

# Interactive Features of Online Newspapers: Identifying Patterns and Predicting Use of Engaged Readers

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*This study seeks to identify 1) categories of interactivity, which are promoted through different types of interactive features, 2) patterns of online newspaper readers' uses of interactive features, and 3) factors, if any, that predict the use of different types of interactive features. Based on an online survey of 542 respondents, four categories of interactive features were identified. Findings show that interactive features are generally used infrequently, especially the features that facilitate human-to-human communication and the features that allow audiences to express their views. Regression analyses show that different user characteristics and backgrounds predict the use of specific types of interactive features. This study illustrates that news organizations need not worry about applying all types of interactive features to engage their readers as the features serve distinct functions. Instead, news organizations should focus on building credibility and may seek to identify their online news audiences and then subsequently provide interactive features accordingly. (152)*

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## Interactive Features of Online Newspapers: Identifying Patterns and Predicting Use of Engaged Readers

The potential of “interactivity” has fueled extraordinary anticipation over the adoption of a two-way communication model in the news industry. Interactivity, a quality of new media and the Internet in particular, fundamentally challenges the traditional one-way directional flow of news by providing news audiences with increased choice options and even allowing them to participate in the production of information. Interactivity, thus, has the potential to transform the nature of traditional journalism practice through online news. Journalism is at a crossroads with its content and form evolving daily through multimedia platforms and numerous hyperlinks that easily allow readers to select stories. Most importantly, online newspapers are encouraged to share their control of news presentation with the audience by allowing increased

communication among readers, promoting back-and-forth conversations between newsroom personnel and the audience, and providing opportunities for personalized journalism.

While online news publications and their application of interactivity have been scrutinized (Li, 1998; Massey & Levy, 1999; Schultz, 1999; Chan-Olmsted & Park, 2000; Chung, 2004), little has been done to analyze and categorize the various interactive features that promote interactivity. Present studies also fail to illuminate the extent to which news audiences engage in interactivity, and the characteristics and backgrounds of online news audiences who engage themselves with online newspapers are absent in the literature. With information gathered through an online survey of readers from a local online newspaper, this study attempts to identify 1) categories of interactivity, which are promoted through different types of interactive features, 2) online newspaper readers' uses of different types of interactive features, and 3) factors, if any, that predict the use of different categories of interactive features.

## Literature Review

### The (R)Evolution of News—From Print to Online

The newspaper is one of the oldest elements of contemporary media (Boczkowski, 2004) and has long been considered the primary model of information delivery (McQuail, 1994). Today there exist over 1,400 newspapers representing a \$55 billion industry (Newspaper Association of America, 2007). Yet there has long been concern with the top-down communication model of newspapers. Critics contend that the mass media have imposed a one-way discussion and argue that they largely produce messages independently from news audiences (Habermas, 1962; Schultz, 1999). Critics also note the lack of intense political discussion and citizen dialogue opportunities available through traditional media channels (Barber, 1984; Habermas, 1996). The civic journalism movement, which flourished in the 90s, is based on such discontent with the news industry. This movement attempted to reconnect with communities by actively communicating with the news audiences and favoring issues important to ordinary citizens (Rosen, 1992; Charity, 1995; Merritt, 1998). Civic journalism today has further grown into community or participatory journalism that promotes interactive engagement between newsrooms and their communities (Bowman & Willis, 2003).

The Internet is only the latest to challenge traditional news delivery methods. However, the implications of its influences are profound. While traditional news media have delivered information through a top-down, centralized model with journalists functioning as gatekeepers of information, online news media present greater opportunities for control and ownership as users assume more active roles in their news consumption experiences.

The popularity of online newspapers (Annual Report on American Journalism, 2006) can be attributed to the interactive quality of the Internet. Journalists expect to

bring people “closer to the news” by adopting interactivity in their online presentation of the news (Brown, 2000). The immediate back-and-forth communication is a new quality in the relationship between news publications and their audiences, and research suggests that online readers find this interaction valuable (Pew Research Center for the People and the Press, 1999). The Digital Journalism Credibility Study (2003) claims that the interactive nature of e-mail links, chats and message boards are the essence of the medium and has the potential to recreate community. In general, interactivity is considered to be a positive characteristic of new technologies. Rafaeli (1988) writes that the consequences of interactivity are satisfaction, motivation, sense of fun, cognition and learning.

