



Interpersonal communication after 9/11 via telephone and internet: a theory of channel complementarity

MOHAN J. DUTTA-BERGMAN
Purdue University, Indiana, USA

Abstract

How did Americans respond to the crisis posed by the terrorist attacks of September 11 ('9/11') in their communicative choices? Proposing the theory of channel complementarity, this article argues that users of a medium who satisfy a particular functional need also use other media types to fulfill that need. Based on an analysis of the data gathered by the Pew Research Center for the People and the Press immediately after the 9/11 attacks, it demonstrates that the individuals who communicated via telephone with family and friends about the 9/11 attacks were also more likely to communicate with family and friends on the internet.

Key words

9/11 • crisis • disaster • internet • interpersonal
communication • media use • telephone • terrorism

The terrorist attacks of 9/11 and the subsequent anthrax threats fundamentally threatened the heart of American society; this unprecedented event in US history captured the attention of the entire nation (Varisco, 2002). Americans were reminded of their vulnerability on their own soil.

How did Americans communicate with each other during the crisis? How did a society that was moving towards a steady decline in interpersonal trust and community participation respond to a terrorist threat that captured the national psyche by fear and threatened to disrupt the day-to-day practices of the average American? (Putnam, 1993, 1995). The communicative processes sparked off by 9/11 are particularly relevant for interrogation because of:

- (1) the unique situation posed by the crisis;
- (2) the sharp increase in the number of communicative choices available to the citizen of the new American millennium; and
- (3) the importance of examining the relationship among media types in the context of usage.

This study will examine the relationship between the internet and telephone use in the realm of interpersonal communication in response to the 9/11 attacks.

In the years succeeding the introduction of the internet into American life, researchers have been particularly interested in studying the impact of the internet on interpersonal communication (Nie and Erbring, 1991). Much of the research on the relationship between the internet and interpersonal communication has been driven by the idea that the internet will displace some of the more traditional forms of interpersonal communication (Nie, 2001; Putnam, 1993, 1995). Although this research program has focused primarily on face-to-face communication as the communicative channel threatened by the internet, very little research has been conducted in the area of telephone-based communication and the internet (Nie, 2001). Telephone-based communication is a ubiquitous part of modern American life; therefore, it is worthwhile to examine how the advent of the internet has had an impact on the ways in which individuals communicate with each other via the telephone. This relationship is especially worthy of investigation in the context of a crisis. In the following sections, first, the literature on communication during crisis will be reviewed; second, this will be followed by a review of the competing channel and motivation-based frameworks of media use. Based on the literature reviews, hypotheses will be developed that will be tested subsequently by data gathered by the Pew Research Center for the People and the Press during the period following the attacks.

COMMUNICATION DURING CRISIS

What do citizens do when faced with a crisis? In what types of activities and communicative practices do they engage? How do they communicate with each other during the crisis? An impressive body of literature on social support during crises describes the relational networks of participants; this body of work answers broad questions such as: 'Who would you ask for

money during an emergency?’ ‘Who would you ask for advice?’ ‘Who would you talk to?’ (Shavit et al., 1994). This descriptive research outlines the relational networks that encompass individuals and provide them with a rich resource of social support during crisis situations (Shavit et al., 1994).

Researchers have also explored the role of social support and personal relationships in sustaining the mental and physical health of the victims of a crisis (Cohen and Wills, 1985; Figley, 1985; Schwarzer and Leppin, 1991). Specifically during disasters such as wars, tornadoes and floods, social support plays a critical role in the victims’ abilities to cope with, and recover from, the disaster (Figley, 1985; Solomon, 1985; Solomon et al., 1993). An increase in social support, or the perception of social support, improves the morale of the victim and also generates better practical aid for the victim (Figley, 1985; Solomon, 1985; Solomon et al., 1993). The fact that community disasters often do not lead to large outbreaks of mental illness is a product of the ability of the personal network to mobilize spiritual, mental and physical support for the victim of the disaster. Most often during crises, victims turn to relatives, although having non-kin friends in one’s social support network is critical for both the immediate and long-term well-being of the individual. Systematic differences are also documented within populations with respect to the different sources of social support for victims of disasters; individuals from higher socioeconomic backgrounds are more likely to enlist support from non-kin, while much of the social support for individuals from lower socioeconomic backgrounds comes from family members and relatives (Bolin, 1982; Figley, 1985; Kaniasty and Norris, 1993). At the crux of the ‘individual differences’ line of research is the notion that individuals differ in their participation in social support networks in the face of a crisis; while some individuals participate actively in interpersonal networks when hit by a crisis, other individuals do not actively seek out and participate in their interpersonal networks. In the following section, the literature on the relationship between media types will be reviewed, followed by a review of the literature on the motivations underlying media choice.

