

Different Channels for Different Services: Information Sources for services with search, experience and credence attributes

不同服务的不同渠道：具有搜索、体验和信任属性的服务信息来源

Abstract

A first step in many decision-making processes is a search for information. This paper focuses on the means consumers use to access information prior to contracting services. It uses two different theoretical perspectives, namely, the economic approach (Stigler, 1961) and the psychological approach (Simon, 1947), and the specific aim is to compare consumers' choice of source when seeking information prior to contracting services with different levels of search, experience or credence attributes. The modelling technique is mixed regression models, which allow the use of standard errors robust to within-group correlation. Our review of the data from a sample of 492 consumers and nine different services (three for each attribute category) shows that consumers use fewer information sources and show less search intensity when the purchase involves a service with search attributes than when it involves either of the other types. The highest levels of information search intensity and online media usage are found in relation to services with experience attributes. Fewer sources are consulted for purchases involving services with credence qualities than for those involving the other types, but the information obtained has a greater impact on decision making. The information sources most commonly-used are personal contacts and offline media.

在许多决策过程中的第一步是搜索信息。本文着重讨论消费者在签约服务之前使用访问信息的方式。它使用两种不同的理论观点，即经济方法（Stigler，1961）和心理学方法（Simon，1947），具体的目的是比较消费者在选择服务之前的信息来源与不同层次的搜索、体验或信任属性。建模技术是混合回归模型，它允许使用稳健的内组相关性的标准误差。我们对来自492名消费者和九种不同服务（每种属性类别三种）的样本的数据进行了审查，结果显示，消费者使用较少的信息源，并且当购买涉及具有搜索属性的服务时，显示的搜索强度小于当涉及到任何其他类型时的搜索强度。信息搜索强度和在线媒体使用的最高级别与具有体验属性的服务相关。与涉及其他类型的服务相比，涉及具有信用质量的服务的购买的咨询来源较少，但所获得的信息对决策制定具有更大的影响。最常用的信息来源是个人联系和离线媒体。

Keywords: services, credence attributes, search attributes, experience attributes, information sources, online information search

关键词：服务，信任属性，搜索属性，体验属性，信息源，在线信息搜索

Introduction

The Total Retail Survey report (PwC, 2016) states that 29% of US consumers have at some time used their mobile phone to compare prices while shopping in a physical store and 40% report their purchase decisions being influenced by reviews found on the Internet. Similar figures exist for Europe. These data suggest that retailers cannot afford to ignore the role of online media options, not only in consumers' final purchase decisions but also in their search for information that can sway their decisions one way or another. Thus, the omnichannel phenomenon attracts great attention both in the press (eMarketer, 2015; Guillot, 2015; PwC, 2015) and in the academic literature (e.g. Ailawadi & Farris, 2017; Cummins, Peltier, & Dixon, 2016). Information-gathering for the selection and acquisition of goods is a key part of the pre-purchase stage (Beatty & Smith, 1987) which changed radically with the decline in info-search and info-sharing costs following the advent of the Internet (Zettelmeyer, Morton, & Silva-Risso, 2006) which provided new means of obtaining pre-purchase information (Lynch & Ariely, 2000).

Service marketing is no exception to this phenomenon. According to Eurobarometer 2016 (europa.eu), 36% of European online service marketing companies sell direct to consumers and 38% sell their services to firms. 52% of Spanish consumers report having used the Internet to purchase services (travel, accommodation and electronic banking) and 82% have used it to seek product and service information (INE, 2016). Even firms in the traditional offline health care environment are going "hybrid" and combining their offline services with multi-device online access to information" (Wang, Yeh, Yen, & Nugroho, 2016).

Although the dividing line between goods and services is becoming increasingly blurred (Lovell & Gummesson, 2004; Vargo & Lusch, 2008), and there are, to our knowledge, no specific statistics for the impact of the online media in information search behaviour in the service-purchase context, there are reasons to expect to find different patterns from those found in the product-purchase context, as well as variation according to the nature of the service required. For example, Eurostat data show that eight of the thirteen product categories purchased online are goods and five are services (Eurostat, 2017), and that the impact of several variables affecting information-seeking behaviour, such as product-category involvement, varies between goods and services (Keiningham, Frennea, Aksoy, Buoye, & Mittal, 2015).

This study aims to analyze the service consumer's information-seeking process using two different theoretical frameworks (Huang, Lurie, & Mitra, 2009).

We begin with a psychological perspective, which argues that there is a limit to the total amount of information that consumers are able to process (Barnard & Simon, 1947). Using this approach we aim to analyze the way in which consumers access and process information for decision-making (Alba & Hutchinson, 1987; Bettman et al., 1993; Lurie, 2004). Among other findings from this line of research, it has emerged that the type of information being handled is critical, since it affects the means of access, the amount of information acquired, and the length of time it takes to process (Johnson, Bellman, & Lohse, 2003; Payne, Bettman, & Johnson, 1990).

We proceed by adopting a perspective traditionally used in information-search and decision-making models and based on Economics of Information (EOI) theory and research (Stigler, 1961). This area of research assumes that consumers

prolong the search for information until the perceived marginal costs of the search equal the perceived marginal benefits (Bloom & Pailin, 1995; Ford, Smith, & Swasy, 1988; Ratchford, Talukdar, & Lee, 2007). In economic terms, the consumer stops the search when the potential benefit from continuing is no longer worth the potential cost. Using EOI theory as a basis, Nelson (1970, 1974) classifies products according to how soon consumers are able to judge their quality from their perceived key attributes. This can either be prior to purchase, for products predominantly characterised by so-called “search attributes”, or post purchase and consumption for those characterized by so-called “experience attributes”. When the dominant characteristics are what are known as “credence attributes”, however, product quality cannot be satisfactorily determined by the consumer even after purchase and consumption (Nelson, 1970). Although the Internet has proved to be a key source of product information in all three cases, the importance of its role might differ according to the type of attribute being considered (Weathers, Sharma, & Wood, 2007).

Service marketing literature has extrapolated the above findings beyond the context of tangible goods by identifying key service attributes and categorizing services into search, experience and credence categories (Darby & Karni, 1973). Many studies have focused on the key attributes of different service types and how consumers research each type in the offline environment (e.g. Mortimer & Pressey, 2013; Murray, 1991). Online information search behaviour in general has also been analysed (Frasquet, Mollá, & Ruiz, 2015; Jepsen, 2007; Ratchford et al., 2007).