### **Interaction, Interactivity and Interactive Features on Online News Publications**

Interactivity stems from the sociological concept of interaction where it is defined as the relationship between two or more people, who, in a given situation, mutually adjust their behaviors and actions to each other (Jensen, 1998). Duncan (1989) refers to interaction as the state of reciprocal awareness. In the last 10–15 years the concept of interaction has found its way into the discussion of new communication technologies, such as the Internet. Communication scholars have, thus, discussed interaction online as “interactivity.” Many communication researchers use face-to-face communication as the standard of interactivity and evaluate the interactivity offered by websites based on how closely it resembles such communication (Walther & Burgoon, 1992). While interactivity itself is not equivalent to interaction, the ideal of interactivity, however, has been discussed through the framework of “the conversational ideal (Schudson, 1978).” Some scholars have challenged this movement (Rafaeli, 1988), yet the numerous definitional models offered for interactivity suggest that “the conversational ideal” is still an ideal to embrace.

Thus far, interactivity has been discussed through various definitional models (Bordewijk & van Kamm, 1986; Rogers, 1986; Rafaeli, 1988, Rafaeli & Sudweeks, 1997; Heeter, 1989; Steuer, 1995; Kiousis, 2002). While there are numerous definitions of interactivity that cover considerable ground, a helpful way that scholars have conceptualized interactivity is through the distinction of medium interactivity from human interactivity (Outing, 1998; Lee, 2000; Stromer-Galley, 2000, 2004; Bucy, 2004; Chung, 2007). *Medium interactivity*, also known as user-to-system/document or content interactivity, is interactive communication between users and technology that is based on the nature of the technology itself and what the technology allows users to do. *Human interactivity*, also known as user-to-user or interpersonal interactivity, on the other hand, is communication between two or more users that takes place through a communication channel. Stromer-Galley (2000) considers human interactivity to be more interactive than medium interactivity because she finds this kind of interaction to be the foundation for public deliberation.

In this study interactivity is defined as a multi-dimensional construct that is on a continuum of medium to human interactivity. While interactivity is represented on a continuum, the categories of interactivity are manifested through various different forms of interactive features that fall on that continuum. For example, features representing medium interactivity solely rely on the technology to allow users to exert control and are considered as lower levels of interactivity. Interactive features that characterize medium interactivity include send-article-to-friend options, audio and video downloads and photo galleries.

Those features that utilize characteristics of medium interactivity and also allow partial human-to-human communication are considered middle-ground interactive features. This category exemplifies the medium-to-human interactivity continuum and resides between the two extremes of medium interactivity and human interactivity. These features, that allow customization options, provide the means for users to tailor information to their liking and/or share and express their views, but these features generally do not support the exchange of ideas. Thus, interactive features that represent this category include information customization features—such as weather and topic customization—and content submission features—such as news tips, news stories and photo submissions—and polls.

Finally, features that promote human interactivity that facilitate user-to-user mutual communication, or interpersonal communication, are considered as higher levels of interactivity. These features can be characterized through e-mail links, message boards and chat features. Using these features require more effort in that individuals must do more than clicking or selecting in order to actively use them. Human interactivity is considered to contribute to the key distinction between traditional forms of news delivery and online news in that the audience, if desired, can participate as active agents through interpersonal communication.

Deuze (2003) also translates interactivity dimensions for the design of news websites into navigational interactivity, adaptive interactivity and functional interactivity. Navigational interactivity, like medium interactivity, allows users to “navigate” a site with hyperlinks and menu bars. Adaptive interactivity, much like the blending of medium and human interactivity, allows the users’ experiences to have consequences on site content. Functional interactivity, much like human interactivity, allows users to communicate with other individuals. The interactivity model suggested for the current study, thus, builds on this conceptualization of interactivity of online news publications.

In this study, the first aim is to examine whether indeed certain interactive features offered by newspaper websites share common ground and if these interactive features serve distinct functions. Thus, the following research question is posed:

**RQ1:** What categories of interactive features exist on online newspapers?

### **Interactivity on Online News Publications and Online News Audiences**

Outing (1998) says for a news site to be truly interactive it must facilitate communication between humans through human interactive features. He argues that the

Internet is a two-way medium, and for sites to excel at “interactivity,” they must bring people together and promote communication among Web users as well as communication between Web users and Web staff members and managers.

