

The Virtually Promised Land –

The Transformation of The Concept of Packaging Design for Digital Era

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Abstract: It can be traced back through history that packaging has been used as a “silent protector” to preserve food and to protect goods for thousands of years. According to the development of commerce and the rise of modern supermarkets, the role of packaging has been expanded from a role as a “silent protector” to that of a “silent salesman”. These roles reveal that packaging can not only protect but can also promote products. This means that packaging can include all kinds of physical and visual elements which can be used in physically packing the goods and visually communicating with consumers. Since the introduction of eCommerce in the early 1990’s, online shopping has gradually caught the consumers’ gaze. However, many researchers have identified that consumers find it difficult to buy online due to poor product presentation and insufficient product information that they can easily obtain these functional advantages from a physical packaging in order to help them to make purchasing decisions. Due to that computer screens have replaced physical shelves, pictures replaced elaborate physical products and virtual spaces replaced real environments, online consumers do not have contact with products directly that they are used to physically manipulate products before purchasing decisions been made in physical environments. In this circumstance, they need to imagine the existence of physical products in the virtual environment. The lack of sufficient visual impact and information provision means that packaging cannot fully act the role of a “silent salesman” under this trading platform. This research explored the historical position of packaging for eCommerce and those benefits that packaging could bring to online shoppers, based on literature review and real world observation. The focus that was on the interaction among visual packaging functions, consumers and eCommerce was to discover the needs (packaging functions provision and consumers’ requirements satisfaction) of the activity (shopping online). We took reviews that considered the function of packaging, online consumer behavior and the difference between packaging and advertising, to discuss the packaging thinking which could be potentially transferred to the virtual world in order to continue the function of packaging. This research intends to identify the innovation of packaging thinking that can be employed in a digital context for “online packaging” design in order to help eCommerce sales and online consumers’ shopping experience. This aspect would provide the academia and the industry with a fresh view of packaging thinking.

Key words: *packaging design, eCommerce, interactive design.*

1. Introduction

E-commerce retail continues to grow in the U.S., for example, according to U.S. Census Bureau (2004) who reported that business to consumer eCommerce retail sales in the United States increased to \$55 billion¹ in the year of 2003, up from \$43.5 billion the previous year, an increase of 24 percent. This is a new channel for companies to distribute their products and services to customers. A traditional British retailer, Tesco, is developing and building on shopping sales through online shopping, with eCommerce helping it not only to expand their market shares online but also to reinforce its company's identity to the consumers. Online shopping offers consumers a convenient environment from where they can purchase products, whilst providing a variety of information that can act as the consumers' purchasing references.

What then, is the connection between eCommerce and packaging? It initially seems that there is no relation between them. However this can be clarified if we know the functions of packaging. The various functions of packaging can be divided into three categories; primary, secondary and tertiary (Long, 1982; Chou, 1999). The primary function is known as industrial packaging design, concerns the structural nature of packaging. The secondary function is known as commercial packaging design, relates to the issues of visual communication, with the tertiary function being about the additional values for the product. Paine (1981, pp.3) pointed out that "*Packaging is the art, science and technology of preparing goods for market and sale*". This means that packaging includes all kinds of physical and visual elements which can be used in physically packing the goods and visually communicating with consumers. The function is to keep the original quality of the products, whilst providing information to the end users, during the processes of transporting and selling. In this research, the secondary function, such as the product's promotion and information, was more important than the other functions, because the author considered that the concept of commercial packaging could be transferred to the virtual environment, in order to assist e-commerce sales (Huang et al, 2003).

2. The function of packaging history

The function of packaging was originally to protect and preserve products, prevent them from being damaged, reduce storage space and transportation costs in the distribution process, provided appealing presentation for products such as an attractive point-of-purchase display, and convey information to consumers. Today, the missions of packaging have been further expanded to the utility of the goods, in order to contribute the quality of people's lives and shopping experience. This section mainly focused on the function of secondary packaging design, such as promotional, informational and communicative functions where the author wanted to discuss how these packaging concepts could be applied to the online shopping environment.

