EFFECTS OF PRODUCT LEARNING AIDS ON BREADTH AND DEPTH OF RECALL: AN EMPIRICAL INVESTIGATION

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Abstract

Product learning aids, such as non-visual (e.g., text-based description) and visual (e.g., animated video), are common in mundane online shopping websites. The primary purpose of incorporating these tools is to enhance a consumer’s impression and knowledge of a product category, which can reflect one’s capacity to recall the product descriptions. In this research, we study the impacts of different product learning aids, ranging from text-based through text-and-image based to video-based, on a consumer’s recall capacity. Recall is manifested in two aspects, namely the breadth (i.e., number of attributes recallable) and the depth (i.e., the articulation of the comparison of the product attributes during the decision making process). Through a laboratory experiment, we observed there is a differentiated impact of the product learning aid on breadth and depth of a consumer’s recall capacity. More elaborately, while video-based product learning aid could increase the recall breadth, it yields the lowest in the depth of recall. Implications for research and practice are discussed.

Keywords: Product Learning Support, Recall, Consumer Decision Making.
1 INTRODUCTION

Product learning aids, which is used to enhance consumers’ impression and knowledge of a product category, has increasingly been featured on the online shopping websites such as About.com and CNet.com. Product learning aids present product attributes information succinctly to facilitate learning. Utilization of this gained knowledge to make procurement decision subsequently (Hoeffler 2003; Swaminathan 2003). These aids vary in three primary forms, namely the text-based (i.e., pure description), text-and-image-based (i.e., description with pictorial supplements) and video-based (i.e., animated).

Research on comparing the different forms of product learning aids (or a subset of them) is inconclusive. Rose (1999) argued that the insufficient presentation richness of online product demonstrations is a major impediment to e-commerce (Rose et al. 1999). Other studies indicated that the product learning aid that affords vivid information is more likely to attract consumer attention (Chandler & Sweller 1991; Sweller 1994), it was thus more persuasive than textual information and could yield more favourable learning outcomes. On the contradictory, Furnham (1990) observed that the text-based stimulus is superior to the other forms of product learning aids (e.g., video-based, audiovisual-based) in remembering factual material (Furnham et al. 1990). Researchers also found the text-based stimuli enable individuals to focus more on the desired information (Kacmar & Hochwarter 1996).

Amidst the debate over the impact of the product learning aids on consumer decision-making performance, the issue whether and how different product learning aids enhance a consumer’s impression and knowledge of a product category is not fully comprehended. Specifically, this study seeks to answer the question: what is the impact of different formats of product learning aids on consumers’ recall ability of product information? We examine three different formats of product learning aids and their impacts on the breadth of recall, depth of recall respectively. Anchoring on the cue-summation theory, we posit that cues vary depending on whether they are visually rich or descriptively rich. Specifically, depending on the type of cues available, different formats of product learning aid could have dissimilar impact on different aspects of a consumer’s recall capacity, denoted by the depth and breadth of recall. A laboratory experiment with three different formats of product learning aids was subsequently conducted to test the hypotheses.

This study aims to make three contributions. First, this study adopts the cue-summation theory to investigate consumers’ recall capacity. While cue-summation theory has been more commonly used in communication literature to examine the impact of multimedia on recall capacity, it has not widely applied in the Information Systems (IS) literature. Second, we further extend the cue-summation theory by considering the paradigm of individual’s cognitive processing mode to predict the impact of product learning aids. The findings indicate that different formats of product learning aids influence the different aspects of recall capacity respectively. This finding could enhance our understanding of consumers’ recall capacity more comprehensively. Third, the findings of this study indicate that there is no absolute dominant media of the product learning aids. Each format of product learning aids has its own advantage and inferior strength depending on the cues it affords. The implications of this study are favourable for researchers to develop more refine studies as well as practitioners.

