

Li, Shu-Chu; Chen, Yen-Shen; Ku, Linlin

Conference Paper

A Niche Analysis of Three Interpersonal Communication Technologies: Examining the Competition among Facebook, Line, and Email

14th Asia-Pacific Regional Conference of the International Telecommunications Society (ITS): "Mapping ICT into Transformation for the Next Information Society", Kyoto, Japan, 24th-27th June, 2017

Provided in Cooperation with:

International Telecommunications Society (ITS)

Suggested Citation: Li, Shu-Chu; Chen, Yen-Shen; Ku, Linlin (2017) : A Niche Analysis of Three Interpersonal Communication Technologies: Examining the Competition among Facebook, Line, and Email, 14th Asia-Pacific Regional Conference of the International Telecommunications Society (ITS): "Mapping ICT into Transformation for the Next Information Society", Kyoto, Japan, 24th-27th June, 2017, International Telecommunications Society (ITS), Calgary

This Version is available at:

<https://hdl.handle.net/10419/168514>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

A Niche Analysis of Three Interpersonal Communication Technologies: Examining the Competition among Facebook, Line, and Email

Abstract

Adopting Dimmick's niche theory as its theoretical framework, this study examined the gratifications obtained and gratification opportunities from Facebook, Line, and email to understand the competitive relationships among the three interpersonal media in Taiwan. This study first conducted twenty intensive interviews to construct questionnaire items to measure users' gratifications obtained and gratification opportunities from the three media. Then, a telephone survey was conducted to collect data and 1042 valid calls were obtained. The data analysis shows that (1) among the three interpersonal media, Line had the widest niche breadth and the highest scores of competitive superiority and competed strongly with Facebook; and (2) the competitive superiority scores of a medium were a powerful predictor of the use history of that medium.

Keywords: the theory of the niche; Facebook; Line; email; gratifications obtained; gratification opportunities.

Introduction

Internet-based interpersonal communication technologies have evolved from the earliest email, bulletin board system, forum, and instant messaging technologies to the newest social media, such as Facebook, Twitter and Line (Ku, Chu, & Tseng, 2013). Social media are very popular in Taiwan, and the penetration rate of social media in Taiwan is the highest among Asian countries (Hung, Lee, & Yang, 2014). The two most popular social media platforms in Taiwan are Facebook and Line. Launched in 2004, Facebook has become the most popular social networking site (SNS), with more than 1 billion users worldwide (Tsay-Vogel, 2016). With its multi-functional social interactions, the penetration rate of Facebook is also rapidly increasing in Taiwan; a recent study shows that more than 87.5% of Taiwan's people have adopted this social medium (Lo, 2015). Another popular social medium in Taiwan is Line, which was established in Japan by a Korean company, NHN (Next Human Network). After Japan's 311 Fukushima disaster, the team of NHN Japan attempted to design easy, useful, and speedy software to help disaster victims with communications; Line was developed under such circumstances. Line was launched in 2011, but it was quickly accepted by Taiwan's people. Thus, its penetration rate climbed rapidly to 83% in 2015 (Lo, 2015). Based on a niche analysis of gratifications obtained by consumers, one objective of this study is to compare Facebook with Line in terms of their strengths and weaknesses.

Line, WhatsApp, and WeChat are similar because all of them are real-time communication media, but Line is more similar to WeChat than to WhatsApp regarding the platform features and business models. In Asia, WeChat has the largest market share with 650 million monthly active users, most of whom are from China. Line is the second largest with 212 million monthly active users, most of whom are

from Japan, Taiwan, and Thailand (Chen, 2016; Rose, 2016). Line and WeChat were originally designed as real-time communication media, which have adopted a strategy of free text-messaging services to attract users. After accumulating a large base of users, Line and WeChat gradually opened their platforms to allow corporate partners to make transactions with their users for commercial purposes. Now, Line and WeChat have become all-encompassing service platforms that include social interactions, shopping, payment, gaming, advertising, and media services (Chen, 2016; Su, Lee, & Lin, 2016). Therefore, the findings from Line may be applicable to users of similar media such as WeChat or Kaokao Talk that dominates the Korean market.

Compared with email, Facebook and Line are new interpersonal communication technologies. Past studies show that when new media became available, they often eroded the audience base of old media because new media offered better functions to satisfy people's needs than did old media. Furthermore, people's time and money are limited; thus, when they spend more time and money on new media, fewer resources are available for old media. Therefore, people's use of new media such as Facebook or Line is at the expense of old media such as email (Dimmick, 2003; Gaskins & Jerit, 2012).

A recent study (Lo, 2015) indicated that the most popular social media in Taiwan were Facebook and Line, which had penetration rates of 87.5% and 83%, respectively. In Taiwan, Twitter had a penetration rate of only 5.1% in 2015, and Skype had a penetration rate of 22.4%. Facetime, which is built into the Apple system, is seldom used in Taiwan because the cellular telephone market has been evenly divided into four major brands, including iPhone, HTC, Samsung, and Sony. Studies have shown that as an old medium, email has played a key role in working settings, and its penetration rate has been reported to be almost 70% in Taiwan (Ku et al., 2013).

Therefore, this study selected for comparison three interpersonal communication media that were popular and that had high penetration rates in Taiwan.

This study adopts the theory of the niche to analyze the competitive relationships among Facebook, Line, and email. Originating in population ecology, the theory of the niche is useful for explaining how new and old media coexist in environments that have limited resources. According to this theory, competition occurs because one population is consuming the same resources as another population (Dimmick, 2003). According to Dimmick (2003, pp. 29-33), the resources used in media industries can be classified into six resource dimensions, among which gratifications obtained and gratification opportunities are the most important resources for media because these two resources lead to consumer spending, consumer time, and advertising spending. Focusing on gratifications obtained and gratification opportunities, this study analyzes the niche breadth, niche overlap, and competitive superiority of Facebook, Line, and email to understand the competitive relationships among these three interpersonal communication media.

Literature Review

The Theory of the Niche

Organizational ecologists believe that an organization's environment exerts a much greater effect on its survival than its internal operations do, and niche theory allows researchers to understand how well an organization is suited to its environment. According to the theory of the niche, when one organization is using the same resources as another organization and the resources in the environment are limited, the two are then competing against one another. Furthermore, a higher degree of overlap indicates a higher degree of competition. A niche is usually defined as the patterns

with which a population utilizes its resources. A population often uses more than one resource; thus, a niche contains several dimensions. A group of similar organizations that have common characteristics is defined as a population. Hence, television stations are a population, and electronic newspapers are another population (Dimmick, 2003, pp. 23-42; Gaskins & Jerit, 2012; Min & Kim, 2012).