COMPETING CHANNEL FRAMEWORK

The relationship between media types has been the subject of research in mass communication since the pioneering work of Lazarsfeld (1940) on the displacement effect of radio on the print medium. The appearance of every new form of technology, including television, cable television, videocassette recorders (VCRs) and computer-mediated communication (CMC) has commanded the interrogation of its effects on existing forms of technology (Henke and Donohue, 1989; Kaplan, 1978; Mendelsohn, 1964; Sparkes, 1983). Under the displacement rubric, media types are conceptualized

within a competing framework, articulating an ongoing struggle for resources such as time and money.

Displacement theorists argue that consumption of different media is driven by a 'zero-sum' game in the competition of audience and revenue resources (Kayany and Yelsma, 2000). In other words, the viewership or readership of one particular medium leads to the reduction in the amount of time spent by the individual on another medium. The introduction of a new medium therefore reduces the amount of time that individuals allocate to existing media, ultimately leading to the displacement of existing media by new media forms (Henke and Donohue, 1989; Kayany and Yelsma, 2000). The competition-oriented notion is also present in media constancy theory, pointing out the limited resources in the media landscape that lead to competition. Competition occurs when there is an overlap in the resources used by the different media types. In addition to the displacement-based approach, yet another framework which provides cues for hypothesis building with regards to the relationship between media types is the motivation-based framework.

MOTIVATION-BASED FRAMEWORK

That underlying motivations shape media choice has been the subject of selective exposure theory (Finn, 1997). Selective exposure theorists argue that individuals orient their attention to specific stimuli in their environment, driven by an underlying motivation to select certain communicative choices that fulfill their dispositional needs (Zillmann and Bryant, 1985). Therefore, the interpersonally-oriented individual is likely to be oriented towards consuming a wide variety of communicative choices that fulfill his or her needs of engaging in interpersonal communication. Perhaps he or she is going to talk on the telephone, chat on the internet, receive and send emails, write letters, etc. What all these different forms of communicative choice have in common is that they serve as conduits of interpersonal communication. The example provided here is founded on the idea that systematic differences exist in the consumption of communication vehicles among individuals within a population. Also, systematic correlations are expected within individuals and content areas in the consumption of different communication channels.

The role of audience predisposition in media choice has been investigated extensively in the domain of audience exposure to violent television material, indicating that individual aggressiveness is associated with the viewership of violent television programming (Atkin, 1973). Selective exposure effects documenting the link between a particular predisposition and the exposure to media content that matches the disposition are observed also in the area of pro-social behavior and political and moral values (Atkin, 1973, 1985; Zillman and Bryant, 1985). Pointing out the match between

disposition and content choice, Atkin suggested the role of reinforcement theory in media choice (Atkin, 1973, 1985). Reinforcement theory argues that individuals prefer messages that are supportive of their predispositions (Atkin, 1973, 1985). Therefore, media content reinforces individual disposition and is chosen, based on its congruence with existing beliefs, attitudes and behaviors.

Underlying selective exposure theory is the concept that exposure to different media content is a product of active choice. This point is exemplified in the definition of exposure as 'an act of choice in which an individual selects from a range of possible activities or messages' (Webster and Wakshlag, 1985: 37). Typically, selective exposure theory is placed within a social psychological framework, suggesting that a person's predisposition to act a certain way interacts with his or her situation to produce underlying motivations that, in turn, drive the exposure to particular media activities. Worth noting here is a consistent underlying interest that manifests itself in the choice to read, watch or listen to specific media content. As a consequence, complementarity or congruence is observed in consumption of specific communicative functions across a variety of media types. The individual is loyal to particular communicative functions based on his or her underlying drives and satisfies these functional needs by consuming different media types.

An individual who is interested in one type of issue is perhaps likely to be interested in the coverage of that issue on a wide variety of media platforms. Therefore, individuals who are interested in one particular communicative function are likely to use both traditional and new media to gratify their functional needs with respect to that particular domain. Users of online channels in a specific domain, in other words, are also more likely to be users of traditional channels in that particular domain. In the context of media complementarity then, the differences revealed between user and non-user groups reflect a difference in preference for a particular communicative function, as opposed to a difference in other factors, such as access to the internet, familiarity with online news, use of online news, etc.

