

**CONSUMERS' WILLINGNESS TO BUY FOOD VIA THE
INTERNET:**

**A REVIEW OF THE LITTERATURE AND A MODEL FOR
FUTURE RESEARCH**

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Abstract

In the first part of the paper, existing studies on consumer propensity to buy via the Internet are reviewed in an attempt to shed light on factors explaining consumer willingness to buy food via the Internet. Following a model by Sindhav and Balazs (1999), determinants relating to medium, product, consumer, firm and environment are distinguished. In order to draw the various results together and provide a coherent framework for future research, we then propose a model which combines the Theory of Planned Behaviour and the lifestyle construct. The model can be used to analyse how beliefs affecting consumers intention to buy food via the Internet are formed and changed due to experience with such shopping.

INTRODUCTION

Purchasing via the Internet is one of the most rapidly growing forms of shopping (Levy & Weitz, 2001; Limayem, Khalifa & Frini, 2000; Shim, Eastlick & Worrington, 2001). In principle, the Internet can be used to facilitate purchase transactions among all kinds of actors: among consumers, among businesses, between businesses and consumers. But the biggest and most successful area of application has been in the business-to-business domain. In the business-to-consumer area, business development has been more concentrated on certain niche areas (Butler & Peppard, 1998). Many of the sites run with a deficit or have even had to close down. Especially in connection with the sale of food and other products for daily use, there have only been few successes. The UK may be the market where food purchasing on the Internet has advanced most (Chadwick, Doherty & Hart, 2002), whereas other markets have watched spectacular failures, like www.webvan.com in the US, which, with more than \$122 million in initial funding, went bankrupt in July 2001 after 2 years of operation and an expense of more than \$1.2 billion¹.

In this paper, we want to review possible reasons for the willingness or unwillingness of consumers to buy food via the Internet. First, we will review relevant literature on the topic. After that, drawing on the literature review and on relevant theoretical insights from consumer behaviour theory and social psychology, we will present a comprehensive model which can guide future research on consumer willingness to buy food via the Internet. We will take a consumer-oriented approach, i.e., we want to concentrate on consumer perception which can impede or further the tendency to shop via the Internet. Our approach is thus different from approaches concentrating on questions like the development of appropriate business processes (Bello et al., 2002), channel organisation (Tamilia, Senecal & Corriveau, 2002), or creating functional and appealing websites (Eastlick & Lotz, 1999; Yang et al., 2003).

E-commerce is not a clearly defined term. For example, Choi et al. (1997) distinguish in their *e-commerce* model three elements: product, agent and process. Their argument is that traditional trade takes place with a physical product, a physical agent (e.g., a grocer) and a physical process. All transactions where one of the above elements involves the Internet will be *e-commerce*, whereas *pure e-commerce* takes place when all three parts are virtual. According to this definition, buying food from a vending machine with a smart card can be seen as e-commerce (Turban et al., 2002). Peterson, Balasubramanian and Bronnenberg (1997) and Butler and Peppard (1998) mention three channels in which marketing activities occur and where Internet operations can substitute traditional

operations: Distribution (which is the physical movement of products and services), transaction (which generates sales activities between buyer and seller), and communication channels (which enables communication between buyer and seller). The distribution channel can be online only for certain product types (e.g. software, music and electronic books), but for the other two channels the Internet can substitute or complement traditional channels for all types of products. Vijayaraman and Bhatia (2002) define e-commerce as the process of buying and selling goods electronically through computerized business transaction. Since they do not mention what is meant by “computerized business transactions”, this definition is less operational.

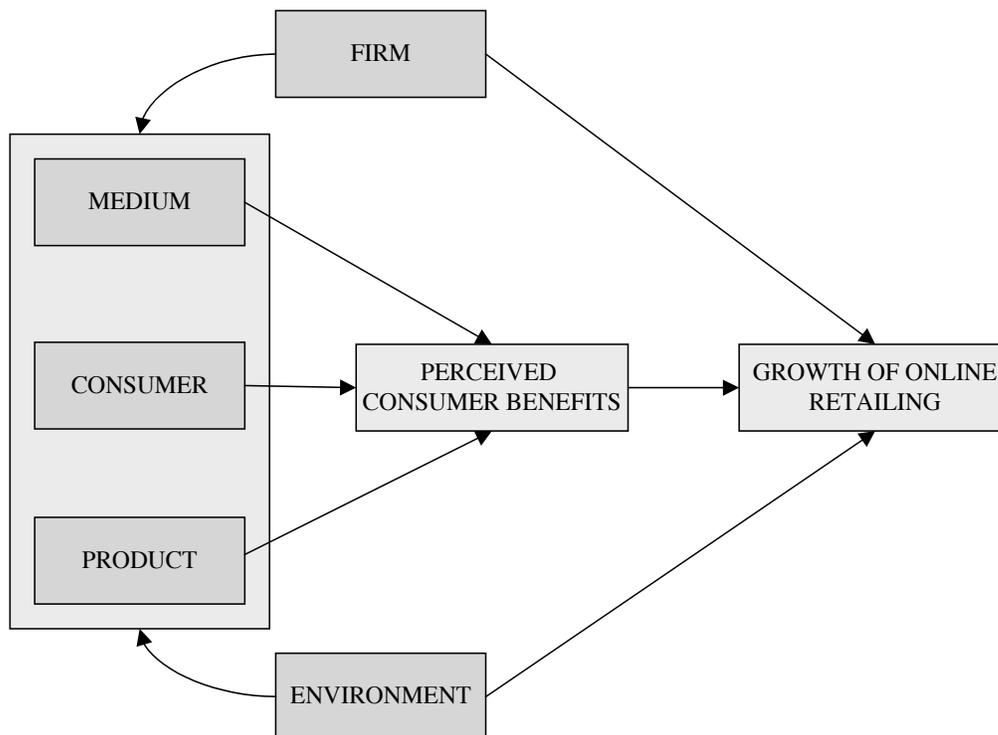
For the purpose of this paper, we want to deal with consumer buying where the ordering process and at least part of the communication occurs via an Internet website. Thus, we will not deal with transactions where the Internet is used only for communication purposes and where the ordering takes place by traditional means. As for the distribution of the goods bought and the way of payment, we impose no restrictions, and thus we intend to deal with all kinds of options, including that goods are being delivered to the consumer, have to be picked up at certain points, or have to be collected in a traditional shop and that the payment occur via the Internet, the bank or in connection with delivery.

