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Mengyao Fu

Bingqing Xiong

Eric Lim

Weiquan Wang

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Telling an Attractive Digital Story: Unraveling the Effects of Digital Product Placement Strategy on Product Exposure

Mengyao FU

City University of Hong Kong
mengyaofu3-c@my.cityu.edu.hk

Eric Lim

University of New South Wales
e.t.lim@unsw.edu.au

Bingqing XIONG

University of Science and Technology of China-
City University of Hong Kong
bxiong2-c@my.cityu.edu.hk

Weiquan WANG

City University of Hong Kong
weiquan@cityu.edu.hk

ABSTRACT

The accelerated pace with which mobile apps are being launched has translated into an innovation diffusion paradox for mobile app stores. To cope with the avalanche of newly launched apps, conventional product promotion has given way to digital storytelling as a means of bolstering individuals' exposure to these apps. Digital storytelling, as an emerging and novel format of product placement, has been credited for boosting consumers' receptivity to featured products through compelling narrative, direct links, and rich media. In this study, we construct and empirically validate a research model that illustrates how digital storytelling can be strategized for product promotion in mobile app stores. In so doing, we endeavor to not only offer an in-depth appreciation of how digital storytelling can aid in promoting mobile apps through the presentation of engaging content but to also shed light on how these promotional effects could be moderated through rich delivery.

Keywords

Mobile App Store, Digital Storytelling, Product Placement, Content, Delivery, Product Exposure

INTRODUCTION

The diffusion of innovations over time is a highly complex and dynamic process demonstrated in past studies to be subjected to the influence of Product Placement Strategy (PPL) (DeLorme and Reid 1999). Compared to traditional product placement, digital storytelling can be conceived as a novel form of product placement that allows multiple products to be promoted in a multimedia (e.g., audio, image, text, and video), story-link fashion. In this sense, digital storytelling encapsulates both experiential and physical components in the promotion of product and/or service offerings (Yoo 2010), Hackley (2003) contended that "the portrayal of the brand must 'tell a story' because simply 'showing the can' does not offer a sufficiently

powerful narrative context to enhance the brand identity". Consequently, digital storytelling can be conceived as a powerful means of innovation diffusion. As a form of product placement, digital storytelling induces an emotive response, enhancing individuals' decision-making process across a wide range of fields (e.g., advertising and branding) (Salzer-Mörling 2004). It is hence unsurprising that digital storytelling has been applied on various platforms, like the Apple App Store, to aid in product exposure and diffusion.

Mobile apps can be construed as instantiations of innovation products that have permeated our lives and mobile app stores are digital platforms for diffusing mobile apps. With the proliferation of mobile devices, there has been a corresponding growth in the number of newly launched apps. Yet, the exponential growth of new mobile apps has culminated in challenges for both consumers and platform owners alike (Datta and Kajanjan 2013). For consumers, the burgeoning number of newly launched and frequently updated mobile apps implies that it is practically impossible to peruse the entire collection of available apps effectively. The mobile app ecosystem appears to be heading towards a situation where resources are being squandered on the development of apps that may never catch the attention of consumers. A focal challenge for the mobile app store is about boosting consumers' exposure to mobile apps. Conventional fact-based advertisement tends to neglect the experiential aspects of consumers' decision-making process when downloading mobile apps. For this reason, mobile app stores have begun to innovate on their advertising techniques by accentuating user experiences in the promotion of mobile apps. For example, the Apple App Store has recently introduced the 'Today' tab on their homepage to incorporate rich story elements and collate apps into themes for promotions. In so doing, the Apple App Store downplays the tangible aspects of the mobile apps being promoted in favor of drawing consumers' attention to their intangible counterparts with unique storylines and thematic elements. It collates several mobile apps related to musical instruments to create a unifying

promotional theme. The promotion of mobile apps can be organized in a story-like format, encompassing elements such as causality, contextualization, and meaning. In the context of mobile app stores, which assimilates select developers or mobile apps with a promotional intent, digital storytelling plays an instrumental role in the symbolic construction and representation of contextual values, thereby empowering consumers to pinpoint better what is meaningful and worthwhile for them (Kenter et al. 2016). By facilitating emotional processing, digital storytelling exerts a salient effect on decision making by blending tangible and intangible attributes of mobile apps to illustrate how they can be utilized beyond functional situations. This in turn further accelerates the exposure rate of mobile apps in mobile app stores.

