

# Packaging design for e-commerce:

Identifying new challenges and opportunities for online packaging

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**Abstract:** Although Internet retailing has been in place for nearly a decade, we have yet to see distinct and appropriate design strategies developed to adapt the discipline of packaging design to the electronic age. As online shopping provides a completely different consumer experience and environment, we propose that it is important to take a fresh look at how packaging can be effective in supporting e-commerce. This paper provides a review of the communicative functions of retail packaging and the problems of fulfilling these functions within the online environment. We have used a research approach based on the Elaboration Likelihood Model (ELM) (Petty, Cacioppo, 1996)[1]. Our prior research indicated that: (i) internet shoppers did not like plain text descriptions; (ii) varied presentations of “online packaging”<sup>1</sup> were more attractive and communicative to consumers. The experiment interviewed twenty participants for this paper. The authors found two primary empirical outcomes. Firstly, it was not easy to persuade high involvement consumers to change their original ideas but they might be persuaded by frequent exposures of online packaging presentation. Secondly, enhanced online packaging presentation can positively stimulate impulse shopping online. These outcomes suggest manufacturers, retailers and consumers benefit from new approaches to the presentation of online packaging.

**Key words:** *online packaging; Elaboration Likelihood Model; e-commerce; packaging design; impulse shopping.*

## 1. Introduction

By the end of 2002 the USA had over 160 million internet users, Japan following with 64.8 million users and China with 54.5 million. Rounding out the top five online nations in terms of users are Germany and the UK with 30.3 million and 27.1 million users respectively [2]. The World Wide Web (WWW) allows people to communicate simultaneously or asynchronously easily and effectively, shortening the distance and time between individuals. Therefore, the mechanism of online shopping was generated by this state of the art technology which began in 1994. Forrester [3] forecasted more than \$133 billion online sales for 2002 and predicted that by 2006 annual sales will increase to more than \$560 billion.

It is generally accepted that the packaging of products is the medium between consumers and products. The packaging of products is an effective tool for marketing in real shops [4] with Pilditch [5] saying that packaging is

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<sup>1</sup> There is no definition within the related academia or packaging industry for “online packaging”. Therefore we propose the definition as following: online packaging is a concept relating to packaging of product presentation which transfers the functions of physical commercial packaging, such as promotion, information and communication, to the virtual environment, in order to assist e-commerce sales.

the “silent salesman”. However, the issue of online packaging has remained minimally researched within the area of e-commerce. The authors posed the question “Is the existing visual packaging working well on e-retailers?” For the prior research a pilot questionnaire was developed to test this question and a random phone survey completed. Although this was a too small a sample for quantitative research, it was still worthy in helping to gather the general ideas concerning online packaging from the public. The major finding was that only five people (total forty respondents) noticed the packaging of the products when they were shopping online. Nevertheless, the questionnaire also showed that these respondents felt that the picture of the products was too small and blurred. Some of those websites did not even provide an image of the product. Thus, consumers might not be persuaded by that kind of visual packaging. This raised the question of how could the packaging be a “salesman” online? Hence the authors wanted to find out what can make online packaging better for e-commerce.

This paper firstly examined existing online packaging from UK’s leading online supermarkets, to ascertain how they presented their products online. Secondly, the authors proposed an enhanced online packaging presentation, contrasted by static pictures for this experiment. The main theory underpinning this research was the ELM which was used to analyse consumers’ cognitive behaviour, in order to understand consumers better. This would then help to propose better ideas for online packaging presentations.

## **2. Literature review**

### **2.1 Packaging**

Although the idea of this research was to distinguish the differences between physical packaging for real shopping and virtual packaging for internet shopping, it is necessary to understand the functions of physical packaging in order to transfer packaging from real to virtual. Packaging was defined by the European Federation [6] as “*all products made of any materials of any nature to be used for the containment, protection, delivery and presentation of goods, from raw materials to processed goods*”. The physical packaging of products has been studied for several decades and has been comprehensively understood. The basic requirements of physical packaging include: containment, protection, preservation, communication, handling and storage, as well as convenience of use [7-13]. The various functions of packaging can be divided into three categories; primary, secondary and tertiary functions [14, 15]. The primary functions concern the structural nature of packaging. The secondary functions relate to the issues of visual communication, with the tertiary functions being about the additional values for the product.