Researchers have been done on the history of packaging (Long, 1982; Lox, 1992; Chou, 1999), with the earliest forms utilizing raw materials such as leaves, skin, hollowed out logs, and fur. However, these raw materials could not keep the food or product in the best of conditions. About 3000 B.C., the Egyptians (Chou, 1999) used a specific kind of leaf as a plate and invented papyrus from a plant's fiber to wrap food. They also utilized glass to make bowls and jars that served as containers for daily use. The first canned package was attributed to a French industrialist Nicolas Appert (Rouffignac, 1990; Lox, 1992) at the beginning of the 19 Century. He invented the canning process which used a glass jar – as a way of preserving food by heating it inside a sealed container. The development of the technique for sterilizing packaging, by heating it in a metal

¹ This survey excludes food services.

container goes back to Napoleon (Roth and Wybenga, 2000), when he needed to feed his army during long periods away from home. Up until this point, the storage, handling and protection of products were the main functions of packaging.

After World War II, the packaging industry has become a significant economic force in the advanced industrial nations (Roth, 1990). For one thing, the manufacture, use, and disposal of packaging accounts for a large proportion of the activities of modern businesses. For another, numerous business functions (Roth, 1990; Lox, 1992; Stewart, 1996), including marketing, advertising, the production of point-of-purchase and promotional materials, were importantly dependent on the packaging. The prominence of the rise of the modern supermarket cannot be under estimated, as the visual appearance of the packaging plays a very significant role in attracting and delivering information to consumers in the “self-service” shopping environment.

Now, we have already moved onto another new trading platform – that of online shopping. Interestingly though, the visual role of packaging seems not to have caught up with this new trend of shopping environment. Moreover, the internet is a “highly self-select environment” (Kathman, 2002), where the consumers cannot usually obtain an instant answer to an enquiry and normally do the shopping alone. Hence, they need to make decisions by themselves, with the information in their hands. Therefore fresh approaches to packaging design thinking must be different from traditional thinking for gaining a greater market share of e-commerce. This niche of packaging, for e-commerce, should be studied for future innovation for the development of packaging as a whole.

3. Online consumers’ attitudes towards products

Traditional business and e-commerce have many things in common, such as wanting to be commercially viable, reaching out to customers and offering a product or service to satisfy a need. However, these two types of trading platforms also have some differences, such as their presence in the shop (physical vs. internet) and the way they communicate with their customers (face-to-face vs. virtual). It is traditionally understood that consumers obtain product information from commercials, leaflets, past experiences and friend’s recommendations. Nevertheless the internet allows customers to gather a product’s information instantly when they are shopping online. Here a differential emerges for online shops. Online product presentation is quite different from those in physical shops. In a real shop, customers are exposed to a large variety of products at the same time. Barlas and Hoekstra (2002) stated that the customer lacks an “active exposure” to products sold in the online environment and that it could reduce purchasing opportunities for impulse shopping. The legibility of products can be an important determinant in satisfying the needs of different kind of customers. Their final analysis suggested that marketers need to be sure their websites and online interactions are consistent with the overall brand image and the information that their companies wish to convey. This allows us to consider the features of “packaging” to assist eCommerce.

Researchers have noted this phenomenon. Hence, the issue of online product presentation and the inclusion of additional product information that can enhance the quality of the purchasing decision making has recently caught many researchers’ attention. Williams and Larson (1999) suggested that using product pictures and video clips could arouse the consumer’s familiarity to products. Additionally more accurate and complete product information could also help consumers to find products, which meet their needs. Weitz (2000) offered some critical views to establish a successful eCommerce firm to sell products or services, such as having strong

brand name and image, and a clear presentational approach of the information on the websites. These resources, he suggested would build product or service recognition to the minds of the consumer. Lynch and Ariely (2000) noted that transparent information environment could also bring benefits to consumers who need sufficient product information to reduce their time costs on searching for quality information. Har et al (2000) described that product familiarity had much influence on shopping effectiveness online and that the presentation of product relevant pictures could increase the possibility of purchase. Edwards and Gangadharbatla (2001) suggested that a novelty 3D product presentation could shape the purchasing intention, with additional product information forming consumers' trust in the attitude of the product. Häubl and Pablo (2002) also discovered that interactive 3D product presentations, instead of still images, may affect some important aspects of buyer behaviour, such as purchasing likelihood. According to Jahng et al (2002), the consumer's personal traits affect the effectiveness of the presentation of the product information. They suggested that the richness of product information presentation has more influence on the consumers' shopping behaviour for intuition and feeling types than for sensing and thinking types. Lightner and Eastman (2002) studied that product presentation could help consumers to process product information online. Pictures could not only provide a holistic view of a product but could also provide confirmation of a correct purchase, whereas a combination of quality pictures and sufficient text could satisfy most of their participants' satisfaction when they were processing a product's information.