To our knowledge, however, there is no existing research on variation in online information search behaviour across service types. This study contributes to the literature with a comparison of consumer choice between information sources

prior to contracting services, with aim of identifying differences relating to the predominant attributes (search, experience or credence). Variations in the depth and breadth of the search and the influence and importance of the sources consulted will have major implications for service providers. There is a growing number of channels for reaching today's hyper-connected consumers. Yet it is becoming increasingly hard to reach them effectively, and transmit the desired message. Thus, the number and nature of the information sources to which consumers are most receptive during the purchase process are essential data for service providers. A comparative analysis of information search processes by service type could also help them to decide whether to direct their efforts towards tangibilizing or personalizing the information they have to offer (or both), depending which sources they wish to promote.

The next section develops the conceptual framework. A brief review of the literature on the aforementioned service categorization enables the formulation of hypotheses about their impact on consumer information search patterns. The proposed hypotheses are tested on online survey panel data for nine different service contexts (three search services, three experience services and three credence services). The empirical framework is described in section 3. The results from the proposed models are given in section 4. Section 5 presents the discussion and the limitations. Finally, Section 6 discusses the implications of this study and points to potential future lines of research.

Use of information for service purchases

Assessing Service Quality

Since the (EOI) theory (Stigler, 1961), the cost benefit framework has established that

consumers keep searching for the lowest price until the marginal cost of obtaining and processing the information outweighs the utility expected from any further information (Tavana, Santos-Arteaga, Di Caprio, & Tierney, 2016). Xia & Monroe (2005) and Srinivasan (1990), among others, describe concisely how this general economic theory about price search behaviour can be applied to individual consumers.

The framework rests on the classic economic assumptions of the consumer rationality principle and the economic utility maximization objective. Thus, the theory of the maximization of expected utility would explain the information search intensity of the consumer who weighs the cost of one more unit of time spent researching prices against the expected utility of the information obtained. The costs in terms of the time and effort required to access and process the information place a constraint on search intensity, while greater information availability might increase the utility expected from the search.

Nelson (1970, 1974), extends Stigler's (1961) model by further assuming that consumers need to find not only price details but also some means of assessing the quality of the product. By extending this model to include attributes other than price, it was possible to confirm that product attribute assessment is a critical stage in the purchase decision-making process and can vary greatly according to the type of attribute being considered. Nelson, (1970, 1974) stated that differences between search and experience attributes are key to understanding consumer product quality assessment. Consumers interested in the search attributes of a product can find the desired information, e.g., the price, by looking it up, while in the case of experience attributes, such as quality, the only way is to buy and consume the product. Darby & Karni (1973) introduced a further dimension, credence, which covers attributes such as

the quality of a car repair, where asymmetry of information between buyer and seller means that consumers cannot be certain even after purchase and consumption.

The service marketing literature has also adopted and adapted the search-experience-credence categorization to describe services according to their predominant attributes (Guiltinan, 1987; Ostrom & Iacobucci, 1995; Zeithalm, 1981). Thus, in services predominantly characterized by search attributes, such as fast food (Zeithalm, 1981) or plane tickets (Girard & Dion, 2010), the service outcome can be evaluated in advance of purchase. In many cases, all that is required is to check the price, an attribute, which, as already stated, can be easily verified prior to purchase.

In services dominated by experience attributes, critical features can only be evaluated once service consumption is complete. Typical examples include child care (Zeithalm, 1981), hotels and hairdressers (Ostrom & Iacobucci, 1995) or telephone service providers (Bolton & Drew, 1991). Service quality is more uncertain *ex ante*, but can be verified *ex post*.

Finally, in the case of services characterized by credence attributes, quality cannot be evaluated even after purchase. Examples include tax and investment consultants (Ostrom & Iacobucci, 1995), market research companies (Mitra, Reiss, & Capella, 1999), medical services or education (Kasnakoglu, 2016). It is impossible for users of this type of service to ascertain certain details, such as whether they could have paid less tax or, in the case of market research, the quality of the sample selection method. Asymmetric information about quality also exists in the areas of health and education, where it is impossible for the service user to make an accurate service quality rating. These three categories are not fully mutually exclusive, however, since any given service will lie somewhere along the

search-experience-credence continuum according to the difficulty or ease with which consumers are able to access pre-purchase information on the main quality cues.

The classification of services also implies differences in other characteristics of the service offer and in the way consumers approach the purchase process. We now outline these additional differences. Firstly, any difficulty in assessing service quality has an impact on perceived risk, such that the harder it is to judge the attributes, the higher the perceived risk attached to the purchase (Girard & Dion, 2010; Mitra et al., 1999). Thus, there is more perceived risk in the purchase of credence services than in that of experience services and least of all in that of search services.

Secondly, based on dimensions proposed by Weyers & Louw, (2017) to evaluate service standardization levels (Service Employee, Service Delivery, Service Result and Communication Between Customer and Service Organization), it can be stated in general terms that search services are more standardized and less personalized than either experience or credence services (Guiltinan, 1987; Zeithalm, 1981). Pre-purchase judgments are easier when it is a standardized, non-personalized service that is being assessed (Lovelock, 1983). The high degree of personalization in experience and credence services also means that the quality of service delivery is more likely to vary (Ostrom & Iacobucci, 1995).

Thirdly, for credence services, there is an asymmetry of information between consumer and service provider (Darby & Karni, 1973; Hsieh, Chiu, & Chiang, 2005; Kasnakoglu, 2016), such that a precise evaluation of the service is not possible even after purchase and consumption. Reliance on the specialist knowledge of the service provider (Howden & Pressey, 2008) considerably reduces

consumers' certainty with regard to the potential outcome and cost (Murray & Schlacter, 1990).

Finally, Mortimer & Pressey (2013) cite two more major differences between experience and credence services: despite credence service purchases being more important, consumers find them less interesting than experience service purchases. These authors explain that, while experience services tend to involve leisure and pleasure, credence services pertain to more functional and mundane needs.

In addition, the advent of the Internet has revolutionized information search processes and drastically reduced the costs involved, while also providing more attribute assessment tools. The Internet enables consumers to learn from the experience of others and to access information that is sometimes difficult to find offline (Alba et al., 1997; Lynch & Ariely, 2000; Peterson, Balasubramanian, & Bronnenberg, 1997; Zettelmeyer et al., 2006). When making hotel bookings, for example, consumers can read the opinions of previous customers regarding the location, tranquillity, cleanliness and general upkeep of the hotel and thus form a pre-purchase impression; or even do a virtual tour of the installations on the Web and thus reduce the attribute expectation-performance gap.