Extrapolating the notion of complementarity to the domain of interpersonal communication, it may be argued that individuals who use the telephone to engage in interpersonal communication about the 9/11 attacks also will be more likely to use the internet for interpersonal communication about the attacks (Dutta-Bergman, 2004). This complementarity between telephone-based and online communication arises out of the individual's interpersonal orientation towards receiving and providing social support in the face of a crisis; the interpersonally-oriented individual participates actively in his or her social support networks when disaster strikes and uses a wide variety of channels to satisfy his or her functional need for interpersonal communication. Variances within the population then, with

respect to the use of a medium for providing and receiving social support, are a product of individual-level variance within the population with respect to: (1) a general orientation toward interpersonal communication and social support; and (2) the likelihood of using technology for such interpersonal communication. The complementarity of the interpersonal function for new and traditional media may be expected in the realm of communication with both kin and non-kin. Based on the notion of complementarity, the following hypotheses are proposed.

- H1a: Individuals who called a family member to talk about the attacks will be more likely to engage in online interpersonal communication about the attacks than individuals who did not call a family member to talk about the attacks.
- H1b: Individuals who called a friend to talk about the attacks will be more likely to engage in online interpersonal communication about the attacks than individuals who did not call a friend to talk about the attacks.

Yet another realm of research that is worth exploring ties in with the demographic profile of individuals who used the internet for social support in the period following the crisis. Do individuals that use the internet for communicating with family and friends differ from individuals who do not use the internet for communicating with family and friends during a crisis? The different categories of online communication examined in the context of demographics are:

- (1) emailing friends;
- (2) emailing family members;
- (3) providing and/or receiving online consolation;
- (4) receiving or sending online accounts of survivors or victims;
- (5) receiving emails from people with whom the respondents have not communicated for several years; and
- (6) sending emails to people with whom the respondents have not communicated for several years.

RQ1a: In the aftermath of 9/11, how did individuals who emailed friends about the crisis differ from individuals who did not email friends about the crisis in their demographic profile?

RQ1b: In the aftermath of 9/11, how did individuals who emailed family members about the crisis differ from individuals who did not email family members about the crisis in their demographic profile?

RQ1c: In the aftermath of 9/11, how did individuals who received and/or sent online consolation about the crisis differ in their demographic

profile from individuals who did not receive and/or send online consolation about the crisis?

RQ1d: In the aftermath of 9/11, how did individuals who received or sent accounts of survivors or victims online differ in their demographic profile from individuals who did not receive or send accounts of survivors or victims online?

RQ1e: In the aftermath of 9/11, how did individuals who reported receiving emails from people they had not spoken to in several years differ in their demographic profile from individuals who did not report receiving emails from people they had not spoken to in several years?

RQ1f: In the aftermath of 9/11, how did individuals who reported sending emails to people they had not spoken to in several years differ in their demographic profile from individuals who did not report sending emails to people they had not spoken to in several years?

METHOD

Data

The data used for testing the hypotheses were gathered by the Pew Research Center for the People and the Press. The Pew Center conducts national surveys of individuals' media and technology consumption. To avoid 'listing' bias and provide representation of both listed and unlisted numbers, sample for the surveys are random digit samples of telephone numbers selected from telephone exchanges in the continental US. The design of the samples ensures this representation by random generation of the last two digits of telephone numbers that were selected on the basis of their area code, telephone exchange and number. Also, the number of telephone numbers randomly sampled from within a given county is proportional to that county's share of telephone numbers in the US. The survey used in this study was conducted in October 2001 following the 9/11 attacks.

Participation in telephone-based surveys tends to vary by the different subgroups of the population, leading to non-response biases. In other words, owing to their orientation, some groups within the population are particularly likely to participate in such surveys as compared to other groups. In order to compensate for these known biases, the sample data are weighted in the analysis and the demographic weighting parameters are derived from a special analysis of the most recently available US Census Bureau Current Population Survey. An iterative technique that simultaneously balances the distributions of all weighting parameters is used to derive the weights. The entire sample was weighted on age, sex, race/ethnicity, income and household size to reflect the US Census population. Usable data were obtained from 1301 individuals. After weighting the data, the mean age of the respondents of the study was 46.36 ($SD = 18.86$). The sample was comprised of 49 percent men and 51 percent women.