This paper is organized as follow: first, we will discuss the relevant literature on product learning aids and individual’s cognitive processing mode through the lens of cue-summation theory. Next, we develop a set of hypotheses to illustrate how we expect each format of product learning aids influence the consumers’ recall capacity. This is followed by a description of the experiment design. We then report the results of our experiment. The paper concludes with the discussion of the findings, some theoretical and managerial suggestions will also be provided.
2 PRODUCT LEARNING AIDS: THE CUE-SUMMATION THEORETICAL PERSPECTIVE

The primary objective of a product learning aid is to introduce a product to consumers with the outlook of establishing a consumer’s impression and knowledge of the product category. It is touted that the provision of product learning aids online could induce positive virtual product experiences (Li et al. 2003), thereby helping consumers to be (more) familiar with a product’s features and attributes (Jiang & Benbasat 2007). Such virtual product experiences, as induced by the external stimuli, can facilitate a consumer to construct mental representation of a product without having to physically touch it. Indeed, it is through such succinct presentation of the product attribute information that a consumer could subsequently make informed procurement decision.

Prior research on product learning aids primarily anchored on the thesis that a consumer would process the information based on the way it is presented (Bettman et al. 1998; Speier 2006). Significant amount of researches built on this conjecture to compare the processing impact of the text-based and video-based product learning aids. They observed that video-based product learning aid would result in superior learning outcomes than the text-based one (Chandler & Sweller 1991; Sweller 1994). The visual cue entailed in the video-based product learning aid could active the experiential processing. According to the cognitive processing mode paradigm, experiential processing could facilitate a consumer to better relate to a product and hence results in better recall of product knowledge (Epstein 1994; Petrova & Cialdini 2005).

Other scholars, however, have contested that the video-based product learning aid may not be always superior compared with other formats of product learning aids. For instance, when a product learning aid is too rich for a task, a consumer could be distracted by the non-essential cues and information, leading to poorer learning outcomes (McGill & Anand 1989). In other words, the verbal and nonverbal cues (typically embedded in videos) are not present in the text-based product learning aid; hence consumers could better focus on studying the product, leading to a better recall capacity (Kacmar & Hochwarter 1996).

Taking a macro view of the prior contentions suggests that the impact of different product learning aids could vary depending on the cues that are embedded. According to the cue-summation theory, learning is more effective as the number of available cues or stimuli (either across channels or within channels) increases” (Moore et al. 1996 pp.851). It is imperative to note that cues vary types, e.g., pure text-based description, visual cue and audio cue. Hence it is in our conjecture that the processing outcome of product information could differ depending on the specific cues embedded within each product learning aid. In other words, we posit that the impact of a product learning aid could differ depending on the type of cues prevalent and how such cue affect cognitive encoding (see Table 1). To this end, a non-trivial way of assessing the cognitive processing impact would be a consumer’s recall capacity, which could be manifested in two ways: breadth and depth of the recall. The breadth of recall refers to the number of attributes recallable (Rouet 1993; Dee-Lucas & Larkin 1995). The depth of recall refers to the articulation of the comparison of the product attributes during the decision making process (Dubow 1994; Lee & Tedder 2003).

<table>
<thead>
<tr>
<th>Cognitive Processing Mode</th>
<th>Text Only</th>
<th>Text-and-Image</th>
<th>Video Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiential Processing</td>
<td>n/a</td>
<td>Still images</td>
<td>Animation, verbal narration</td>
</tr>
<tr>
<td>Analytical Processing</td>
<td>words, number</td>
<td>words, number, still images</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Table 1. Relevant Cues in Different Formats of Product Learning Aids

The breadth and depth of recall ability reflects two aspects of a consumer’s processing capacity and outcome. A consumer could encode and comprehend the product information using two primary cognitive processing systems, namely the experiential processing system and the analytical processing system (Epstein 1991, 1994). The experiential processing mode is invoked to formulate a global...
impression of a product when the product information is presented in still image, metaphors and narratives (Epstein 1994). The results of activating experiential processing mode will facilitate consumers to generate a broad, elaborate memory of product attributes, which is to the point of breadth of recall. The analytical processing mode, on contrary, is characterized by deliberate, analytical and effortful comprehension of the product information. The results of analytical processing mode will facilitate consumers to generate a detailed, in-depth understanding of product attributes (Sloman 1996), which is to the point of depth of recall.