Visser [16] indicated that it is difficult to translate the existing packaging design and marketing tactics into online retailing. In his research he also found that information and emotional components could not be seen on retailer’s web sites.

Nowadays, people have many choices when they want to buy a particular product, being able to choose from dozens of similar products. As a consequence, it is quite hard to make a decision. So, the manufacturers have to meet the customer’s needs in order to sell their products. In this circumstance, packaging could be a powerful tool in the marketing for the sales of the product. However, during online shopping, consumers cannot touch products, nor can they see packaging well in cyberspace. So how can consumers be persuaded by online packaging? Kathman [17] states that the internet is a “highly self-select environment”, with a new packaging design strategy that must be different from traditional thinking for gaining a greater market share of e-commerce.

Visual communication has always been used and can be tracked back thousands of years. For example, traditional Chinese characters were transferred from their hieroglyph into words, all the words were drawn into a similar shape as “the thing” that it looked like. Kellner [18] pointed out that visual images are very important for our life as they can help us understand and interpret complex constructions simply. The visual or nonverbal information can be composed by fragmentary evidence for the construction of assumption and interpretation [19]. In other words, an addresser has to use signs to convey messages, in order to communicate with an addressee, so that when an addresser communicates to an addressee, then the addressee can understand the message on a certain level (more or less accurately). The level of understanding depends on the message. The more signs the addressee knows, the greater capacity for communication they have [20]. Cosio and Dyson [21] also stated that addressees used their previous experiences to explain the phenomena when they were faced a new or different circumstance.



**Fig.1 Tesco.com (UK)**



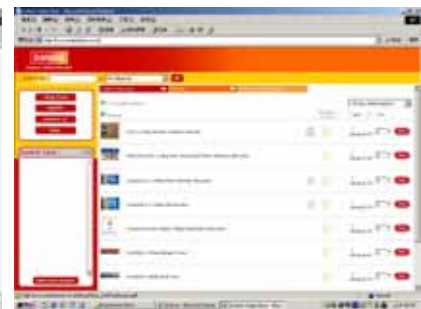
**Fig.2 Requested wine's information from Tesco.com (UK)**



**Fig. 3 7-11 convenient shop (Taiwan)**



**Fig. 4 Asda.co.uk**



**Fig. 5 Iceland.co.uk**

Packaging is a good agent for any product, not only because of the text descriptions but also for its visual communication. It can effectively deliver incisive product information, brand identity and is also a good cognitive agent for recognition. However, what would happen if packaging was applied to e-commerce? Would it play as well on the screen as it does on a shelf? For e-commerce, these questions are important as online packaging presentation could increase not only the number of visitors but also the number of e-commerce purchases.

## **2.2 Elaboration Likelihood Model**

Consumers would not be persuaded by the packaging if it failed to convey a suitable message. Therefore it is important to understand consumers' psychology, which in itself can allow designers to design a more effective packaging for their target consumers.

There are many researchers who have developed models of the dual process of persuasion and influence on people. These models were recognised as the Hierarchy-of-Effects Models (HEM). The first HEM was formulated by Lavidge and Steinger in 1961 [22,23] with two further models, the ELM by Richard Petty and John Cacioppo and the other Heuristic Systematic Model by Shelly Chaiken [24] being more widely used. However, the ELM is more frequently applied and cited in many disciplines of research for both cognitive psychology and consumer research. Moreover, it has obtained appreciable attention in research results and theoretical debates [25, 26].

The ELM of persuasion is a model about how people get influenced when they receive information. Petty and Cacioppo [27] stated that there are two routes to process when people receive information from a third party. The two routes are the central route and the peripheral route. The central route is a method to process information, which means that if a person had the ability and motive to process information he/she would more than likely adopt this route. In contrast he/she would adopt the peripheral route. Additionally the central route (known as high involvement) can be considered as a systematic method, with the peripheral route (known as low involvement) being considered as a heuristic method to the processing of information.