Following the review of the literature used to support the classification of services according to their predominant attributes and the description of their differentiating features, the next section deals with expected differences and discusses hypotheses about the information search process across the three service types: search, experience and credence.

Breadth, depth, influence and type of source

The literature using the psychological approach to explore information search behaviour prior to purchase decisions has long focused on information processing capacity and underlying motivations (e.g. Barnard & Simon, 1947). As far as our present purpose is concerned, the literature has shown that the effort involved in searching information sources is closely associated with higher perceived risk in the purchase decision (Murray, 1991b; Murray & Schlacter, 1990). Given that all services do not involve the same degree of perceived risk, as noted in the previous subsection, service type could be a key factor in explaining how consumers use information sources and how the pre-purchase information search process evolves (Mitra et al., 1999; Mortimer & Pressey, 2013).

In what ways, therefore, do information search processes differ? This study addresses this question by identifying and examining four of their associated characteristics: breadth, depth, influence and type of source. After defining these four characteristics, we formulate some hypotheses about how they differ across service types.

First, we consider the range of sources, that is, the number of different information sources consulted in a given search (Bettman et al., 1993; Lurie, 2004). While the literature has focused mainly on external information search intensity and the combination of sources, i.e. personal/impersonal; commercial/non-commercial (i.e., firm-controlled or otherwise), online and offline, irrespectively, this study also analyzes differences in the number of sources and in the importance of their role in consumers' final purchase decisions. There is less to be gained from consulting various different sources when purchasing search services, which, as already noted, are more standardized and less personalized (Guiltinan, 1987; Zeithalm, 1981).

Thus, our first hypothesis states that:

Hypothesis 1: Consumers consult fewer information sources for search services than they do for experience and credence services.

Our consideration of search depth is on a per-source basis, that is, we focus on the degree of effort the consumer puts into weighing up the information drawn from each source, measured in terms of time spent browsing (Mitra et al., 1999; Ratchford et al., 2007) or the number Websites visited (Huang et al., 2009). Existing findings are contradictory. Sharma, Sivakumaran, & Marshall (2014) find evidence of a higher incidence of impulse buying in search services than in experience or credence services, suggesting an association with a less intense information search effort; while Mitra et al. (1999) find that consumers spend more time seeking information prior to purchasing search services than they do prior to purchasing experience services.

Information about the attributes of standard services tends to be objective, clearly presented, and quicker to access and process, whereas researching experience and credence service attributes takes more time and effort because they are uncertain and equivocal (Curras-Perez, Ruiz, Sanchez-Garcia, & Sanz, 2017; Hoch & Deighton, 1989). It may involve reading ratings and customer opinions, or watching videos, all of which reduces uncertainty but adds to the time spent at each source (Ha & Hoch, 1989) and to the effort required to process the information (Lurie, 2004). It is also reasonable to expect to find less intense information search behaviour in relation to credence services, which are less likely to involve pleasure or excitement (Mortimer & Pressey, 2013). Although there is a high degree of uncertainty involved in assessing credence services, due to the difficulty of obtaining reliable information about the quality of service delivery (Zeithalm, 1981), their “mundane” nature suggests consumers will be

less inclined towards a very detailed pre-purchase information search. Thus, we state the second hypothesis as follows:

Hypothesis 2. Information search depth among consumers is greater when shopping for experience services than when shopping for search or credence services.

A third feature of the process is the value attributed to the information obtained; that is, its eventual weight in decision-making; a factor which depends on source credibility (Klein & Ford, 2003). Credence services are characterized by asymmetry of information between service provider and customer, with specialist knowledge giving the service provider the upper hand (Darby & Karni, 1973; Howden & Pressey, 2008; Hsieh et al., 2005). Thus, credence services are the type that creates most uncertainty of outcome in the consumer, a problem further exacerbated by the necessity of the purchase. Predictably, therefore, whatever the source consulted, its perceived value for the consumer will be greater than is the case in purchase processes involving search or experience services.

Hypothesis 3. Consumers attach more importance to the information sources consulted when shopping for credence services than when shopping for search or experience services.

Lastly, we consider the type of sources consulted, especially online/offline differences, already widely analyzed in the literature (e.g. Peterson et al., 1997). With respect to the type of channel employed, external search channels are a primary means for consumers to find information about services, reduce perceived risk and uncertainty and increase post-purchase satisfaction. The range of sources

involved in this external information search is varied. Thus, they can be either personal or impersonal (Cunningham, 1967; Lutz & Reilly, 1974) and commercial or non-commercial (Bienstock, 2002). Table 1 provides examples of the various types of sources in the traditional environment and shows how the same framework applies to the online environment.

(Insert Table 1 here)

Sources differ in terms of the potential and means to satisfy the consumer's information requirements (e.g. Alba et al. 1997; Wallace et al. 2004; Neslin and Shankar 2009; Wang and Goldfarb 2017). There is empirical evidence regarding the contribution of the various types of channel (offline/online, personal/impersonal) (e.g. Alba et al. 1997; Ansari et al. 2008) in the purchase of tangible goods. Most of the little evidence on service purchase processes obtained so far applies to the tourism and finance sectors (Black, Lockett, Ennew, Winklhofer, & McKechnie, 2002; Cassab & MacLachlan, 2009; Frambach, Roest, & Krishnan, 2007). To our knowledge, the possibility of channel choice being influenced by the nature of the service has not been analyzed so far.

The wealth of options provided by the Internet for quick and easy access to pre-purchase information on a large number of product attributes (Alba et al., 1997; Shankar, Smith, & Rangaswamy, 2003; Wang & Goldfarb, 2017) are more useful when researching experience and search services, where the degree of perceived risk is lower. The opinions of previous service users enable online customers to learn from the experience of others (Chevalier & Mayzlin, 2006; Godes & Mayzlin, 2004; Mayzlin, 2006); and simulations through multimedia content (demo downloads, virtual models,

etc.) offer potential customers a direct experience (Lurie & Mason, 2007; Weathers et al., 2007). Our fourth hypothesis, therefore, states that:

Hypothesis 4. Consumers' preference for offline versus online information sources is stronger when shopping for credence services than when shopping for search or experience services.