3 RESEARCH FRAMEWORK AND HYPOTHESIS DEVELOPMENT

This research proposes: Different formats of product learning aids could enhance (or inhibit) different aspects of a consumer’s recall capacity, denoted by the depth and breadth of recall. Product learning aid with richer visual cue could lead to greater recall breadth but leaner product learning aid with greater descriptive cue could lead to better recall depth. Figure 1 depicts the research framework.

The breadth of recall is reflected by the extent to which a consumer remembers the product attributes. Applying the lens of cue-summation theory, we posit that the text-and-image-based and the video-based product learning aids, which contain the visual information and audiovisual information, could induce an experiential processing mode that generates primitive, schematic and conceptual processing (Kirkpatrick & Epstein 1992). When the experiential processing mode is activated by the product learning aid, the increased in the number of relevant (i.e., audiovisual) cues could facilitate a consumer to formulate a global impression of a product. Compare with the text-and-image-based product learning aids, the video-based product learning aid contains more available relevant cues about the product itself. For instance, the text-and-image-based product learning aid only contains the still images of the product while the video-based product learning aid has verbal narration and the animation. In the experiential processing mode, consumers will get more visual cues from the video-based product learning aids than the text-and-image-based product learning aids. With the experiential processing mode being activated, the video-based product learning aids will help consumers to comprehend more abundant and global product information, hence leading to a better performance of the breadth of recall (e.g., number of product attributes recallable), compare with the other formats of product learning aids.

H1a: Consumers with the text-and-image-based product learning aids will yield a better performance of the breadth of recall, compare with those with the text-based product learning aids.

H1b: Consumers with the video-based product learning aids will yield a better performance of the breadth of recall, compare with those with the text-based and the text-and-image-based product learning aids.

The depth of recall is reflected by the degree of comprehension of a product. Through the lens of cue-summation theory, we posit that when the analytical processing mode is activated by the external stimuli, consumers’ recall capacity will be more effective as the relevant cues increases. The text-and-
image-based and the text-based product learning aids, which contain the symbolic information cues, could induce an analytical processing mode that generates in-depth, detailed and deliberative processing (Shiv & Fedorikhin 1999). This will facilitate consumers to formulate an analytical, effortful comprehension of a product. Compare with the text-based product learning aid, the text-and-image-based product learning aid contains more available relevant cues about the product itself. For instance, the text-based product learning aid primarily contains the textual description cues of the product; however, the text-and-image-based product learning aid has descriptive textual information and visual still images, which contains more relevant visual cues than the text-based product learning aid. In the analytical processing mode, consumers will get more visual cues from the text-and-image-based product learning aids than the text-based product learning aids. As the analytical processing mode has been activated, the text-and-image-based product learning aids will help consumers to get more precious and deliberate product information, hence it will facilitate consumers to have a better performance of the depth of recall (e.g., articulation of comparison of product attributes), compare with the other formats of product learning aids.

H2a: Consumers with the text-based product learning aids will yield a better performance of the depth of recall, compare with those with the video-based product learning aids.

H2b: Consumers with the text-and-image-based product learning aids will yield a better performance of the depth of recall, compare with those with the video-based and the text-based product learning aids.

4 EXPERIMENT DESIGN

The hypotheses proposed in this study are tested through a laboratory experiment with three different product learning aids treatments. The product learning aids formats involve websites designed with: text-based product learning aids, text-and-image-based product learning aids and the video-based product learning aids. The experimental conditions manipulated these three formats of the product learning aids.