LITERATURE REVIEW

In organising our literature review, we will adapt a model by Sindhav and Balazs (1999), who see the growth of e-commerce conditioned by three factors: the firm, the environment, and the perceived consumer benefits. Perceived consumer benefits are, in their model, in turn seen as related to the *medium*, the *product*, and the *consumer*.

While firm and environment may be assumed (as Sindhav and Balazs do) to have a direct impact on the growth of e-commerce, we additionally assume that they will have an indirect effect on the three determinants of perceived consumer benefits. We thus arrive at the modified model in figure 1, which delineates five groups of factors affecting perceived consumer benefits.

Figure 1: A conceptual model for on-line retailing (adapted from Sindhav & Balazs, 1999)



Medium

Sindhav and Balazs mention three relevant characteristics of the medium: Interactivity, variety of channels, and logical capability.

Interactivity refers to the work by Alba et al. (1997), who define it by response time and response contingency. Response time refers to the time which elapses between a question being asked or a query made and the answer obtained. Response contingency is the degree to which the response obtained is a function of the question asked or query made. Variety of channels refers to the number of channels, e.g., text and video, which the medium supports. Logical capability refers to the opportunity to perform logical operations on the data supplied, e.g., sorting and comparing. Logical capabilities allow the consumer to compare products, make decisions and build up a shopping basket. This may be particularly important in the context of food shopping, as it must be assumed that consumers will buy many products at a time from retailers with a large assortment, and sorting and comparing of products helps to reduce the time spent on shopping. Creation of electronic shopping lists is a related feature, which makes shopping even easier.

Generally, Sindhav and Balazs (1999) assume that better interactivity, more channels, and more logical capabilities will favour the use of the Internet as a retailing medium. Shorter response times and higher degrees of contingency are assumed to make the medium more attractive for the consumer. The more channels, the more the interaction resembles a traditional sales interaction. The more logical capabilities, the less effort for the consumer and the more

favourably Internet retailing will be compared with classical retailing. However, the importance of these medium characteristics will depend on the type of product, which will be discussed next.

Product

Various classifications of products have been proposed to explain which products will, in the eyes of the consumer, be more or less suitable for purchase via the Internet. Some of these have been incorporated into attempts to characterise product categories according to their suitability for e-commerce from a seller perspective (de Figueiredo, 2000; Rosen & Howard, 2000).

Sindhav and Balazs (1999) use the well-known classification of Copeland (1923) and its extensions (Murphy & Enis, 1986), which distinguishes between convenience, shopping and specialty goods. In addition, they characterise products by their information intensity.

The Copeland classification categorizes products depending on the degree of effort consumers are willing to expend during shopping (low for convenience, high for shopping and specialty goods), as well as on the degree of preference formation existing at the beginning of the shopping process (low for convenience and shopping, high for specialty goods). This will affect the purchase process, especially the information search, alternative evaluation and decision-making phases, and the Internet will differ in its ability to live up to the ways consumers engage in purchasing of the different product types. For convenience products, where information search is typically low and evaluation and decision-making limited, limitations of the medium will play a minor role and the major hurdle in the eyes of the consumer may be the impossibility of immediate delivery, unless the products themselves are virtual. For specialty and shopping products, where information search and evaluation of alternatives play a major role, the characteristics of the medium like interactivity, number of channels and logical capability will also play a major role.

Most food products are usually classified as convenience goods, since their purchase is mainly habitual and the effort consumers are willing to make is limited. Still, consumers often have preferences for particular brands, classifying many food products as what Murphy and Enis (1986) have called preference goods. Also, a particular characteristic of many food purchases is that many different products are purchased jointly, so that even while the single product purchase may be simple and habitual, the overall shopping trip may involve considerable effort, both mental and physical. Aspects of interactivity and logical capability may thus be quite important for food shopping, both for the single product purchase (e.g., finding the preferred brand) and for the overall shopping trip (e.g., providing interactive help in designing recurring shopping lists).

Information intensity is defined by Sindhav and Balazs (1999) as the extent to which the core and peripheral benefits of a product consist of information, and they seem to suggest that the Internet has advantages for products where the information intensity is high. In the food area, there has been a trend towards increasing information intensity of products for two reasons (Grunert, Bech-

Larsen & Bredahl, 2000). One is that many food products are marketed mainly by their health properties, which are invisible for the consumer and therefore needs to be explained. The other is the interest of some consumer segments in aspects of food production, like organic production, animal welfare, or use of genetically modified organisms (GMOs) (Grunert, 2002). These too are invisible properties for the consumer, and their use in marketing therefore depends on information. On the Internet, one could not only provide information which can be tailored to individual information needs, one could also provide additional trust in the information by linking to information providers known to be viewed as trustworthy by consumers.

A classification of goods widely believed to have an impact on how consumers search for information about products and evaluate them is based on whether they are characterised mainly by search, experience or credence qualities (Darby & Karni, 1970; Nelson, 1970; 1974). Search qualities can be evaluated by the consumer before the purchase (e.g., the appearance of an apple), experience qualities can be evaluated only after the purchase (e.g., the taste of the apple), and credence qualities cannot be evaluated at all by the average consumer (e.g., whether the apple was organically produced). This classification is therefore also mentioned in the context of discussing which types of products are more or less suited for sale via the Internet. The conclusions are not clear, though. On the one hand, it can be argued that the Internet is most suitable for selling search goods, due to the information search capabilities available there (Klein, 1998). On the other hand, the type of search available on the Internet, even when boosted by interactivity, logical capabilities and multiple channels, excludes certain types of search which consumers may believe to be crucial, like seeing and touching the product (de Figueiredo, 2000; Jones & Biasiotto, 1999). One may therefore also argue that the Internet may be most suitable for information intensive credence goods.