Niche theory includes three important concepts: niche breadth, niche overlap, and competitive superiority. The area of a niche is niche breadth, which includes both the quantity and magnitude of resources consumed by a population. If a population uses only a few types of resources, then it is a specialist population because it has a narrow niche. Specialists are able to use resources efficiently, but it is difficult for them to adjust to ensure survival when major changes occur in the environment. By contrast, generalists use a wider range of resources and are, thus, capable of addressing changes in the environment, but their utilization of resources is not efficient (Dimmick, 2003; Dimmick, Feaster, & Hoplamazian, 2010; Dimmick, Feaster, & Ramirez, 2011).

Niche overlap measures the extent to which two populations utilize the same resources, whereas competitive superiority is used to assess how much one population is superior to another population concerning their resource-utilization ability. If the niche overlap of two populations is high, then the superior population is likely to replace the inferior one. Competitive exclusion occurs when the superior population completely replaces the inferior one, which results in the extinction of the inferior population. A more frequent phenomenon in the media industry is competitive displacement, which occurs when the superior population occupies part of the niche space of the inferior population (Dimmick, 2003; Dimmick et al., 2010; Dimmick et al., 2011).

Gratifications Obtained and Gratification Opportunities

The concept of gratifications obtained comes from the theory of uses and gratifications and refers to the satisfactions actually derived from using a medium. Several studies confirm that gratifications obtained are the reasons why consumers continue to use a medium; gratifications obtained are similar to the economic concept of utility (Dobos, 1992; Rubin, 1994). According to Dimmick (2003, pp. 30-31), the degree of gratifications obtained from different media allows researchers to measure the capabilities of different media to fulfill audience needs and thus, to understand the competitive advantages of these media. The concept of gratification opportunities is related to the resource of human time. According to Dimmick (2003, pp.31-32), human time is a limited resource because all activities require it. Hence, when a medium offers greater opportunities in terms of time and space for consumers to use, this medium stands in a better position to attract consumers with its content.

Niche, Gratifications Obtained, and Gratification Opportunities

Empirical studies have found that when competition among media is too fierce, these media differentiate themselves to coexist in the environment (Dimmick, 2003; Dimmick & Rothenbuhler, 1984). For example, Dimmick, Kline, and Stafford (2000) compared e-mail with the telephone and discovered that the telephone was superior to e-mail in terms of its sociability, whereas e-mail was perceived by the respondents to be better in terms of its gratification opportunities. By observing the differences between the gratifications obtained and gratification opportunities offered by the two media, their study concluded that these differences could explain why email and telephone were able to coexist. Author's study (2001) showed that television news and newspapers in Taiwan competed strongly with one another because they had the

highest degree of overlap among the three media. However, both media were able to coexist because television news was perceived by the respondents to be better than newspapers in terms of gratification opportunities and surveillance, whereas newspapers were superior to television news because of their ability to provide information that was easier to process and their interactivity.

Facebook, Line, and email are similar because all of them are Internet-based interpersonal communication technologies, but they differ in light of the functions emphasized. Line's strength lies in its function of instant communication, whereas Facebook is useful for maintaining relationships among friends or family members. Although email is an old interpersonal communication technology, it is considered as the best medium for formal communication. Facebook and Line are social media, and studies show that people use social media primarily for obtaining gratifications related to socialization, relationship maintenance, surveillance and entertainment (Lo & Leung, 2009; Ku et al., 2013; Park, Kee, & Valenzuela, 2009). Email is also used by people for obtaining similar gratifications, but Facebook and Line possess more powerful functions in terms of helping people obtain these gratifications. Furthermore, Line will perform better than Facebook in the gratification of socialization because it is useful for instant communication; however, for the gratifications of surveillance and fashion, Line will perform as well as Facebook because both of them are fashionable social media and provide multiple functions for people to obtain these two gratifications. Based on the reasoning above, this study presents the following hypotheses:

H1a: For surveillance and fashion, Facebook and Line will be similar concerning their niche breadth and competitive superiority; both services will have greater niche breadth and competitive superiority than email.

H1b: For sociability, Line will have greater niche breadth and competitive superiority than Facebook, which will in turn have greater niche breadth and competitive superiority than email.

For gratification opportunities, Line is designed for people to communicate by mobile phone. With the high penetration rate of smart-phones in Taiwan, most people tend to use Facebook via mobile media (FIND, 2013). Email can be used via mobile devices, but it is less convenient than Line or Facebook. Therefore, this study predicts that Line should be as useful as Facebook for the gratification of easy access; both services will perform better than email in this gratification.

Although email is a relatively old interpersonal communication technology, it is used frequently in work settings. In particular, emails are considered formal documents in work-oriented communication in many organizations. Compared with Line or Facebook, the security mechanism design of email facilitates safer communication among users. In contrast, Facebook is characterized by the display of an individual's status; for example, Facebook functions encourage users to show personal information, share pictures, and identify their locations. Therefore, Facebook is considered the least formal communication tool among the three media, and some of Taiwan's organizations do not even allow their employees to use Facebook in the workplace. For the gratification of formal communication, Line falls between the other services because some organizations in Taiwan consider Line an efficient tool to organize work procedures with colleagues (Chang, 2015; Ku et al, 2013; What's next for new media, 2015). In addition, Facebook has the least capability for privacy protection because too much information is displayed to people, and email has the most capability in terms of privacy protection. Line again falls in the middle because users can choose to whom they wish to send information (What's next for new media,

2015). Based on the reasoning above, this study presents the following hypotheses:

H1c: For easy access, Facebook and Line will be similar concerning their niche breadth and competitive superiority; both services will have greater niche breadth and competitive superiority than email.

H1d: For formal communication and safe communication, email will have greater niche breadth and competitive superiority than Line, which will in turn have greater niche breadth and competitive superiority than Facebook.

