Factors affecting pass-along email intentions (PAEIs): Integrating the social capital and social cognition theories

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ABSTRACT

While eWOM advertising has recently emerged as an effective marketing strategy among marketing practitioners, comparatively few studies have been conducted to examine the eWOM from the perspective of pass-along emails. Based on social capital theory and social cognitive theory, this paper develops a model involving social enablers and personal cognition factors to explore the eWOM behavior and its efficacy. Data collected from 347 email users have lent credit to the model proposed. Tested by LISREL 8.70, the results indicate that the factors such as message involvement, social interaction tie, affection outcome expectations and message passing self-efficacy exert significant influences on pass-along email intentions (PAEIs). The study result may well be useful to marketing practitioners who are considering email marketing, especially to those who are in the process of selecting key email users and/or designing product advertisements to heighten the eWOM effect.

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1. Introduction

Many studies have affirmed that the diffusion of information among people plays a vital role when individuals are making decisions (Katz and Lazarsfeld, 1955). In marketing, such oral communication between two or more people concerning a certain brand name, product or service on a non-commercial basis is referred to as "word-of-mouth" (WOM). And the use of WOM to tout or promote a specific product is referred to as WOM marketing (WOMM), or "viral marketing" (Gruen et al., 2006). Past research has demonstrated the significant impact of viral marketing on the consumer's choice and on his post-purchase product perceptions (Gruen et al., 2006). Product information communicated through WOM often has an added layer of credibility. Grewal et al. (2003) indicated that individuals are more inclined to embrace the information sent through WOM than that sent through commercial promotion, on the ground that WOM information dispensers are usually believed to have no ulterior motive nor receive incentive for their referrals.

Until the advent of Internet, the major impediment to successful WOM marketing has been the inestimable time and expense involved due to the lack of an efficient information technical infrastructure (Lee and Li, 2006; Subramani and Rajagopalan, 2003; Sun et al., 2006). Things, however, began to change. In the computer age, with such tools as email, weblogs, bulletin boards, chat rooms, and instant messenger, any message can be duplicated and passed along with great ease, and hence the emergence of the

eWOM — defined as the informal communications through Internet-based technology concerning the usage or characteristics of particular goods and services, or their sellers or providers (Litvin et al., 2008).

eWOM can take place at various platforms, such as blog, emails, virtual communities, each with its different marketing strategy. Among the various eWOM platforms, email is the most widely and commonly used one (Phelps et al., 2004). Emails nowadays are a highly used tool to communicate with one's friends, family, or coworkers. It naturally leads the marketers to tout their products to any actual or prospective customers, or to create a "buzz" via emails. According to McCloskey (2006), email marketing has been growing at the rate of 10% per year, with almost 70% of all retailers using it now. Behind this widespread use of email marketing are some of its appealing features: the low cost, the ability to target messages selectively, and the high response rates in comparison to other forms of direct consumer contact (Phelps et al., 2004). Despite its great popularity, so far seldom have studies been directed to email marketing with statistically validated model-based research. This paper proposes a research model to target issues surrounding email platform, and develops, based on recent eWOM studies, its antecedents, so as to make complement to other previous studies in this field.

The success of viral marketing lies in an individual recipient's intention to forward marketing messages to others, which may greatly contribute to the exposure of the message to thousands or even millions of people (Cordoba, 2001). For example (Chiu et al., 2007), on November 4, 2004, beer.com sent 10 emails to the company's potential customers. Six days later, more than 500,000

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visitors poured in this site, and "Fan Forums" started popping up in search engines. By November 28th, the site had achieved 10,000,000 sessions; it had continued to get hundreds of thousands of visitors each week. Once the recipients begin to pass along positive email messages about certain product or service, such an act of passing along would be a potentially powerful marketing force (Phelps et al., 2004). On the contrary, any message which fails to induce the recipient's intention to pass it along would result in discontinuation of the eWOM chain. Once the mouth is "shut", the "buzz" can no longer be sustained, and the effect of viral marketing can be greatly discounted. The receiver's PAEI therefore constitutes a core issue in the study of email WOM.

The success of eWOM marketing is dictated by two influences: the message factor and the sender factor. The message itself must be appealing and of good quality to drive a message receiver's intentions to send it, or pass it along. The marketers have to explore the factors which determine a sender's pass-along intentions, or devise the incentives to bring out the intentions from the sender.

Using some key theorems in social cognition theory and social capital theory, this study proposes a theoretical model, which is to be validated, to examine the factors that determine a sender's pass-along intentions (PAEIs). PAEI scales are further developed and validated to better the understanding of efficient eWOM marketing on issues such as what kind of message will motivate the pass-along behavior, to what extent an email receiver can be motivated to become a sender, and what makes an ideal pass-along receiver/sender, and the like.

2. Theoretical background and hypothesis development

2.1. Moving from WOM to eWOM

WOM (or word-of-mouse) is basically the extension of traditional WOM on the Internet. By examining WOM on the Internet, previous studies have found that WOM mechanisms act in the same manner on the Internet; in other words, the effect of eWOM on consumers is similar to that of traditional WOM (Gruen et al., 2006; Hennig-Thurau et al., 2004). However, the emergence of eWOM has created both new possibilities and challenges for marketers (Dellarocas, 2003). Firstly, with the low cost in access and information exchange, eWOM sprouts in an unprecedented large scale, potentially creating new dynamics in the market. The broader scope, however, is compromised with the greater control over format and communication types allowed by the technology. Besides, new problems may arise given the anonymity of communicators, potentially resulting in intentionally misleading or out-of-context messages.

eWOM marketing, as mentioned before, can take place on various platforms because of the unique nature of Internet (Litvin et al., 2008). The consumer review website is an asynchronous and one-to-many medium, on this platform not only individuals share information, are goaded to generate a desire to learn more about the product, but the marketers can effectively create a 'buzz' in order to stimulate eWOM among visitors. In contrast, weblog or blog is an asynchronous and many-to-many platform. Bloggers like to write their own experience (or online diaries) about products, traveling, or inspirational articles and these people also like to read others' blogs. Virtual communities (VCs) of consumption, also an asynchronous and many-to-many platform, are a collection of people whose online interactions are based upon shared enthusiasm for and knowledge of a specific consumption activity. Finally, email is an asynchronous and one-to-one medium. This platform is used by marketers to entice the recipients to forward their communications to others by emotionalizing their communications, including

an element of surprise, making them humorous or providing incentives.

