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The role of external and internal signals in E-commerce

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ABSTRACT

Online markets present a challenging environment to evaluate experience products, especially products sold by unknown online sellers. To alleviate this problem, unknown online sellers may choose to signal quality using website signals. However, signals are not useful unless buyers notice these signals and believe that these signals are true. In this study, we evaluate the effect of the believability of external and internal website signals on the buyer's evaluation of seller and product quality and purchase intentions when interacting with unknown online sellers. The results suggest that external and internal signals, if believable, have a significant effect on buyer perceptions. While both types of signals are important, buyers find external signals more salient than internal ones. These results enhance our understanding of signals in e-commerce because they help online sellers to refine their digital business strategies and inform online buyers about the importance of website signals.

1. Introduction

With the increase in online sales and e-commerce adoption, a growing number of retailers launch online storefronts to capitalize on lower market entry costs. Given the high number of online sellers on the market and similar technology used in creating online storefronts, it is becoming more difficult to differentiate between high- and low-quality online sellers. The uncertainty caused by the online environment and lack of familiarity with online sellers makes buyers hesitant to engage in online purchasing [38]. To alleviate the uncertainty caused by the virtual representation of online stores and offerings and acquire new customers, sellers use signaling as a part of their digital business strategy to differentiate themselves from other sellers and convey information about the quality of their products. Signals that are well understood help online buyers recognize the actual quality of online sellers and products, and influence their perceptions of trust, deception and purchase intentions.

We propose that sellers may display internal and external signals to influence the buyer's perceptions of seller and product quality and to increase their purchasing intentions. Internal signals arise as a consequence of the seller's internal decisions to project a specific image, or communicate a specific company policy. These signals provide evidence of the seller's promises. Examples of these signals include the display of the privacy policy or return policy. In contrast, external signals are those that imply an endorsement from a third party. In general, these external signals are seals that indicate verification by, or affiliation with, a well-recognized outside company. Examples include seals to verify the authenticity of a website (e.g. Verisign), or the affiliation with a specific payment mechanism (e.g. PayPal). Both internal and external signals are of the utmost importance to evaluate the quality of unknown sellers and to form perceptions of trust and mitigate deception concerns associated with an unfamiliar website.

To better understand the forces that can potentially mitigate the uncertainty triggered by information asymmetry when dealing with unknown sellers, this study draws upon signaling theory. This theory helps identify the types of signals that form buyer's perceptions of seller and product quality, and help alleviate trust and deception concerns. To this end, we evaluate the effect of internal and external signals on perceived seller and product quality, as well as perceived trust, deception and purchase intentions. However, for a signal to be useful, it should be seen and understood by a receiver. Thus, this study focuses not only on the presence of signals, but also on their believability. The study addresses observable website signals related to the online purchasing process that are provided by sellers pre-contractually (i.e. before an actual purchase takes place). In particular, the empirical portion of this research covers online pharmacies in which the failure to identify the quality of a seller or a product correctly may lead to potentially damaging outcomes. The quality of pharmaceutical products is difficult to evaluate and therefore, the role of signals is paramount in this context.

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This study provides both theoretical and practical contributions. At the theoretical level, an examination of website signals can contribute to our understanding of how the believability of signals influences the online shopping experience, as well as inform us about the potential of signals to uncover hidden qualities of sellers and products. At the practical level, our findings can help inform online users and online sellers about the effect of website signals on the buyer's perceptions.

We begin with the review of signaling theory, and then introduce website signals. We investigate the effect of website signals on seller and product quality as well as on the perceptions of deception and trust, and purchase intentions. Then, we describe the research design and analysis and conclude with the discussion of results and their implications for theory and practice.

2. Signaling theory

Signals are visible features of an object that can be altered according to a signaler's preference [44]. Signaling theory offers a framework that explains how extrinsic cues or signals are used by one party to convey hidden or limited quality information to another party to facilitate a purchase or exchange [47]. In seller–buyer relationships, signaling theory has been used to understand the types of signals that sellers provide to buyers to reduce information asymmetry and help buyers make more accurate assessments of quality when the information about products is limited [24].

In e-commerce, information asymmetries accompany a technology-mediated channel [47]. The information asymmetry problem between online buyers and sellers perseveres because of product-based and seller-based information uncertainty [15]. Two major sources of information asymmetry that buyers experience in online markets are seller quality and product quality [6]. The lower entry cost in online markets creates additional uncertainty as sellers of both high- and low-quality have an ability to create online storefronts, which display different types of signals. Signaling theory [44] is used in situations of uncertainty and explains how signals can be used to influence the buyers' attitude towards the signaling party. In dyadic seller–buyer relationships, sellers introduce particular signals to indicate their quality and quality of their products, and buyers evaluate the validity of the sellers' quality based on the signals provided [38].