A number of studies have thus attempted to examine online newspapers’ use of both human and medium interactive features. However, the majority of these studies have discovered that online news publications have failed to fully take advantage of the unique characteristics of the Internet (Schultz, 1999; Massey & Levy, 1999; Chan-Olmsted & Park, 2000; Kenney, Gorelik & Mwangi, 2000; Rosenberry, 2005; Ye & Li, 2006). Positive accounts of news publications’ implementation of interactivity with increasing sophistication in form and content over time exist (Chung, 2004; Salwen, 2005; Greer & Mensing, 2006). Overall, however, this body of literature, which is predominantly based on the U.S. media environment, overwhelmingly continues to find that the use of various interactive features among online news sties is largely limited. Because of these findings, online news publications have been heavily criticized for the lack of exploitation of interactivity—especially human interactivity that encourages dialogic communication.

While studies suggest that news consumers welcome the interactive nature of online news and particularly value features that facilitate two-way communication (Pew Research Center for the People and the Press, 1999), little is known about how online news audiences make use of the various interactive features offered by news publications. There exists a significant push for online publications to adopt interactivity, but how news audiences are using interactive features has not been examined in depth. What little we do know about online news audiences’ use of interactive features comes from studies reported by the Pew Research Foundations. The Pew Research Center for the People and the Press (2006) mentions online news audiences’ uses of search engines, news updates and alerts. Recent reports by the Pew Internet & American Life Project also briefly inform on the uses of online news videos (2007a) and posting comments to online news groups (2007b). Yet the extent of what we know about online news readers and their uses of interactive features stops here, and little effort has been made to further examine online newspaper consumers’ experiences with interactivity.

Based on the dearth of information about online news audiences and their experiences of interactivity with online newspapers, this study also assesses how frequently online news audiences are making use of various types of interactive features.

**RQ2:** To what extent are online newspaper audiences making use of different types of interactive features as identified by RQ1?

### **User Characteristics and Backgrounds**

Over the years, studies have offered an increasingly sophisticated portrait of the Internet news audience—who they are, what uses they make of online news sites, and why they visit online news sites (Jeffres & Atkin, 1996; Hwang & He, 1999;

Althaus & Tewksbury, 2000; Ferguson & Perse, 2000; Papacharissi & Rubin, 2000; Pew Internet & American Life Project, 2003; Pew Research Center for the People and the Press, 2004, 2006). However, a discussion of online news audiences' uses of interactive features and lifestyle associations are almost completely absent in the literature. In this study, user characteristics, attitudes and behaviors of news consumers are examined to find relationships between uses of various interactive features.

**RQ3:** What user attributes, if any, are associated with the use of different types of interactive features as identified by RQ1?

While audience characteristics related to uses of interactive features have not been examined, audience characteristics related to general online use, such as length of online experience, perceived Internet skill level and perceived media credibility, have been studied by researchers.

Studies have suggested that those who have been online longer have greater online know-how (UCLA Internet Report, 2003) and have developed better strategies for finding information online (Peterson, 1999). The Stanford Institute Study (Nie & Ebring, 2000) found that people who spent more years online engage in more online activities. Johnson and Kaye (2004) found that number of years users have been online is positively correlated with Internet proficiency. These findings suggest that these individuals may feel more comfortable exploring newer ways to experience news through various interactive features.

**H1:** Years online will be a positive predictor of use of interactive features as identified by RQ1.

Researchers have also found that one's level of perceived online skill level can influence how often the Internet is used (Ferguson & Perse, 2000; UCLA Internet Report, 2003). Eastin and LaRose (2000) report that Internet self-efficacy, or "the belief in one's capabilities to organize and execute courses of Internet actions required to produce given attainments," was significantly related to Internet use. These findings suggest that one's level of perceived online skill level may further influence various interactive feature usage.

**H2:** Perceived Internet skill level will be a positive predictor of use of interactive features as identified by RQ1.

In addition, past credibility studies suggest that perceived credibility of a medium is strongly related to how often one uses it (Wanta & Hu, 1994; Carter & Greenberg, 1965; American Society of Newspaper Editors, 1985) and thus may further influence how one may engage in experiencing news through various forms of interactive features.

**H3:** Perceived credibility of online news will be a positive predictor of use of interactive features as identified by RQ1.

Furthermore, studies report connections between online and offline activity. Some studies have found that a relationship exists between civic engagement and

political activity offline and Internet use. For example, recent studies have found that Internet use was positively associated with community engagement (Katz, Rice & Aspen, 2001; Shah, McLeod, & Yoon, 2001; Shah, Kwak, Holbert, 2001; Shah et al., 2005). Specifically, the use of expressive features of the Internet contribute to greater civic involvement (Shah et al., 2001; Shah et al., 2005).