Liang and Huang (1998) tried to explain acceptability of shopping via the Internet by the transaction costs which consumers associate with Internet shopping as compared to store purchases. The product category, books, which their sample of Taiwanese consumers found most acceptable for Internet shopping, and the one which was least acceptable, shoes, differed mostly in the costs which consumers associated with the information search and comparison phases of the purchase process. The differences in perceived transaction costs may be explained by the arguments set forth above, in that books have a higher information intensity than shoes, and seeing and touching can be assumed to be much more important for shoes than for books.

Food products are mainly characterised by experience and credence qualities. In forming quality expectations about them, consumers, in traditional retailing, use intrinsic and extrinsic cues available at the point of purchase (Grunert, 2002; Olson & Jacoby, 1972; Steenkamp & van Trijp, 1996). Intrinsic cues refer to physical characteristics of the product, like its appearance, and are typically not or only to a very limited degree available when shopping food on the Internet. Extrinsic cues refer to everything else, and here the Internet may have advantages due to the possibility of communicating more information in a way tailored to the individual consumer's needs (Klein, 1998). When extrinsic cues are easily

available on the net, they may have more impact on consumer choice than intrinsic cues, even when those are made available via pictures of the product (Degeratu, Rangaswamy & Wu, 2000; Klein, 1998). Cue use is strongly linked to the product expertise of the consumer (Selnes & Troye, 1989), and different consumers use different cues when evaluating the same product. They will, consequently, also have different perceptions of the benefits of shopping food via the Internet.

Peterson, Balasubramanian & Bronnenberg (1997), criticising the search/experience/credence distinction, have proposed three dimensions as useful for analysing the potential of a product to be sold via the Internet: cost and frequency of purchase, degree of differentiation and value proposition, where the latter refers to whether the major selling points are tangible and physical or intangible and service-related. They classify food products into the low cost/high frequency and tangible or physical value proposition categories, and they conclude that, in this product category, traditional retailing will also in the future dominate Internet retailing, because the Internet channel offers no economies of scale to the marketer compared with traditional retailing for these products. This argument, while interesting, would not explain, though, why consumers would or would not be interested in such products being offered via the Internet, should such an offer be made available. The final shopping basket resulting from a trip to the supermarket may be both bulky and heavy, so the consumer may see an added value in ordering these items via the computer and having them delivered at home, and may also be willing to pay for this added convenience. Peterson et al. believe the potential for consumer marketing via the Internet to be highest when the value proposition is intangible. As mentioned before, more and more food products involve intangible value propositions in the health and production method fields, potentially making the Internet as a channel attractive due to its information transfer abilities.

Phau and Poon (2000) used the three dimensions proposed by Peterson et al. in an empirical study on purchase of products via the Internet among consumers in Singapore. They could confirm that products with intangible or informational value propositions (as opposed to products with tangible or physical value propositions) had a higher tendency to be bought via the Internet, as had products with a high (as opposed to low) degree of differentiation. As regards cost and frequency of purchase, their result was opposite to what Peterson et al. proposed: Low cost and frequent purchase items had a higher chance of being bought via the Internet. Among the food and drink products included in their investigation, only wine was categorised as having some probability of being bought over the Internet, whereas the others (milk, eggs, vegetables) were among the least likely to be bought via the Internet. Also Vijayasathy (2002) found that intangible products were found by consumers to be more suitable for Internet buying, whereas he could not confirm any effect for the cost factor.

Poon and Joseph (2000, 2001) combined the tangibility criterion proposed by Peterson et al. with the search/experience distinction to investigate whether the resulting product classification had an impact on perceived benefits of doing business via the Internet among a sample of Australian Internet businesses. They found no significant relationships.

As a tentative conclusion, it seems to us that two dimensions characterising different products may have an impact on the tendency to shop for them via the Internet. The first relates to the product's need for explanation, either due to the core benefits being of an informational and intangible nature, and/or due to the need to infer experience and credence qualities from cues available at the time of purchase. The second relates to the extent to which shopping for these goods via the Internet can lead to added convenience for the consumer. This added convenience can again be of an informational nature, so that consumers find it easier to compare products, identify preferred brands or compose shopping baskets, or it can be of a physical nature, for example by saving consumers the trouble to go to shops and carry potentially bulky items home. If we hold food products up against these criteria, it would follow that Internet shopping does hold a potential, if the medium indeed makes it easier to form quality expectations at the time of purchase and to compose individually tailored shopping baskets with little effort, and if the logistic problem of delivery can be solved satisfactorily (see below).

Consumer

A variety of studies have attempted to profile Internet shoppers, mainly with regard to demographic and, to a lesser extent, psychographic criteria (e.g., Donthu & Garcia, 1999; Morganowsky & Cude, 2000; Sim & Koi, 2002; Weber & Roehl, 1999). Many of these studies have a practical orientation and are not or only weakly linked to consumer behaviour literature (Reynolds, 2000, is reviewing some of these studies).

Sindhav and Balazs (1999) characterise consumers by their desire and ability to engage in Internet shopping. Desire, in turn, is split up into preference for home-based shopping and technological orientation. Internet shopping can be regarded as one form of home-based shopping (along with mail ordering and visiting salespeople), and some consumers may be more prone to home-based shopping than others, for example because of lack of time or physical inability. Technological orientation is defined as consumers' tendency to acquire and use new technologies for daily tasks. Ability refers to the technical ability to have web access.

Partial support for the importance of these dimensions was provided in a study by Bellman, Lohse and Johnson (1999). Based on data from a web panel of 10,180 web users, they found that among a host of profiling variables the ones which were best at predicting whether somebody engages in on-line shopping were either related to what they called 'a wired lifestyle,' i.e., the length of time one has been online, the number of e-mails received daily, the amount of work done online, and the opinion that the Internet improves productivity, or to time scarceness, as measured by total household working hours. Consumers shopping online were thus prone to view the Internet as part of their daily living (which can be viewed as a facet of technological orientation), and prone to home-shopping (due to their time scarceness). The study did not differentiate between different types of products bought. The importance of time-saving convenience and physical constraints as determinants of proneness to home-shopping was also

confirmed in a number of studies on online grocery shopping in the US (Hiser, Nayga & Capps, 1999; Morganowsky and Cude; 2000), in the Netherlands (Verhoef & Langerak, 2001), and in Singapore (Sim & Koi, 2002).