Our study takes a similar approach to Kumar and Benbasat (2006) by studying the commercial implementations and extracting the product content of commercial websites to manipulate the decision aids offered for product learning (Kumar & Benbasat 2006). In terms of the product learning aids, we referred websites such as CNET.com and About.com. In this experiment, we manipulated the three different formats of product learning aids. For the text-based product learning aids, we only provided textual product description to the subjects. For the text-and-image-based product learning aids, we only provide the descriptive text and product still images to subjects. For the video-based product learning aids, we only provided the self-produced product video to subjects.

We controlled the differences of these three formats product learning aids in order to minimize the excessive information. For the text-based product learning aid and the text-and-image-based product learning aid, we only added the relevant product still images to the product description. The textual description of these two formats of product learning aids is exactly the same. For the text-based product learning aid and the video-based product learning aid, we used two methods to ensure only the vividness aspect of information was altered in the video. First, all of the videos were self-produced to minimize the differences in the contents of the products. Second, all the videos were created using semantically identical text-based product learning scripts (Lim & Benbasat 2000). During the experiment, the subjects were not given any time limit on how long they can read or view the video. They had the entire freedom to decide how long they wanted to take before proceeding to the procurement. The reason is that individual may have suffered from differences in their learning speed and capacity. Hence rather than imposing a restriction, we did not limit the learning time.

We measured the dependent variables with open-ended questions. Table 2 describes the operationalization of the dependent variables. The breadth of recall was measured asking the subjects to recall the number of attributes for each product they procured. It refers to the number of product attributes recallable (e.g., the weight of digital camera). The depth of recall was also measured by asking the subjects to recall how they compared among the product attributes to make procurement
decisions (e.g., the differences between the optical zoom of digital camera A and that of digital camera B). Two coders were engaged to individually code the two variables. Any discrepancy was resolved by one of the authors in the presence of the two coders.

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Operational Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>The breadth of recall</td>
<td>Counting the number of attributes recalled.</td>
</tr>
<tr>
<td>The depth of recall</td>
<td>Counting the number of times comparison of two or more product attributes made.</td>
</tr>
</tbody>
</table>

Table 2. Operationalization of Dependant Variables

4.1 Experiment Procedures

69 subjects were recruited in a public university in Asia-Pacific region and randomly assigned to the three treatment groups, with 23 in each treatment group. Among them, 26(37.7%) were females and 43(62.3%) were males. This sample size provides an acceptable level of statistical power with an effective size of 0.5 at a two-tailed 5 percent significance level (Sawyer & Bell 1981). All of the subjects were recruited by e-mail and advertisements. Their average age was 22.07(\(\bar{\delta}=1.739\)) years.

The experiment instruction guided the subjects to procure products in four product categories. In order to ensure experimental realism, the subjects were given monetary incentives consisting of $10.00 for an hour’s work.

The experiment was conducted in the following sequence. When subjects came to the laboratory, they were assigned to one terminal and logged in by using a designated account (which can differentiate the treatment groups). Subsequently, the subjects were asked to fill in demographic information. Following this, the subjects listened to pre-recorded instructions and viewed the introduction of the experiment system. This could illustrate the features of experiment system to subjects as well as how to view the product learning aids and how to shop in the experiment system.

Subjects were given the scenario of purchasing products for themselves. There are four product categories in the experiment system: projector, baby car seats, Global Position System (GPS) receiver and digital camcorder. Subjects were asked to purchase one product from each of the product categories. This set of products was selected for they were relatively unfamiliar\(^1\) to the subject population and hence, facilitate the testing of the product learning aids. This setup was consistent with most experimental studies on information seeking and decision-making behaviour (Haubl & Trifts 2000). In each treatment group, there was only one format of product learning aids available. To ensure subjects were not familiar with the products in the experiment, we conducted a pre-test before the experiment. In the pre-test, we asked 20 students who were told to rank the level of familiarity of over 40 products. To further ensure that the product were less familiar to the subjects in the experiment, the subjects of this experiment were asked to rate their level of product knowledge on a 7-point Likert scale. The results confirmed that the subjects were not familiar with the products (mean=2.87, \(\bar{\delta}=1.30\)).