When it comes to the role of personal contacts in information search behaviour, numerous marketing studies have shown that the higher the risk involved in a purchase decision, the more consumers tend to rely on personal as opposed to impersonal sources (Cunningham, 1967; Lutz & Reilly, 1974). The service quality perceptions of consumers engaged in high-involvement purchases, such as credence services (Strauss & Frost, 1999), reveals that a negative service evaluation by a member of their close circle influences people's purchase attitudes and intentions. In the same vein, Mitra et al. (1999) find more frequent use of personal information sources (friends, family, word-of-mouth) in relation to credence services than to search and experience services, between which no differences are observed. Furthermore, consumers see customer interface employees not only as a service company's direct representatives but also as key factors in determining whether the desired service meets their wants and needs in terms of service delivery and service experience (Wirtz & Jerger, 2016). It can be reasonably expected, therefore, that, in the credence service context, where the inexperienced customer often has no clear service expectations and where information asymmetry is common, consultation with service company employees is more frequent than in the search and experience services contexts (Mortimer & Pressey, 2013). On this basis, therefore:

Hypothesis 5. Consumers' preference for personal versus impersonal information sources is stronger when shopping for credence services than when shopping for search or experience services.

As far as the preference for commercial or non-commercial sources is concerned, the evidence is more limited. Lutz & Reilly (1974) distinguish between two types of risk in the service purchase decision-making process: performance risk and social risk. Their evidence suggests that people use more commercial (both personal and impersonal) than non-commercial information sources when anticipating a product performance risk than when perceiving a social risk. More recently, Mortimer & Pressey, (2013) have found that customers find word-of-mouth recommendations by sales staff more useful for the purchase of credence services than other types. This could have to do with issues relating to the evaluation process. Given the difficulty of evaluating the quality of credence services (even a posteriori), people pay less heed to other customers and more to the opinions of professionals. Thus, our last hypothesis states that:

Hypothesis 6. Commercial information sources are more important to consumers when purchasing credence services than when purchasing search or experience services.

Table 2 presents a summary of the proposed hypotheses.

(Insert Table 2 here)

Empirical Framework

Services selected for this research

The criteria for the inclusion of services in this study were based on the usual search, experience and credence product attributes (Darby & Karni, 1973; Nelson, 1970) and the analogous categorization of services proposed in previous studies (Galetzka, Verhoeven, & Pruyn, 2006; Girard & Dion, 2010; e.g. Mitra et al., 1999; Ostrom & Iacobucci, 1995). The condition for selection was that the key attributes of the service should have been previously established in the literature. To avoid the potential bias from selecting a single service per category, a total of nine were selected. Three search services: show bookings (Girard & Dion, 2010), transport bookings (Girard & Dion, 2010), and opening a current account (Mitra et al., 1999). Show or transport ticket sales are considered search services because (once the show or destination has been decided) the key information refers to prices, times, and seat location, all of which can be evaluated in advance. The same applies when opening a current bank account, since, once conditions such as interest rates, fees, etc. are known, the consumer is unlikely to find much difference in the service outcome.

Three experience services were selected: hotel or holiday package selection and booking (Galetzka et al., 2006; Mortimer & Pressey, 2013; Ostrom & Iacobucci, 1995), restaurant selection and booking (Zeithalm, 1981); and tour selection and booking (Mitra et al., 1999). In all three cases, service quality can only be evaluated after consumption, because it varies widely, and customer satisfaction is largely a matter of personal preference. In contrast to credence service users, however, holiday makers can usually give a fairly accurate rating of the food, the journey or the hotel once the holiday is over.

Finally, we selected three credence services: insurance (Girard & Dion, 2010; Mortimer & Pressey, 2013), medical attention (Mitra et al., 1999; Ostrom & Iacobucci, 1995; Zeithalm, 1981; Kasnakoglu, 2016) and legal assistance (Mitra et al., 1999; Ostrom & Iacobucci, 1995; Zeithalm, 1981). Here, asymmetric information between service providers and their customers prevents the latter from making a precise assessment of the quality of the legal aid, medical attention or insurance services they have received, because uncertainty persists even after service consumption.

Questionnaire design

The survey questionnaire contained 20 questions and was designed to take approximately 10 minutes to complete. To account for differences in the nature of the services (names of information sources or purchase channels, etc.) nine separate questionnaires were drawn up. The information requests and measuring scales were the same in all cases.

Each respondent was assigned a single questionnaire based on whether he or she had purchased the featured type of service in recent months, and care was taken to ensure that similar numbers of questionnaires were distributed for each service.

Following the assignation of services (see next section), and after requesting respondents to base their answers exclusively on the last time they had purchased the service, they were then asked to name the types of information source they had used, based on eight categories:

- Personal online commercial sources, such as the social media or e-mail
- Personal offline commercial sources, such as a store staff or telephone enquiries

- Personal online non-commercial sources, such as friends, through the social networks, or participants in forums
- Personal offline non-commercial sources such as friends or family, in person or by telephone
- Impersonal online commercial sources, such as company websites
- Impersonal offline commercial sources, such as ads in the conventional media
- Impersonal online non-commercial sources, such as web pages or non-commercial blogs
- Impersonal offline non-commercial sources, such as the TV or printed press

For each source mentioned, respondents were asked to rate their usage intensity and how much the information influenced their purchase decision (on a scale of 0 to 10 where 0 is not at all important and 10 is very important). They were also asked about their experience in using their chosen information sources (0 for “I had never used it before”; 10 for “I always use it”).

The following section of the questionnaire dealt with the actual purchase, type of purchase channel, (offline or online) and experience using the chosen channel (0- “I had never used it before”; 10- “I always use it”).

The respondent’s degree of familiarity with the technology involved was also recorded. Specifically, participants were asked to rate their degree of ease in finding information through the Internet and the social networks (0-Not at all easy; 10-Very easy) (McKee, Simmers, & Licata, 2006). They were also asked to rate their degree of involvement in the service purchase process. Using an adaptation of the scale used by Trijp, Hoyer, & Inman(1996), respondents were asked to indicate on a scale of 0-10 their level of agreement (0-Totally disagree; 10-Totally agree) with two statements: when deciding to purchase _____ (name of service), “I am always interested in

the full details of the purchase” and “It is important for me to handle all the purchase details personally”.