Several studies have addressed the risk perceived by consumers as a major determinant of the acceptance of buying via the Internet. Donthu and Garcia (1999), in a profiling study, found US Internet shoppers to be less risk averse and more prone to impulse buying, and de Ruyter, Wetzels and Kleijnen (2001) confirmed the importance of perceived risk when buying travel-related products on the net. Liebermann and Stashevsky (2002) identified Internet credit card stealing and misuse of personal information as the major risk elements associated with Internet shopping by a sample of Israeli consumers, and that the degree of perceived risk was in turn related to demographics and usage experience with the Internet, findings corroborated in other studies (Evans, Wedande, Ralston & van't Hul, 2001; Hiser et al., 1999; Keeney, 1999; Sim & Koi, 2002; Weber & Roehl, 1999).

Perceived risk being an issue, it is natural that trust in the Internet seller has been an issue as well (Zott, Amit & Donlevy, 2000). In consumer marketing, branding is one of the major devices for establishing trust relationships between buyer and seller, and consequently the role of branding in Internet shopping has received some attention (Degeratu, Rangaswamy & Ju, 2000). While the basic mechanisms of branding will be the same both on-line and off-line (Reynolds, 2000), it has been argued that the reputation of the Internet seller, and the trust that follows from this reputation, is of still higher importance on-line than off-line (Evans et al., 2001), although this may depend on the extent of other information available on the products offered (Degeratu et al., 2000). In addition to branding, trust-building devices used may be seals of approval, fulfilment of orders, the design and architecture of the website (Reynolds, 2000) and lenient return policies (Wood, 2001).

Gefen (2000) has investigated the role of trust in buying books via the Internet in some detail. He confirms not only the role of trust in the Internet seller as a determinant of making purchases, but also the role of familiarity with the Internet seller and its processes as a determinant of trust (see also Reynolds, 2000). Perhaps still more important, he found that, while trust in the seller varies with familiarity, a larger part of the variance in trust was explained by disposition to trust, a personality trait independent of the perception of specific Internet sellers and of experience with the Internet. The importance of trust was also confirmed in a Finnish study on grocery shopping via the Internet (Raijas & Tuunainen, 2001).

In conclusion, there seems to be evidence that consumers with a high degree of experience with the Internet are more prone to use it for shopping, which is not too surprising. This finding is linked to the finding that perceived risk and trust, both in the Internet in general and in particular Internet sellers, play a role, since more familiarity can increase trust. But risk aversiveness is also a personality trait, which may play a role in explaining why people shop via the Internet. Technological orientation and innovativeness (Eastlick & Lotz, 1999) may be other relevant personality or attitudinal variables. None of these factors seem to

be product-specific, so we would expect them to hold for food shopping via the Internet as well.

Firm

We discuss here only aspects of the firm, which relate directly or indirectly to perceived consumer benefits. We thus ignore questions like general e-commerce strategy (e.g., Porter, 2001), importance of firm size (Ellis-Chadwick, Doherty & Hart, 2002) etc.

Sindhav and Balazs (1999) discuss two factors relating to the firm: Information intensity and expertise in direct marketing. Information intensity is here defined as the extent to which the products and operations of the firm are based on information collected and processed as part of the online exchange. Direct marketing expertise covers a host of factors (Alba et al., 1997), the most important being convincing customers to buy without going to a retail outlet (Ward, 1999), being able to deliver to the customer within a given time and within given cost limits, and providing services like being able to provide the required lot size, providing delivery within an acceptable time limit, offering a range of products to meet different needs, and having an acceptable return policy (Wood, 2001).

A similar set of two factors has been proposed by Zott et al. (2000), who identify creation of stickiness and enhancing transaction efficiency as success factors in e-commerce. Stickiness can be gained through loyalty programmes and other benefits to customers and can be obtained by exploiting information gained during transactions, which places it close to the information intensity concept. Transaction efficiency is a major aspect of expertise in direct marketing.

Generally, traditional food retailing has not been highly information intensive, even though the scanner technology has resulted in large amounts of information being generated during transactions. Some retailers have tried to make more use of this information by linking the sales transaction data to personal data based on the use of loyalty cards. Online transactions would automatically be person-related, enabling online grocery sellers to provide a number of tailored services to individual customers, like automatic reordering, remembering of preferred brands, individualised information on special offers, etc. Such services would provide extra benefits to consumers compared to traditional retailing and at the same time create stickiness.

Transaction efficiency is tightly linked to the presence of transparent and efficient logistics systems (Loebbecke & Powell, 1998), which are crucial in online retailing where firms have to deliver individual shipments to individual addresses. When done efficiently, this can create an additional consumer benefit of online retailing compared to conventional store shopping.

Both dimensions (no matter whether one adopts the Sindhav & Balazs or the Zott et al. version) are thus highly relevant for food retailing via the Internet, and they suggest that traditional retailers, which tend to score low on both dimensions,

may be less than well-equipped to enter e-commerce in a way which consumers will find attractive.

Environment

Sindhav and Balazs (1999) discuss two aspects of the environment: *critical mass* and *technical and legal considerations*.

Critical mass refers to a minimum level of both consumers and retailers on the Internet which are regarded as necessary for online shopping to take off. It is much less clear, though, where that threshold is. For specialised products being shipped worldwide, the number of consumers engaging in online shopping of that particular product category in any particular region need not be very high. It is different with online grocery shopping, though, because the expensive delivery systems involved will require a minimum level of customers per region in order for such systems to be economically feasible. And while a certain critical mass may be sufficient to ensure the economic survival of a single online retailer in a region, there is another threshold where the number of online shoppers becomes so high that it induces more and more retailers to enter the online market, resulting in a much more proliferated supply in terms of both product assortment and associated services, which in turn will attract more consumers to online shopping (Ure, 2002). It is thus quite clear that the critical mass phenomenon is crucial for the diffusion of grocery shopping via the Internet. Chadwick et al. (2002), in their study on Internet adoption of the UK retail trade, did find that retailer size is positively correlated with Internet adoption, which supports the first part of the argument above, but to our knowledge the second part has not been researched. Predictions about the number of households owning computers and having Internet access are of limited value here, since the crucial question is whether these households will turn to online shopping, and whether they will do so in the area of groceries.