Niche Overlap, Competitive Superiority, and Displacement Behaviors

Studies have shown that examining niche breadth, niche overlap, and competitive superiority among different media allows researchers to understand the competitive position of a population with its competitors (Dimmick, 2003; Dimmick et al., 2010; Dimmick et al., 2011). For example, Ramirez, Dimmick, Feaster, and Lin (2008) examined email, landline phones, cell phones, and instant messaging in terms of their gratification niches. Their study found that cell phones had the widest niche breadth in the sociability dimension and that email, cell phones, and instant messaging had high degrees of niche overlap. Therefore, their study predicted that email and cell phones would be replaced by instant messaging in the near future. Lee (2011) analyzed Taiwan's four types of telecommunication services, including 2G, 3G, landline telephone, and Internet telephone. Her results showed that 2G had the widest niche breadth and highest score of competitive superiority among the four types of services. Her study explained that 3G was expensive and that its quality was not stable at that time in Taiwan and concluded that the respondents perceived 2G to be much better than 3G. Authors (2013) compared the competition among three types of OTT (Over the top television) in Taiwan: YouTube, PPStream, and ToDou. They found that

YouTube had the highest score of superiority among the three media, but that the fiercest competition existed between PPStream and ToDou because the respondents perceived the two media to be more similar than to YouTube.

Niche overlap is an index to measure the degree to which one population is consuming resources that are identical to those consumed by another population. This study predicts that Facebook and Line will have higher degrees of niche overlap than with email because the features of Facebook and Line are more similar to one another than with those of email (Hung et al., 2014; Ku et al., 2013; Ramirez et al., 2008; What's next for new media, 2015). The second hypothesis of this study is advanced based on this reasoning:

H2: Facebook and Line have higher degrees of overlap than with email in all gratifications obtained and gratification opportunities.

Studies have confirmed that competitive superiority scores can predict consumers' displacement behaviors (Feaster, 2009; Gaskins & Jerit, 2012). For example, Dimmick, Chen, and Li (2004) examined the competition between the Internet and traditional news media. They found that the superiority measure was able to explain most of the displacement effect because approximately 69% of the subjects who perceived the Internet to be better than television in gratification opportunities also indicated that they watched television less often after using the Internet. Additionally, approximately 71% of the subjects who perceived the Internet to be superior to newspapers indicated that they read newspapers less often after using the Internet. Ha and Fang (2012) compared the use of online news with traditional news media use and discovered that as consumers' years of Internet experience increased, they perceived online news to have greater niche breadth, to be superior, and to have a higher degree of overlap with traditional news media. Therefore, their study found a

displacement effect of online news on traditional news media.

Based on these empirical findings, this study predicts that Facebook superiority scores will be associated with consumers' Facebook use history. Similarly, Line and email superiority scores will be positively correlated with consumers' history of using Line and email, respectively. Therefore, the fourth hypothesis is as follows:

H3: The competitive superiority scores of Facebook, Line, and email will be positively associated with consumers' history of using Facebook, Line, and email, respectively.

Research Methodology

Interviews on Gratifications Obtained and Gratification Opportunities

This study relied on two methods to construct a uniform set of items that measured gratifications obtained and gratification opportunities from Facebook, Line, and email. The first method involved examining past studies for relevant items (Cheng, Liang, & Leung, 2015; Ku et al., 2013; Wei, 2001), and the second method involved conducting intensive interviews by using these relevant items as the basis for interviewing. Twenty intensive interviews were conducted using a snowballing method to recruit ten female and ten male interviewees who had experience using the three media. This study purposely interviewed people with different gender, education levels, age, and jobs to collect diverse responses. The interviewees' education levels varied from high school to graduate school, and their age ranged from 17 to 55 years old. The interviewees held jobs such as housewives, students, sales, marketing managers, secretary, educators, engineers, and financial officers. This study analyzed the responses of the interviews and selected those gratifications obtained or gratification opportunities that were mentioned by at least three interviewees. Using this procedure,

this study formulated 20 items concerning gratifications obtained and gratification opportunities on a seven-point Likert scale, which was used in the telephone survey.

Questionnaire for the Telephone Survey

The questionnaire for the telephone survey contained four sections. The first section included 60 items concerning gratifications obtained and gratification opportunities, with 20 items for each of the three media. The second section contained three questions that asked the respondents how long they had used Facebook, Line, and email. The third section included five questions about the following demographic variables: gender, age, education, personal income, and family income. The last section contained six questions concerning mass media use, including television viewing, newspaper reading, magazine reading, radio listening, movie going, and Internet use.

Telephone Survey

This study chose the telephone survey method to obtain a representative sample. Using a computer-assisted telephone interview (CATI) system, a nationwide telephone survey was administered by 20 trained telephone interviewers, who were supervised by the researchers in a central location. The most updated telephone number database for Taiwan's cities and counties was used with a proportionate stratified random sampling method. The telephone survey was conducted in July of 2014, and 1042 valid calls were obtained, with a response rate of 60.27%. This study found that 729 of the 1042 respondents were email users, 700 respondents were Facebook users, and 719 respondents were Line users. Furthermore, 629 respondents indicated that they were regular users of both email and Facebook, 617 were regular

users of both Facebook and Line, and 626 were regular users of both Line and email.

Factor Analysis on Gratifications Obtained and Gratification Opportunities

This study conducted confirmatory factor analyses (CFAs) to obtain a uniform set of factors for the three media on gratifications obtained and gratification opportunities. The CFAs were performed using the following steps: (1) This study first conducted three exploratory factor analyses (EFAs) on the responses to the 20 questions concerning gratifications obtained and gratification opportunities. The results showed that a five-factor model for email had the best outcomes concerning its factor loadings and percentage explained; thus, based on the five-factor model of email, this study conducted three CFAs using the LISREL package for the three media. (2) This study adopted several criteria suggested by statisticians to assess the CFAs' goodness of fit, which included RMSEA ($< .10$), NFI ($> .90$), IFI ($> .90$), and CFI ($> .90$) (Hair, Black, Babin, Anderson, & Tatham, 2006; Wu, 2007). The CFAs of the three media met the criteria for goodness of fit; therefore, all 20 items were kept for later analysis. The results of the CFAs are summarized in Table 1.

Table 1. Confirmatory Factor Analysis for Three Media.