According to these studies, the author argues that many researchers discovered that novelty product presentation and rich product information could encourage consumer shopping decisions online. However there is no specific appellation for these functions (which should go under the goals of packaging) as we can see that these functions are performed by physical packaging in a brick-and-mortar shop. Therefore, the author claims that there is a need to investigate that the role of packaging should be innovated in accordance with the evolution of the trading platform.

4. Advertising and packaging

Advertising campaigns sometimes link packaging and advertising together, even though they all 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 (1996) indicated that there are more than 15000 items in an average supermarket, with 53% of customers shopping impulsively, with packaging being one of the main factors in achieving this figure. Reiner and Rose (2002) provided us with three points to distinguish the difference between advertising and packaging: 1) 70% of impulse shopping was made by remembering product packaging but not advertising. 2) A product's packaging 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. They also pointed out that only 20% of products were promoted by conventional advertisement, in Germany, but that all the products on shelves were packaged, according to Professor Richard Linxweiller's survey.

In such a competitive environment, how is a product chosen by customers? The packaging might be the last chance to persuade customers before the check out point. Self – service shopping has been very popular since the introduction of modern supermarkets. As nobody stands by the supermarket shelves to introduce the product to the customers, it is believed that packaging is a good solution, as a sales promotional tool, for this marketing problem (Oliver, 1995; Stewart, 1996). Attractive packaging could help in enhancing sales, provided the packaging gives an intangible or tangible benefit to the customer. The benefit could be emotional or

functional. Visser (2002) 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. What though is the difference between advertising and packaging?

Let's take an example of buying wines in brick-and-mortar retailers and imagine that a person is induced a desire to buy a bottle of wine by a commercial, which may be just a concept of a certain brand of wine or may not point out a specific bottle of wine (Fig.1). The person writes the wine down on his shopping list or bears the wine in her/his mind. Once the person goes to a supermarket to buy the wine, the packaging of the product acts as a trigger to make it sells because the packaging is presenting at least three different roles on the shelves: 1) a symbol of confirmation, to tell consumers that it is what they want to buy, such as graphic design, branding and colour, 2) an information provider, to offer consumers sufficient information so that they can make a purchasing decision, such as alcoholic consistency and type of grape, and 3) an advertising effect, to make message repetition stay in the mind of those whose attention is caught by the packaging, such as the picture of the advertising endorser.



Fig.1 A conventional wine advertisement



Fig.2 An internet advertisement for wine

Similarly, in the online environment, people can also be induced with a desire to buy a bottle of wine by the internet advertising (Fig.2) when they are browsing the WWW. If people want to buy, they need to log in to an online shop to looking for the wine. Again they need to “walk” to the right “aisle” to look for the wine (Fig.3). Once they see the “packaging” of the wine, they can either place it to the “shopping trolley” straight away or read the information on the “packaging”, (Fig.4) before making the purchasing decision.

Apparently, it could be assumed that people are looking at the “packaging” of the product for confirmation and information, when they are buying something in brick-and-mortar outlets, as well as online, not the advertising of the product, because advertising does not offer those requirements for consumers at sale points.

The aim of commercial packaging design is to provide relevant information that can fulfill consumer need, as well as encouraging impulse or planned shopping with attractive presentation and persuasive information.