Thus, technical considerations do not refer so much to the ability to connect to the Internet as to the technological constraints once the connection has been established. Waiting times while downloading, incompatibilities of software and hardware and limited media richness are some of the technical constraints which may have an impact on the propensity to engage in online shopping, also for groceries. Technological progress covers things like the transformation from slow telephone lines to cables, and the increasing convergence of media, which improves media richness, social presence, and more effortless information exchange (Sindhav & Balazs, 1999). Technological advances can also improve the security of online transactions, another important aspect which can affect the growth of online retailing because of the risks consumers perceive to be associated with online shopping. These issues are relevant for all forms of Internet-based retailing, including food products.

Legal considerations affect questions like credit card security, protection of privacy, guarantees and returns. They will not be further addressed here.

PERCEIVED CONSUMER BENEFITS AND WILLINGNESS TO BUY FOOD VIA THE INTERNET: TOWARDS A THEORY-BASED APPROACH

In the model depicted in figure 1, adapted from Sindhav and Balazs (1999), it is assumed that the factors discussed above affect the benefits that consumers perceive in Internet shopping. It is further assumed that these perceived benefits will determine consumers' willingness to actually engage in such shopping.

The findings reviewed above have generated many interesting insights, but no coherent picture. Part of this may be due to the fact that none of the studies reviewed above build on a theoretical approach aiming to explain how benefits are perceived and how these perceptions affect intentions to act. The theoretical approaches invoked (to the extent that the studies were in fact theory-based) have had different emphases: some were concentrating on consumer information processing theory and its implications for information search and decision-making on the Internet (e.g., Alba et al., 1997), some employed an innovation adoption framework (e.g., Eastlick & Lotz, 1999), and still others drew on transaction cost economics (e.g., Liang & Huang, 1998) or on theory regarding the formation of trust (e.g., Gefen, 2000). While all of this provides interesting insights, we believe that there is a need for more research specifically taking its point of departure in a theoretical approach dealing with the formation, change, and impact of consumer beliefs about benefits, or the lack thereof, when shopping via the Internet. This holds for all forms of consumer shopping via the Internet, but we will retain our focus on the food area.

Such a theoretical approach would need three components. First, it needs an *intention formation component*, dealing with how intentions to act – to shop for food via the Internet – are formed based on the existing set of beliefs. Second, it needs a *learning component*, dealing with how beliefs are formed based on information one is exposed to, attention to this information, understanding and inference-making. Thirdly, it needs a *belief change component*, dealing with how beliefs about shopping for food via the Internet change in the course of experience with this form of shopping.

We will propose approaches for these three components in the following, starting with the intention formation component.

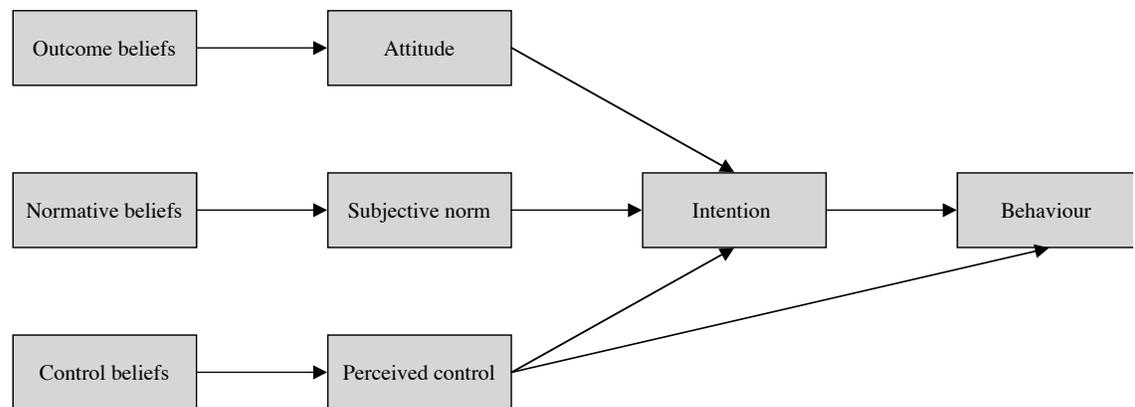
Intentions to shop for food via the Internet: Applying the Theory of Planned Behaviour

One of the most widely used theories in social psychology to explain how perceptions influence actions is Ajzen's Theory of Planned Behaviour (Ajzen, 1985, 1988), which is an extension of the previously widely used Theory of Reasoned Action (Fishbein & Ajzen, 1975). The basic structure of the theory is depicted in figure 2. The intention to perform an action is explained by three constructs: *The attitude towards the action*, *the subjective norm with regard to the action*, and *the perceived control over the action*. Attitude towards the action is the valence of the action for the potential actor, i.e., whether and to which extent the action is regarded as positive or negative. Subjective norm refers to how the potential actor believes relevant others will react to performing the action, i.e., positively or negatively. Perceived control refers to the extent the potential actor believes s/he would be actually able to perform the action if s/he

had the desire to do so. Perceived control is expected to have an effect on the formation of intentions, but also on the behaviour itself (see figure 2).

Each of the three determinants of intention are in turn explained by sets of *beliefs* in the mind of the potential actor. Beliefs are the result of perceptions and are stored in memory. The attitude towards the action is determined by *outcome beliefs*, i.e., beliefs about the results of the action if it is performed. Each outcome is characterised by a valence (positive/negative), and the attitude is regarded as the sum of these valences weighted with the strengths with which the beliefs are held. The subjective norm is determined by *normative beliefs*, i.e., beliefs about how relevant others will react if the action is performed. The social norm is expected to result from the sum of these normative beliefs weighted by the motivation to comply with the opinions of the various relevant social others. Perceived control, finally, is determined by *control beliefs*, i.e., beliefs about the ability to perform relevant actions leading up to the focal action or to have access to resources necessary for performing the action. These beliefs, in determining perceived control, are weighted by the importance of resource or auxiliary action for performing the focal action.