Email is a basic tool of Internet-based communication and it plays a dominant role in eWOM platforms. More than 90% of Internet users, approximately 102 million Americans, are using email, and about 50% of the online population uses email on a daily basis (Phelps et al., 2004). According to a more recent survey by Riegner, 95% of over 4000 broadband users in the United States use email regularly, and 88% of them use it on a daily basis (Riegner, 2007). Most importantly, unlike other online communication tools (such as MSN and BBS) which are primarily used by people of comparatively young age, email users consist of people of all age groups. As empirical studies attest, email marketing can possibly yield twice the return on investment (ROI) in comparing to other forms of online marketing (Pavlov et al., 2008). Among all platforms, email has the most potential to disseminate marketing messages.

2.2. Factors in determining eWOM intentions and behavior

Most studies on email usage have traditionally focused on personal cognition factors, and often enlisted technology acceptance model (TAM) to analyze the email usage (Hubona and Burton-Jones, 2003; Serenko, 2008). Some researchers strived to identify the motivations of and rewards experienced by people sending and receiving email (Phelps et al., 2004). Hubona and Burton-Jones, (2003) assessed the user acceptance and voluntary usage of email application with TAM in two different organizations, and the results in most part validate TAM, though certain external variables like the length of time since first use education level affect email usage behavior directly instead of being mediated through the perceived usefulness (PU) and perceived ease of use (PEOU) constructs.

Besides the personal cognition factors, social interaction is equally important in influencing email usage. While people may hit the delete key when they get the message from a stranger because the email might contain computer virus, researchers have found that 85% of people open links or attachments that are forwarded by a friend, and that 94% of messages are considered at least somewhat or very believable when delivered by someone acquainted (Rigby, 2004). Phelps et al. (2004) indicate that people would assume that the product information is of value if it arrives through email from a person they know, and they would probably be more willing to pass on this information to those they know.

Table 1 summarizes recent eWOM studies related to our interest from disseminators' perspective. For example, Hennig-Thurau et al.'s findings (Hennig-Thurau et al., 2004) suggest that consumers' desire for social interaction, desire for economic incentives, their concern for other consumers, and the potential to enhance their own self-worth are the primary factors leading to articulation behavior. Using attitude–intention–behavior model, To et al. (2007) and Hsu and Lin (2008) in their separate studies drew the conclusion that eWOM behavioral intention is influenced by perceived behavioral control, attitude, and social influence factors such as subjective norm and identification, though subjective norm has non-significant impact on intention to blog (Hsu and Lin, 2008). Some other researchers like Gruen et al. (2006) explored the antecedents of customer-to-customer know-how exchange on a popular software product forum. Their results identifies the three key antecedents — motivation (defined as a force that directs individuals toward goals), ability (referring to the extent to which consumers have the necessary resources such as knowledge, intelligence, money to make an outcome happen), and opportunity (referring to the extent to which a situation is conducive to achieving a desired outcome), with the antecedent of opportunity being found to be not significant.

Table 1
eWOM from disseminators' perspectives.

Author	Platform	Study content	Identified antecedents
Hennig-Thurau et al. (2004)	Virtual opinion platform	Drawing on findings from research on virtual communities and traditional WOM literature, this paper develops a typology for motives of consumer online articulation	• Concern for other consumers • Positive self-enhancement • Social benefits • Economic incentives
Gruen et al. (2006)	A popular software product forum	From motivation, opportunity and ability (MOA) theory, this paper investigates the effects of a specific eWOM form, customer-to-customer know-how exchange, on customer perceptions of value and customer loyalty intentions	• Motivation to engage in C2C exchanges • Ability to engage in C2C exchanges
To et al. (2007)	Instant messaging	The study proposes a model to explain and predict the usage of IM of workers in organizations based on the decomposed theory of planned behavior (DTPB), and relevant studies on technology acceptance and instant messaging	• Attitude • Subjective norm • Perceived behavioral control
Li et al. (2005)	Instant messaging	Based on technology acceptance literature, this paper develops and tests a research model to explain an individual's continuous use of IM in keeping and sustaining interpersonal relationships	• Perceived usefulness • Perceived enjoyment • Perceived critical mass
Huang et al. (2007)	Web blog	This paper presents a model that addresses the relationships among blogging motivations and behaviors, and reports the empirical validation of the model	• Self-expression • Life documenting • Commenting • Community forum participation • Information seeking
Hsu and Lin (2008)	Web blog	Based on the theory of reasoned action (TRA), this paper developed a model involving technology acceptance, knowledge sharing and social influences to explain what motivates people to participate in blog activities	• Attitude toward using blog • Social influence factors • (Community identification)
Chiu et al. (2007)	Email	This study explores the determinants of message receivers' disseminating behaviors on the internet	• Message source • Message contents • Receiver characteristics • Message transmission channel

2.3. Theoretical model

Based on social capital theory (to probe the social influences dimension) and social cognitive theory (applied on the personal cognitions dimension), Chiu et al. (2006) in a professional virtual community demonstrates that the community participants' communications and interactions would generate specific domain knowledge that enables the participants to learn from, contribute to, and collectively build upon that knowledge in daily life through posting and reading messages on the discuss forum. Like knowledge contribution, pass-along email in the context of viral marketing can be viewed a kind of knowledge sharing, the difference being that while knowledge sharing mainly centers on two-way information sharing and exchanging, pass-along email focuses on 'forwarding' the message to others using the Internet. The behavior of passing along email is primarily a one-way broadcasting behavior and the inter-personal relationship is viewed from the perspective of senders. Therefore, constructs in the two theories are redeveloped in this study.

Fig. 1 shows the research model.

2.4. Social capital theory in PAEIs

The concept of social capital was first adopted in the studies of community (Jacobs, 1965) and family relations, and was further being extended to the use in business (Wu and Tsai, 2005). In a general sense, the term 'social capital' can be defined as the networks of strong personal relationships that are developed over time and provide the basis for trust, cooperation, and collective action in communities (Jacobs, 1965). The concept has been widely applied since its early use by researchers in diverse disciplines, using social capital to investigate the development of human capital (Coleman, 1990), to gauge the economic performance of firms (Baker, 1990), and recently to examine knowledge contribution in an organization (Wasko and Faraj, 2005) or virtual consumer communities in the context of viral marketing (Hung and Li, 2007).