Gratifications obtained	Email	Facebook	Line
Factor 1: Surveillance			
To get useful information	0.825	0.907	0.859
To get new information	0.818	0.888	0.850
To work efficiently	0.814	0.798	0.846
To share information with others	0.814	0.888	0.868
Cronbach α	0.889	0.924	0.915
Factor 2: Easy access			
Used by many people	0.792	0.873	0.877
Compatible with my lifestyles	0.862	0.911	0.918
People can find me easily	0.747	0.882	0.862
Use anytime	0.838	0.911	0.915
Cronbach α	0.884	0.941	0.940
Factor 3: Sociability			
Keep in touch with friends and relatives	0.766	0.896	0.921
Contact with importance others	0.843	0.866	0.934
Organize social activities	0.724	0.791	0.811
Contact people whom don't meet frequently	0.779	0.881	0.874
Easier to interact with friends and relatives	0.727	0.914	0.896
Enjoy the pleasure of contacting people	0.832	0.914	0.897
Cronbach α	0.901	0.953	0.958
Factor 4: Fashion			
Contact people	0.719	0.901	0.726
Keep in touch with fashion	0.682	0.733	0.742
Make new friends	0.809	0.780	0.899
Cronbach α	0.779	0.851	0.837
Factor 5: Safe & Formal Communications			
Avoid the embarrassment of talking to strangers	0.732	0.744	0.686
Suitable for formal discussions	0.727	0.745	0.748
Cronbach α	0.802	0.778	0.781
X²	1463.152	1296.095	1357.291
df	160	160	160
RMSEA	0.088	0.083	0.085
NFI	0.971	0.986	0.984
IFI	0.974	0.988	0.986
CFI	0.974	0.988	0.986

The first factor was referred to as surveillance because the four items were concerned with information seeking and sharing. The second factor had four items that were about the ease of using these media, and thus, was referred to as easy access. The third factor contained six items related to how to maintain relationships with people and how to organize social activities, which was named sociability. The fourth factor had three items, all of which were about fashion or fashion activities, and was thus referred to as fashion. The last factor had two items that were concerned with comfort of talking to people and suitability for formal communication, which was therefore named safe & formal communications.

Niche Breadth, Niche Overlap, and Competitive Superiority

This study calculated the scores of niche breadth, niche overlap, and competitive superiority for each of the five factors of the three media. The data from the telephone survey are interval data; thus, this study adopts the formula1 developed by Dimmick (2003, p. 79) to calculate niche breadth. A higher score calculated from this formula indicates a wider niche breadth. This study also used the formula2 developed by Dimmick (2003, p. 79) to calculate niche overlap. A lower score from this formula indicated a higher degree of niche overlap. The calculation of competitive superiority is based on the formula3 developed by Dimmick (2003, p. 80). There are two formulas to calculate superiority scores: The first one, $S_{i>j}$, is used to measure the degree to which medium i is better than medium j, whereas the second formula, $S_{j>i}$, is to measure the degree to which medium j is better than medium i. Two conditions must be met for medium i to be superior to medium j: First, the score from $S_{i>j}$ must be greater than the score from $S_{j>i}$; then, a t-test on the means of the two media must be statistically

significant (Dimmick, 2003, pp. 80-81).

The Sample Profile

Among the 1042 respondents, 42.8% were identified as male, 56% were identified as female, and 1.2% did not answer this question. An elementary school education was received by 6.7% of the sample, junior high school, 9.7%; high school, 35.5%; college, 38.1%; and 9.8% had a graduate education. Approximately 13.9% of the respondents were less than 21 years old, 17.4% were 21-30, 15.2% were 31-40, 20.6% were 41-50, 10.5% were 51-55, and 22.6% were older than 55. The profile of the sample was not congruent with the general population of Taiwan because the sample participants were better educated and included more females than males. Thus, this sample was not representative of Taiwan's general population because this study selected only those respondents who had experience using at least two of the three media.

Research Findings

Niche Breadth, Niche Overlap, and Competitive Superiority

The data on niche breadth, niche overlap, and competitive superiority for the five factors associated with the three media are summarized in Tables 2-4.

This study found that Facebook had higher scores of niche breadth and competitive superiority in the gratification of surveillance than did Line, which in turn had significantly higher scores than email did. For the gratification of fashion, Line had higher scores of niche breadth and competitive superiority in this gratification than did Facebook, which in turn had higher scores than did email (Tables 2 and 4). Therefore, H1a was partially supported.

Table 2. Niche Breadth

	E-mail	Facebook	Line
Surveillance	0.484	0.591	0.563
Facebook > Line > E-mail			
Easy access	0.479	0.676	0.732
Facebook > Line > E-mail			
Sociability	0.397	0.619	0.713
Line > Facebook > E-mail			
Fashion	0.190	0.520	0.529
Line > Facebook > E-mail			
Safe & formal communication	0.482	0.436	0.468
E-mail > Line > Facebook			
N of Respondents	729	700	719

Table 3. Niche Overlap

	E-mail/ Facebook	Facebook/ Line	Line/ E-mail
Surveillance	2.198	1.181	2.093
easy access	2.182	0.901	2.372
Sociability	2.547	1.316	2.846
Fashion	2.545	0.948	2.624
Safe & formal	1.964	0.740	1.957
Communications			
N of	630	618	627
Respondents			

For the gratification of sociability, the data demonstrate that Line had significantly higher scores of niche breadth and competitive superiority than did Facebook, which in turn had higher scores than email did (Tables 2 and 4). Hence, H1b was supported. For easy access, Line had higher scores of niche breadth and competitive superiority than did Facebook, which in turn had significantly higher scores than did email for this gratification opportunity (Tables 2 and 4). Therefore, H1c was partially supported. For the gratifications of safe and formal communications, email did not differ from Line in the scores of niche breadth and competitive

superiority, and they both had significantly higher scores in this dimension than did Facebook (Tables 2 and 4). Hence, H1d was partially supported.