\(^{1}\) A pre-experiment survey on 20 students on the ranking of the top five products most unfamiliar to them was conducted before deciding on the product categories used for the experiment.
In the experiment, we manipulated all other control variables in three treatment groups. The only difference between treatment groups was the product learning aids that we provided (text-based, text-and-image-based, video-based). The screening strategy\(^2\) and the decision interface for all subjects were the same. When the subjects decided to purchase product, they were asked to finish the two open-ended questions. There was no time pressure in the experiment.

5 RESULTS & ANALYSIS

Subjects’ demographic data such as age, gender, computer experience and online shopping experience were randomized in order to minimize the contingent effect. Further checks indicated there was no significant difference for subjects in all three treatment groups in terms of age (F=1.053, p>.10) and online shopping experience (F=1.527, p>.10). There was no significant difference across the treatment groups in terms of gender ratio, with the Kruskal-Wallis test (\(\chi^2=3.451, p>.10\)).

\(^2\) In this experiment, we used screening strategy based on the weighted-additive (WADD) decision strategy. This kind of decision strategy can encourage subjects to be more involved in the experiment by scanning through the list and selecting the best product. To ensure the manipulation of involvement, we also checked the subjects’ level of involvement after the experiment.
5.1 Manipulation Check

The manipulation check was conducted to ensure our manipulation of the product learning aid formats and subjects’ involvement was successful. Product learning aids manipulation was assessed by asking subjects to rate on a 7-point Likert scale about how much they were involved when trying to understand what the product was all about from the way in which the information was provided. A one-way ANOVA test \( F = 3.373, p < .05 \) indicates there are significant differences between the text-based product learning aid, text-and-image-based product learning aid and video-based product learning aid. The manipulation check appeared to indicate that the experiment manipulation was successful.

5.2 Hypotheses Testing

Table 3 lists the descriptive statistics. All statistical tests were conducted at a five-percent level of significance. To control for the possible influence of the product type and product knowledge on the dependent variables, these variables were included in all the statistical tests including Multivariate Analysis of Covariance (MANCOVA) and Analysis of Covariance (ANCOVA) that were used to assess the effects of manipulated variables (i.e., product learning aid) on recall capacity (i.e., breadth and depth of recall). Results from the MANCOVA testing revealed a significant main effect of product learning aids (Wikes’ \( \Lambda = .870 \), \( F = 12.146, p < .01 \)).

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Text Only</th>
<th>Text and Image</th>
<th>Video Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>The breadth of recall</td>
<td>2.444 (1.574)</td>
<td>2.983 (2.077)</td>
<td>3.617 (2.024)</td>
</tr>
<tr>
<td>The depth of recall</td>
<td>.4000 (.846)</td>
<td>.7739 (1.408)</td>
<td>.1913 (.620)</td>
</tr>
</tbody>
</table>

Table 3. Means (Standard Deviations) of Dependent Variables

Further univariate tests using the ANOVA were conducted separately for each of the two dependent variables by controlling for product type and product knowledge (see Table 4). Significant main effect of product learning aid was observed for both dependent variables. Separate t-tests were performed to validate the hypotheses.