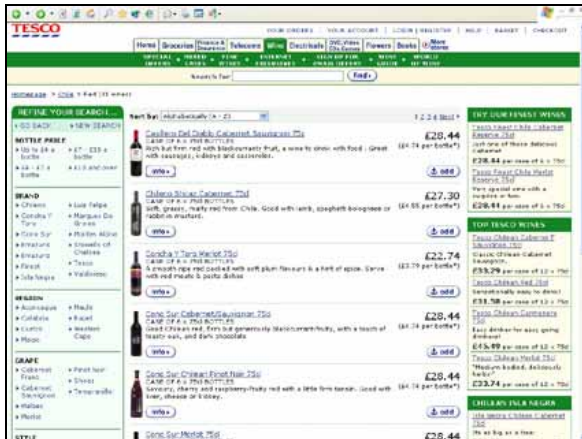


Fig.3. A virtual “aisle” in Tesco.com

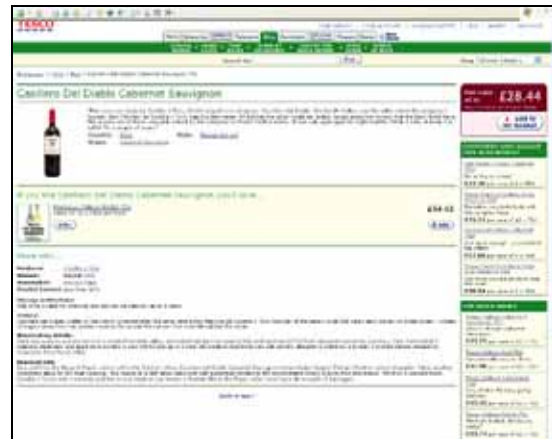


Fig.4. A bigger image and information of a wine

Typically this co-exists with the advertising function of the pack, forming a powerful alliance (Stewart, 1996). However it has to emphasize that advertising and packaging might exist together on one body, nevertheless, they work for different purposes. The advertising can convey an awareness of a product, a service and even a concept to the consumer, but it does not carry the full information for a product. The duty of online packaging is not only needed to provide sufficient information for products but also to fully play the role of the “salesman” to the consumer. As mentioned earlier, packaging is now facing a time of innovation, where its conventional functions need to be converted into the virtual world.

Therefore the quality of online packaging must be enhanced in terms of information provision and product presentation, in order to satisfy the needs of eCommerce for both consumer purchasing and retailer sales. Hence, the author considers that online packaging should be able to do the same job as it would do in the real shop environment. Even more importantly, the author thought that online packaging could not be replaced by internet advertising, although online packaging has yet to be deeply studied.

5. Discussion

From the above discussions there were several issues that stand out and need to be considered: 1) eCommerce is strongly increasing, 2) packaging can both help product sales and consumer recognition, 3) the current online shopping mechanism lacks a sufficient method to provide the functions which packaging provides in the physical world. Visser (2002) also stated that packaging is an underused resource for online shopping. Hence, he signified that the internet should not act as a determinant for the design of the packaging but that packaging should utilise the advantages of the internet to design the packaging. If it is proposed that the step from a “non-protector” to a “silent-protector” was the first packaging innovation for keeping products in a pristine condition and the step from a “silent protector” to a “silent salesman” was the second packaging innovation for the booming of supermarkets, when and what will occur the third packaging innovation? The author considers that it is necessary to take a fresh look at packaging and to make the third innovation happen for eCommerce. Additionally, interactive design can be a key tool, as can be product presentation and information provision, for the development of this innovation.

Interactivity is one of the most useful advantages of the internet. It can synchronously respond to consumers and has various ways to present products, such as animation, interactive images, high quality images and consumer controlled 3D presentation. These special effects as we mentioned could likely catch the

consumer's attention and provide novelty ways to actively interact with shoppers. This would be a better way to help shoppers browse and recognize products than the current small still pictures that are in most of the online shops.

Another advantage is the hypertext, which can maximise the source of information and content. The physical packaging has a limited space to print relevant information; hence the manufacturer can only choose specific information to print. However, the chosen information might not be sufficient for everybody. On the internet, this problem can be solved. The manufacturers and retailers can produce a total catalogue of information, to place beside any product; specific specifications on ingredients can be fully explained, as space is not as limited as it is on the packaging of a product in a supermarket.

6. Conclusion

One of the difficulties for this study is that many people ideologically believe that the concept of packaging can be only presented physically and not in virtual environments. However, this would cause poor product presentation and information due to the misunderstanding of the concept of packaging. Is that true that the concept of packaging can not be transferred to the virtual environment? As we can see that advertising has been named "internet advertising" on the net, and the public has accepted the term of "internet advertising" which is serving the same function as it does in the physical world. Therefore, why cannot packaging be utilized on the net?

From the historical view of packaging, it has been discussed that packaging was firstly used as protector for products, and being transformed to become a silent salesman when the trading platform of self-service supermarkets was booming. E-commerce is a relatively new trading platform and packaging should have to evolve further to adapt to this new virtual market-field. Designers and marketers also need to consider that packaging is at a turning point, where online retailers can make profits and online shoppers can also benefit from this packaging transformation. Therefore the author suggests that we have to take the advantages from the functions of packaging and apply them on product presentation and information provision for the online shopping mechanism, in order to create a considerate online shopping environment and achieve the third packaging innovation.