Katz et al. (2001) found that Internet users were more likely than nonusers to engage in traditional political activity in the 1996 general election. Weber and Bergman (2001) also found that individuals who engaged in online activities, such as using chat-rooms, were more likely to be engaged in a variety of political activities. These associations seem likely in that politically engaged individuals are concerned with the free exchange of ideas and dialogic discussion as expressed by the foundations of a democratic society. Additionally, the Annual Report on American Journalism (2005) found strong correlations that indicated heavy users of the Internet also spend more time with newspapers, magazines and television than do medium or light Internet users, which suggest that "People bring to the Internet the activities, interests and behaviors that preoccupied them before the Web existed (Pew Internet & American Life Project, 2005, p. 58)." Thus, it might be reasonable to suggest that civic involvement and political engagement offline may have an impact on online activity, and thus, interactive feature usage.

**H4:** Civic involvement will be the strongest positive predictor of use of interactive features that facilitate the expression of ideas as identified by RQ1.

**H5:** Political engagement will be the strongest positive predictor of use of interactive features that facilitate interpersonal communication as identified by RQ1.

## Method

To answer the above research questions and hypotheses, a Web-based survey was employed. Participants were recruited via online advertisements on an online newspaper in a medium-sized Midwestern city in the U.S. The survey was linked to the teaser, which was placed on the homepage of the participating online newspaper. The average weekly circulation of the newspaper was 42,672. In an attempt to increase response rate, the initial window after the link was clicked informed participants that upon completion of the survey, they would be automatically entered into a drawing for a prize. The link then led the survey participants to the Informed Consent form, which then made the link to the actual survey available at the bottom of the page. The survey was posted for roughly three weeks in the summer of 2005. E-mail and IP address information were collected in order to avoid duplicate submissions. The survey consisted of a self-administered questionnaire that asked respondents regarding their frequency of use of specific interactive features that represent interactivity. In addition to basic demographic questions, the questionnaire also assessed attitudinal measures of respondents' perceived Internet skill level and perceived level of credibility of online news. Behavioral measures of community involvement and

political engagement activities were also measured. The final sample size was 542 in which the survey completion rate was 77 percent.

#### **Dependent Measures Scale Creation**

Respondents were asked to indicate how frequently they use 22 unique interactive features generally offered by online newspapers. Features were selected based on prior interactivity studies that examined the use of distinct interactive features, particularly on news sites (Massey & Levy, 1999; Schultz, 1999; Chan-Olmsted & Park, 2000; Greer & Mensing, 2006) but also political candidate homepages (Stromer-Galley, 2000, 2002), health communication sites (McMillan, 2002; Noar et al., 2006) and business/marketing sites (Ha & James, 1998; Aikat, 2000). This compilation of features offers a near exhaustive list of features that were offered at the time in which the survey instrument was developed. It also covers a wide range of interactivity, from features that encourage user control and choice options to features that facilitate customization of content and interpersonal communication based on the review of the literature. The response scale ranged from 1 (never) to 4 (frequently). These 22 items were then factor analyzed to identify specific interactivity categories. After assessing reliability of the factors (Cronbach  $\alpha$  ranging from .78 to .91), they were summed and then averaged to create scales that represent the interactivity continuum. The scores for the scales ranged from 1 to 4, with smaller values indicating lower levels of use of interactivity.

#### **Independent Measures Scale Creation**

The "civic involvement scale" was constructed by adding five questions about involvement in local service organizations, community projects, parent-teacher organizations, church activities and organized sports activities (Cronbach  $\alpha = .71$ ). The variable derived from this scale, produced by the same method as that used for the dependent measures, had scores ranging from 1 to 4, with smaller values indicating lower levels of civic involvement.

The "political engagement" scale consists of five items that asked respondents about attending local government meetings, attending political rallies, making phone calls on behalf of candidates, staying in contact with elected officials and donating money to political campaigns (Cronbach  $\alpha = .87$ ). The variable derived from this scale, produced by the same method as that used for civic involvement, had scores ranging from 1 to 4, with smaller values indicating lower levels of political engagement.