Intrinsic in social capital is a duality: at the group level, it reflects the affective nature and quality of relationships, while at the individual level, it facilitates an individual's actions and reflects his or her access to network resources (Wasko and Faraj, 2005). This study focuses primarily on the individual level perspective for it is the individual relationships from which the passing-along intentions (PAEIs) are derived. Product marketers can target on those who have more social network ties, and, by analyzing the factors which influence their pass-along intentions, quickly and efficiently spread the positive image of their product widely.

Within social capital theory there are three different categories of capital: structural, relational and cognitive capital (Nahapiet and Ghoshal, 1998; Wasko and Faraj, 2005). The structural dimension refers to the ability of individuals to make connections to others within an organization. Nahapiet and Ghoshal, 1998 sub-divide the structural dimension of social capital into network ties, network configuration, and appropriable organization. Capital of relational dimension is the one related to the particular relationships which can influence people's behavior, such as prospect and friendship. The major variables of this dimension include trust norms, obligation, identification….etc. The cognitive dimension refers to those resources which involve shared representations, interpretations and system of meaning among parties. This dimension includes shared language, codes, and narratives.

Only structural capital and relational capital are discussed in our paper on the ground that email-sending is an one-way broadcasting behavior, which involves relatively less two-way information sharing, exchanging, mutual learning, discussion and collaboration behavior, so the shared language, code, norms and interpretation system in the cognitive capital are less important in this research. Among the diverse factors, Hsu and Lin (2008) and Chiu et al. (2006) pointed out that the desire for social interaction and that for identification are the primary social antecedents of disseminators' eWOM. These arguments will be discussed as follows.

2.4.1. Linking structure dimension to PAEIs

By definition, social interaction tie refers to the strength of the relationships, the amount of time spent, and communication frequency with the receivers (Chiu et al., 2006). Hence the structural capital which is characterized by social interaction tie naturally
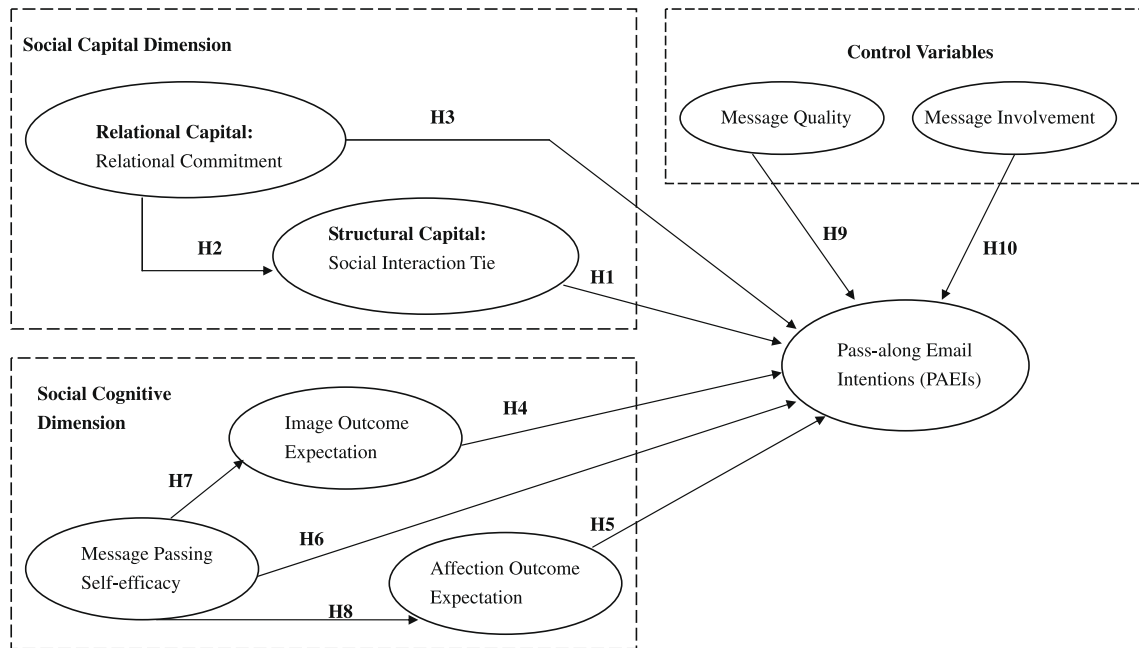
Fig. 1. Research model for PAEIs.

implies that an individual's position in the network influences his willingness to share information, and the positive relationship between social interaction tie and knowledge contribution has been validated (Wasko and Faraj, 2005). In the context of eWOM, a structural condition is fulfilled when a social relation between individuals is present so that information can be transmitted from one individual to another (Chiu et al., 2007). Most people would not pass along information to the person they never know and the willingness to pass along information depends on the strength of their relationship. The more social interaction ties an individual has, the more likely he or she will share information with others (Chiu et al., 2006). Based on this reasoning we select this variable as an important factor which would affect PAEI and hypothesize that:

H1: Social interaction tie is positively related to PAEIs.

2.4.2. Linking relational dimension to PAEIs

Relational commitment is a key element in relational capital which examines how one's perception of relational asset influences his participation in the network. In some way like identification to a group, relational commitment represents an individual's internal representation of dependence on an established relationship, including both long-term orientation and psychological attachment to the relationship (Rusbult, 1983). Relational commitment is different from social interaction in that it is the perception and attitude towards the relationship between the sender and the receiver, instead of an assessment of the strength of the relation tie. In other words, relational commitment reflects an emotional dimension and a proactive effort not always present in social interaction tie.

Relational commitment is characterized by an individual's intrinsic motivation to persist in a long-term relationship, and this motivation in turn would lead to continuous interactions between individuals in a social network (Agnew et al., 1998). Recent studies have demonstrated that commitment is fundamental to social interaction and relationship (Reis and Patrick, 1996). In marketing, people committed to developing long-term relationships with

others are more likely to invest in efforts that are specific to the exchange relationship (Gundlach et al., 1995). Therefore, we propose:

H2: Relational commitment is positively related to social interaction tie.

Individuals who are motivated by a sense of obligation or commitment to the organization tend to give valuable advice to others. In the context of eWOM, Hsu and Lin, 2008 indicate that a sense of belonging to certain blog community influences the tendency to blog. Similarly, people who feel a strong sense of obligation to maintain the relationship often pass along emails that contain useful information to others (Walsh et al., 2004). Findings from electronic networks also suggest that individuals out of a perceived moral obligation to pay back the network and the profession as a whole participate in knowledge contribution to maintain their relationship within the group (Wasko and Faraj, 2005). Thus we hypothesize:

H3: Relational commitment is positively related to PAEIs.