Figure 2: The Theory of Planned Behaviour



The Theory of Planned Behaviour has been widely used in many applications, also in explaining consumer behaviour (e.g., East, 1993; Taylor & Todd, 1995), including consumers' choice of food products (e.g., Bredahl, 2001; Bredahl & Grunert, 1997; Connor, 1993; Dennison & Shepherd, 1995; Povey et al., 2000; Scholderer & Grunert, 2001; Thompson & Thompson, 1996). Concerning Internet-related behaviour, it has been used to explain intentions to learn using the Internet (Klobas & Clyde, 2000), to explain the adoption of virtual banking (Liao et al., 1999), and as a framework for investigating the suitability of different products for Internet shopping (Vijayarathy, 2002). Shim et al. (2001) have used an adaptation of the Theory of Planned Behaviour, where they use the construct *intention to use the Internet for information search* as a predictor of intention to use the Internet for purchasing books, computer software and videos, i.e., products classified as search goods with a high information content.

We believe that the Theory of Planned Behaviour provides a good framework for explaining how beliefs related to food purchases via the Internet relate to the intention to engage in such shopping and subsequently to actually do so.

Most of the factors emanating from our literature review refer to outcome beliefs. All expected benefits, like better information search facilities, lower prices, added convenience due to home shopping, delivery and automated shopping list facilities, better ability to find preferred brands, more information about credence characteristics, can be regarded as potential outcome beliefs. The same goes for potential negative effects of shopping for food via the Internet, like unreliable delivery, misuse of credit card and personal information, higher prices, lack of personal inspection of products etc.

To date, perceived social norms have received little attention when it comes to investigating proneness to Internet shopping, in spite of its obvious relationship to the role of opinion leaders in diffusion research (Gatignon & Robertson, 1985). Since the activity goes on at home and without witnesses, one may be led to believe that the opinions of relevant others are less important here. However, peer views have been recognized to be important in the adoption of Internet technology in general (Ure, 2002), and have also been addressed in the context of making purchases via the Internet (Jones & Vijayasathy, 1998). We thus propose to retain this as a potential explanatory variable, even though Shim et al. (2001), in their adapted version of the Theory of Planned Behaviour, did not find subjective norm to have a significant influence on the intention to use the Internet for information search.

The perceived control component seems especially relevant in our context. Our literature review uncovered a number of factors which relate to a lack of perceived control. Some of these have to do with technical barriers which either bar Internet access (no computer, no opportunity for going online) or make it difficult, slow and cumbersome (like slow lines, non-sophisticated browsers, waiting times). Others may have to do with difficulties in navigating webpages, in logging in with a particular seller, with lack of facilities for finding and comparing products and composing shopping baskets, or with constraints and difficulties in making payments (no credit card, problems in online credit card verification). Others may relate to aspects concerning the delivery of the products.

It has been suggested that the perceived control component actually has two subcomponents, namely *perceived control* and *perceived difficulty* (Sparks, Guthrie & Shepherd, 1997). Perceived difficulty refers to consumers' ability to perform the action in question, whereas perceived control (in this more narrow sense) refers to external factors possibly prohibiting the performance of the action. Perceived difficulty is close to the *self-efficacy* construct widely used in health psychology and other branches of applied psychology (Conner & Armitage, 1998; de Vries et al., 1995). This distinction is useful also in the present context, although the two components are clearly interrelated in that a high degree of perceived self-efficacy (and hence low degree of perceived difficulty), which we would expect with consumers with considerable Internet experience and a 'wired lifestyle,' will allow consumers to compensate for a lack

of facilities in the technical environment they are operating in, thus leading to higher perceived control.

Ajzen (1991) has stated that the Theory of Planned Behaviour is open for extensions, and several other factors have been suggested as additional determinants of intention (Conner & Armitage, 1998; Eagly & Chaiken, 1993). One variable which has been repeatedly proposed and used is habit or previous experience (Bentler & Speckart, 1979), and it may seem plausible to add this variable here, given the previously stated importance of degree of experience with the Internet for explaining proneness for Internet shopping. However, adding additional variables makes sense only when they have a direct impact on intention, such that their addition will increase the amount of explained variance in intention beyond what is achieved by attitude, social norm, and perceived control (Ajzen, 1991). Most effects of previous experience, and other potentially relevant variables like demographic and psychographic explanators, will be mediated by consumers' beliefs, so that more experience with the Internet leads to different beliefs, which then affect intentions via attitude, social norm, and perceived control. We adopt this second approach, where we treat previous experience with the Internet as a factor affecting the formation and change of beliefs.

Forming beliefs about shopping for food via the Internet: The influence of lifestyle

The Theory of Planned Behaviour takes consumers' beliefs as given. Therefore, it cannot be used to explain why people hold certain beliefs like why some consumers may perceive food shopping via the Internet as convenient and others not. We therefore need to supplement it with constructs relevant for explaining why certain beliefs are formed.

Learning about new products, services and shopping modes can be governed by two basic types of cognitive processes, either following a classical hierarchy of effects model or following a low involvement learning model (Eagly & Chaiken, 1993; Petty & Cacioppo, 1986). Since changing from traditional retail shopping to Internet shopping involves considerable consumer learning requirements, we assume, following Gatignon and Robertson (1985), that the formation of beliefs about shopping for food via the Internet follows a classical effect hierarchy (e.g., Colley, 1961; Lavidge & Steiner, 1961). Hence, we can analyse the formation of such beliefs as a sequence of exposure to relevant information, conscious attention to it, comprehension based on and within the framework of existing knowledge and experience, and finally storage in memory. We are thus in search of constructs which can have an influence on exposure to, attention to and comprehension of information relevant for forming beliefs related to shopping for food via the Internet.