Other independent measures included perceived Internet skill level and perceived credibility of online news. To assess perceived Internet skill level participants were asked "How do you consider your Internet skill level?" on a four-point response scale from not very skilled (1) to very skilled (4). To assess perceived credibility of online news participants were asked to answer the question "I consider online news as a credible source of information" on a five-point response scale from strongly disagree (1) to strongly agree (5).



In the regression analyses reported below, the three non-attitudinal variables — age, gender and online experience — were entered in the first block. The two attitudinal measures — perceived Internet skill level and perceived credibility of online news — were entered in the second block. The behavioral measures — “civic involvement” and “political engagement” scales were entered in the third block. Examination of the tolerance and VIF scores testing multicollinearity revealed that there were no high correlations among the independent variables.

## Results

### The Sample

The characteristics of the sample are in accord with the user profile of the participating online newspaper. The newspaper readership demographics (Belden Interactive, 2007) indicate that 92 percent of its site visitors are white and 60 percent are female. The median income is \$56,000, and 43 percent have college degrees or an advanced degree. The median age is 45. Similarly, 94 percent of the survey respondents were white and 62 percent were female. About 25 percent of the survey participants earned more than \$50,000 annual household income, and 55 percent of them had college degrees or above. The mean age of the respondents was 40 years old (SD = 14.36).

### Categories of Interactive Features

To identify specific categories of interactive features (RQ1), a principal components factor analysis was conducted using Varimax rotation. Items (interactive features) that cross-loaded on two or more factors and those with factor loadings lower than .50 were eliminated. In addition, the log-in feature did not fit conceptually, thus, it was dropped from the analysis. The analysis yielded a reduced scale of 15 items that loaded on four factors, and thus, seven of the original 22 items were not included in any of the factors. The four factors accounted for 67 percent of the variance. As shown in Table 1, the factors were then subsequently created as four interactivity scales. The scales were labeled medium, medium/human, human/medium and human interactivity, building on the literature. The four extracted categories of interactive features are also in agreement with an interactivity continuum: medium interactive features generally allow readers more control or choice options in experiencing news stories; medium/human interactive features allow users to customize news to their liking; human/medium interactive features allow users to express their personal opinions; human interactive features facilitate interpersonal communication online. The medium interactivity scale consists of two features: audio files and video files. The medium/human interactivity scale consists of five features: customized weather, customized topics, customized headlines, search features and e-mail updates/alerts. The human/medium interactivity scale consists of five features: “submit stories,” “submit photos,” “submit news tips,” letters-to-the-editor features and reporter/editor e-mail links. The letters-to-the-editor feature and reporter/editor

**Table 1** Categories of Interactive Features

Factors	Factor Loadings			
	1	2	3	4
<b>Factor 1: Human/Medium Interactive Features</b>				
“Submit stories” function	.90			
“Submit photos” function	.81			
“Submit news tip” function	.81			
Reporter/editor e-mail links	.73			
Letters-to-editor	.57			
<b>Factor 2: Medium/Human Interactive Features</b>				
Customized weather		.84		
Customized topics		.82		
Customized headlines		.62		
Search feature		.59		
E-mail updates/alerts		.56		
<b>Factor 3: Human Interactive Features</b>				
Message boards			.79	
Chat functions			.78	
Q&A (live chats)			.75	
<b>Factor 4: Medium Interactive Features</b>				
Audio files				.91
Video files				.91
Eigenvalues	3.34	2.70	2.22	1.86
Variance Explained	22.28	17.98	14.80	12.38
Reliability (Cronbach $\alpha$ )	.85	.78	.81	.91
Mean (S.D.)	1.41 (.57)	2.33 (.76)	1.57 (.70)	2.27 (.92)

e-mail links are generally considered to be features that facilitate interpersonal communication. However, these two features may have loaded on this factor in that human/medium interactive features allow the expression of ideas and may not result in direct human-to-human communication, which may be the predominant case when users submit letters-to-the-editor or write messages to reporters/editors of their local online news site. The human interactivity scale consists of three features: chat functions, message boards and Q&A features.