2.5. Social cognitive theory in PAEIs

Although social capital theory well explains the interpersonal relationship, it gives less consideration to personal cognitive perspective, which is comprehensively covered in social cognitive theory. Social cognitive theory postulates that a person's behavior is partially shaped and controlled by the influences of the person's cognitions (e.g., expectations, beliefs) and the social network (i.e., social systems). Recent studies have used social cognitive theory as the theoretical background to explain personal cognitions in the context of marketing or Internet usage (Akgun et al., 2006; Hsu et al., 2004).

Table 1 suggests that two sets of factors constitute eWOM antecedents. The first set is related to personal capability, perceived behavior control (PBC), or the potential to enhance individual's own self-worth (Hennig-Thurau et al., 2004; To et al., 2007). The second set is associated with incentive and economic rewards (Gruen et al., 2006; Hennig-Thurau et al., 2004). Social cognitive

theory suggests two major personal cognitive forces guiding people's behavior: self-efficacy and outcome expectations (Compeau and Higgins, 1999), with self-efficacy defined as the belief one has about his capability to perform a particular task (Bandura, 1997). Similarly, message passing self-efficacy (MPSE) is the confidence in one's ability to pass along the message which is deemed to be valuable to people. The other guiding force, the outcome expectation, refers to "a judgment of the likely consequences (one's own) behavior will produce" (Bandura, 1986; Bandura, 1997). This aspect of incentive expectations is in line with the second set of eWOM antecedents (incentives and rewards). To further understand PAEIs incentive drivers, this study proposes two outcome expectations — affective and image. Image outcome expectations are relate to expectations of change in image, status or reputation associated with sending message (Compeau and Higgins, 1999; Kankanhalli et al., 2005). Affective outcome expectations are those associated with affective expressions to the receivers (such as affection and appreciation for the receivers) when sending message (Compeau and Higgins, 1999; Rubin et al., 1988).

2.5.1. Linking outcome expectations to PAEIs

Individuals are more likely to do things which they believe will result in positive outcomes than those perceived to have unfavorable consequences (Bandura, 1997). Outcome expectations have been proved to positively link to an individual's intention to share information, internet usage and WWW usage intentions (Hsu et al., 2004; Hsu and Lin, 2008). In the context of eWOM, the rewards one gets when he adds value to a community can be a potent incentive prompting more contribution or more sharing (Hennig-Thurau et al., 2004). Some researchers have suggested that the primary reason for individuals to share information is their expectation of being viewed as skilled, knowledgeable or respected (Subramani and Rajagopalan, 2003; Wasko and Faraj, 2005). Wasko and Faraj, 2005 also considered reputation to be one of the factors influencing his or her intention to share information, and they suggested that reputation in online social network can motivate people to share information. Likewise, social capital theory posits that if employees believe they could improve relationship with others in the company by offering information, they tend to develop a more positive attitude towards information sharing (Lin and Huang, 2008). Other researchers pointed out that people tend to pass along email more often and derive more enjoyment if they expect that they can show others their affection, care, gratitude, or assistance through the act of passing (Phelps et al., 2004). Rubin et al. (1988) developed the Interpersonal Communication Motives Scale and indicated that one of the top motivations to pass messages along is to show affection. Researchers also indicated that people gain satisfaction by showing their affection through sharing information (Kankanhalli et al., 2005). Therefore, we propose:

H4: Image outcome expectation is positively related to PAEIs.
H5: Affection outcome expectation is positively related to PAEIs.

2.5.2. Linking self-efficacy to PAEIs

People's perceptions of their efficacy influence the types of anticipatory scenarios they construct, so it is reasonable to infer that individuals with high self-efficacy tend to visualize success scenario (Bandura, 1997). By passing along and sharing useful marketing information the sender may feel a sense of competence in helping others, thinking they are helpful in reducing message receiver's purchase risks, saving his or her costs to acquire or process information, sharing the joy or positive emotions they already experienced, or sparking the receiver's emotions, such as humor, fear, sadness, or inspiration (Chiu et al., 2007). Based on this, we propose:

H6: MPSE is positively related to PAEIs.

Furthermore, social cognitive theory posits that self-efficacy has direct impact on outcome expectations (Bandura, 1986). The positive expectations will be meaningless if one doubts his/her capability to successfully execute the behavior in the first place because "the outcomes one expects are derived from judgments as to how well one can execute the requisite behavior" (Bandura, 1997). Positive relationship between self-efficacy and outcome expectations has also been validated in the context of computer usage, knowledge sharing, and Internet usage (Compeau and Higgins, 1999; Hsu et al., 2004). Therefore, we hypothesize:

H7: MPSE is positively related to image outcome expectations.
H8: MPSE is positively related to affection outcome expectations.

2.6. Control variables

Control variables are used to account for factors other than the theoretical constructs of interest, which could explain variance in the dependent variable (Ravichandran and Lertwongsatien, 2005). Since, apart from the great convenience it offers to its users, email also creates some unpleasant side effect, the problems of spam and Internet rumors, it is natural when people pass along information through email, message credibility would be of their concern (Chiu et al., 2007; Park and Kim, 2008). Therefore, in addition to the above variables, another two variables concerning message credibility, the quality of message and the involvement of message, are considered as control variables to pinpoint the relationship between PAEIs and its antecedents.

Message quality refers to perceptions of the message's completeness, consistency, accuracy and reliability (Chiu et al., 2006). Researches have indicated that people who rate the quality of the information higher are more willing to share it by a KMS (Wasko and Faraj, 2005). Message involvement, on the other hand, refers to the general level of interest in the object or the centrality of the object to the person's ego-structure (Sun et al., 2006). The relationship between message involvement and e-WOM has also been positively validated (Sun et al., 2006). Therefore, we hypothesize:

H9: Message quality is positively related to PAEIs.
H10: Message involvement is positively related to PAEIs.

3. Research methodology

3.1. Sampling procedure for the main study

In order to establish generalizability, allow replicability, and allow for statistical power, the survey method was used to test the research model. The samples include 500 people randomly selected from a list of 2000 business school students from three universities, including alumni, cyber classrooms and part-time students, who work in either local or multi-national companies at various cities and towns in Taiwan. In the email welcoming and thanking them for doing the survey is a hyperlink to access our online survey web pages from March 14 to April 25, 2007. We programmed the web pages to request and ensure all the participants answer every measurement item. Therefore, no missing values are found in the final result.