<table>
<thead>
<tr>
<th>Source</th>
<th>The Breadth of Recall</th>
<th>The Depth of Recall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manipulated Variable</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product learning aid</td>
<td>( F = 11.847*** )</td>
<td>( F = 9.758*** )</td>
</tr>
<tr>
<td><strong>Controlled Variable</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product type (car seat)</td>
<td>( F = 2.278 )</td>
<td>( F = 2.824* )</td>
</tr>
<tr>
<td>Product type (camcorder)</td>
<td>( F = 5.089** )</td>
<td>( F = 2.043 )</td>
</tr>
<tr>
<td>Product type (projector)</td>
<td>( F = .458 )</td>
<td>( F = 3.046* )</td>
</tr>
<tr>
<td>Product type (GPS)</td>
<td>( F = 4.206 )</td>
<td>( F = .928 )</td>
</tr>
<tr>
<td>Level of product knowledge</td>
<td>( F = 2.161 )</td>
<td>( F = .075 )</td>
</tr>
</tbody>
</table>

Table 4. Univariate (ANCOVA) Tests

H1a posits that the text-and-image-based product learning aids will facilitate consumers to have a better performance of the breadth of recall, compared with the text-based product learning aids. The independent samples t-test result suggested that subjects of text-and-image-based product learning aids expressed significantly higher breadth of recall \( (t = 2.218, p < .05) \) compared to those with text-based product learning tools. Hence, H1a was supported. Likewise, results indicated that subjects with video-based expressed higher breadth of recall \( (t = 2.347, p < .05) \) compared to those with text-and-image-based tool. Hence, H1b was also supported.

H2a posits that the text-based product learning aids will facilitate consumers to have a better performance of the depth of recall, compared with the video-based product learning aids. Results from the independent samples t-test confirmed this conjecture \( (t = 2.134, p < .05) \). Likewise, results from
the t-test suggested that the text-and-image-based product learning aids facilitated the subjects to have a better performance of the depth of recall, compared with the video-based (t = 4.060, p < .01) and the text-based product learning aids (t = 2.441, p < .05). Hence, H2a and H2b were supported.

6 DISCUSSION

In this study, the proposed research framework examines the impact of different formats of product learning aids on consumers’ recall capacity comprehensively. Anchoring on cue-summation theory, we found general support for the overarching proposition, which is different formats of product learning aid could enhance (or inhibit) different aspects of a consumer’s recall capacity, denoted by the depth and breadth of recall. Product learning aid with richer visual cue could lead to greater recall breadth but leaner product learning aid with greater descriptive cue could lead to better recall depth. For the breadth of recall, the results indicate that the video-based product learning aid can yield more number of product attributes recall than the other formats of product learning aids. For the depth of recall, the text-and-image-based product learning aid can yield more clear articulation of comparison of product attributes than the others.

The experiment results indicated that there is no absolute dominant media of product learning aid. When consumers recalled the product attributes for their purchase decision, their cognitive processing system was invoked to formulate a global impression of a product. In this situation, consumers experienced the experiential cognitive processing mode, hence, the visual information (e.g., video, audiovisual information) would enjoy greater advantage than the symbolic information (e.g., words, numbers) to facilitate the breadth of recall (the number of piece of remembered information), and the effect was amplified when the cues increased.

When consumers recalled the articulation of comparison of products for purchase decision, their cognitive processing system was invoked to cognitively encode product information for analysis and comprehension. In this situation, consumers experienced the analytical cognitive processing mode; hence, the symbolic information (e.g., notation, words and numbers) to facilitate the depth of recall (the articulation of piece of remembered information). This effect was amplified when the cues increased.

6.1 Limitation

Despite all efforts, this study suffers several limitations which serve as suggestions for future research. First of all, our experimental task focuses on the recall capacity for less familiar products in the online shopping context. However, it is plausible that products that are hedonic in nature may invoke the experiential processing mode while utilitarian products may induce the analytical processing mode. To alleviate this problem, we expended significant effort to describe and explain product attributes prior to the experiment, and the chosen product categories were utilitarian in nature. Future research may investigate the differences of hedonic and utilitarian products in terms of variety of product learning aids.

Also, for the product learning aids, we have only considered the information-provision type of product learning aids. This kind of product learning aids has no interaction with consumers. With the development of technology, it’s a trend that online commercial websites use interaction virtual product experience technology to present products. Although this kind of product learning aids may be constrained by the capacity of Internet (especially for the developing countries), it is promising to investigate this new format of product learning aid and its performance in the future research.