The socio-demographic characteristics included in the last section of the questionnaire are: age, sex, household type, number of children, level of education, and size of location of residence.

Sample Description

A specialist market research company collected the data using computer-assisted (CAWI) Internet survey techniques in November, 2014. The dataset is available in Chocarro, Cortiñas, & Villanueva, (2017). The target population was Internet users from a Spanish active recruitment panel formed by the market research company. The characteristics of the panel and the sample with respect to Spanish web-surfers and the Spanish population as a whole are given in Table 3.

(Insert Table 3 here)

Given that each respondent had to complete a questionnaire for one service only, the market research company supplied an estimated incidence rate to capture the likelihood of forming a panel of Internet surfers including people who had, in the last few months, purchased one of the services under consideration. The highest estimated incidence rate was for credence services. In view of the above, and the need to obtain a similar number of observations for each service and enough to enable a sufficiently reliable estimation of the parameters of the specified models (20 parameters in each case), initially, 600 Internet surfers were invited to participate in the panel.

Those willing to take part were randomly assigned a service category (search, experience or credence). They were then asked filter questions to determine whether in the course of the last few months they had purchased one of the three services selected

for the assigned category. Based on their responses, and trying to ensure that similar numbers of questionnaires were distributed for each service, they were each assigned a service which they would rate on the variables of interest in the questionnaire.

Of the 600 contacts, 67 failed because the service of interest had not been purchased over the six-month survey period. 20 of these failed contacts affected the search service category, 16 the experience service category, and the remainder the credence service category). A further 21 incorrectly-completed questionnaires also had to be discarded, as did the data provided by 20 respondents who had renewed their insurance policy automatically without consulting any outside information source. The total number of valid surveys was 492: 165 for search services; 178 for experience services; and 149 for credence services. Table 4 offers a summary of the sample distribution across services.

(Insert Table 4 here)

Methodology and variables employed

Because there are three different services of each type (search, experience and credence), there is a possibility of within-group correlation among the observations affecting the relationships between the independent and dependent variables. The proposed hypotheses are tested while controlling for the service considered, using mixed regression models which allow the constants of the model to vary around the mean, according to which service is being considered, and also permit the use of standard errors robust to within-group correlation (Carey & Wang, 2001). All estimations are performed using STATA 14.0.

To test the hypotheses, we used the following as dependent variables:

- Number of information sources: total number of information sources consulted by respondent.
- Information search intensity: Sum total intensity of information search behaviour across all sources consulted.
- Importance attached to sources: Importance attached to the information provided by the source selected as a purchase channel.
- Offline-source information-search activity: measured as a share of total search activity across all information sources.
- Word-of-mouth information-search activity: measured as a share of total search activity across all information sources.
- Commercial-source information-search activity: measured as a share of total search activity across all information sources.

The independent variables for testing the hypotheses are the service category dummies (Search/Experience/Credence), which take the value 1 when an individual is responding to a questionnaire related to that type of service and 0 in all other cases.

The following were also included as control variables:

- Familiarity with the online environment: a construct generated by factor analysis from two indicators of familiarity with the use of online search channels. The analysis reveals a single-factor structure which explains 66.68% of the variance within the dataset (KMO= 0.50 and Bartlett's Sphericity Test sig. = 0.00). The Cronbach's alpha scale reliability coefficient is 0.61.
- Involvement: a construct generated by factor analysis from two indicators of customer involvement with the purchase. The factor analysis reveals a single-factor structure which explains 88.17% of the variance within the dataset.

(KMO= 0.50 and Bartlett's Sphericity Test =sig. 0.00). The Cronbach's alpha scale reliability coefficient is 0.87.

- Socio-demographic variables: Age, Sex, Type of household, Number of children, Level of education and urban habitat (city with a population of over 500,000).

Table 5 gives the descriptive statistics of these variables.

(Insert Table 5 here)

To reduce the risk of common method bias due to the use of a single questionnaire to collect data, we first included several reverse-scored items in the major constructs to avoid acquiescence (Lindell & Whitney, 2001). After the data were collected, the correlation matrix (available under request) showed no highly-correlated constructs ($r > 0.90$) which might signal the threat of common method bias (Bagozzi, Yi, & Phillips, 1991). Overall, the results indicated that common method bias was not a major issue in our data.

Another potential source of common method bias is the non-response bias often associated with online surveys. Although the company that manages the panel (<http://www.toluna-group.com/home>) tests it regularly to ensure that it is representative of the Internet surfer population overall, non-response bias is nonetheless possible, even in this panel. To control for this effect, we compared the data from the questionnaire with known population data (Armstrong & Overton, 1977) using the results already shown in Table 3. Our sample shows a slight over-representation of the older age segments with respect to the 18 to 24 year old segment and over-representation of women, probably due to the recruitment requirement of having had a recent purchase experience involving the service in question, but results do not suggest an important non-response bias.

Results

Table 6 displays the results for the first three hypotheses, which concern service category effects, that is, search breadth, search depth, and importance attached to the information source; and Table 7 the results for the hypotheses on sources consulted (H4-H6). As already noted, a mixed regression model is used in all cases in order to control for intra-service effects.

(Insert Table 6 here)

The columns under the label “Model 1: Number of sources” in Table 6 list the estimates for the number of information sources consulted. Significant differences in parameter values can be observed between services with experience attributes and those with search attributes (parameter 0.42, sig. 0.00) and also between services with credence attributes and those with search attributes (parameter 0.10, sig. 0.03). These two positive parameter values show that significantly more sources are consulted for these two service categories than for the search service category, thus confirming hypothesis 1, especially with respect to experience services. The control-variable estimates in this model show that the number of sources consulted is greater among women, young people, those familiar with the online environment, people with children, people with post-graduate education and residents in rural areas.

Columns 5, 6 and 7 show the estimates for information search intensity, labelled as Model 2. The reference in this case is the experience category, since hypothesis 2 states that there are differences between this category and the other two (see Table 2). Information search intensity is significantly lower in the search category than in the experience category (parameter -2.86, sig. 0.03) but there are no significant differences between the experience and credence categories (parameter -2.01, sig. 0.14). Thus, we have only partial confirmation of hypothesis 2.

The control-variable estimates for model 2 show that search intensity increases significantly with familiarity with the online environment, higher purchase involvement, being a woman, being young, having children, having postgraduate education, and residing in rural areas. The observed age effects are consistent with those reported by Wan, Nakayama, & Sutcliffe, (2012). The more extensive background and experience of older consumers reduces their search intensity and number of sources consulted.