On the coverage, we gave some statements ensuring the participants the privacy when filling up the questionnaire. Furthermore, we gave every participant a small gift in the close of our survey to

increase the response rate. Of all the 500 participants, 347 usable data were used for analysis, yielding a response rate of 69.4%. Table 2 lists the demographic information collected from respondents regarding his/her gender, education and so on.

Non-participation in this survey largely resulted from invalid email addresses or time constraint (some found they did not have time enough to complete the survey). Independent *t*-test does not show any statistically significant difference between respondents and non-respondents in terms of gender, age and average time spent on Internet per day in the last month. Early and late respondents do not differ on these measures. Therefore, non-response biases are minimized.

Additionally, Harman's single-factor test is assessed. The assumption underlying the test is that, if big variance exists in the data, a single-factor will emerge from an exploratory factor analysis which can account for most of the variance. The results of this analysis on our data reveal eight factors with an eigenvalue greater than one, and no single-factor explains most of the variance (the variances explained range from 3.931% to 17.422%). Such results prove the absence of a significant variance common to the measures, so common method bias is also minimized.

3.2. Operationalization of constructs

The questionnaire was administered in Chinese and thus it had to be translated; backward translation was used to ensure consistency between the Chinese and the original English versions of the instrument. Three research assistants majoring in English linguistics were employed in this effort; versions were then compared and discrepancies resolved by a committee including an English professor and three research assistants.

Table 2
Demographic characteristics of the sample.

Demographic variable		Sample composition (N = 347)
Gender	Male	195 (56.2%)
	Female	152 (43.8%)
Education	College (two years)	15 (4.3%)
	Bachelor (four years)	209 (60.2%)
	Master	118 (34.0%)
	Ph.D.	5 (1.5%)
Age	Less than 21 years	20 (5.8%)
	21 ∼ 30 years	235 (67.7%)
	31 ∼ 40 years	62 (17.9%)
	41 years or above	30 (8.6%)
Job title	Technical	138 (39.7%)
	Middle manager	34 (9.8%)
	Senior manager	12 (3.5%)
	Student	163 (47.0%)
Industry	Manufacturing	32 (9.2%)
	Service	29 (8.4%)
	Hospital	9 (2.6%)
	Government	14 (4.0%)
	Information technology	48 (13.8%)
	Finance	11 (3.2%)
	Education	161 (46.4%)
	Others	43 (12.4%)
Average time spend on internet per day in the last month	Fewer than 1 h	1 (0.3%)
	1 ∼ 2 h	37 (10.7%)
	3 ∼ 4 h	88 (25.4%)
	5 ∼ 6 h	68 (19.6%)
	7 ∼ 8 h	47 (13.5%)
	9 ∼ 10 h	31 (8.9%)
	More than 10 h	75 (21.6%)

All questions in the instrument are measured using seven-point scales anchored from "strongly disagree" (1) to 'strongly agree" (7). In social cognitive dimension, five items for measuring MPSE are based on MPSE's definition by Kankanhalli et al., 2005 and on Sussman and Siegal's study (Sussman and Siegal, 2003). Items for measuring image outcome expectations and affection outcome expectations are adapted from recent studies (Compeau and Higgins, 1999; Kankanhalli et al., 2005; Rubin et al., 1988) and modified to fit in to the context of our study.

In social capital dimension, the questions for measuring social interaction tie are directly adopted from those designed by Chiu, Hsu and Wang's study (Chiu et al., 2006). Items for measuring relational commitment are adopted from Sussman and Siegal's study (Sussman and Siegal, 2003) and are modified to fit in the context of this study.

As for control variables, message quality and message involvement are based on their definition and are modified from related studies (Chiu et al., 2006; Sussman and Siegal, 2003).

Items for measuring PAEIs were developed by this study because of the scarcity in related literature. First several items reflecting the types of email messages were developed based on recent literature (Phelps et al., 2004; Chiu et al., 2007). In viral marketing, Phelps et al.'s study (Phelps et al., 2004) identified the percentage of email forwarded or received by category. While each of these measures has some limitations such as culture difference, they offer insights that we think are worthy of being incorporated into our measure. The items were reviewed by four professors and eleven Ph.D. students familiar with EC and internet marketing for content validity. Eleven items were developed at this stage.

Second, the 11 items which are not in order were pre-tested by 163 students from three universities located in southern Taiwan. Exploratory components analysis using principal components extraction was performed on the data. Using a combination of the scree plot and the guideline that eigenvalue be greater than one, two factors of the varimax rotation emerged, explaining 56.27% of the total variance. Item that loads higher than 0.5 were kept without modification (Lavie and Tractinsky, 2004). Five of the items load on factor 1 which is related to product and service, adopting as PAEIs. Factor 2 includes four non-product-related items such as inspirational articles (e.g. digest, articles, or stories) or pictures, jokes, and games. The others do not load on either factor.

Since by definition a message is not an e-WOM message if it is non-product related (Hennig-Thurau et al., 2004), and since email, as argued in previous section (Section 2.1), is a potent platform in disseminating information of certain product, the focus of this study is accordingly on the intentions to pass along product-related emails. According to a survey by Phelps et al. (2004), the most forwarded messages are jokes, crime warnings, game and chain letters, but from the perspective of consumer's behavior, product-related emails from interpersonal sources usually exert a stronger influence on a receiver's consumption behavior. Though the study target of this study is primarily on product-related messages, a brief comparison of two PAEI models is presented and explained in Section 5.2.

4. Data analysis and results

The analysis involves two stages: (1) assessment of the measurement model for item reliability, convergent validity, and discriminant validity, and (2) assessment of the structural model.

4.1. Assessment of the measurement model

The internal consistency of each dimension was assessed by computing the Cronbach's alpha. As shown in Table 3, the lowest

Table 3
Summary of measurement scales.