Importantly, the ELM is used to measure the effectiveness of commercial advertising. Much research has been conducted on this theme [28-33]. From another angle, it seems that online packaging can be treated as an advertisement for a product. Advertising campaigns sometimes link packaging and advertising together, even though they both promote the product, reinforce the brand image and attract the consumers' attention. However some aspects allow us to recognize subtle differences between them. Kotler, et al [34] indicated that there are more than 15000 items in an average supermarket with 53% of customers shopping impulsively, packaging being one of the main factors in achieving this figure. Reiner and Rose [35] provides us with three points to distinguish the difference between advertising and packaging 1) 70% of impulse shopping without remembering advertising but packaging. 2) A product's packaging of a product advertises the product before and after purchase. 3) The packaging of a product has a longer shelf life than the life of the product's advertisement. Visser [36] also mentioned that packaging is not only the skin of a product to help to communicate with the consumers but that it is also a mirror to reflect the soul of product.

Therefore the authors considered that online packaging should be able to do the same job as it would do in the real shop environment, and even more importantly it is thought that online packaging could not be replaced by online advertising. Although online packaging has not been deeply studied, the above researches could offer good references for future research.

### **2.3 E-commerce**

Currently, there is no internationally accepted definition of e-commerce. However, the British Department of Trade and Industry [37] has proposed a working definition, namely:

*"using an electronic network to simplify and speed up all stages of the business process, from design and making to buying, selling and delivery, e-commerce is the exchange of information across electronic networks, at any stage in the supply chain, whether within an organisation, between businesses, between businesses and consumers, or between the public and private sectors, whether paid or unpaid".*

Electronic commerce is a new tool for selling, in which consumers are able to participate in all phases of a purchasing decision, while going through processes electronically rather than in a real shop. With the growth of commerce on the Internet, people can shop online 24 hours a day, seven days a week without any limitation. Therefore, Barwise et al [38] stated that e-commerce is a marketing strategy to look after *"how the internet is*

being used as a channel by firms and consumers to support the exchange process". The processes in electronic commerce include enabling a customer to obtain product information, selecting items to purchase, as well as purchasing items securely.

To test the idea that enhanced online "packaging" will have a positive effect on customers' decisions, an experiment was designed using a virtual shopping "aisle", selling a single type of product. A number of products were considered including cosmetics, gifts and wine, which were all thought to be products where customers would take some care in making their choice. Wine was selected for the trial because it is relatively uniform in its physical packaging, despite the wide range of styles and brands available.

Some wine consumers have a technical knowledge of the subject and will tend to be strongly influenced by origin, grape variety and other factors. It was anticipated that these people might be less influenced by the packaging and might therefore form a control group for the experiment.

### 3. Method

#### 3.1 Overview of Experiment

There were twenty people recruited to participate in this experiment. They each carried out an online shopping task and were then individually interviewed for approximately 30 minutes after the experiment had concluded.

A webpage was developed to simulate a simple online wine aisle (Fig.6), which was similar to existing online wine shops. It contained four kinds of wine with brief text descriptions. The main information was online packaging and national origin, with the four wines being from France, Spain, Italy and Australia, with a brief indication of grape variety or region.



Fig.6 Stimulation online aisle



Fig.7 Requested information of Australian wine

The French and Australian wines each had a small static picture on the aisle as well as a bigger picture (Fig.7) where more information could be requested by clicking on its picture. The sizes of static pictures were approximately 25X85 pixels for the smaller pictures and 50X170 pixels for the bigger pictures.

