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## The influence of product integration on online advertising effectiveness

Peijian Song<sup>a</sup>, Heng Xu<sup>b</sup>, Angsana Techatassanasoontorn<sup>b</sup>, Cheng Zhang<sup>c,\*</sup><sup>a</sup> School of Business, Nanjing University, Nanjing, China<sup>b</sup> College of Information Sciences & Technology, The Pennsylvania State University, University Park, PA, United States<sup>c</sup> School of Management, Fudan University, Shanghai, China

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### ABSTRACT

With a substantial amount of resources being spent on online advertising, examining the effectiveness of online advertising is now an important subject for scholarly investigation. Cross-product integration has become a source of market advantage and a strategic necessity for online advertising. The issue of product integration has not been sufficiently researched in the online advertising effectiveness literature. To fill this gap, this research examines the antecedents of online advertising effectiveness with an emphasis on the influence of product integration. Viewing product integration as a stimulus that influences users' information processing mechanisms, this article proposes a research model and validates it using two studies: one quasi-experiment and one field study. The findings suggest that the integration level influences the strength of the perceived tie between focal and promoted products, like portals and their associated services, which in turn has a significant impact on advertising effectiveness. Product integration level also has a direct impact on advertising effectiveness. This article contributes to both research and practice by advancing the overall understanding of online user behavior as well as by providing important insights regarding online information product promotion design.

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### 1. Introduction

Over the last decade, Internet advertising has grown into the third most popular advertising media after newspapers and TV. According to the report from the Interactive Advertising Bureau (IAB) and PricewaterhouseCoopers (PWC), Internet advertising revenues in the US were estimated at \$21.1 billion in 2007, a 25% increase over the previous revenue record of nearly \$16.9 billion in 2006 (IAB 2008). Also, the Kelsey Group predicted that global Internet advertising revenues will reach \$147 billion by 2012 (Pacheco 2008). The success of this market can be partially attributed to the growth and popularity of online information product promotion. Because of the widespread existence of hyperlinks, online information product vendors can easily make use of existing products to promote new ones (Sviokla and Paoni 2005). For example, after its great success in the search engine market, Google has used its search engine to promote its email product (Gmail). Similarly, after becoming a leading portal, Yahoo! used its portal to entice existing users to use its instant messenger product (Yahoo! Messenger). Because a substantial amount of resources are being spent on online

advertising, whether and to what extent cross-product integration is an effective online advertising strategy is a critical question for these product providers as well as other vendors (Lohtia et al. 2007).

Online advertising is a form of promotion that uses the Internet and World Wide Web for the purpose of delivering marketing messages to attract customers (Meyers and Gerstman 2001). Recently, online advertising effectiveness has received considerable attention from academics and practitioners. Research has largely examined the influence of content and design elements on advertising effectiveness (Lohtia et al. 2003; Robinson et al. 2007; Calisir and Karaali 2008; Zhang and Kim 2008). However, product integration, as one of the important design elements, remains under-researched. *Information product integration* is defined as the assembling of different information products together to facilitate data sharing (such as information about a user profile, and preference setting), to enhance the overall value to end users through products' mutual cooperation (Nambisan 2002a; Sengupta 1998). Since customers are increasingly placing emphasis on cross-product integration, the success of new products is largely dependent on their integration with other relevant products (Iansiti 1995; Iansiti 1998; Cusumano and Yoffie 1998).

Many online vendors have made significant investments into cross-product integration (Wind and Mahajan 1997; Cooper 2000). For example, to promote Gmail, Google focused on establishing the integration between Google search engine and Gmail.

\* Corresponding author. Tel.: +86 21 25011227; fax: +86 21 65103060.

E-mail addresses: [songpeijian@nju.edu.cn](mailto:songpeijian@nju.edu.cn) (P. Song), [hxu@ist.psu.edu](mailto:hxu@ist.psu.edu) (H. Xu), [angsana@ist.psu.edu](mailto:angsana@ist.psu.edu) (A. Techatassanasoontorn), [zhangche@fudan.edu.cn](mailto:zhangche@fudan.edu.cn) (C. Zhang).

Besides adding a link on the homepage of Google's search engine, Google incorporated its search engine functions into Gmail in order to increase the products' coupling. The search feature allows Gmail users to search for information on the Internet without leaving Gmail. This trend of online product integration poses the following questions that will be the focus of our study: (1) To what extent does information product integration influence online advertising effectiveness? (2) What is the underlying cognitive and psychological process that explains the relationship between product integration and online advertising effectiveness?