Measurement

In order to measure the use of the internet for interpersonal communication in response to the 9/11 attacks, respondents were asked: 'Now thinking about the ways that some people used email after the terrorist attacks, have you. . .?' Specific items measuring internet use for interpersonal communication were:

- 'Gone online to send email to family members because of the news';
- 'Gone online to send email to friends because of the news';
- 'Used instant messaging to communicate with someone about the attacks';
- 'Received or sent email messages of consolation';
- 'Received or sent accounts of survivors or victims online';
- 'Gotten emails from people you hadn't spoken to in several years'; and
- 'Sent any emails to people you hadn't spoken to in several years'.

Interpersonal communication via telephone was measured by giving the respondents the following general instruction: 'Now I'd like to ask some questions related to the terrorist attacks on the World Trade Center in New York and on the Pentagon in Washington and the aftermath of the attacks on September 11'. Specific items measuring interpersonal communication via telephone were: 'Have you called a family member to talk about the attacks'; and 'Have you called a friend to talk about the attacks?'. Responses were measured in a dichotomous yes/no format.

The demographic variables included in the study are age, gender, education and income. Age was measured by numeric response to the question: 'What is your age?' A dichotomous scale measured gender, with 1 representing 'male' and 2 representing 'female'. Income was measured by the question: 'Last year, that is in 1999, what was your total family income from all sources, before taxes?' The item was measured on a scale of 1 to 8:

- 1 – 'less than \$10,000';
- 2 – '\$10,000 to \$20,000';
- 3 – '\$20,000 to \$30,000';
- 4 – '\$30,000 to under \$40,000';
- 5 – '\$40,000 to under \$50,000';
- 6 – '\$50,000 to under \$75,000';
- 7 – '\$75,000 to under \$100,000'; and
- 8 – '\$100,000 or more'.

Education was measured by the question: 'What is the last grade or class that you completed in school?' The item was measured on a scale of 1 to 7:

- 1 – ‘none or grade 1–8’;
- 2 – ‘high school incomplete’;
- 3 – ‘high school graduate’;
- 4 – ‘business, technical, or vocational school after high school’;
- 5 – ‘some college, no four-year degree’;
- 6 – ‘college graduate’; and
- 7 – ‘postgraduate training or professional schooling after college’.

RESULTS

Given the comparison of users and non-users of telephone-based and email-based interpersonal communication, cross-tabulations were conducted to test the hypotheses (see Table 1). Hypothesis 1a stated that individuals who called a family member to talk about the attacks will be more likely to engage in online interpersonal communication about the attacks than individuals who did not call a family member to talk about the attacks. In support of the hypothesis, when compared to the non-users of telephone-based interpersonal communication, study participants that called a family member to talk about the attacks were significantly more likely to send email to friends and family because of the news. Also, they were significantly more likely to receive or send email messages of consolation. A significantly greater percentage of users of telephone-based communication about the attacks reported having received or sent accounts of survivors or victims online, compared to the percentage of non-users of telephone-based communication. In the realm of receiving emails from people who they had not spoken to in several years, a significantly greater percentage of telephone users reported receiving emails from people they had not spoken to in several years than non-users. Similarly, individuals that reported having called a family member about the attacks were significantly more likely to send emails to people they had not spoken to for several years as compared to individuals that did not call a family member about the attacks.

Hypothesis 1b compared the online communication behavior of individuals that called a friend to talk about the 9/11 attacks with individuals that did not. The results supported the hypothesis, with individuals who participated in telephone-based interpersonal communication with friends being more likely to use the internet for interpersonal communication than individuals who did not. A significantly greater percentage of respondents that called their friends to talk about the attacks reported having emailed friends about the attacks as compared to the respondents that did not call their friends. Also, individuals who called their friends were significantly more likely to email family members about the attacks than individuals who did not call their friends. In the realm of communicating consolation messages online, telephone users were more