Yet, despite prior research alluding to the instrumental role of digital storytelling in product promotion (Tussyadiah and Fesenmaier 2008), there is a paucity of empirical studies investigating how digital storytelling affects consumer behavior. In the context of our study, we conceive digital storytelling as the contextualization of mobile app promotion in a thematic fashion that conveys meaning to consumers (Escalas 2007). We herein wish to identify forms of digital storytelling that are effective in boosting mobile apps downloads and elucidate how their effects vary with distinct modes of contextualization in mobile app stores.

THEORETICAL FOUNDATION

Digital Storytelling — A Form of Product Placement

Product placement is an advertising technique in which advertised products are subtly introduced in film, television, or other media (Balasubramanian 1994). Firms hope that the audience will pay attention to the products used by characters under specific contexts, hopefully culminating in a higher purchase likelihood for the advertised product when viewers are confronted with a similar situation. It has been widely applied to various media, like radio, television, and publishing. Past studies on product placement have generally verified its effectiveness as a marketing strategy (D'Astous and Séguin 1999; Russell 2002). Delorme and Reid (1999) also concluded in their study that product placement familiarizes the audience with the brand appearing in the movie. In mobile app stores, digital storytelling can be conceived as a form of product placement that engages various media, including text, audio, image, and video, for promotion. They also concluded that the context generates priming that can influence advertising performance. In this study, we aim to make optimal use of limited resources to promote mobile apps' exposure within the program through rational allocation, i.e., a product placement strategy. Product placement strategies are classified into three dimensions: implicit versus explicit, integrated versus non-integrated, and subtle versus prominent (DeLorme and Reid 1999). Because digital storytelling in the mobile app store almost always explicitly displays

products with app icons, we did not consider the component of explicit.

Compared to traditional product placement, digital storytelling enables a multi-product format to be connected to the most relevant story in a single ad unit. Product multiplexity is defined as the multi-products that appear simultaneously in one ad unit. Digital storytelling is not only a form of product placement but also a type of narrative advertising visualization, both content and delivery play important roles in bolstering the effects of advertising, with interactional effects between content and delivery at the same time (Wohlfart and Hauser 2012). The delivery format can also play a critical role in narrative visualizations. The effectiveness of advertisements may vary in different media and presentation styles. The delivery style of information often influences the relationships between media content and audiences' receptivity. Pagoto et al. (2016) have alluded to the impact of social media versus print formats on content conversion. Previous research also found that online store image, atmosphere, and navigation have significantly affected purchase intention. The media allocation is hence taken into consideration in our research framework.

Hypotheses Formulation

Product Multiplicity and Product Exposure

As we mentioned in the previous section, product placement is impacted by the quantity of other product placement in the show. Because there are many stacked products, the value of any single product may be limited. Hence, the cluttered promotional environment demands active product placement stewardship (La Ferle and Edwards 2006). Kahneman (1973) developed the limited-capacity model of attention to explain these selective and intensive aspects of attention, which assumes that one's total attentional capacity at any one point in time is limited. The more product involved in the digital story, the less will be available for processing app exposure. In other words, the single presentation of product placement should perform better than multiple products that are put together in an associated group because of the presence of different advertising sources straining the limited attention from the audience. We therefore hypothesize that:

Hypothesis 1: Product multiplicity in digital storytelling negatively influence product exposure.

The Prominence of Product and Product exposure

Research on placement has focused on another explanatory variable describing the placement characteristics, i.e., subtle versus prominent with different manifestation modes. Whereas subtle product placement manifests when the product is not shown prominently (e.g., small in size, a background prop outside of the main field of visual focus, lost in an array of multiple products or objects, short time of exposure), their prominent counterparts are those that are highly visible (e.g., the virtue of size or position on the

screen or its centrality to the action in the scene) (Gupta and Lord 1998). The digital story within the mobile app store can be regarded as the location within the engaging content or where the mobile apps are placed within the digital story. That means the prominence of the mobile app will be much higher when it appears at the beginning of the story and has a sole placement in the digital story. The product appearing prominently in the story is likely to have a stronger promoting effect on product exposure. We therefore hypothesize that:

Hypothesis 2: The prominence of the mobile app in the digital story would positively influence product exposure.