Construct	Measure	Mean	Std. Dev.	Loading
Message quality Cronbach's alpha = 0.903				
The information of the message which I pass along by email is often...				
MQ1	Complete	5.110	1.003	0.860
MQ2	Consistent	4.971	1.039	0.885
MQ3	Accurate	4.611	1.084	0.848
MQ4	Easy to understand	5.207	0.972	0.793
MQ5	Reliable	4.749	1.052	0.856
Message involvement Cronbach's alpha = 0.733				
I think the message which I pass along to others is often ...				
MI1	What I care about	5.519	1.032	0.901
MI2	What connects with myself	4.968	1.212	0.876
Social interaction Tie Cronbach's alpha = 0.945				
For I and most of my message receivers, ...				
SIT1	I maintain close social relationships with them	4.994	1.037	0.925
SIT2	I spend a lot of time interacting with some of them	4.718	1.057	0.923
SIT3	I know some of them on a personal level	5.069	1.026	0.924
SIT4	I have frequent communication with some of them	4.919	1.022	0.933
Relational Commitment Cronbach's alpha = 0.946				
For I and most of my message receivers, ...				
RC1	I am committed to maintaining my relationship with them	5.231	0.988	0.890
RC2	I feel very attached to my relationship to them	5.207	0.999	0.934
RC3	I feel very strongly linked to them	4.937	1.065	0.889
RC4	I am oriented toward the long-term future of my relationship with them	5.277	1.031	0.925
RC5	Enticing my relationship with them is an important object for me	5.046	1.072	0.892
Message passing self-efficacy Cronbach's alpha = 0.932				
I have confidence in my ability to...				
MPSE1	Pass along valuable messages	4.974	1.108	0.916
MPSE2	Pass along informative messages	5.009	1.090	0.922
MPSE3	Pass along helpful messages	5.035	1.077	0.923
MPSE4	Pass along important messages	4.922	1.149	0.890
MPSE5	Be informed to pass along valuable messages	4.614	1.146	0.783
Image outcome expectation Cronbach's alpha = 0.933				
I think passing messages along by email to others would...				
IMOE1	Improve my image within the receivers	4.804	1.108	0.902
IMOE2	Improve the receivers' recognition of me	4.752	1.076	0.922
IMOE3	Help me make friends with the receivers	5.006	1.094	0.905
IMOE4	Build up my reputation with the receivers	4.553	1.080	0.894
Affection outcome expectation Cronbach's alpha = 0.926				
I think passing messages along by email to others would...				
AFOE1	Help others	5.012	1.045	0.835
AFOE2	Show others encouragement	4.965	1.064	0.892
AFOE3	Let others know I care about their feelings	5.153	1.134	0.889
AFOE4	Thank others	4.994	1.153	0.885
AFOE5	Show concern about them	5.219	1.132	0.887
Pass along email intention Cronbach's alpha = 0.849				
I would pass along ... to people by email.				
PAEI1	Coupons or free stuff	4.911	1.176	0.761
PAEI2	Product-related News (e.g., current events, entertainment events)	4.755	1.073	0.795
PAEI3	Helpful tips	5.040	1.104	0.774
PAEI4	Interesting product information (e.g., Wii, Xbox)	4.839	1.119	0.805
PAEI5	Product recommendation information (e.g., product comments, G-mail invitation)	4.533	1.057	0.764

value of Cronbach's alpha is 0.733 for message involvement, all well exceeding Nunnally's criterion of 0.70 (Nunnally, 1978).

To validate our measurement model, three types of validity were assessed: convergent validity, discriminant validity, and criterion validity. The value of CR should exceed 0.8 and the value of AVE be greater than or equal to 0.5 to be qualified as satisfactory convergent validity for a construct (Fornell and Larcker, 1981). As summarized in Table 4, the CRs for the constructs with multiple items range from 0.88 to 0.96, and the AVEs range from 0.63 to 0.86. All are well above the cutoff, showing acceptable convergent validity.

For satisfactory discriminant validity, AVE for a construct should be greater than the squared correlations of the construct and other constructs in the model (Chin et al., 2003). Table 4 shows the correlations between the constructs. In this table, the diagonal elements represent the square root of the variance shared between the constructs and their measures. The off-diagonal elements are the correlations among the constructs. All diagonal elements are

greater than their corresponding off-diagonal elements, suggesting that the respective constructs exhibit acceptable discriminant validity.

As shown in Table 4, some constructs might suffer multicollinearity because of their high correlation (0.778 between SIT and RC). Their items, nonetheless, still load higher on their own construct than on other constructs in the model as shown in Table 5. We also checked for multicollinearity and the resultant variance inflation factor (VIF) values for all of the constructs are acceptable (i.e., between 1.661 and 3.117). Therefore, the items demonstrate satisfactory convergent and discriminant validity.

Criterion-related validity shows how closely the items in the instrument are related to the PAEI construct. The item measuring overall PAEIs ("In general, the frequency of passing messages along to others is quite high") is used as a criterion scale if all other PAEI items in the measurement are correlated with this criterion scale. All correlation coefficients are positive (>0.7) and significant at the 0.01 level. Thus criterion-related validity is acceptable.

Table 4
Discriminant validity and correlations.

Construct	AVE	CR	Construct							
			RC	MI	SIT	MQ	MPSE	IMOE	AFOE	WOMI
RC	0.820	0.958	*0.906*							
MI	0.788	0.882	0.448	*0.888*						
SIT	0.859	0.960	0.778	0.425	*0.927*					
MQ	0.720	0.928	0.538	0.561	0.459	*0.849*				
MPSE	0.786	0.949	0.536	0.500	0.490	0.703	*0.887*			
IMOE	0.805	0.952	0.622	0.555	0.544	0.557	0.584	*0.897*		
AFOE	0.776	0.944	0.578	0.488	0.566	0.572	0.588	0.658	*0.881*	
PAEI	0.625	0.892	0.445	0.540	0.489	0.430	0.554	0.586	0.555	*0.791*

CR = composite reliability; AVE = average variance extracted; RC = relational commitment; MI = message involvement; SIT = social interaction tie; MQ = message quality; MPSE = message passing self-efficacy; IMOE = image outcome expectation; AFOE = affection outcome expectation; PAEI = passing along email intention.
Diagonal elements are the square root of AVE. These values should exceed the inter-construct correlations for adequate discriminant validity.

Table 5
Results of confirmatory factor analysis.