• Table 1 Comparison of online and telephone-based communication with family

TELEPHONE COMMUNICATION	ONLINE COMMUNICATION		χ^2
	Yes	No	
Called family member			
	Emailed friends		
Yes	181 (37.9%)	294 (61.6%)	23.22**
No	41 (19.7%)	167 (80.3%)	
	Emailed family		
Yes	143 (30%)	332 (69.6%)	8.08*
No	42 (20.2%)	166 (79.8%)	
	Consolation messages		
Yes	131 (27.4%)	342 (71.5%)	24.12**
No	24 (11.5%)	177 (85.1%)	
	Survivor/victim accounts		
Yes	83 (17.4%)	391 (81.8%)	8.80*
No	20 (9.6%)	188 (90.4%)	
	From people hadn't spoken to		
Yes	91 (19%)	385 (80.5%)	19.49**
No	13 (6.3%)	195 (93.8%)	
	To people hadn't spoken to		
Yes	89 (18.7%)	388 (81.3%)	28.73**
No	10 (4.8%)	195 (93.8%)	

* $p < .05$; ** $p < .001$

likely to console others through the online medium than non-users. Similarly, a greater percentage of those who reported having used the telephone to talk to friends were likely to use the internet to receive or send out survivor or victim accounts when compared to those participants who did not use the telephone to talk to friends about the attacks. Users of the telephone for communicating with friends about the attacks also reported having received online communication from, and sent online communication to, people they had not spoken to for years (see Table 2).

RQ1a sought to interrogate the differences between the users and non-users of the internet in the realm of interpersonal communication (see Table 3). Study participants who reported having emailed friends to communicate about the attacks were significantly more educated, younger and earned more than the respondents who did not report having emailed friends about the attacks. In response to RQ1b, it was observed that participants who emailed family members about the attacks were significantly more educated and reported greater income than individuals who did not. RQ1c examined the demographic differences between those individuals that sent and/or received consolation messages and other individuals that did not participate in the online environment with respect to sending and/or receiving consolation messages; participants who communicated consolation messages on the internet reported greater income than their counterparts, while no significant differences were observed in the realms of age and education.

• Table 2 Comparison of online and telephone-based communication with friends

TELEPHONE COMMUNICATION	ONLINE COMMUNICATION		χ^2
	Yes	No	
Called friend			
	Emailed friends		
Yes	170 (40.2%)	253 (59.8%)	33.10**
No	52 (19.8%)	208 (79.4%)	
	Emailed family		
Yes	133 (31.5%)	287 (68%)	13.45**
No	51 (19.5%)	211 (80.5%)	
	Consolation messages		
Yes	121 (28.6%)	295 (69.7%)	22.80**
No	34 (12.9%)	224 (85.2%)	
	Survivor/victim accounts		
Yes	75 (17.7%)	348 (82.3%)	11.76*
No	29 (11%)	230 (87.5%)	
	From people hadn't spoken to		
Yes	84 (19.9%)	337 (79.7%)	20.25**
No	20 (7.6%)	242 (92.4%)	
	To people hadn't spoken to		
Yes	72 (17%)	348 (82.3%)	8.05*
No	27 (10.3%)	236 (89.7%)	

* $p < .008$; ** $p < .001$

Study respondents who reported using email to share accounts of survivors and/or victims were more educated, as compared to those respondents who did not. Individuals who received emails of support from friends and relatives with whom they had not spoken in several years were younger than individuals who did not receive such communication; also, individuals who had sent out emails of support to friends and family members with whom they had not spoken for many years were younger and less educated than individuals who did not report engaging in such communication.

DISCUSSION

The study results support the notion of channel complementarity in the realm of interpersonal communication. Individuals who participated in telephone-based communication about the events of 9/11 were also more likely to use the internet for a plethora of interpersonal functions in the context of the 9/11 attacks. The results were upheld across both kin and non-kin communication. In the realm of communication with kin via telephone, when compared with non-users of telephone for interpersonal communication about the attacks, telephone users for interpersonal communication were significantly more likely to use the internet to email friends and family members, send and receive consolation messages and survivor and victim accounts, and send emails to and receive emails from

