensity has a U-shaped effect on employers' refund intention.*

Moderating Effect of Business Familiarity

Knowledge based on previous relationships and implied future trust are two key aspects of business familiarity (Gefen et al., 2008). On the one hand, the implied future trust of business familiarity is based on past trustworthy behaviors and is the willingness to rely on business partners, which reduces the occurrence of unforeseen risks (Benaroch et al., 2016). Thus, familiarity with previous experience can help reduce the need for continuous communication to build trust. In this case, before signing the contract, employers tend to reduce their perceived risk of future cooperation by selecting trustworthy partners. On the other hand, knowledge formed by previous experience reduces the occurrence of adverse selection risk, which helps establish accurate expectations, effective communication, and better collaboration (Hong & Shao, 2021). Considering the above discussion, we continue to explore the moderating effect of business familiarity on live chat features. In this paper, business familiarity is defined as past transaction times between service providers and employers before the focal conversation (Gefen et al., 2008).

Previous arguments have shown a negative effect of reply speed on refund intention, but this effect may depend on business familiarity. Familiarity with previous experience changes employers' cognitive processes and makes them more goal-directed (Novak et al., 2000). Because business familiarity reduces uncertainty and ambiguity, when employers query information with service providers, they are less concerned about whether service providers can reply to them quickly. Therefore, we propose the following hypothesis:

Hypothesis 4 (H4): *Business familiarity weakens the effect of reply speed on refund intention.*

The effect of politeness intensity on refund intention may be contingent on business familiarity. The contract theory suggests that business familiarity reduces the private information of employers and service providers (Gefen et al., 2008). Information about service providers' capabilities is disclosed with repeated contracting, allowing employers to screen service providers for appropriate capabilities and performance. Similarly, business familiarity improves service providers' understanding of employers, enabling them to allocate appropriate resources to employers and make more accurate price estimates. Business familiarity can also increase service providers' tacit knowledge about the business environment, ease communication and understanding, and reduce the need for elaborate and costly contracts. Therefore, information that evaluates the trust level of service providers by repeatedly signing contracts enhances the motivation of service providers to build trust, which mitigates the persuasive effect of live chat. As a result, business familiarity reduces the need for establishing trust through politeness expression, thus weakening the impact of politeness on refund intention. Therefore, we propose the following hypothesis:

Hypothesis 5 (H5): *Business familiarity moderates the U-shaped relationship between politeness intensity and refund intention, and this relationship will be flatter when business familiarity is higher.*

Similarly, the effect of sentiment intensity on refund intention may also be contingent on business familiarity. Business familiarity reduces the need for establishing trust through positive sentiment, thus weakening the impact of politeness on refund intention. Therefore, we propose the following hypothesis:

Hypothesis 6 (H6): *Business familiarity moderates the U-shaped relationship between sentiment intensity and refund intention, and this relationship will be flatter when business familiarity is higher.*

Research Methodology

Data Collection

We collaborated with one of the largest online labor markets in Asia and obtained data from it. It has attracted over 32.4 million registered users, including 25.5 million employers and 6.9 million service providers by June 30, 2022. We obtained data about 66,049 orders from June 1, 2018, to December 1, 2018, including 1,827,009 live chat records involving 43,379 employers and 2,201 service providers. For each order, we matched the order time with the chat time to ensure that the chat is before the order completion.

Key variables

Refund intention (*RI*), our dependent variable, is whether the employer makes the refund decision after the conversation, which is a binary variable. We coded it as 1 if the employer refunds, and as 0 otherwise.

Reply speed (*RS*) refers to how quickly the employer receives a reply from the service provider (Zhang et al., 2020). The more time elapses until the service provider responds to the employer, the lower the reply speed. Therefore, the relationship between reply speed and response time is inversely proportional (Liu et al., 2022). Based on this definition, we manipulated it in terms of the inverse average response time until an employer receives a reply from the service provider about their inquiries in conversation.

Politeness intensity (*PI*) is intimately related to social interactions and is a decisive factor in whether such interactions go well or not. The politeness of the message can measure whether the service provider is polite during the conversation. To assess the effect of politeness on refund intention, we employed the text mining method (Hong et al., 2021). Since the messages are in Chinese, we first employed the Jieba Python package, a popular technique for Chinese segmentation, to divide the service provider's messages into words (Liu et al., 2022). Then, following Lee et al. (2019), we constructed politeness words according to the Chinese dictionary and counted the number of politeness words in a conversation. Finally, we measured the politeness intensity of the service provider by dividing the number of politeness words by the total number of words.

Sentiment intensity (*SI*) refers to the positive or negative attitude displayed by service providers in the communication process. We calculated the sentiment score of service providers' messages based on the Naive Bayes algorithm by the SnowNLP Python package. Following Zhang et al. (2020), sentiment intensity of the service provider is defined as the average sentiment score of all the service provider's messages.

Business familiarity (*BF*) is a proxy of trust in prior transactions. Following Gefen et al. (2008), it is defined as past transaction times between employers and service providers before the focal conversation.

To capture some extraneous effects that may affect the dependent variable, we included a set of control variables: (1) *spatial distance*, measured as the spatial distance in meters between the service provider and the employer; (2) *buyer tenure*, operationalized in terms of the registration time (in days) of employers in the platform before the focal conversation; (3) *status*, which reflects the level of the service providers before the focal conversation; (4) *seller tenure*, manipulated in terms of the registration time (in days) of service providers in the platform before the focal conversation; (5) *reputation*, the average rating of service product had received from previous transactions before the focal conversation.