The personal characteristics most frequently investigated in the context of adopting Internet shopping are demographic characteristics. However, while demographic variables are useful for profiling, they do not usually offer an explanation. For example, a high income may be correlated with adoption of Internet shopping, but high income alone does not explain why somebody should

be more exposed to or pay more attention to information on Internet shopping. Rather, a high income may be correlated with different types of jobs or different resources available in the household which in turn may affect learning about Internet shopping.

Another group of variables frequently discussed in diffusion research (Gatignon & Robertson, 1985) is the use of mass media. This is clearly related to exposure and attention to relevant information. However, general use of mass media would measure exposure to all kinds of information, of which only a very small part would be relevant in the present context.

As a construct integrating demographic and media use variables, we would like to propose *lifestyle* as a determinant of exposure to, attention to, and comprehension of information relevant for the formation of beliefs about the adoption of Internet shopping for food. More specifically, we adopt the lifestyle concept proposed by Brunso and Grunert (1995, 1998). These authors define lifestyle as a mental construct which mediates between life values on one side and perceptions of concrete products or alternative courses of action on the other side, i.e., lifestyle summarizes how people believe that a certain group of products or actions contributes to the attainment of those life values which motivate the behaviour of these people. Lifestyle defined in this way is clearly related to both exposure, attention to and comprehension of information (Brunso, Scholderer & Grunert, 2004). It is related to attention and comprehension because it affects the way in which one is exposed to information and how this information will be categorised and interpreted. It is related to exposure because it will guide goal-directed actions which lead to intentional exposure to information.

The concept of lifestyle developed by Brunso and Grunert is domain-specific, i.e., lifestyle is not something equally relating to all spheres of life of a consumer, but applies to a certain domain of products, services or actions. Brunso and Grunert have developed the concept of *food-related lifestyle* (Grunert, Brunso & Bisp, 1997; Grunert et al., 2001), which is especially relevant in our context. The food-related lifestyle construct covers five components: *Ways of shopping*, *cooking methods*, *importance of quality aspects*, *consumption situations* and *purchasing motives*. While all of these may be relevant in the present context, ways of shopping and importance of quality aspects will be particularly significant. Ways of shopping deal with aspects like the joy of shopping, the use of specialty shops, information search, the use of shopping lists etc., all of which seem highly relevant for learning and understanding information about shopping for food via the Internet. Importance of quality aspects deals with the importance of criteria like freshness, taste, novelty, healthiness and naturalness. The relative weight of these in the mind of the consumer may affect the formation of beliefs about Internet shopping, since some of these (health, naturalness) are information intensive credence characteristics, where Internet shopping may have advantages, whereas others (freshness, taste) are experience characteristics where visual cues are important, where Internet shopping may have disadvantages.

Using the food-related lifestyle construct appears natural, given that we are dealing with shopping for food via the Internet. However, much learning which

results in the formation of beliefs relevant for Internet shopping is not necessarily related to food. Based on the review of the literature earlier in this paper, we would therefore like to propose to supplement the food-related lifestyle concept with the wired lifestyle concept. This term has been coined by Bellman et al. (1999) in the context of their study of 10,180 web users, where they used the term to characterise respondents depending on the length of time they had been online, the number of e-mails received daily, the amount of work done online, and the opinion that the Internet improved productivity. The concept has not been elaborated theoretically, and in contrast to the food-related lifestyle construct no tested measurement instrument is available. But it seems straightforward to redefine wired lifestyle along the same lines as food-related lifestyle, namely as an intermediate mental construct which expresses how people link perceptions of the possibilities offered by the Internet to the attainment of their personal life values.

We believe that these two constructs, food-related lifestyle and wired lifestyle, go far in explaining the formation of beliefs relevant for the formation of intentions about online food shopping. However, it may be useful to add a personality trait related to aversion to, or favourable attitude to, risk (sometimes also called venturesomeness). Both the literature on Internet shopping reviewed above and the general literature on innovation diffusion (see Gatignon & Robertson, 1985) suggest that this variable will be related to the cognitive processes leading to the intention to adopt an innovation like food shopping via the Internet.

Changing beliefs about shopping for food via the Internet: The influence of shopping experiences

When a consumer has gained experience with buying food products via the Internet, it must be assumed that his/her beliefs regarding this form of shopping will change. Analysing these changes is important in order to understand why some consumers stop after their first experiences with shopping via the Internet while others continue.

This is in line with the stream of research started by Parfitt and Collins (1968), who analysed the development of market shares for a particular product by defining market share as the product of a trial rate and a repeat rate. This line of thinking has been widely adopted in research on the introduction of new products (Urban & Hauser, 1993), based on the recognition that trial and repeat rates are affected by different marketing parameters: While trial rates will mostly be affected by communication about and distribution of a new product, repeat rates will be affected by product experience. By analogous reasoning, consumer beliefs leading to the intention to shop for food via the Internet the first time will be based on the processing of information about this shopping option, but actual experience may change these beliefs, and these changed beliefs will determine intentions to engage in such shopping again.

In analysing the effect of experience with Internet shopping for food, it is useful to view the shopping experience as a series of steps or phases. Sindhav and Balazs (1999) distinguish three phases, before, during and after the transaction (see also Rhee & Riggins, 1999). We would like to adopt the slightly more elaborate buying process model of Engel, Kollat and Blackwell (1968), which

has been widely used in consumer research and has also been applied to analysing Internet shopping (Butler & Peppard, 1998). The model is shown in figure 3. It should be noted that an actual buying process is not necessarily linear, as the model suggests, but may move back and forth between the phases. The ensuing belief changes as the consumer moves through these phases, and their effect on intentions to repeat the purchase process will, during the first experiences with Internet shopping for food, largely be based on comparing the new experience with traditional retail shopping.

Problem recognition triggers the buying process and will not usually be different from Internet shopping and traditional shopping, unless the Internet seller provides prompts for necessary rebuys, which consumers may perceive as an added convenience or an unwanted nuisance.

Search for alternatives, i.e., identifying the products that may be bought in order to fill the recognised needs, is a phase where there are considerable differences between traditional shopping and Internet shopping. As mentioned in the literature review, the type of information available, the type of products available, and the way information can be handled can differ. Direct visual inspection and handling of products are not possible on the Internet, but potentially a much wider range of additional information can be provided, compared to traditional shopping. The array of products available can be broader or smaller, depending on the conduct of Internet sellers. And depending on the logical capabilities of the system, comparing products can be much easier on the Internet, since physical movements between shops or between shelves in a shop are not necessary.