• Table 3 Demographic differences between online users and non-users

CATEGORY	DEMOGRAPHICS	ONLINE USER	ONLINE NON-USER	<i>t</i>
Emailed friends	Age	37.54 (13.68)	41.66 (15.67)	3.35***
	Education	5.25 (1.38)	4.71 (1.56)	4.40***
	Income	6.18 (2.24)	5.72 (2.26)	2.49**
Emailed family	Age	40.81 (15.45)	38.68 (14.28)	1.63
	Education	4.75 (1.54)	5.23 (1.45)	3.72***
	Income	5.72 (2.23)	6.31 (2.31)	3.03**
Consolation messages	Age	38.41 (15.69)	40.86 (15.02)	1.76
	Education	5.01 (1.41)	4.84 (1.55)	1.24
	Income	6.41 (2.28)	5.74 (2.24)	3.23***
Survivor/victim account	Age	37.48 (12.45)	40.74 (15.59)	2.01
	Education	5.48 (1.17)	4.76 (1.56)	4.50***
	Income	5.67 (2.30)	5.91 (2.26)	.97
From people hadn't spoken to	Age	36.53 (13.53)	40.95 (15.36)	2.74**
	Education	5.01 (1.65)	4.86 (1.50)	.95
	Income	5.62 (2.31)	5.92 (2.25)	1.25
To people hadn't spoken to	Age	35.67 (13.54)	41.16 (15.24)	3.37***
	Education	4.84 (1.72)	4.89 (1.49)	.31
	Income	5.36 (2.24)	5.96 (2.20)	2.26

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

people with whom they had not spoken in several years. Communication with non-kin via telephone showed a similar pattern, with those who engaged in telephone conversations with friends about the 9/11 attacks also being more likely to email friends and family members, send and receive consolation messages and survivor and victim accounts, and receive email from and send emails to people with whom they had not spoken in several years. Usage of the telephone matched usage of the internet for receiving and providing social support and for participating in interpersonal communication with network members.

The interpersonally-oriented study participants demonstrated an overall orientation towards taking part in their interpersonal networks to provide and receive support from both kin and non-kin; they used both the telephone and the internet to draw on their social support networks during a time of crisis. In this context, the use of a traditional medium such as the telephone for supportive interpersonal communication is complemented by the use of the internet for social support. The notion of channel complementarity suggests that new media forms perhaps co-exist with traditional media forms in fulfilling specific communicative functions; in this case, both the telephone (a traditional media form) and the internet (a new media form) satisfied the social support needs of the respondents. In a period of crisis following the attacks of September 11, both media forms acted as conduits of supportive interpersonal communication among members.

What is not investigated in this research is the extent to which individuals participated in face-to-face communication after the attacks of September 11. This research poses worthwhile questions for future investigation. It would be worth interrogating whether the face-to-face interpersonal communication that is generated in response to the crisis demonstrates similar patterns and fits into the complementarity framework. Do individuals who participate in face-to-face communication also engage in telephone-based and internet-based interpersonal communication in response to a crisis?

This article set out to investigate the media complementarity between traditional and new media in the realm of interpersonal communication. It demonstrated that consumers are likely to be loyal to specific communicative functions across media types. In highlighting a function-driven approach, it challenged the techno-deterministic notion that the medium is the key player (McLuhan, 1964), not the message content. The alternative viewpoint articulated in this research is that the function served by a medium drives its consumption and needs to be given greater attention in mass communication research. This study showed that function is a critical ingredient in media choice. Future research needs to examine other media functions (such as news-gathering, passing time, etc.) beyond interpersonal communication, in order to test the robustness of the theory of channel complementarity. Also, questions related to the frequency of use of online and telephone communication need to be asked and examined in future research.

Comparison of the internet users with non-users revealed significant demographic differences. First, individuals using the internet for interpersonal communication in response to the 9/11 crisis were more likely to be younger than non-users of the internet for interpersonal communication. Second, users of the internet for interpersonal communication in response to the attacks were significantly more educated than non-users. Finally, people that went online to communicate with family and friends earned significantly more than the respondents who did not report having emailed family and friends about the attacks. The demographic profile of the internet user for interpersonal communication in the post-9/11 period reflects the demographic profile of the internet user.

One of the limitations of this study is in its reliance on secondary data. While secondary data often provide an exploratory starting point for theory building and testing, they also suffer from the limitation of not providing a comprehensive framework for theory testing. Important questions, albeit critical to the theory, become left out. The data drive the research questions and theoretical foundations instead of the theory. In that vein, it is important to acknowledge that this article evokes additional questions that are not answered here. Further research is needed to narrate the

complementary relationship between new and traditional media in specific functional domains.

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MOHAN J. DUTTA-BERGMAN is an assistant professor in the department of communication at Purdue University.

Address: Department of Communication, Purdue University, 2477 Musket Way, West Lafayette, IN 47906, USA. [Email: mdutta-bergman@sla.purdue.edu]