Integration of Digital Story and Product exposure

Finally, the integration of digital story should also be taken into consideration. Product placement in the marketing area seems to believe that a good placement is one where the product comes naturally: “the appearance of a product will be successful in as much as it melts into the story and the moment.” D’Astous and Séguin (1999) found that consumers better evaluate product placements within television programs when the product is related to its contents. Extending this result to product placements in digital storytelling, it is expected that consumers will appreciate well-integrated placements. Well-integrated placements may be more difficult to dissociate from the story scene (the figure and ground effect) and, consequently, more likely to be remembered. Thus, in this dimension, the brand, the logo, the firm, or the product plays an active role in the scene and is expressed formally within the program or plot. The better-integrated content will receive more product attraction. We therefore hypothesize that:

Hypothesis 3: The integration of the digital story would positively influence product exposure.

Media Allocation and Product exposure

An integral part of planning advertising campaigns involves selecting those media vehicles that maximize the effectiveness of the advertising effort. As a way of advertisement, product placement can also be categorized in its modality and relevance. Russell (1998) employed the categories of screen placement, script placement, and plot placement, which draws attention to the distinction between visual and verbal product placement. As illustrated in the last section, digital storytelling combines multiple types of media in one story presentation. In previous studies, the delivery style of information often influences the relationships between media content and audiences’ receptivity (Locander et al. 1978). Thus, we investigate the effect of media allocation on product exposure.

Media richness theory (a.k.a. information richness theory) proposes that task performance will be improved when task needs are matched to a medium’s ability to convey information (Daft and Lengel 1986). Media richness refers

to a medium’s relative ability to convey information (Dennis and Kinney 1998). Traditionally, media richness ranges from ‘very rich’ to ‘very lean’ in their ability to enable a user to communicate with website content and understanding. Several differences among the types of media must be considered. Media differ in the extent to which they (1) overcome situational constraints, (2) convey information richness, (3) provide symbolic cues, (4) enhance engagement from the audience, and (5) cognitive load. We can distinguish the characteristics of multiple media through media richness, engagement level, and cognitive load. But how to decide on a single media or media bundle? How to allocate different media in one digital story? Such intense focus on using only a limited range of media is counter-productive to the diversity of information. Thus, two dimensions of media allocation should be taken into consideration: media diversity and media intensity.

Palmer (1997) argued that multimedia interactions provide richer capabilities than text and photo-based media, and diverse media types may compensate for the audience’s distraction from the advertisement. Therefore, when there are multiple products in the digital story, diversiform media will compensate for the audience’s distraction from the story and increase mobile apps’ exposure compared with single media. From another perspective, the digital story builds on text, combining images, videos, and app hyperlinks, which are featured with relatively high information richness, engagement. Multiple media may be more attractive during the process of story delivery. We therefore hypothesize that:

Hypothesis 4a: Diversity of media allocation negatively moderates the relationship between product multiplicity in digital storytelling and product exposure.

Hypothesis 4b: Diversity of media allocation positively moderates the relationship between mobile apps’ prominence in digital storytelling and product exposure.

Hypothesis 4c: Diversity of media allocation positively moderates the relationship between integration in digital storytelling and product exposure.

As we have stated above, media diversity may compensate for the audience’s distraction from the advertisement. Correspondingly, intensive usage of single media may prompt the audience’s distraction from the story and increase mobile apps’ exposure compared as the product multiplicity increases. Thus, when the product multiplicity is high, using a selected few media intensively will lower the product exposure level. As demonstrated by Carlson and Zmud (1999), in certain circumstances, individuals employing leaner media can compensate to a limited degree for the media’s restricted ability to communicate multiple cues, thereby increasing perceived media richness. When the mobile app has been put at a prominent position and integrated well with the story content, intensive usage of single media may appear lean and help

the audience concentrate their mind. We therefore hypothesize that:

Hypothesis 5a: Intensity of Media Allocation negatively moderates the relationship between multiplicity in digital storytelling and product exposure.

Hypothesis 5b: Intensity of Media Allocation positively moderates the relationship between mobile apps' prominence in digital storytelling and product exposure.

Hypothesis 5c: Intensity of Media Allocation negatively moderates the relationship between integrity in digital storytelling and product exposure.

METHODOLOGY

To validate our research model, we have extracted data with detailed story elements, cleaned and aggregated them into panel data at the app-day level, and applied hierarchical regression analysis. The dependent variable is product exposure ratio during the digital storytelling period.