Finally, columns 8, 9 and 10 in Table 6 present model 3, which explains the importance attached to information sources (hypothesis H3). For testing this hypothesis, set out in Table 2, the reference is the credence category and the two parameters are the search and experience category dummies. Both parameters have the expected sign (-0.88 and -0.68 respectively), suggesting that more importance is attached to the sources consulted in purchase decisions involving credence services than in those involving the other two types. However, the experience service parameter is significant only at the 10% level and the search category parameter fails to reach any conventional level of significance. The control variables are less predictive in this model than in the previous ones. Only purchase involvement and number of children play a significant positive role in the level of importance consumers attach to information obtained through the purchase channel.

Table 7 presents the results for the mixed regression models, where the dependent variables are information search patterns for online, personal and commercial sources, respectively. These 3 models are labelled 4, 5 and 6 to match the hypothesis they are testing.

(Insert Table 7 here)

Columns 1 to 4 show the results for online versus offline information channel usage (model 4). The dependent variable is offline information search activity as a share

of total information search activity. The results confirm hypothesis H4, which says that the consumer preference for offline over online information sources is stronger in the credence service context than in that of search and experience services (parameter -0.18, sig. 0.02 and parameter -0.24, sig. 0.01 respectively). With respect to the control variables, familiarity with online information searches has, as expected, a negative impact on the proportion of offline search activity. The latter is unaffected either by purchase involvement or any of the demographic variables except education, which affects it negatively (all the education dummies in model 4 are negative and significant with respect to the reference level, elementary studies).

Columns 5, 6 and 7 show the results for model 5, which explains the use of personal information sources. Again, the reference is the credence service category. The search and experience category parameters confirm the prediction, made in hypothesis H5, that the preference for personal over impersonal information sources is stronger among consumers shopping for credence services than in those shopping for search and experience services (parameter -0.18, sig. 0.06 and parameter -0.17, sig. 0.02 respectively). In this case, the only other significant parameter is age. Younger people use a significantly lower proportion of personal information sources (parameter -0.01, sig. 0.00). The remaining parameters fail to achieve significance at the 10% level, allowing us to conclude that, in the decision to use personal information sources, the type of service category has more influence than individual characteristics.

Finally, columns 8, 9, and 10 summarize model 6, providing the estimates for the proportion of commercial sources consulted. In this case, we are unable to confirm hypothesis H6, because the results have no statistical significance (parameter 0.02, sig. 0.80 and parameter -0.05, sig. 0.46). We can conclude that the usage intensity for commercial information sources is the same across all service types. The same is found

for the control variables, showing that the estimated model is unable to explain variation in proportional usage across different information sources.

This section is summarized in Table 8, which gives the hypothesis test results.

(Insert Table 8 here)

Discussion and limitations

Service companies have increased their points of contact with consumers in a bid to adapt to an environment marked by the demand not only for multiple purchase channels, but for an omnichannel setting with various information sources enabling consumers to locate and research the services they require. The question that arises, however, is whether there is a regular overall behaviour pattern or variation according to the nature of the service required.

This study attempts to answer this question by analyzing information-source usage patterns for nine different services, including three with search attributes, three with experience attributes, and three with credence attributes. The results from this analysis reveal that consumers' information search habits vary significantly across the three service-type categories.

Significantly fewer information sources are consulted in purchase decisions involving search services than in those involving credence or experience services. This is a consequence of the standardization of the product and the fact that, due to the nature of the information required to guide decision making in this category of services, little gain is expected from consulting additional information sources, the extra effort being considered futile.

When it comes to search intensity, the results reveal a higher level for services with experience attributes than for those characterized by search attributes, because, in

the former case, consumers expect to gain more in terms of additional information and also find the search process more interesting. The sign of the difference with respect to credence services, although lacking significance, is as expected and consistent with the findings of Mortimer and Pressey (2013) who also report consumers showing less interest in the search process for credence services.

The estimated parameters for the importance attached to the source consulted have the expected sign, showing it to be higher for consultations involving credence service purchases decisions than for those involving other types of service.

The results also show that the highest degree of online information search intensity is for experience services. This is in line with the results of Bei, Chen, and Widdows (2004) who report higher information search intensity for experience products than for search products, attributing this to the fact that there are more external quality clues to consider when shopping for experience products and that consumers can reduce search costs by using the Internet (Klein, 1998). In the same vein, Wang, Yang, & Brocato (2017) also find that consumers search the electronic market more for experience products than for search products.

Consumers' preference for personal over impersonal information sources is stronger when shopping for credence services than when shopping for search and experience services. As in the case of hypothesis 4, human interaction has much greater potential than impersonal information sources when it comes to reducing consumers' uncertainty regarding credence services, thus accounting for the observed preference for personal sources.

We have to acknowledge constraints to this study, imposed by sample-size limitations preventing more explicit analysis of differences in the usage intensity levels obtained from the three-way (online/offline, commercial/non-commercial,

personal/non-personal) cross-classification study of information sources by service type undertaken in this paper. We were also unable to confirm sub hypothesis 2b and hypothesis 3, despite their having the expected the sign. This is an issue to be addressed in future work.

Although it was possible, with the selected methodology, to control intraservice heterogeneity in all three categories and thus obtain more robust results than if we had considered only one service from each category, future research might be enhanced by including more than three examples of each category.

To avoid having to consider respondents' entire purchasing histories, they were each assigned one service using the critical incident method. While this is a useful technique for increasing the reliability of survey questionnaire responses, it may not always capture individual behaviour patterns. Analysis of the sample shows that the population is representative of Spain's Internet-surfing population, but possibly should not be extrapolated to other contexts.

Implications and future research directions

The first point to emerge is that the search for information on services dominated by search attributes involves fewer sources and less intensity. In other words, consumers shopping for this type of service will perform a superficial search using a few selected sources. This means that search-service marketing managers' main focus should be on presenting the information required for purchase completion as efficiently, clearly and concisely as possible, while the need to increase the number or variety of information channels is less critical. One possibility would be to create a single website offering all the available information, to avoid the need to consult several sources (social networks, support service websites, etc.). The single website would need to be meticulously

designed to enable the consumer to obtain all the information required to complete the purchase in as few clicks as possible. The same objective of reducing the consumer's search costs can be achieved in the bricks-and-mortar environment by supplying complementary printed material presenting the necessary information as clearly and accessibly as possible.