Table 4. Competitive Superiority

	E-mail/ Facebook	Facebook/ Line	Line/ E-mail
Surveillance	E-mail < Facebook 5.559/ 11.224 t=-8.915***, N=630	Facebook > Line 7.278/ 4.341 t=4.128***, N=618	Line > E-mail 9.939/ 6.196 t=6.535***, N=627
Facebook > Line > E-mail			
Easy access	E-mail < Facebook 2.794/ 14.592 t=-15.994***, N=630	Facebook < Line 3.031/ 8.190 t=-7.176***, N=618	Line > E-mail 16.488/ 2.179 t=20.785***, N=627
Line > Facebook > E-mail			
Sociability	E-mail < Facebook 4.213/ 23.473 t=-19.512***, N=630	Facebook < Line 4.929/ 18.134 t=-10.816***, N=618	Line > E-mail 28.734/ 1.931 t=28.160***, N=627
Line > Facebook > E-mail			
Fashion	E-mail < Facebook 0.583/ 10.656 t=-26.750***, N=630	Facebook < Line 3.306/ 4.126 t=-2.913**, N=618	Line > E-mail 11.061/ 0.431 t= 29.143***, N=627
Line > Facebook > E-mail			
Safe & formal communications	E-mail > Facebook 4.429/ 2.511 t=4.031***, N=630	Facebook < Line 1.006/ 2.620 t=-5.770***, N=618	Line < E-mail 3.072/ 6.126 t=-1.231, N=627
E-mail = Line > Facebook			

* $p < .05$, ** $p < .01$, *** $p < .001$

According to Dimmick's formula for niche overlap (2003), a low score indicates a high degree of niche overlap. The data in Table 3 demonstrate that Facebook and Line had higher degrees of niche overlap with one another than with email in the five gratifications. Therefore, H2 was supported.

Individual's Superiority Scores and Use History for the Three Media

The competitive superiority scores calculated by using Dimmick's formulas combine all respondents' ratings, which are superiority scores for a medium, not for individuals. This study calculated individual superiority scores by adopting the formulas that Feaster modified from Dimmick's formulas (2009). The formula that calculates individual superiority scores includes two sub-formulas: $S_{i>j}$ and $S_{j>i}$. $S_{i>j}$ calculates a score that measures the degree to which medium i is better than medium j , while $S_{j>i}$ measures the degree to which medium j is better than medium i . This study yielded fifteen individual superiority scores. Therefore, fifteen regression analyses were conducted using individuals' superiority scores as dependent variables, the length of time the respondents had used the three media as independent variables, and demographics as control variables. The results are summarized in Table 5.

For the superiority scores of email versus Facebook, the data in Table 5 show that the scores of the five gratifications were negatively correlated with the use history of Facebook. For the superiority score of email versus Line, the scores of the four gratifications were negatively correlated with the use history of Line, but the scores of safe & formal communication were not correlated with the use history of either email or Line. For the superiority scores of Facebook versus Line, the scores of the five gratifications were positively correlated with the use history of Facebook but negatively correlated with the use history of Line. Therefore, H3 was partially supported.

Table 5. Regression Analysis on Individuals' Superiority Scores

	E/F(1)	E/F(2)	E/F (3)	E/F (4)	E/F (5)	E/L(1)	E/L(2)	E/L(3)	E/L(4)	E/L(5)	F/L(1)	F/L(2)	F/L(3)	F/L(4)	F/L(5)
Demographics															
Age	.284***	.302***	.341***	.285***	.164***	.122**	.201***	.240***	.241***	.129**	-.204***	-.186***	-.170***	-.164***	-.068
Edu	.064	.088*	.005	-.069	.119**	.239***	.131**	.046	.011	.156***	.167***	.002	-.001	.118**	.044
Gender	-.016	-.006	-.009	.000	.063	-.048	-.029	-.059	-.032	.020	.008	-.019	-.037	-.025	-.066
R	.320***	.352***	.356***	.301***	.263***	.260***	.264***	.244***	.249***	.235***	.300***	.219***	.209***	.222***	.110
Adjusted R ²	.098	.120	.122	.086	.064	.063	.065	.055	.057	.050	.085	.043	.039	.044	.007
News Media Use															
Email	.023	.041	-.018	-.024	.085	-.020	.033	-.053	-.008	.046					
Facebook	-.138***	-.148***	-.132***	-.107*	-.101*						.225***	.217***	.246***	.146**	.105*
Line						-.174***	-.126**	-.103**	-.149***	-.059	-.179***	-.157***	-.197***	-.144***	-.158***
R	.345**	.378***	.379**	.321*	.283*	.314***	.291**	.271**	.290***	.244	.365***	.293***	.310***	.267***	.181**
Adjusted R ²	.112	.136	.137	.095	.072	.091	.077	.066	.077	.052	.126	.078	.088	.064	.025
Increase adjusted R ²	.014	.016	.015	.009	.008	.028	.012	.011	.020	.002	.041	.035	.049	.020	.018
Sample Size	617	617	617	617	617	611	611	611	611	611	605	605	605	605	605

*= p < .05, **= p < .01, ***= p < .001

E/F(1)= the individual superiority scores of email versus Facebook on factor 1

E/L(2)= the individual superiority scores of email versus Line factor 2

F/L(3)= the individual superiority scores of Facebook versus Line on factor 3

Discussion

Niche Breadth, Competitive Superiority, and the Three Media

In contrast to H1a, this study found that the respondents perceived Facebook to be more capable than Line in terms of the surveillance gratification. The possible explanations for this unexpected finding can be found from the intensive interviews, which revealed three functions that enabled Facebook to be viewed as the most capable in ensuring surveillance gratification: (1) Nineteen of the 20 interviewees identified seeking and sharing information as the strength of Facebook. These interviewees indicated that many of their friends liked to share and present their viewpoints on important news issues in Facebook, and thus, by way of checking Facebook, they would obtain a good understanding of what happened in Taiwan. Furthermore, these interviewees stated that when they had opinions on a certain issue, they liked to share with friends in Facebook because they could obtain support or further suggestions from friends. (2) Fourteen of the 20 interviewees identified sharing one another's status as an important function of Facebook that enabled users to share daily experiences with one another and to obtain new knowledge. (3) Nineteen of the 20 interviewees indicated that they received a great deal of information from professional pages of various types, which allowed them to broaden their views and absorb new information. Therefore, Facebook possesses the best capacity to satisfy individuals' need for surveillance. In particular, the platform of Facebook is suitable for users to view various types of information, including texts, videos, and graphics, and some interviewees preferred to use computers instead of smart phones to check Facebook because larger screens enabled them to view information more comfortably (Ku et al., 2013; Lo & Leung, 2009).