### Use of Interactive Features

The second research question sought to examine the extent to which online news audiences make use of different types of interactive features (RQ2). In order to access patterns of use of different forms of interactive features, the scales for medium, medium/human, human/medium and human interactive features were used to calculate mean scores. Table 1 includes the overall means of the four groups of interactivity. A repeated measures ANOVA was conducted to investigate whether

respondents showed significantly different uses of interactive features on online newspaper sites. The results indicate that there were indeed meaningful usage differences based on type of interactive feature as identified above, Wilk's  $\lambda = .36$ ,  $F(3, 472) = 274.29$ ,  $p < .00$ . Specifically, the medium/human interactive features ( $M = 2.33$ ,  $S.D. = .76$ ) and medium interactive features ( $M = 2.27$ ,  $S.D. = .92$ ) scored the highest usage mean scores followed by human interactive features ( $M = 1.57$ ,  $S.D. = .70$ ) and human/medium interactive features ( $M = 1.41$ ,  $S.D. = .57$ ). Features that facilitate two-way communication and features that allow the audience to express their views were used least. Overall, the online newspaper audience was not using the interactive features frequently.

### **Predictors of Use of Interactive Features**

The summated scales were used in the following analyses to examine what factors predict the use of the four distinct types of interactive features. Thus, the relationships between user characteristics/backgrounds and usage frequencies of interactive features are the focus of the third research question (RQ3). Four separate independent hierarchical multiple regression analyses were conducted after entering demographic, attitudinal and behavioral variables.

#### *Use of Medium Interactive Features*

Overall, this model accounted for about 8 percent of the variance in the dependent measure (use of medium interactive features). In the first regression, gender surfaced as a predictor ( $\beta = .19$ ,  $p < .001$ ) of use of medium interactive features. When the two attitudinal variables were added to the regression equation, the model was significantly improved,  $R^2 = .067$ ,  $R^2$  change =  $.031$ ,  $p < .01$ . Gender remained a significant predictor ( $\beta = .18$ ,  $p < .001$ ), and the attitudinal variables of perceived Internet skill level ( $\beta = .16$ ,  $p < .01$ ) and perceived credibility of online news ( $\beta = .12$ ,  $p < .05$ ) were also significant predictors of use of medium interactive features. The addition of the behavioral measures did not improve the model. However, gender ( $\beta = .16$ ,  $p < .01$ ), perceived Internet skill level ( $\beta = .15$ ,  $p < .01$ ) and perceived credibility of online news ( $\beta = .11$ ,  $p < .05$ ) remained as significant predictors of use of medium interactive features. Among the three predictors, standardized beta coefficients indicate that gender was the strongest predictor of use of medium interactive features. Gender was dummy coded (female = 0 and male = 1), so the results showed that male users are likely to use medium interactive features on an online newspaper. Table 2 shows the regression model for use of medium interactive features.

#### *Use of Medium/Human Interactive Features*

This model accounted for about 9 percent of the variance overall in the dependent measure (use of medium/human interactive features). In the first regression, no predictors emerged. The addition of the attitudinal measures, however, improved the regression model ( $R^2 = .038$ ,  $R^2$  change =  $.007$ ,  $p < .01$ ) as perceived Internet skill

**Table 2** Hierarchical Regression Analysis of Factors Influencing Use of Medium Interactive Features

Predictor variables	Block I	Block II	Block III	Cum R <sup>2</sup>
Age	-.07	-.01	-.04	
Gender	.19***	.18***	.16**	
Years online	-.02	-.03	-.03	.036**
Perceived Internet skill level		.16**	.15**	
Perceived credibility of online news		.12*	.11*	.067**
Civic involvement			.08	
Political engagement			.07	.081 <sup>a</sup>

\*p < .05. \*\*p < .01. \*\*\*p < .001.

<sup>a</sup>adjusted R<sup>2</sup> is .07.

Gender: Dummy-coded with female = 0 and male = 1.

Perceived Internet skill level: four-point response scale from not very skilled (1) to very skilled (4).

Perceived credibility of online news: five-point response scale from strongly disagree (1) to strongly agree (5).

Civic involvement: four-point response scale from never (1) to frequently (4).

Political engagement: four-point response scale from never (1) to frequently (4).

level ( $\beta = .15$ ,  $p < .01$ ) surfaced as a positive predictor. When the two behavioral variables were added, the model was again significantly improved ( $R^2 = .089$ ,  $R^2$  change = .051,  $p < .001$ ). While perceived Internet skill level remained a significant positive predictor ( $\beta = .12$ ,  $p < .05$ ), political engagement ( $\beta = .18$ ,  $p < .01$ ) also surfaced as a significant predictor of use of medium/human interactive features. Standardized beta coefficients indicate that political engagement was the stronger predictor of use of medium/human interactive features. Table 3 shows the regression model for use of medium/human interactive features.