Reference

- [1] Barlas, S. and Hoekstra, J., 2002, Shopping behaviour in online stores vs. print catalogs: fewer purchase, better memory, and more fun? DMEF's Robert B. Clarke Educator's Conference, US.
- [2] Budzikowska, M., Chai, J., Govindappa, S., Horvath, V., Kambhatla, N., Nicolov, N., and Zadrozny, W., 2001, Conversational Sales Assistant for Online Shopping, Demonstration at Human Language Technologies Conference, San Diego, US.
- [3] Chou, S. U., 1999, Packaging Design and Management, Taiwan Packaging Industry Magazine, Taipei.
- [4] Edwards, S.M. and Gangadharbatla, H., 2001, The novelty of 3D product presentations online, Journal of Interactive Advertising, Vol. 2, No. 1, accessed: 07/01/03, <http://jiad.org/vol2/no1/edwards/index.html>
- [5] Har, A., Sawy, O.A. and Gosain, S. 2000, Reengineering IS Research and Its Intellectual Infrastructure for the Electronic Economy, Journal of Organisational Computing and Electronic Commerce, Vol. 10, No. 1, pp.1-22.

- [6] Häubl, G. and Pablo, F. 2002, Interactive 3D Presentations and Buyer Behaviour. In Proceedings of the ACM Conference on Human Factors in Computing Systems, New York: Association for Computing Machinery, pp. 744-745.
- [7] Huang, K.L., Rust, C. and Press, M., 2003, Packaging design for e-commerce: Identifying new challenges and opportunities for online packaging, 6th Asian Design Conference, Japan, Vol. 1. (CD-ROM)
- [8] Jahng, J.J., Jain, H. and Ramamurthy, K., 2002, Personality traits and effectiveness of presentation of product information in e-business systems, European Journal of Information System, Vol. 11, pp.181-195.
- [9] Kathman, K., 2002, Brand Identity Development in the New Economy, Design Issue, Vol. 18, No. 1, pp. 25-35.
- [10] Kotler, P., 1994, Marketing Management 18th ed., Prentice – Hall International, London, pp.457.
- [11] Lightner, N. J. and Eastman, C. M., 2002, User preference for product information in remote purchase environments. Journal of Electronic Commerce Research, Vol.3, No.3, pp.174-186.
- [12] Long, D.Y., 1982, Commercial packaging design, Yellow Lemon, Taipei.
- [13] Lox, F., 1992, Packaging and Ecology, Pira, Surrey.
- [14] Lynch, Jr. J.G. and Ariely, D., 2000, Wine online: Search costs affect competition on price, quality and distribution, Marketing Science, Vol.19, No.1, pp.83-103.
- [15] Oliver, G., 1995, Marketing Today, 4th ed., Prentice-Hall, London.
- [16] Paine, F., 1981, Fundamental of Packaging, revised ed., Brookside, Leicester, pp.3.
- [17] Reiner T, Rose D., 2002, Packaging design VS. Conventional advertising, Austropack, July, Austria, accessed: 18/04/03, http://www.berndtundpartner.de/images/pdf/veroeffentlichungen/2002/article_design-vs-advertising.pdf
- [18] Roth, L., 1990, Packaging design, Van Nostrand Reinhold, New York.
- [19] Roth, L., and Wybenga, G., 2000, The packaging designer's book of pattern, 2nd ed., John Wiley & Sons, New York.
- [20] Rouffignac, P.D., 1990, Packaging in the marketing mix, Butterworth-Heinemann, Oxford.
- [21] Stewart, B., 1996, Packaging as an Effective Marketing Tool, Pira, Surrey.
- [22] U.S. Census Bureau, 2004, United States Department of Commerce News, U.S. Census Bureau, accessed: 15/03/04, <http://www.census.gov/mrts/www/current.htm>
- [23] Visser, E., 2002, Packaging on the web: An underused resource, Design Management Journal, winter, pp.62-67
- [24] Williams, T. and Larson, M.J., 1999, Retailer technology in the next century, a study of Centre for Education and Research in Retailing and KPMG, Indiana University and KPMG, US.
- [25] Weitz, B., 2000, Electric retailing: Market dynamics and entrepreneurial opportunities, Entrepreneurship and Economic Growth in the American Economy, Vol. 12, pp.209-232.