The Spanish wine got a special designed online packaging presentation in comparison to the other wines. Firstly, although the size of the image of the Spanish wine was the same as the other wines, the Spanish wine had colour changing animation for the wine bottle (Fig.8). Secondly, there was a big rollover picture for the wine's label. When the cursor moved over the wine's animation, the big wine label would automatically pop-up. Thirdly, a big static picture (170X280 pixels) could be requested by clicking on the links (Fig.9). Fourthly, there were four animated pictures underneath the big static picture. These animated pictures were represented as a metaphor for

harvest grapes, wine storage, food and cheers (Fig.10). The purpose of these pictures was to raise the viewers' curiosities and desires about this particular wine.



**Fig.8 Colour changing animation of the Spanish wine bottle**



**Fig.9 Requested information of Spanish wine**

The Italian wine was without any visual packaging online presentation at all and had only text descriptions. Participants were told that this experiment was to understand how people purchased wine online. They were also told to focus mainly on the online packaging presentation and country of origin whilst the experiment was taking place. Therefore, participants should not consider other factors, such as price, sales, brand of online shop, online transaction security, privacy protection, down loading time or website design.



**Fig.10 Metaphor of animated pictures**

### 3.2 Involvement

Ten participants in the high involvement category were the control group. They were confident that they had enough knowledge of wines and have been drinking and buying wines at least once every two weeks for several years. The authors anticipated that this group would be influenced by the information of the wines origin.

Ten participants in the low involvement category were the test group. They did not know much about wines and had drunk and bought wine infrequently.

### 3.3 Procedure

The authors visited the participants homes at prearranged times with a laptop. Before participants logged onto the simulative aisle they were told to behave like it was a normal online shopping trip and to be themselves if they had not had any previous online shopping experience. Participants were told to buy one bottle of wine for the low involvement category, where the participants in the high involvement category had a second choice.

They normally took under 5 minutes to finish the" shopping trip". After this the authors asked them questions for a semi – structured interview.

### 3.4 Independent variables

In this experiment, the independent variables were country of origin and online packaging presentation. Although pricing is a very important factor in influencing consumers' judgements, it is also another marketing issue and for this reason has been excluded from this study. Therefore, the authors wanted to know how consumers were influenced by these two factors only.

## 4. Outcome and Discussions

**Table 1. Participants' purchase decisions**

	France	Spain	Italy	Australia
High involvement	3	3	0	4
Low involvement	3	6	0	1

**4.1 High involvement**

The participants in the high involvement category had a high personal interest and product involvement with the wine. From the point view of the ELM, the “central route” was used to process information due to high product relevance, high personal motivation and high cognitive communication. Therefore, they might have already known what wine they were going to purchase when they wanted to consume some wines.

Three participants in this category chose the Spanish wine as their first choice but two of them had drunk it before and knew it was a nice wine. Actually, only one of participants' purchasing decisions was influenced by the online packaging presentation. Nevertheless those two participants who had already had a favourable encounter with the Spanish wine said, that the attractive online packaging presentation had suddenly recalled their good time, concluding that they would like to buy it again. However, in this experiment, the authors found that 9 out of 10 participants said that the visual information did have a positive influence over choice. This was because it had visually confirmed that this was the correct wine that they would have purchased.

**4.2 Low involvement**

In the “peripheral route”, consumers have low personal interests and low product involvement. Therefore, their attitude was difficult and refused to be changed by the product's descriptions and statements. However they were more influenced by peripheral cues e.g. visual-stimulating, gaze-catching, curiosity-provoking. This is because consumers do not want to engage with the information which they do not have the abilities and interests to process. In other words, the “peripheral route” is an alternative way to allow low involvement consumers to be persuaded by the packaging. Participants in this category, usually buy wine for special occasions only. They do not normally have an idea when they want to buy wines, so many factors can influence their purchasing decisions e.g. word of mouth, wine's reputation, packaging and other people's recommendations. However, there were 6 out of 10 participants who said that they would like to buy Spanish wine, because there were many animated pictures which made the wine more desirable than the other wines. There were three participants in the low involvement category who said that they would like to buy the French wine because they already believed that the French wine had a good reputation and were thus uninfluenced by either packaging or flavour.