In contrast to H1a, this study found that the respondents perceived Line to be

superior to Facebook in ensuring the gratification of fashion. A possible explanation for this unexpected finding can be found in this study's intensive interviews. Six of the 20 interviewees stated that they used Line because most people used it and that news media frequently reported that Line was popular in Taiwan. Therefore, these interviewees perceived Line as a fashionable medium to use. Similarly, six interviewees stated that they used Facebook because many people used this social medium. However, eleven of the 20 interviewees mentioned Line's stickers as the reason for their use of Line. For example, several interviewees stated that there were various cute stickers that enabled them to vividly express their different emotions and that they also received a variety of stickers from their friends. Line provides a wide variety of stickers to their users, some of which are free and others that are not (Chen, 2016). Several interviewees indicated that they purchased from Line some stickers that were unique and consistent with their images, which enabled them to show their social differentiation from others. Therefore, Line and Facebook had high penetration rates in Taiwan, and both were considered by the respondents to be fashionable social media. However, Line was regarded as more fashionable than Facebook because various vivid stickers allowed them to express their emotions or personal styles.

As predicted by H1b, this study found that Line was perceived to be better than Facebook in the gratification of sociability, which in turn was better than email in this gratification. This finding is consistent with past studies (Chen, 2016) and with the intensive interviews. Line users can engage in one-to-many communication by creating a chat room in which only selected friends can communicate with one another with instant messaging. Line users usually create several chat rooms based on different types of relationship or different tasks, such as a chat room for bible study members, for college classmates, for colleagues of a project, or for close friends

(Chen, 2016; What's next for new media, 2015). For example, eighteen of the 20 interviewees stated that when organizing activities or contacting friends, they preferred to use Line because they could obtain much quicker responses from Line than from Facebook or email, and these rapid responses allowed them to organize events efficiently. These interviewees revealed that Line was designed for the use of smart-phones, and thus, most people checked their Line frequently because they keep their smart-phones close. In addition, the special short ringing of incoming messages from Line enabled users to be aware of the messages awaiting them. By contrast, these interviewees checked their emails only occasionally, such as once every one or two days; hence, it took a long time to obtain responses from others. These interviewees checked Facebook messages more frequently than email messages, but they preferred to use computers for checking Facebook because it was easier to type Facebook messages on computers than on smartphones.

In contrast to H1c, this study found that the respondents perceived Line to be superior to Facebook in the gratification of easy access. Possible explanations can be found in the intensive interviews. (1) Ten of the 20 interviewees indicated that they used Line instead of regular text messaging to send messages when needed because Line was free of charge. In particular, when traveling with friends or family members in another country, they used Line to keep in touch because as long as there was an Internet connection, they could use Line. (2) Eighteen of the 20 interviewees identified convenience and speed as the strengths of Line. Line users exchange information within chat rooms in which users can attach videos, posters, pictures, graphics, or share news stories. One interviewee stated that she had to send a copy of documents that had no electronic versions to her superior when at home, and she used her smartphone to photograph the documents and send the photos through Line to her

superior; she considered this method more convenient than using Facebook or email. With the prevalence of smart-phones, individuals can transcend the constraints of time and space, easily checking their Line (Chen, 2016). Therefore, this study found that the respondents perceived Line to be the best in terms of obtaining the gratification of easy access. (3) Stickers allowed users to express their ideas easily without typing. Several interviewees indicated that they were not good at typing, but by using stickers that corresponded with their feelings or ideas, they could communicate easily with others.

As expected in H1d, this study discovered that the respondents perceived email to be better than Facebook in terms of the gratification of safe & formal communications; this finding is consistent with past studies (Ku et al., 2013; Lo & Leung, 2009; Park et al., 2009). Past studies showed that although email was the oldest among the three media, its unique niches allowed it to provide users with better privacy protection and a tool for formal communications. This finding is also consistent with the intensive interviews, which revealed three reasons that the interviewees regarded email to be useful for the gratification of safe & formal communications. (1) Fifteen of the 20 interviewees identified social norms as the reason to consider email suitable for formal communication. Several interviewees who were graduate students indicated that their universities usually used email to communicate with them regarding academic matters. One interviewee who was a professor stated that her university used email to inform applicants that they had been admitted as graduate students or as faculty members because email, compared to Facebook or Line, was a more formal channel. (2) Nine of the 20 interviewees identified “being able to keep a record” as the reason for using email in formal communications. They stated that it was safe to use email for communications

because all emails that were sent or received could be safely kept in their email accounts. If there was a need, they could search their email accounts to easily locate an email. (3) Ten of the 20 interviewees identified file transfer as the reason for using email. Several interviewees indicated that it was easier to use email to transfer files such as Word files, Power Point files, or Excel files because they could open the files easily and print them immediately.

As predicted by H1d, this study found that the respondents perceived Line to be better than Facebook concerning the gratifications of safe & formal communications. Compared with Line, Facebook has a semi-open interface and is easy for users to see other people's postings. Therefore, Facebook was perceived to be inferior to Line concerning the gratification of safe communication. Furthermore, this study found that Line was perceived to be superior to Facebook concerning the gratification of formal communication. A possible explanation for this finding is that Line has often been adopted by employees in Taiwan's organizations to coordinate task activities. For example, several news reports indicated that the current mayor of Taipei City used Line to issue directives to his team members. Thus, whether or not he was in his office, the mayor was able to work efficiently (SET TV news, 2015, Feb. 6; Hsieh, 2015, Feb. 6). Hence, Line was perceived in Taiwan as a more formal communication tool than Facebook.

This study unexpectedly discovered that Line was perceived to be as useful as email in the gratification of safe & formal communications. A possible explanation for this unexpected finding is that Line was perceived as being better than email in terms of coordinating task activities because Line was convenient and speedy. Meanwhile, with its ability to keep records and transfer files, email should be superior to Line. In fact, several interviewees indicated that it was difficult to find parts of conversations

in Line because the conversations in Line were very long and mixed with jokes, daily conversations, and task matters, which they considered unsuitable for formal communication. Furthermore, file transfer was not convenient in Line because interviewees had to transfer the files onto their computers and print the files using printers. Therefore, the strengths of the two media lie in different aspects of safe & formal communications.