Model Specification

We use the linear probability model with moderating effect to analyze data, as shown in Equation (1).

$$RI_i = \beta_0 + \beta_1 \times RS_i + \beta_2 \times PI_i + \beta_3 \times PI_i^2 + \beta_4 \times SI_i + \beta_5 \times SI_i^2 + \beta_6 \times BF_i \times RS_i + \beta_7 \times BF_i \times PI_i$$

$$+\beta_8 \times BF_i \times PI_i^2 + \beta_9 \times BF_i \times SI_i + \beta_{10} \times BF_i \times SI_i^2 + \sum \beta_n \times Controls_i + \varepsilon_i \qquad (1)$$

where RI_i, RS_i, PI_i, SI_i, and BF_i represent *refund intention*, *reply speed*, *politeness intensity*, *sentiment intensity*, and *business familiarity* of the i-th order, respectively, $Controls_i$ include *business familiarity*, *spatial distance*, *buyer tenure*, *status*, *seller tenure*, and *reputation*, and ε_i is the random error term.

Expected Conclusion

Live chat plays a significant role in online labor markets, which can mitigate the information asymmetry caused by the highly customized nature of service products. This paper attempts to improve current understandings of live chat by developing and empirically testing a theoretical model that integrates different types of features in live chat, business familiarity, and refund intention. To this end, we build upon cognitive dissonance theory to explore the relationships between live chat features and refund intention, and how these relationships are moderated by business familiarity. An integrative model is proposed and validated against archived data collected from a leading online labor market in Asia. We hypothesize that reply speed has a negative effect on refund intention, and both politeness intensity and sentiment intensity have a U-shaped effect on refund intention. The effects of reply speed, politeness intensity, and sentiment intensity on refund intention are supposed to be weakened by business familiarity. We summarized the expected research findings of our study as follows.

First, this study proposes that reply speed has a negative effect on refund intention (H1). Such a finding is consistent with prior research such as (Liu et al., 2022). Quick replies from service providers increase perceived interactivity, which can help employers eliminate ambiguity through back-and-forth dialogue and reduce cognitive dissonance (Song & Zinkhan, 2008). Thus, the more rapidly the service providers reply, the less likely the employers will cancel the contract with them.

Second, we hypothesize that both politeness intensity (H2) and sentiment intensity (H3) have a U-shaped impact on refund intention, which is consistent with previous findings (Zhang et al., 2020). Within a certain range, politeness and positive sentiment meet employers' needs for positive feelings and improve their trust perception. Service providers who exhibit appropriate politeness and positive sentiment alleviate the employers' concerns about possible unpleasant experiences in cooperation and win their favor. However, excessively polite and positive expressions may lead to cognitive dissonance and refund intention.

Third, this study reveals the moderating effect of business familiarity formed by prior transaction experience on different features of live chat. Concerning the moderating effects, business familiarity is expected to weaken the effect of reply speed, politeness intensity, and sentiment intensity on the refund intention (H4~H6). Specifically, business familiarity implies two key aspects, namely knowledge and trust (Gefen et al., 2008). On the one hand, employers and service providers develop familiarity from previous transaction experience (Hong & Shao, 2021) and make them more goal-directed in social interaction (Novak et al., 2000). More experienced employers are less concerned about whether service providers can rapidly reply to their questions to reduce ambiguity and uncertainty. On the other hand, business familiarity based on previous trustworthy behavior reduces the need for building trust through polite and positive expression which can mitigate cognitive dissonance and alleviate refund intention.

Expected Implications

This paper tends to provide both theoretical contributions and practical implications. First, despite extant studies providing direct evidence for the role of live chat on purchase outcomes and traffic-to-sales conversion (Sun et al., 2021; Tan et al., 2019), the impact of live chat on refund intention is largely underexplored. This paper is one of the initial studies to explore the effects of live chat on refund intention in online labor markets from the empirical perspective, thus extending the current literature. Second, although the cognitive dissonance theory provides a framework for examining the influencing factors of consumers' refund intention, it does not explain how consumers produce cognitive dissonance thus resulting in product refunds when they use live chat. This paper introduces different features of live chat into a comprehensive model to identify the potential factors influencing refund intention in the live chat environment. Third, by exploring the moderating effect of business familiarity, this study expands the framework of cognitive dissonance theory and enriches the application scenarios of existing theories.

The managerial implications of this paper are as follows. First, this study can provide reference suggestions for the optimization design of the live chat system of the service platform. The online labor market should develop semantic analysis tools to conduct live chat text analysis, take the reply speed, politeness intensity, sentiment intensity, and business familiarity of the service provider as important display indicators, and establish an effective mechanism to improve the chat response speed and content quality of service providers, to improve the overall transaction rate of the platform. Second, this study can provide a reference for service providers to reduce the refund rate. Service providers should pay attention to the wording of the chat, actively respond to employers' requests, and improve the response speed, politeness intensity, and sentiment intensity to reduce the possibility of product refunds. Third, this study can provide suggestions for employers to choose service providers. Employers should choose to transact with service providers with high response speed, politeness intensity, sentiment intensity, and business familiarity to reduce emotional dissonance and product dissonance after purchasing service products and avoid the result of refunds.

Limitations and Future Research Directions

This paper still has some limitations. First, this paper mainly focuses on the unique archived data collected from a large online labor market, which reduces the generalizability of our research conclusions. Among e-commerce platforms, only a few have developed live chat tools (e.g., Taobao and JD). Therefore, our findings may not be suitable for e-commerce platforms that mainly focus on physical products. Studying live chat in a broader context may provide a deeper understanding of how to effectively design an Internet-based direct message system. Second, some independent variables beyond our control (e.g., the competitiveness of service providers) may affect employers' refund intention. These variables can be considered in future research to explore the potential impact on refund intention. Third, this study only considers the impact of three live chat features on refund intention. However, other linguistic features of live chat, such as readability and perspective-taking, can be taken into consideration in future work.

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