It is experience services, meanwhile, that generate the most intense information-seeking activity. Here, managers need to be aware that consumers will consult most of the available sources and explore the content more closely. This environment contrasts with that of search services, where a few sources are used to satisfy basic information needs. In the first place, any extra information on experience services is to be valued, given that the dispersion of attribute values is potentially much wider. The perceived quality of the food served in a restaurant, for example, can vary considerably from one person to another; therefore the information seeker will appreciate 10 different opinions more than just one. The perceived information-search costs associated with this type of service may also be lower because the level of interest is higher and the search process may have its own appeal. Network intelligence managers and community managers will therefore play a particularly crucial role in these service sectors, which account for the bulk of online search and shopping activity. Here, it will be critical to ensure that the service provider features in as many websites and web pages as possible, and also that the information displayed on every each one is closely monitored, because they all have potential impact. Another way to reduce the perceived risk associated with the purchase of services with experience attributes is to provide virtual tours. The Hotel Atlántico (Madrid), for example, offers a six-minute 360° guided tour showing the characteristics of the hotel and services it has to offer. The Cima Hospital in Barcelona also offers a 360° view of the birthing experience it is able to provide.

Consumers purchasing credence services rely mainly on information from personal contacts and offline sources and tend to consult fewer sources overall. Here, therefore, the emphasis needs to be on the communication skills of sales personnel and their ability to ease the purchase process. The higher complexity of credence services increases the need for guidance in the consumer's decision-making process. The salesperson should become the guide the customer is looking for, and help him or her to make sensible purchase choices. Personal sales have enormous potential impact across all types of services, and even more in the credence service context. In the online setting in particular, personal sources will be critical in this service-type category, special care will be required to build consumer confidence and reduce perceived risk when sending communications by e-mail or through the social networks. Direct chats can be a useful complementary strategy on websites dealing with this type of service. There also appears to be a vital need to increase the amount of information available at the physical premises of credence service providers, and thereby assist customer's pre-purchase quality assessments.

Nowadays, consumers not only consume information, they also generate and share it. Another interesting line for future research, therefore, would be to examine whether, and how, the impact of numerical consumer ratings, and the volume and nature (positive or negative) of consumer opinions on service purchase decisions vary across the three service categories. In the same vein, although this paper has focused exclusively on the information-search stage of the purchase process, current omnichannel consumer behaviour suggests that it would be worth extending the analysis to include the impact of service type at all the key points in the service purchase and consumption process.

Another interesting way to build on these research findings would be to combine the cross-sectional survey data based on latest purchase, used in this study, with observational data from website-visitor and customer-transaction tracking systems. In this regard, while this study examines purchase processes across a sample of consumers and a range of different services, and although the sample selection method and the estimated model control for within-sample biases, further insights could be obtained by focusing the analysis on the purchase behaviour of a single consumer across different type of services.

Finally, this study does not contemplate behavioural variation across the different devices used to access online information sources. There is a growing body of literature on behavioural differences among users of mobile devices such as cell-phones or tablets, but, to our knowledge, there is no existing research on possible differences in modes of usage across service types. This, therefore, is a further direction for future research.

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Table 1: Information Sources. Authors' own compilation

	Personal	Impersonal
Offline	Commercial Physical store, Telephone contact with service provider or intermediaries	Advertising
	Non-commercial Reference groups: word-of-mouth	Communications media
Online	Commercial E-mail, chat, Social networks, with service provider or intermediaries	Service provider or intermediary websites, online publicity, or comparison sites.
	Non-commercial Social networks, forums	Specialist websites, blogs, etc.

Table 2: Summary of Hypotheses

	Services with search attributes	Services with experience attributes	Services with credence attributes
H1: search breadth	Lowest		
H2: search depth		Highest	
H3: importance of source			Highest
H4: search intensity offline			Highest
H5: search intensity personal sources			Highest
H6: search intensity commercial sources			Highest

Table 3: Online Panellist Profile

	% Panel	% Population	% Internet users	% Sample
Age				
18-24	29.00	8.00	17.90*	14.8
25-34	27.00	16.00	21.70	31.5
35-44	23.00	21.00	25.00	28.5
45-54	14.00	18.00	17.30	14.4
55-99	6.00	36.00	18.10	10.8
Sex				
Female	56.00	51.00	48.70	55.7
Male	44.00	49.00	51.30	44.3

Source Panelbook (Toluna, 2014) and AIMC (EGM-wave Feb.-Nov.2014) * (age 14 to 24)

Table 4: Sample Distribution by Service

Services with attributes...	Service	N	%
Search	Current account	50	30.3%
	Travel Ticket	57	34.5%
	Cinema/theatre ticket	58	35.2%
	Total	165	33.5%
Experience	Shows	54	30.3%
	Tours	63	35.4%
	Restaurants	61	34.3%
	Total	178	36.2%
Credence	Insurance	46	30.9%
	Medical	58	38.9%
	Legal	45	30.2%
	Total	149	30.3%
Total		492	100%

Table 5: Descriptive Statistics.

	Mean	Standar deviation	Min	Max
Number of sources	1.726	1.154	1	8
Search intensity	11.104	9.212	0	61
Source importance	3.701	3.902	0	10
Offline share	0.447	0.434	0	1
Personal share	0.633	0.416	0	1
Commercial share	0.610	0.410	0	1
Online familiarity	17.092	4.721	2.611	26.270
Purchase involvement	12.539	2.981	3.282	16.408
Age	37.512	12.454	16	82
Number of children	0.791	0.986	0	4
Urban	0.280	0.450	0	1
			n	%
Sex	Female		274	55.69
	Male		217	44.31
Household Type	Living alone		28	5.69
	Single parent family		10	2.03
	Couple		124	25.2
	Couple with children		199	40.45
	Adult with parents/other relatives		111	22.56
	Three-generational		16	3.25
	Others		4	0.81
Level of education	Less than elementary		4	0.81
	Elementary		34	6.91
	Secondary		213	43.29
	University		206	41.87
	Postgraduate		35	7.11

Table 6: Results (I). Mixed Regression Models: Effects of type of Service on Number of Sources, Intensity and Importance