Niche Overlap and the Competition among the Three Media

As hypothesized by H2, Facebook and Line were perceived to have a higher degree of overlap with one another than with email in all five gratifications identified by this study. In other words, this study found that the two newly developed social media, Facebook and Line, had more competitive relationships with one another than either did with email. In general, this study discovered that among the three media, Line had the widest niche breadth, possessed the highest scores of competitive superiority, and competed strongly with Facebook. With its wider niche breadths and higher superiority scores, this study predicts that Line will further take over part of the niche space from Facebook. To become more competitive, Facebook must fortify its strengths, such as the gratifications of easy access and sociability, to create new revenue sources beyond advertising and to differentiate its functions from Line's functions, such as the functions of impression management or marketing. Compared with Line and Facebook, email had a narrow niche, specializing in the gratification of safe & formal communications. Therefore, Facebook and Line were more like generalists, whereas email was a specialist. Studies (Dimmick, Kline, & Stafford, 2000; Ramirez et al., 2008) have shown that email is perceived by users to be better than the telephone in gratification opportunities, whereas this study found that

Facebook and Line had replaced email in terms of its gratification opportunities. For email to survive, it must strengthen its functions of privacy protection and work-oriented communications and become more convenient to use in mobile devices.

Individuals' Superiority Scores and the Use of the Three Media

This study found that most of the superiority scores of email versus Facebook were negatively correlated with the use history of Facebook (Table 5). Similarly, most of the superiority scores of email versus Line were negatively correlated with the use history of Line. However, the superiority scores of Facebook versus Line were positively correlated with individuals' Facebook use history but negatively correlated with individuals' Line use history. These findings indicate that individuals' superiority scores of email versus Facebook or email versus Line could predict only shorter use histories of Facebook or Line, but could not predict consumers' use of email to replace Facebook or Line. However, this study found that displacement behaviors occurred only between Facebook and Line; the superiority scores of Facebook versus Line on the five gratifications were positively correlated with how long individuals had used Facebook but negatively correlated with how long individuals had used Line. Therefore, a slight contrast to niche theory (Feaster, 2009; Gaskins & Jerit, 2012; Ha & Fang, 2012), this study concluded that the superiority scores of one medium versus another medium were able to predict how long individuals had used the superior medium only when these individuals perceived the two media to resemble one another.

Conclusions

This study adopted the theory of the niche as its theoretical framework to examine the gratifications obtained and gratification opportunities from Facebook, Line, and email in Taiwan. The data analysis shows that (1) among the three interpersonal media, Line had the widest niche breadth and the highest scores of competitive superiority and competed strongly with Facebook. This study predicts that Line will further take over part of the niche space from Facebook. (2) Facebook and Line had wide niche breadths, which indicate that they are generalists, whereas email had a narrow niche, which characterizes a specialist in safe and formal communications. (3) This study found that the competitive superiority scores of a medium were a powerful predictor of the use history of that medium only when individuals perceived the two media to resemble one another.

This study adopted both quantitative and qualitative methods to examine the competition among the three interpersonal communication media, which is considered the strength of this study. Niche theory is useful in helping researchers understand the competition among media by calculating scores for niche breadth, niche overlap, and competitive superiority. However, these scores from niche theory do not allow the researchers to understand the competitive relationships among different media in depth. By conducting 20 intensive interviews, this study integrated the interview data with the scores of niche breadth, niche overlap, and competitive superiority to analyze the competition among the three media in depth.

According to Dimmick (2003), there are six resource dimensions in the media industry; this study investigated only two dimensions, gratifications obtained and gratification opportunities. Therefore, one limitation existing in this study is that this study only examined part of the six resource dimensions for the three interpersonal

media; thus, this study's findings may not reflect the overall picture of the relationships among the three media. Future studies should be conducted by using more than two resource dimensions such as Kim, Kim, & Nam (2016)'s study to gain a better understanding regarding the competition among different media. Kim et al.'s study (2016) used three resource dimensions—gratification, gratification opportunities, and time spent using media to examine the competition between Korean traditional pay TV platforms and over-the-top platforms. Another limitation is that this study did not examine how time and location affect media use. Dimmick, Feasters, and Hoplamazian (2010) and Dimmick, Feasters, and Ramirez (2011) investigated the competition among different media by using a time/space diary to determine how time and location influenced media use. Future studies should differentiate media use by time and location to better understand the competition among different media.

Appendix

¹ Niche Breadth

$$B = \frac{\sum_{n=1}^N \left[\frac{(\sum_{k=1}^K GO_n) - Kl}{K(u-1)} \right]}{N}$$

where: (Dimmick, 2003, p. 79)

u, l = the upper and lower bounds of a scale (e.g., 7 and 1)

GO = a gratification obtained rating on a scale

N = the number of respondents using a medium

n = the first respondent

K = the number of scales on a dimension, k = the first gratification scale.

² Niche Overlap

$$O_{i,j} = \frac{\sum_{n=1}^N \sqrt{\sum_{k=1}^K \frac{(GO_i - GO_j)^2}{K}}}{N}$$

Where: (Dimmick, 2003, p. 79)

i, j = medium i and medium j

GO = a gratification obtained rating on a scale for i and j

N = the number of respondents who use both i and j

n = the first respondent.

3

$$\text{SUPERIORITY } S_{i>j} = \frac{\sum_{n=1}^N \sum_{k=1}^K (m_{i>j})}{N}$$

$$\text{SUPERIORITY } S_{j>i} = \frac{\sum_{n=1}^N \sum_{k=1}^K (m_{j>i})}{N}$$

Where: (Dimmick, 2003, p. 80)

i, j = medium i and j

m_{i>j} = the value of a respondent's rating for those scale items on which i is rate greater than j (the sum of the actual values)

m_{j>i} = the value of a respondent's rating for those scale items on which j is rate greater than i (the sum of the actual values)

K = the number of scales on a dimension, k = the first gratification scale

N = the number of respondents who use both i and j

$$^4 S_{i>j} = \sum_{k=1}^K (m_{i>j})$$

$$S_{j>i} = \sum_{k=1}^K (m_{j>i})$$

Where: (Feaster, 2009, p. 975)

i, j = medium i and j

$m_{i>j}$ = the value of a respondent's rating for those scale items on which i is rated greater than j (the sum of the actual values)

$m_{j>i}$ = the value of a respondent's rating for those scale items on which j is rated greater than i (the sum of the actual values)