Signals are differentiated by their cost [44]. *High-cost signals* require significant investment of money and other resources. For example, verification seals require an effort to be obtained, as an approval of a third-party company and monetary expenditures on membership fees are needed. In contrast, *low-cost signals* may be perceived as relatively inexpensive to produce. For example, the cost of copying a privacy policy from other credible online sellers is close to zero.

In addition, some online signals are linked to an external provider's page and can be verified as true signals. For example, verification seals are usually linked to the verification seal provider website or listed in the provider's directory. Other signals, such as a privacy policy, are difficult to verify upfront before the purchase is complete and buyer private information is submitted, as a seller may or may not choose to adhere to the policy after the purchase.

In this study, we introduce signal believability—the degree to which signal receivers believe that a signal is true. As we examine signals in a virtual environment, it is important to identify the difference between signal assessment process in a physical world and a virtual world. In the virtual world, if the signals are displayed, then the first step for a buyer is to notice a signal; the second is to judge the signal. Similar to cue utilization theory [41], a signal is believable if buyers think they have an ability to make a correct assessment about a signal that is authentic and not forged. The correct judgment of an online signal may be impaired by its virtual representation. If the buyer believes the signal is true and associates the signal with higher quality, then the signal is effective and no further signal verification is required.

Signaling theory can provide new insight for research in online commerce. In this study, we consider two types of signals: internal and external. Internal signals are the result of the seller's internal decision to project a certain image of the store. Website policies exemplify internal signals as it is up to the seller what information and promises to provide in these policies. Internal signals represent the *inside–out* projection of the seller through the website. Alternatively, external signals, although sometimes requested by the seller, are determined externally by a third party. For example, a verification seal represents an opinion of the external party about the seller and thus signifies the *outside–in* reflection presented in the website.

3. Website signals

To be effective, a signal should be costly enough to allow differentiation between high- and low-quality sellers [44]. A signal that is costly is beneficial for a high-quality seller and detrimental for a low-quality seller as costs involved in the production of such a signal should be recovered. While it is easier to recover high signal costs for a high-quality seller as the quality of products and services is likely to be constant, it is more difficult for a low-quality seller because the expenditure related to the signal will be lost if a seller defaults on the claim [24].

Low-cost signals are easy to produce as they do not require significant investment. Low-cost signals may be either reliable when they are truthful or unreliable when they are forged and can be used by both high- and low-quality sellers. Sellers use low-cost signals if they bring benefits. For low-quality sellers, impersonating high-quality sellers is beneficial as it conveys a certain level of quality that may help convince a hesitant buyer. Thus, if the cost of a signal is affordable for a low-quality seller and if a high-quality seller uses this signal, there is a possibility that a low-quality seller will imitate this signal.

Sellers can easily manipulate signals in an online environment. However some signals, if manipulated, can be easily identified by buyers as false [28]. Thus, the ease of verification of a signal is an important factor in reducing the information asymmetry between a seller and a buyer. Some website signals that are relatively easy to verify are third-party seals, store locator information, live chat and use of encryption. Examples of signals that are difficult to verify before the purchase are various policies, such as privacy, security and return policies and online reviews [28].

Signals have more value when they are easy to verify [31]. If a buyer does not experience any difficulty to verify the truthfulness of a signal before the purchase, it is possible that the online purchase uncertainty may be reduced. On the other hand, signals that are difficult to verify before the purchase do not alleviate uncertainty in the same way as easy-to-verify signals do. Usually, signals combine both signaling costs and the verifiability dimensions. Thus, some signals are costly, require upfront expenditures and are easy to verify (e.g. Verisign seal), while other signals (e.g. privacy policy) are less costly to produce, do not involve upfront expenditures and can only be verified if a seller defaults on the claim [28].

Website signals that have been studied in e-commerce research include technological characteristics of websites, website design features, social signals as well as content and product characteristics [5,6,10,18,21,37,47]. While the purpose of signaling is to influence the perceptions of a receiver in a positive way, some online signals deliver negative information. For example, the country of origin of an online seller plays a negative role in case there is a negative association with the country [42], and amateurish design of websites signals deceptiveness to online buyers [29].

In this study, we focus on signals that are deliberately displayed by sellers pre-contractually (before the purchase). Particularly, we focus on signals that if omitted, will not disrupt the necessary processes of online purchasing (e.g. seals and policies). Thus, certain signals such as website design, payment mechanisms or product descriptions are