	Model 1: Number of sources			Model 2: Search intensity			Model 3: Importance of source		
	Coefficient	Z ^(a)	P>z	Coefficient	Z ^(a)	P>z	Coefficient	Z ^(a)	P>z
_constant	1.52	5.33	0.00	9.90	3.68	0.00	2.19	3.01	0.00
Search Services	-	-	-	-2.86	-2.18	0.03	-0.88	-0.93	0.35
Experience Services	0.42	3.67	0.00	-	-	-	-0.68	-1.66	0.10
Credence Services	0.10	2.20	0.03	-2.01	-1.48	0.14	-	-	-
Online familiarity	0.02	1.94	0.05	0.24	2.68	0.01	-0.04	-0.90	0.37
Purchase implication	0.02	1.51	0.13	0.37	3.00	0.00	0.25	3.69	0.00
Age	-0.02	-4.61	0.00	-0.15	-4.08	0.00	-0.02	-1.67	0.10
Sex (Reference: female)	-0.23	-2.30	0.02	-2.00	-3.11	0.00	-0.65	-1.22	0.22
Type of household (Reference: Living alone)	-	-	-	-	-	-	-	-	-
Single parent family	-0.10	-0.24	0.81	-2.01	-0.67	0.50	0.61	0.38	0.70
Couple	0.03	0.10	0.92	0.67	0.34	0.73	0.07	0.13	0.90
Couple with children	-0.15	-0.51	0.61	-1.31	-0.75	0.45	-0.13	-0.13	0.89
Adult living with parents/other relatives	-0.06	-0.25	0.80	-0.07	-0.05	0.96	0.68	1.05	0.29
Three-generational	0.47	0.81	0.42	2.71	0.62	0.54	1.09	0.81	0.42
Others	-0.32	-1.00	0.32	-3.67	-1.36	0.17	1.04	0.49	0.63
Number of children	0.19	1.75	0.08	2.01	2.63	0.01	0.51	1.92	0.06
Level of education (Reference: < elementary)	-	-	-	-	-	-	-	-	-
Elementary	0.17	0.78	0.44	-1.05	-0.54	0.59	-0.05	-0.07	0.95
Secondary	0.03	0.16	0.87	-1.11	-1.08	0.28	0.29	0.40	0.69
University	0.16	1.11	0.27	0.18	0.18	0.86	0.32	0.34	0.73
Postgraduate	0.69	2.20	0.03	5.52	2.77	0.01	1.58	1.38	0.17
Urban	-0.18	-1.88	0.06	-1.30	-1.69	0.09	-0.56	-1.42	0.16
	Estimate	Stdandar Error		Estimate	Standar Error		Estimate	Standar Error	
var(_cons)	0.00	0.00		0.43	0.88		0.68	0.55	
var(Residual)	1.17	0.16		70.70	10.56		13.07	0.97	
Log pseudolikelihood=	-736.48			-1746.96			-1336.57		

^(a) Robust Standar Errors

Table 7: Results (II). Mixed Regression Models: Effects of type of Service on search activity through offline, personal and commercial sources

	Model 4: Offline share			Model 5: Personal share			Model 6: Commercial share		
	Coefficient	Z ^(a)	P>z	Coefficient	Z ^(a)	P>z	Coefficient	Z ^(a)	P>z
_constant	1.35	9.35	0.00	1.24	5.14	0.00	0.47	2.02	0.04
Search Services	-0.18	-2.41	0.02	-0.18	-1.90	0.06	0.02	0.25	0.80
Experience Services	-0.24	-2.77	0.01	-0.17	-2.26	0.02	-0.05	-0.74	0.46
Credence Services	-	-	-	-	-	-	-	-	-
Online familiarity	-0.01	-3.00	0.00	-0.01	-1.40	0.16	0.00	0.52	0.60
Purchase implication	0.00	-0.27	0.78	0.00	-0.51	0.61	0.01	1.29	0.20
Age	0.00	-0.37	0.71	-0.01	-2.97	0.00	0.00	-0.65	0.51
Sex (Reference: female)	0.02	0.59	0.56	0.05	1.37	0.17	0.04	1.00	0.32
Type of household (Reference: living alone)	-	-	-	-	-	-	-	-	-
Single parent family	0.09	0.94	0.35	0.06	0.41	0.68	0.02	0.09	0.93
Couple	0.02	0.17	0.87	0.08	1.27	0.20	-0.11	-1.67	0.10
Couple with children	0.05	0.46	0.65	0.10	1.20	0.23	0.01	0.10	0.92
Adult living with parents/other relatives	0.01	0.07	0.95	0.04	0.47	0.64	-0.04	-0.51	0.61
Three-generational	0.13	0.71	0.48	0.26	3.61	0.00	-0.07	-0.50	0.62
Other	0.19	0.56	0.57	0.23	1.14	0.26	0.00	0.01	1.00
Number of children	0.01	0.27	0.79	-0.01	-1.14	0.26	-0.01	-0.29	0.78
Level of education (Reference: <elementary)	-	-	-	-	-	-	-	-	-
Elementary	-0.36	-2.80	0.01	-0.14	-0.73	0.46	0.13	0.87	0.38
Secondary	-0.45	-4.47	0.00	-0.23	-1.18	0.24	0.07	0.50	0.62
University	-0.48	-5.54	0.00	-0.22	-1.07	0.29	0.08	0.43	0.67
Postgraduate	-0.49	-3.69	0.00	-0.27	-1.44	0.15	0.13	0.70	0.49
Urban	0.01	0.16	0.87	-0.08	-1.59	0.11	0.00	0.10	0.92
	Estimate	Stdandar Error		Estimate	Standar Error		Estimate	Stdandar Error	
var(_cons)	0.01	0.00		0.01	0.00		0.00	0.00	
var(Residual)	0.16	0.01		0.15	0.02		0.16	0.01	
Log pseudolikelihood =	-258.66			-233.99			-251.23		

^(a) Robust Standar Errors

Table 8: Summary of results

	Expected result	Actual result
H1: search breadth	experience>search credence>search	confirmed confirmed
H2: search depth	experience>search experience> credence	confirmed not confirmed
H3: importance of information source	credence>search credence> experience	not confirmed not confirmed
H4: search intensity offline	credence>search credence> experience	confirmed confirmed
H5: search intensity personal sources	credence>search credence> experience	confirmed confirmed
H6: search intensity commercial sources	credence>search credence> experience	not confirmed not confirmed