#### *Use of Human/Medium Interactive Features*

This model explained about 25 percent of the variance in the dependent measure (use of human/medium interactive features). In the first regression, gender ( $\beta = .15$ ,  $p < .01$ ) surfaced as a significant positive predictor of use of human/medium interactive features. The addition of the two attitudinal variables significantly improved the explanatory power of the overall model ( $R^2 = .078$ ,  $R^2$  change = .049,  $p < .001$ ). In this second regression, gender ( $\beta = .15$ ,  $p < .01$ ) remained a significant positive predictor. In addition, perceived Internet skill level ( $\beta = .13$ ,  $p < .05$ ) and perceived credibility of online news ( $\beta = .19$ ,  $p < .001$ ) also surfaced as positive predictors. The addition of the behavioral measures greatly improved the explanatory power of the model ( $R^2 = .249$ ,  $R^2$  change = .171,  $p < .001$ ) and yielded age ( $\beta = -.17$ ,  $p < .01$ ), perceived credibility of online news ( $\beta = .18$ ,  $p < .001$ ), civic involvement ( $\beta = .16$ ,  $p < .01$ ) and political engagement ( $\beta = .35$ ,  $p < .001$ ) as positive predictors of use of human/medium interactive features. Gender and

**Table 3** Hierarchical Regression Analysis of Factors Influencing Use of Medium/Human Interactive Features

Predictor variables	Block I	Block II	Block III	Cum R <sup>2</sup>
Age	-.01	.04	-.03	
Gender	.07	.06	.01	
Years online	.09	.09	.09	.031
Perceived Internet skill level		.15**	.12*	
Perceived credibility of online news		.09	.09	.038**
Civic involvement			.10	
Political engagement			.18**	.089*** <sup>a</sup>

\*p < .05. \*\*p < .01. \*\*\*p < .001

<sup>a</sup>adjusted R<sup>2</sup> is .07.

Gender: Dummy-coded with female = 0 and male = 1.

Perceived Internet skill level: four-point response scale from not very skilled (1) to very skilled (4).

Perceived credibility of online news: five-point response scale from strongly disagree (1) to strongly agree (5).

Civic involvement: four-point response scale from never (1) to frequently (4).

Political engagement: four-point response scale from never (1) to frequently (4).

perceived Internet skill level, however, disappeared as significant positive predictors of the dependent measure. Among the four significant variables, standardized beta coefficients reveal that political engagement was by far the strongest predictor of use of human/medium interactive features. Table 4 shows the regression model for use of human/medium interactive features.

#### *Use of Human Interactive Features*

The overall model explained about 11 percent of the variance in the dependent measure (use of human interactive features). The first regression yielded gender ( $\beta = .13$ ,  $p < .05$ ) as a significant positive predictor for use of human interactive features. The addition of the attitudinal variables significantly improved the regression model ( $R^2 = .097$ ,  $R^2$  change = .074,  $p < .001$ ). Gender ( $\beta = .15$ ,  $p < .01$ ), remained a significant predictor while perceived Internet skill level ( $\beta = .12$ ,  $p < .05$ ) and perceived credibility of online news ( $\beta = .26$ ,  $p < .001$ ) surfaced as predictors. The addition of the behavioral variables significantly improved the model ( $R^2 = .123$ ,  $R^2$  change = .026,  $p < .01$ ). While perceived Internet skill level disappeared as a predictor, both gender ( $\beta = .11$ ,  $p < .05$ ) and perceived credibility of online news ( $\beta = .26$ ,  $p < .001$ ) remained as predictor variables. Political engagement ( $\beta = .11$ ,  $p < .05$ ) also emerged as a positive predictor of use of human interactive features. Standardized beta coefficients indicate that among the three predictor variables, perceived credibility of online news was the strongest predictor of use of human interactive features. Table 5 shows the regression model for use of human interactive features.

In sum, these findings show that hypothesis 1 was not supported as years online was not a predictor for any of the four types of interactive features. Hypothesis 2 was

**Table 4** Hierarchical Regression Analysis of Factors Influencing Use of Human/Medium Interactive Features

Predictor variables	Block I	Block II	Block III	Cum R <sup>2</sup>
Age	-.08	-.04	-.17**	
Gender	.15**	.15**	.06	
Years online	.06	.04	.05	.029*
Perceived Internet skill level		.13*	.08	
Perceived credibility of online news		.19***	.18***	.078***
Civic involvement			.16**	
Political engagement			.35***	.249*** <sup>a</sup>

\*p < .05. \*\*p < .01. \*\*\*p < .001.