We have modeled survival ratio of app *i* as *ER_i*:

$$ER_i = \beta_{s0}Controls + \beta_1Multiplicity + \beta_2PAS + \beta_3 Intergration + \beta_4(Multiplicity * DMA) + \beta_5(PAS * DMA) + \beta_6(Integration * DMA) + \beta_7(Multiplicity * IMA) + \beta_8(PAS * IMA) + \beta_9(Integration * IMA) + \epsilon_{it} \quad (1)$$

Results and Discussion

Variables	(1)	(2)	(3)
Multiplicity	-.006***	-.012***	-.014***
Prominence	-.17**	.676***	.634**
Integration	-0.205	-0.15	-0.186
DMA	0.01	0.008	0.014
IMA	0.002	0.001	-0.009
Multiplicity * DMA		-.004***	-.006***
Prominence * DMA		.433**	.365**
Integration * DMA		0.174	0.103
Multiplicity * IMA		.002*	.003**
Prominence * IMA		0.101	0.179
Integrity * IMA		0.176	0.257
DMA * IMA			-0.013
Multiplicity * DMA * IMA			.003***
Prominence * DMA * IMA			-0.077
Integration * DMA * IMA			-0.025
Price	.001***	.001***	.001***
ER30	.936***	.935***	.936***
SDE	0	0	0
IAP	-.055***	-.043***	-.042***
NSD	-0.004	-0.006	-0.006
AA	0**	0*	0*
RS	-.037***	-.04***	-.039***
NRS	0	0	0
AON	-0.008	-0.001	-0.001
Occurrence	-.026***	-.026***	-.026***
TLO	0	0	0
LS	0**	0	0
Sentiment	2.292***	2.337***	2.356***
Readability	.002*	0.001	0.001
cons	-1.101***	-1.158***	-1.164***
Obs.	4068	4068	4068

R-squared	0.558	0.563	0.564
Note: Standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1			

Table 1. Effect of PPL on Product Exposure

It is easy to find that the more product joined in the digital story (high product multiplicity), the lower product exposure (H1 is supported). Consistent with prior research on product placement strategy, we found that the more prominent app's position (high prominence of app), the lower product exposure (H2 is not supported). What's more, the integration of story is found insignificant here (H3 is not supported), which suggests that integration of digital story is not vital in the context of the mobile app store.

Surprisingly, the interaction term between multiplicity and diversity of media allocation is significant and negative (H4a is supported). But the interaction term between multiplicity and intensity of media allocation is insignificant (H5a is not supported). As we have discussed before, diverse media types may compensate for the audience's distraction from the digital story and result in higher product exposure. Whereas, intensity of media allocation did not influence the audience's concentration or distraction.

Also, the interaction term between prominence and diversity of media allocation is significant and positive (H4b is supported). But the interaction term between prominence and intensity of media allocation is insignificant (H5b is not supported). This suggests prominence will be more effective on product exposure when more media types are allocated, no matter how the media is used intensively. Finally, the interaction terms between integration and media allocation, including diversity and intensity, are insignificant (H4c and H5c are not supported).

CONCLUSION AND FURTHER RESEARCH

This study particularly addresses a specific context with digital storytelling and mobile app store to tease out the mechanism of Product placement strategy. Although the prevalence of digital storytelling in many innovation diffusion platforms, like the mobile app store, such as extant exploration from the perspective of IS research in this context is currently scarce. We have extended the PPL to the context of digital storytelling in the mobile app store. Digital storytelling is a type of new and elastic product placement, sparks by the collision with mobile apps. Some new dimensions have been taken into consideration, like product multiplicity and media allocation. Further, echoing increasing calls to study the influence of PPL, our results regarding the moderating role of media allocation from two dimensions: diversity and intensity, posit a new strategy for story editors to manipulate media allocation to promote Product exposure with less content editing. The findings of this research also guide mobile app stores in releasing digital stories to diffuse new apps. Story editors can refer

to the refined product placement strategy to better promote new apps in the mobile app store. Also, it is equally applicable to all other innovation product diffusion platform.

In the future, we will design an experiment about the product placement to verify its causal influence on audiences' reading experience, such as comprehension, recall, user engagement, and product exposure in the context of digital storytelling in the mobile app store. Beyond its application in digital storytelling, it can also be used in video games or even virtual reality interfaces. With the advancement and more diverse human-computer interaction technologies, product placement strategies are likely to usher a new research trend.

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