Figure 3: The Engel, Kollat & Blackwell model of the buying process

Evaluation of alternatives refers to choosing a product or a shopping basket of products based on the information at hand. It is usually analysed in terms of integration rules and choice heuristics, and it is well-documented in the consumer behaviour literature that the structure of the information available will have an impact on the way in which evaluations are formed (Bettman & Kakkar, 1977).

The *purchase* itself involves checking products out at the supermarket cashier or finalising the shopping basket with an Internet seller. Thus, it differs in the physical activity involved and in terms of payment. The latter is an important aspect given consumers' concern about payment security when buying via the Internet (Gritzalis & Gritzalis, 2001; Kolsaker & Payne, 2002; Liebermann & Stashevsky, 2002).

The *postpurchase* phase differs from traditional retailing where consumers take their products home, whereas Internet shopping implies that they will have to wait for delivery. For this reason, questions of product returns and retailers' return policies may have more importance.

Experiences throughout these five steps will alter consumers' beliefs related to shopping for food via the Internet. How these changed beliefs determine the intention to engage in such shopping again can still be explained by the Theory of Planned Behaviour. We should mention, though, that not only the beliefs, but also the weight with which the major components of the theory determine intention can change due to experience. For example, as consumers get used to shopping via the Internet, the perceived control component may become less important in explaining intention.

An operational model

Our overall model for explaining consumers' willingness to shop food via the Internet is shown in figure 4. We believe that this model is in good accordance with previous relevant research in the area, as well as theoretically well-founded. In addition, we would like to point out that the model is operational. The Theory of Planned Behaviour (and to an even larger extent its predecessor, the Theory of Reasoned Action) have been widely employed in previous research, and standard measurement instruments for its constructs are available (Ajzen & Fishbein, 1980). The food-related lifestyle construct has been extensively tested (Scholderer et al., 2004). Scales for measuring risk aversion exist. The wired lifestyle concept is less developed, but devising a reliable and valid measurement instrument does not pose major difficulties.

In order to capture the dynamic nature of the model, ideally one should engage in a longitudinal study. As a cheaper alternative, a cross-sectional design with consumers with varying degrees of experience with food shopping via the Internet may also be used.

Figure 4: A model of consumer willingness to buy food via the Internet

DISCUSSION AND IMPLICATIONS

We have now brought together different aspects from the literature on consumer Internet shopping in the hope of shedding some light on the potential of food shopping via the Internet. We have suggested a model which can explain consumers' intention to buy food via the Internet because we see a need for a more coherent and theory-based approach to this issue, and we believe that the model can pave the way for future research.

The intention formation part of the model, which has been adapted from the Theory of Planned Behaviour, explains consumers' intention to buy food via the Internet by four types of beliefs: perceived benefits and disadvantages, beliefs about others' reactions, beliefs about availability of resources, and beliefs about personal abilities.

In the literature review, we found most evidence on the first type of beliefs, and mainly with regard to two aspects: type of product bought and convenience. We noted that, in the food area, we have an increasing proportion of products with intangible or invisible qualities, like health-related or process-related qualities, and Internet channels have the potential of providing information that can aid consumer judgements on this type of qualities better than traditional retailing channels. However, whether this potential is realised obviously depends on the concrete implementation in a grocery website where the technical and design requirements with regard to interactivity, logical capabilities of the website, user friendliness etc. may be quite sophisticated but perhaps not implemented in current grocery websites. As for convenience, this is often considered a major drive in consumer adoption, and since traditional food shopping involves considerable efforts in terms of both mental and physical energy, the combination of Internet ordering and home delivery certainly appears to have the potential of being regarded as a major benefit by those segments of consumers who demand convenience.

We also found some evidence which we can link to beliefs about available resources and personal abilities. While Internet access obviously is a required resource, the more

interesting potential determinants here are the perception of the technical constraints once one has access to the Internet, and the perception of one's own abilities in handling them.

There was little evidence in the literature on the relevance of beliefs about others' reactions – not in the sense that such a relevance has been disproven, but in the sense that it has not been investigated. While few people may sit in front of the same computer in groups and buy food, the web certainly has created its own social dynamics in the form of chat groups, user groups, shareware and the like, and it is quite conceivable that this may also have an effect on the more mundane forms of Internet use like grocery shopping.

Different consumers will have different beliefs about food shopping on the Internet, and we have linked these differences to two domain-specific lifestyle constructs and to a personality construct. The lifestyle constructs, *food-related lifestyle* and *wired lifestyle*, express which role food and IT respectively play when considering how consumers attain their life values. People with a wired lifestyle, i.e., consumers where IT-based tools are an integrated part of their lives, used in many contexts, are also expected to have more positive beliefs about food shopping on the Internet. Which type of food-related lifestyle that encourages positive beliefs about electronic food shopping is much less clear and has to await further research. One could make the argument that consumers for whom food is very important – people for whom food is related to self-fulfilment, social relations, creativity – may be more apt to use Internet shopping because it helps them find products that match their specific needs. But one could also argue the other way round that consumers for whom buying food is just a burden will be most attracted to the potential convenience gains associated with Internet shopping. The personality construct, risk aversion, seems to be of general importance in explaining adoption of Internet shopping, not only for food.

Clearly, we would like to see research where our model is being used as a basis for empirical work. Since most constructs in the model are readably measurable, its application is rather straightforward. As a start, cross-sectional studies comparing populations of consumers with different degrees of experience with buying food over the Internet, or comparing groups of consumers in countries which have advanced to different stages of Internet food shopping, would be of considerable interest. In the more ambitious realm, a longitudinal study, showing how consumer beliefs change due to increased experience with this type of shopping, and with different Internet sellers, would be highly interesting. And since the design and implementation of the websites used is so decisive for the experiences made and hence the beliefs formed, one could also imagine laboratory studies, where characteristics of websites are systematically varied in order to see how that affects consumers' beliefs and intentions.

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