K = the number of scales on a dimension, k = the first gratification scale

References

- Chang, H. (2015). Facebook uses, boundary spanning Activities, and social capital. *Studies in Media and Communication*, 3(1), 34–46. doi:10.11114/smc.v3i1.777
- Chen, H. H. (2016, June). Platform strategies perspective on the OTT messaging services: A case study of WeChat and Line. Paper presented at the annual conference of International Telecommunication Society, Taipei, Taiwan.
- Cheng, Y., Liang, J., & Leung, L. (2015). Social network service use on mobile devices: An examination of gratifications, civic attitudes and civic engagement in China. *New Media & Society*, 17(7), 1096–1116. doi: 10.1177/1461444814521362
- Dimmick, J., & Rothenbuhler, E. (1984). Competitive displacement in the communication industries: New media in old environments. In R. Rice & Associates (Eds.), *The new media: Communication research and technology* (pp. 287–304). Beverly Hills, CA: Sage.
- Dimmick, J., Kline, S., & Stafford, L. (2000). The gratification niches of personal e-mail and the telephone. *Communication Research*, 27(2), 227–248. doi:10.1177/009365000027002005
- Dimmick, J. W. (2003). *Media competition and coexistence: The theory of the niche*. Mahwah, NJ: Lawrence Erlbaum.
- Dimmick, J., Chen, Y., & Li, Z. (2004). Competition between the Internet and traditional news media: The gratification-opportunities niche dimension. *The Journal of Media Economics*, 17(1), 19–33. doi:10.1207/s15327736me1701_2
- Dimmick, J., Feaster, J. C., & Hoplamazian, G. J. (2010). News in the interstices: The niches of mobile media in space and time. *New Media & Society*, 13(1), 23–39.

doi:10.1177/1461444810363452

Dimmick, J., Feaster, J. C., & Ramirez, A. (2011). The niches of interpersonal media: Relationships in space and time. *New Media & Society*, 13(8), 1265–1282.

doi:10.1177/1461444811403445

Dobos, J. (1992). Gratification models of satisfaction and choice of communication channels in organizations. *Communication Research*, 19(1), 29–51.

doi:10.1177/009365092019001002

SET TV news (2015, Feb 6). Line and Mayor Ke in disasters. Retrieved from <http://www.setn.com/News.aspx?NewsID=60280>.

Feaster, J. C. (2009). The repertoire niches of interpersonal media: Competition and coexistence at the level of the individual. *New Media & Society*, 11(6), 965–984.

doi:10.1177/1461444809336549

FIND (2013, Aug 27). Link and discovery: Something that Facebook tells us. Retrieved from <http://www.slideshare.net/iamwilliam/facebook-25635514>.

Gaskins, B., & Jerit, J. (2012). Internet news: Is it a replacement for traditional media outlets? *The International Journal of Press Politics*, 17(2), 190–213.

doi:10.1177/1940161211434640

Ha, L., & Fang, L. (2012). Internet experience and time displacement of traditional news media use: An application of the theory of the niche. *Telematics and Informatics*, 29(2), 177–186. doi:10.1016/j.tele.2011.06.001

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Hsieh, Y. C. (2015, Feb 6). Line and disaster management by Taipei City's Mayor. *TVBS News*. Retrieved from <http://news.tvbs.com.tw/old-news.html?nid=566161>

- Hung, Y. Y., Lee, S. Y., & Yang, C. R. (2014). How Facebook and Line are used for sales and efficiency in firms. *Cheers Magazine*. Retrieved from <http://www.cheers.com.tw/article/article.action?id=5057972>
- Kim, J., Kim, S., & Nam, C. (2016). Competitive dynamics in the Korean video platform market: Traditional pay TV platforms vs. OTT platforms. *Telematics and Informatics*, 33(2), 711–721. doi:10.1016/j.tele.2015.06.014
- Ku, Y. C., Chu, T. H., & Tseng, C. H. (2013). Gratifications for using CMC technologies: A comparison among SNS, IM, and e-mail. *Computers in Human Behavior*, 29(1), 226–234. doi:10.1016/j.chb.2012.08.009
- Lee, Y. C. (2011). Competitive relationships between traditional and contemporary telecommunication services in Taiwan. *Telecommunications Policy*, 35(6), 543–554. doi:10.1016/j.telpol.2011.04.017
- Lo, C. Y. (2015, Aug 25). A survey on digital life by Common Wealth Magazine. *Common Wealth Magazine*. Retrieved from <http://www.cw.com.tw/article/article.action?id=5070332#>
- Lo, O. W. Y., & Leung, L. (2009). Effects of gratification-opportunities and gratifications-obtained on preferences of instant messaging and e-mail among college students. *Telematics and Informatics*, 26(2), 156–166. doi:10.1080/15205436.2011.568316
- Min, S. J., & Kim, J. M. (2012). Choosing the right media for mobilization: Issue advocacy groups' media niche in the competitive media environment. *Mass Communication and Society*, 15(2), 225–244. doi:10.1016/j.tele.2008.06.001
- Park, N., Kee, K. F., & Valenzuela, S. (2009). Being immersed in social networking environment: Facebook groups, uses and gratifications, and social outcomes. *CyberPsychology & Behavior*, 12(6), 729–733. doi:10.1089/cpb.2009.0003

- Ramirez, A., Dimmick, J., Feaster, J., & Lin, S. F. (2008). Revisiting interpersonal media competition: The gratification niches of instant messaging, E-mail, and the telephone. *Communication Research*, 35(4), 529–547. doi:10.1177/0093650208315979
- Rose, D. (2016, March 15). The state of social media and messaging in Asia: How brands use messaging apps to engage users. Retrieved from <https://www.nexmo.com/blog/2016/03/15/state-of-social-media-and-messaging-in-asia/>.
- Rubin, A. M. (1994). Media uses and effects: A uses-and-gratifications perspective. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research* (pp. 417–436). New Jersey: Lawrence Erlbaum Associates.
- Su, C. C., Lee, F. L. F., & Lin, G. (2016). Does site architecture matter? The political implications of public-versus private-oriented social network sites in China. *Asian Journal of Communication*, 1–20. doi:10.1080/01292986.2016.1235593
- Tsay-Vogel, M. (2016). Me versus them: Third-person effects among Facebook users. *New Media & Society*, 18(9), 1956–1972. doi:10.1177/1461444815573476
- What's Next for New Media (2015, March 4). Why well-known brands rush to cooperate with LINE? Retrieved from <http://whatsnextfornewmedia.com/2015/03/04/>.
- Wu, M. L. (2007). Structural equation modeling: Amos operation and application. (1st ed.). Taipei, Taiwan: Wu Nan Book Inc.
- Wei, R. (2001). From luxury to utility: A longitudinal analysis of cell phone laggards. *Journalism & Mass Communication Quarterly*, 78(4), 702–719. doi:10.1177/107769900107800406