The current study contributes to existing literature in several important ways. First, although several studies have examined the influence of content and design elements on advertising effectiveness (Robinson et al. 2007; Calisir and Karaali 2008; Zhang and Kim 2008), few studies explore the role of product integration in explaining the success of online advertising. There has been little research at an individual level to examine the underlying cognitive and psychological process that explains the relationships between product integration and online advertising effectiveness. Our study conceptualized and empirically tested a variance and an outcome model to explain the relationship between product integration and online advertising effectiveness. Second, information product integration has been a subject of increasing interest in innovation management field. Innovation management researchers have generally recognized that adoption and diffusion of one innovation usually influenced by other related innovations. Product integration may play an important role in innovation adoption decisions (Fichman and Kemerer 1993; Lee 1994; Adomavicius et al. 2007). However, little is known about users' responses to such integration, especially within the Internet-mediated promotion environment. This study provided theoretical support individuals' responses to product integration, and used a multi-study research design to triangulate research results. Finally, following the call by Chandon et al. (2003), this article aims to make a contribution to the literature by employing different measurements to conceptualize online advertising effectiveness. Particularly, these measurements provide insights to explain users' responses to product integration.

The remainder of the article is organized as follows. The next section presents theoretical development and related research hypotheses to study information product integration and online advertising effectiveness. An overview of the methodology and the results from two empirical studies are then reported. Finally, the article concludes with a discussion of the findings, implications, limitations, and areas for future research.

## 2. Theoretical development

Since an online user's decision-making process is influenced by stimuli from an environment, environmental psychology is a logical theoretical foundation to study the impact of information product integration on online advertising effectiveness. In particular, we draw from the *stimulus-organism-response paradigm*, which posits that environmental cues act as stimuli that affect an individual's cognitive reactions, which in turn affect his or her behaviors (Mehrabian and Russell 1974). The stimulus can be an actual product or the extrinsic attributes of the product such as design and content elements of advertising in an online context (Parboteeah et al. 2009). As a design element of online advertising, product integration works as an extrinsic attribute of the product and may trigger an individual's cognitive reactions. Accordingly, we argue that information product integration acts as an environmental stimulus that influences online users' information processing mechanisms and their adoption and usage decisions while interacting with the promotion environment.

### 2.1. Information product integration

There are two types of products in product integration and promotion: a focal product and a relevant product under promotion. Nambisan (2002a) identified three types of product integrations based on the nature of coupling (external/internal) and the extent of coupling (comprehensive/value added/minimal): *value-added integration*, *add-on module integration*, and *data interface integration*. The nature of coupling refers to whether the integration is achieved outside or inside of the focal product. The extent of coupling refers to whether the integration is comprehensive with additional value-added functionalities or a minimal level of functional integration across the two products.

Value-added integration involves an internal integration of a focal product with a relevant product by merging the data and the functions of the two products in a seamless fashion (Hurst 1999). Based on the coupling of the products, additional features are offered. Because of the internal coupling and comprehensive functional sharing, the boundary between the focal and the relevant product will become obscured. Google's integration between Picasa, a photo editing service, and Gmail, an email service, is a good example of value-added integration. Picasa users can directly log into Gmail, automatically attach pictures, and send emails without leaving Picasa (see Fig. 1a).

The add-on module integration involves the integration of a focal product with a relevant product through an external module or a component that is separated from the focal product. Through the use of an add-on module, the focal product and the relevant product can share some of their data and functions. For example, in an attempt to promote its new movie reviews and television shows service, RealNetworks uses an external add-on module – Real Messenger (an instant messaging service) – to integrate its focal product, RealPlayer, with Film.com (see Fig. 1b).

The third type of product integration – data interface integration – involves the external integration of a focal product with a relevant product through a technical interface as a means to exchange data between the two products (Sengupta 1998). The integration of Google's search engine and Google calendar represents such integration. To promote Google Calendar, Google added a hyperlink between Google Calendar and Google search engine homepage to facilitate data exchange. Such product interface specification provides a minimal level of functional integration across the two products. This is because any changes made in Google's search engine do not require the company to make changes to the workings of Google calendar (see Fig. 1c).

### 2.2. Perceived ties

A *perceived tie* is defined as the strength of perceivable interactions between different products (Stewart 2006). When an individual interacts with a stimulus, cognitive reactions from the stimulus, usually in a form of mental processes in her mind, occurs (Eroglu et al. 2001). In a product integration environment where products are presented to individuals, no matter weakly or strongly related to each other, individuals' cognitive reactions to such a stimulus includes a perception of the products as a group (Campbell 1958). Note that the term "entity" and "group" are psychological terms. Entity is a general description of existence (i.e., each online information product in our research) while a group (of entities) is a collection of two or more entities (a focal product and a related product in our research) that may be weakly or strongly related to each other (DeLamater 1974). *Entitativity theory* suggests that perceived tie measures the degree to which a group of entities is perceived as being bonded together (Lickel et al. 2001; Stewart 2003).

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