The Italian wine was the only wine that no participant chose. As it had no online packaging presentation this result was significant. The interviews concluded the following: 1) Although people are getting used to buying online, they need a familiarly to help them to match up their in-store shopping experience. They generally dislike the product with no online presentation which could not help them to transfer their tangible shopping experiences into an intangible world. 2) People were more likely to touch on the products before they bought. Visual images provided a certain level of compensability at least for real products. Therefore, people were more likely to pay money for products with the support of online packaging presentation.

**4.3 Implication for high involvement consumers****Table 2. The second choice of the high involvement participants**

	France	Spain	Italy	Australia
High involvement 1 <sup>st</sup> choice	3	3	0	4
High involvement 2 <sup>nd</sup> choice	3	5	0	2

This was a simple test so we did not explore ways in which to engage the high involvement consumers, other than treating them as a control group. However, if participants in the high involvement category were allowed to have a second choice, five out of the ten participants would like to try the Spanish wine because they were attracted by the enhanced packaging presentation. From the interviews it was apparent that:

1) They enjoyed the enhanced presentation. 2) The presentation had indicated the quality of wine. 3) The presentation caught their eye.

The aim of persuasion of communication is to make the consumer purchase. There are several steps considered to approach the aim in the ELM, such as awareness, attitude, preference and action. Therefore, we could assume that they might not have any reaction when they saw the wine for the first time but that the memory of a product may change their thoughts gradually and convince them to purchase the product in the future.

Hence, the enhanced online packaging presentation also has its value for this type of consumer. Hence future research in this project will explore their behaviour in more complex situations and over a longer period of time.

#### **4.4 Implication for impulse shopping**

Impulse shopping occurs quite often in the real in-store shopping experience. By contrast it was very hard to engage impulse shopping, in terms of existing online packaging presentation, according to our prior research. In this experiment the authors found that the enhanced packaging online presentation could increase the possibility of impulse shopping.

There were only two participants in these interviews who said that they would never be stimulated by packaging presentation, when impulse shopping, because they believed that packaging was always a business trick. The rest of the participants held a positive attitude to enhanced online packaging presentation. From these twenty interviews it was found that sometimes it was not easy for people to make purchasing decisions in their daily life. Peoples' considerations were more complex than yes or no. For instance, even most participants thought that enhanced online packaging presentation might trigger impulse shopping but not always. They still had something to consider e.g. price, spouse's opinion, service quality. To sum up, enhanced online packaging presentation was better than static, blurred or no picture presentation at all. Eighteen out of the twenty participants said that they would be more likely to shop impulsively if there was some form of enhanced online packaging presentation.

#### **5. Conclusion**

A situation was created to test the different kinds of information that would strongly influence different involvement consumers. The high involvement consumers will have numbers of "technical" factors that would influence purchase e.g. country of origin, type of grape and year. But the low involvement consumers might be more susceptible to online packaging presentation.

Two primary empirical outcomes were found. Firstly, it was not easy to persuade the high involvement consumers to change their original ideas, however they might be persuaded by frequent exposures of online packaging presentation. Secondly, the enhanced online packaging presentation can positively stimulate impulse shopping online. Nevertheless, the greatest weakness of this experiment was that the participants could not be representatives of the public and the number of participants seemed too few, although qualitative research does not always need a large number of samples.

Regardless of some problematics the research did found some suggestions to be considered for future thinking concerning enhanced online packaging.



1) Communicative function:

- To help consumers to identify products easily.
- To assist consumers to make decisions precisely.

2) Informative function:

- To provide sufficient information for consumers.
- To reinforce brand identity for consumers online.

3) Interactive function:

- To attract consumers' attention.
- To provoke consumers' curiosity of the products.

4) Stimulative function:

- To stimulate consumers' impulse shopping.
- To promote products online effectively.

The WWW might have many potential possibilities in changing the routines of existing offline and online trade. Although specialists in the real world need to think of a more effective and involving approach for attracting online consumers they also need to research the differences between the real and virtual worlds. With this in mind the character of interactive computer media will increase not only the productivity of online packaging but will also make for a more effective virtual world.

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