Lastly, as for the information presented in the product learning aids, there is a lack of consideration of unconstructed information vs. constructed information and its impact on the recall capacity (Dee-Lucas 1996). In this study, all of the information presented in the product learning aids is unconstructed. We controlled this variable in this study and hoping for more understandings about it in the future research.
6.2 Implication

In spite of the limitations outlined in the previous section, this study offers several contributions. These contributions may help researchers and practitioners to refine the study. Future research is necessary for better understanding of the full range of implications that this research brings about.

First, this study contributes to theoretical development on decision aids. This study adopts the cue-summation theory, individual’s cognitive processing mode to investigate consumers’ recall capacity comprehensively. While the extant adoption of cue-summation theory reveals that the theory has primarily applied two areas. First, the theory is used to predict the recall capacity with the use of audiovisual information or audio-only information in the communication and educational arena (Brashears et al. 2005; Whatley & Ahmad 2007). Second, researchers in marketing and journalism also applied this theory to predict the effect of advertisement and news (Tewksbury & Althaus 2000). They found with the cues increased in the media, individuals will get more information and their recall capacity (e.g., recall, comprehension) will be enhanced. The cue-summation theory can explain and predict the recall capacity in the multimedia context. However, it is seldom adopted in the Information Systems (IS) studies to evaluate the effectiveness of information acquisition through technology (Jiang & Benbasat 2007).

Second, we further extend the cue-summation theory by considering the paradigm of individual’s cognitive processing mode to predict the impact of product learning aids. In this study, we focus on the analysis of cognitive process performance of the product learning aids, for example, the impact on consumers’ recall capacity. The findings indicate that different formats of product learning aids influence the different aspect of recall ability respectively. This is due to the activation of the individual’s cognitive processing mode and the different external stimulus that trigger the cognitive processing system. This finding could enhance our extant understanding of consumers’ recall capacity more comprehensively.

Third, the findings of this study indicate that there is no absolute dominant media in the product learning aids. Each format of product learning aids, ranging from text-based, text-and-image-based to video-based, has its own advantage and inferior strength.

The implication of this study is also favourable to practitioners. Specifically, the results of this study suggest that the online shopping decision support system should be designed to coordinate with the consumers’ cognitive processing mode and followed the paradigm of cue-summation. In order to help consumers to make a better purchase decision, the online shopping support system should provide the product learning aids with the supplement of product knowledge tutorial and product information repertoire.

In the product knowledge tutorial, designer can use more vivid information, for example, the video-based product information presentation, the high resolution still product image, and the virtual product experience to facilitate consumers’ understanding of product. It’s especially useful for the novice of the product categories. The vivid media contains more cues than the other format of product learning aids. Moreover, with the external visual stimuli, consumers will be induced to adopt the experiential processing mode. With this cognitive processing mode, consumers will be more inclined to formulate a global impression of products. For example, a mental replica of a product with images, emotions and sensations.

In the product information repertoire, designer may utilize more concise, symbolic information to enhance the analytical and effortful comprehension of the product information. It can help consumers to precisely justify the reason of purchasing and facilitate consumers to find the best product. What’s more, with the cues summated in the symbolical information of product learning aids (e.g., text-and-image-based, hyperlink text), consumers will also be familiar with the product.
Electronic commerce has the potential to grow further and exponentially. After the world-wide financial recession in 2009, it’s promising to anticipate the electronic commerce would be a new economic growth point. It’s projected that sale from China’s electronic-commerce alone may reach USD2.5 billion by 2010. So it’s important to understand how the online shopping decision aids are utilized during the decision-making process in the online context. The product learning aids, as a part of online decision aids, make the product information accessible before consumers decide to purchase. It will greatly influence consumers’ purchase decision. This study took a modest step toward developing a theoretically sound understanding of the product learning aids and its consequence. The implication will also benefit both the scholars as well as practitioners.

References