Scale items	RC	SIT	PAEI	IMOE	AFOE	MPSE	MQ	MI
rc1	*0.885*	0.734	0.424	0.523	0.524	0.499	0.467	0.382
rc2	*0.934*	0.715	0.390	0.558	0.531	0.478	0.495	0.389
rc3	*0.888*	0.692	0.415	0.579	0.528	0.461	0.506	0.436
rc4	*0.924*	0.702	0.382	0.565	0.507	0.486	0.484	0.404
rc5	*0.891*	0.671	0.400	0.590	0.523	0.498	0.480	0.416
st1	0.732	*0.928*	0.467	0.522	0.529	0.486	0.434	0.412
st2	0.679	*0.922*	0.453	0.513	0.491	0.426	0.417	0.382
st3	0.749	*0.925*	0.422	0.518	0.483	0.425	0.420	0.381
st4	0.724	*0.935*	0.482	0.507	0.501	0.452	0.396	0.360
paei1	0.275	0.308	*0.744*	0.273	0.371	0.369	0.284	0.346
paei2	0.309	0.367	*0.809*	0.418	0.419	0.416	0.371	0.358
paei3	0.338	0.321	*0.794*	0.410	0.461	0.472	0.386	0.363
paei4	0.380	0.423	*0.823*	0.396	0.409	0.397	0.324	0.392
paei5	0.445	0.511	*0.782*	0.441	0.408	0.397	0.329	0.325
imoe1	0.489	0.443	0.457	*0.899*	0.576	0.553	0.508	0.495
imoe2	0.540	0.492	0.457	*0.922*	0.598	0.530	0.514	0.504
imoe3	0.625	0.548	0.475	*0.904*	0.602	0.502	0.494	0.516
imoe4	0.537	0.484	0.411	*0.897*	0.579	0.562	0.518	0.502
afoe1	0.493	0.463	0.471	0.564	*0.840*	0.617	0.566	0.433
afoe2	0.481	0.463	0.512	0.557	*0.897*	0.596	0.516	0.457
afoe3	0.531	0.505	0.444	0.621	*0.892*	0.468	0.474	0.441
afoe4	0.507	0.451	0.433	0.554	*0.886*	0.446	0.478	0.406
afoe5	0.538	0.501	0.426	0.590	*0.887*	0.431	0.466	0.393
mpse1	0.512	0.443	0.478	0.537	0.540	*0.913*	0.679	0.480
mpse2	0.482	0.444	0.504	0.526	0.534	*0.919*	0.636	0.486
mpse3	0.467	0.434	0.493	0.511	0.557	*0.924*	0.646	0.466
mpse4	0.452	0.399	0.427	0.477	0.519	*0.891*	0.606	0.384
mpse5	0.461	0.418	0.392	0.521	0.468	*0.777*	0.543	0.400
mq1	0.506	0.452	0.402	0.516	0.535	0.615	*0.862*	0.553
mq2	0.447	0.397	0.388	0.471	0.481	0.576	*0.885*	0.516
mq3	0.392	0.293	0.309	0.48	0.465	0.593	*0.848*	0.400
mq4	0.476	0.384	0.361	0.434	0.442	0.588	*0.788*	0.487
mq5	0.449	0.36	0.349	0.47	0.501	0.613	*0.858*	0.404
mi1	0.433	0.384	0.431	0.523	0.454	0.49	0.532	*0.907*
mi2	0.357	0.348	0.366	0.484	0.408	0.395	0.462	*0.869*

4.2. Assessment of the structural model

The hypotheses, the paths between the items, and the latent constructs are examined with LISREL 8.70. The model fit indices were within accepted thresholds. For models with good fit, chi-square normalized by degrees of freedom (χ^2/df) should not exceed 5, non-normed fit index (NNFI) and comparative fit index (CFI) should exceed 0.9 and root mean square error of approximation (RMSEA) should not exceed 0.08 (Chiu et al., 2006). For the current structural model, χ^2/df is 3.33 (χ^2 = 1815.34, df = 545), NNFI is 0.97 and CFI is 0.97. While RMSEA is 0.082, slightly higher than the commonly cited threshold, it is still marginally acceptable.

Fig. 2 shows the result of path coefficients. As can be seen, social interaction tie (β = 0.32, t-value = 2.182), affection outcome expec-

tation (β = 0.23, t-value = 2.22), MPSE (β = 0.29, t-value = 2.54), and message involvement (β = 0.22, t-value = 1.96) all demonstrate significant relationships with PAEIs. Therefore, hypotheses 1, 5, 6, and 10 are supported. However, image outcome expectation (β = 0.09, t-value = 1.15), relational commitment (β = −0.17, t-value = −1.11) and message quality (β = −0.10, t-value = −0.73) are found to be not significantly related to PAEIs. Thus hypotheses 3, 4, and 9 are not supported. The R^2 value for PAEIs is .400, indicating approximately 40% of the variance in intention is explained by the model.

Furthermore, the relationship between relational commitment and social interaction tie (β = 0.90, t-value = 17.21) is found to be significant. Thus hypothesis 2 is supported. The percentage of the variance explained (R^2) of social interaction tie is 60.5%.

Finally, both image outcome expectations (β = 0.64, t-value = 12.61) and affection outcome expectations (β = 0.45, t-value = 10.22) are significantly influenced by MPSE. Therefore, hypotheses 7 and 8 are supported. This is consistent with the proposition of SCT. The percentages of the variance explained (R^2) of image and affection outcome expectation are 33.6% and 35.0%, respectively.

5. Discussions and implications

5.1. Summary of results

Although the potential of email to efficiently reach out many people is widely acknowledged, the adverse effect brought about by inappropriate use of email is now gaining much attention. With an eye to facilitate efficient email marketing strategy, this study attempts to explore and add to the collective understanding of major factors underlying both social relationships and personal cognitions toward PAEIs.

Results in Fig. 2 point to the following conclusions:

(1) In social capital aspect, high relational commitment is not directly linked with PAEI. Perception of high commitment alone does not spell the intention to spread the information; it often has to couple with close social interaction tie (i.e. mediated variable) so as to motivate a high PAEI. In addition to relational commitment, people who maintain close relationship and have frequent communication with others often have higher PAEI. When marketing personnel are devising viral marketing strategy, target should be aimed at those who have frequent social interaction instead of those with little email correspondence.

(2) In the regard of social cognition, people with confidence in the content of the message they intend to pass along often have higher PAEI, for they are more certain that the message they send is valuable, helpful, or even important. Along with
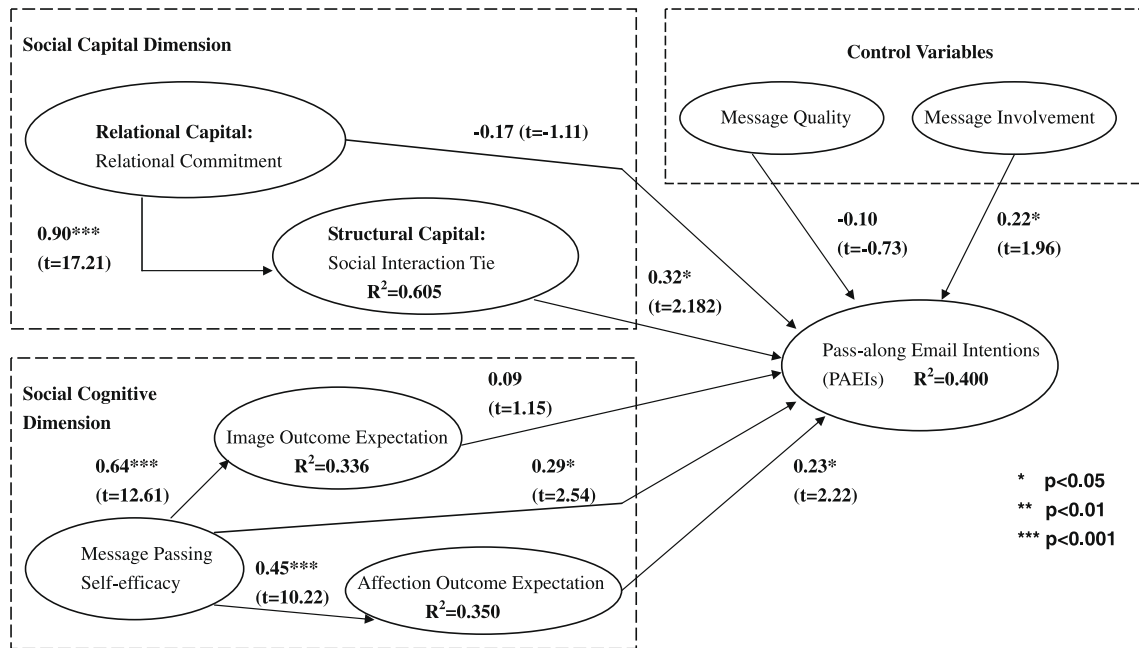
Fig. 2. PAEI structural model result.

the confidence also come the higher image expectation and affection outcome expectation. Professionals, experts, opinion leaders and those who know the product in issue very well, make up good samples for email marketing target.

(3) In control variable aspect, the intention to pass is often triggered by a sense of involvement; only when the product itself arouses interest or makes the message receiver feel connected to or identified with it, he or she will then turn into a sender to forward the message. Message involvement, more than message quality, wield a direct effect on PAIEs. Viral marketing is well advised to focus on people who have high message involvement, those who make potential buyers. For instance, when email marketing MP3 products, young people or those who care about fashion trend may make better target customers than people of older age and/or with conservative taste and style. As to the message quality, as long as the message itself is complete or consistent, the sender usually cares less about whether the receiver really buys the product championed in the message i.e .marking message seldom bring serious harms to human beings so its quality has relatively less influence on the sender's PAEIs.

5.2. Alternative model

To understand the email sending behavior in depth, we further test the proposed antecedents on non-product related messages. For the structural model, χ^2/df is 3.47 (χ^2 = 1777.48, df = 512), NNFI is 0.97, CFI is 0.97 and RMSEA is 0.085. Overall, the model fit indices are within accepted thresholds.

Compared with results in Fig. 2, these findings indicate that, besides affection outcome expectations (β = 0.24, t-value = 2.29), both image outcome expectations (β = 0.21, t-value = 2.57) and message quality (β = 0.19, t-value = 1.31) become important factors when sending non-product related emails. Most emails of forwarded non-product information are articles, news or digest about tips on a healthful life, ways to detect and prevent cancer, computer virus, telephone or internet fraud, sensational events, latest

and important human innovations, or even the very good joke (Phelps et al., 2004). When passing along such supposed-to-be useful information, the sender tends to pay more attention to the accuracy and reliability of the information forwarded. In comparison with the spread of product related information, passing along such useful knowledge also has more to do with the sender's expectation of promote his professional image and reputation. Other factors like social interaction tie (β = 0.21, t-value = 1.68), relational commitment (β = −0.15, t-value = −0.98) and message involvement (β = 0.21, t-value = 1.68), are similar to the results demonstrated in Fig. 2.

5.3. Academic and practical implications

Schemes that make overt attempts to co-opt users to promote products and services are likely to upset the balance and reduce the effectiveness of the approach to the detriment of both the marketer and users who may have benefited from the information sharing acts of influencers (Subramani and Rajagopalan, 2003). Through statistical model-based research, this study highlights the proactive factors which can influence PAEIs, and based on our analysis, marketing practitioners can form a win–win strategy for both marketers and email users. In sum, the academic and practical implications are as follows:

(1) Rather than studying acceptance, this paper studies the motivation for pass-along email in the context of viral marketing. Although technology acceptance model (TAM) may sound a proper theoretical model to investigate PAEIs, it however fails to directly account for the factors of social cost and benefit experienced by senders which may affect their PAEIs. To fill in this gap, this study integrates social cognitive theory with social capital theory to provide a comprehensive understanding of the antecedents of PAEIs from a theoretical perspective.

(2) Seldom have researcher integrated these two theories to investigate the domain of viral marketing. Viral marketing highlights systematic patterns in the nature of knowledge-sharing and persuasion by influencers and responses by recipients in online social networks (Subramani and

Rajagopalan, 2003). By investigating the antecedents of PAE-Is, this study moves their application further to the context of eWOM.

(3) The act of message passing along is sub-divided into the passing of product-related information and that of non-product related information in this paper, the discrepancy between them is also pointed out.

5.4. Limitations

Although this study has offered insights into intentions to pass along emails, some limitations are inevitably present. First, the choice of constructs in the two theories are primarily based on recent disseminators' eWOM studies, other possible constructs in traditional WOM, such as perceived justice or satisfaction, are overlooked. Second, we developed the measurement of PAEIs following the previous findings and guidelines from email marketing literature (Chiu et al., 2007; Phelps et al., 2004), the message categories we devised, nonetheless, may not represent an exhaustive list of information applicable to PAEIs. Third, international companies are indeed included in our study samples, only those are ones based and located in Taiwan. The external validity of this study may be compromised because of culture difference.

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