<sup>a</sup>adjusted R<sup>2</sup> is .24.

Gender: Dummy-coded with female = 0 and male = 1.

Perceived Internet skill level: four-point response scale from not very skilled (1) to very skilled (4).

Perceived credibility of online news: five-point response scale from strongly disagree (1) to strongly agree (5).

Civic involvement: four-point response scale from never (1) to frequently (4).

Political engagement: four-point response scale from never (1) to frequently (4).

partially supported in that perceived Internet skill level was a positive predictor for use of medium interactive features, which provide extended choice options, and medium/human interactive features, which allow for personalization of content. Thus, Internet skill level was associated with use of interactive features that were based on the technological application itself rather than on human communication. Hypothesis 3 was also partially supported in that perceived credibility of online news was a positive predictor for use of all types of interactive features with the exception of medium/human interactive features. In addition, civic involvement was indeed a positive predictor for use of human/medium interactive features that allow the personalized expression of ideas. This was the only incident in which civic involvement surfaced as a predictor variable, but it was not the strongest predictor of use of human/medium interactive features. Therefore, hypothesis 4 was not supported. Political engagement was also a positive predictor for use of human interactive features, but it, too, was not the strongest predictor. Therefore, hypothesis 5 was not supported. Based on these findings it is apparent that the four types of interactive features are each used for different purposes by individuals with distinct characteristics, and more extensive research is necessary to clearly identify factors that predict uses of distinct types of interactive features.

## Discussion and Conclusions

It appears that the potential of interactivity afforded through online news publications was cast in a rosy light with exaggerated excitement over audience adoption of

**Table 5** Hierarchical Regression Analysis of Factors Influencing Use of Human Interactive Features

Predictor variables	Block I	Block II	Block III	Cum R <sup>2</sup>
Age	-.06	-.04	-.08	
Gender	.13*	.15**	.11*	
Years online	.06	.04	.05	.023*
Perceived Internet skill level		.12*	.10	
Perceived credibility of online news		.26***	.26***	.097***
Civic involvement			.09	
Political engagement			.11*	.123*** <sup>a</sup>

\*p < .05. \*\*p < .01. \*\*\*p < .001.

<sup>a</sup>adjusted R<sup>2</sup> is .11.

Gender: Dummy-coded with female = 0 and male = 1.

Perceived Internet skill level: four-point response scale from not very skilled (1) to very skilled (4).

Perceived credibility of online news: five-point response scale from strongly disagree (1) to strongly agree (5).

Civic involvement: four-point response scale from never (1) to frequently (4).

Political engagement: four-point response scale from never (1) to frequently (4).

interactive features. The findings from this study suggest that online audiences are not using interactive features extensively contrary to anticipation by media scholars and the news industry. These findings indicate that online news producers need not worry about adopting all types of interactivity that are promoted through various interactive features.

A factor analysis extracted four distinct factors that identified four categories of interactive features that promote interactivity—medium, medium/human, human/medium, and human interactive features. It appears that the interactivity continuum consists of four unique types of interactive features instead of the three that were proposed previously. Two categories of interactive features — medium/human and human/medium interactive features — fall between the medium and human interactivity extremes. For example, interactive customization options allow users to tailor their news consumption experiences to their liking by providing personal information to the website. These medium/human interactive features can be deemed first-order personalization options and are more a function of the technology. Here, users input information about themselves through a medium in order to customize news, such as local weather and news topics, to their own interests. In addition, interactive features that allow users to submit their opinions or stories to the news sites provide the audience with a sense of ownership. Sharing something personal obliges the user to put that much more at stake. These human/medium interactive features allow users to share their own perspectives and become personally involved in the creation of content. These second-order personalization options share interpersonal communication qualities but do not necessarily facilitate human-to-human

communication. These two additional categories of interactivity complete the full spectrum of interactivity as a continuum. Thus, the findings from this study expand the model of interactivity promoted through interactive features on online newspapers.

Upon scale creation, a repeated measures ANOVA revealed that certain interactive features were used significantly more, or less, than others. About half of the interactive features assessed in this study had a mean use score of less than 2. Among the less frequently used features are the human interactive features and the human/medium interactive features. It appears that the news audience does not actively engage in various uses of interactive features on news websites, especially the features that facilitate communication and the expression of ideas—features that require more effort to be utilized.

Further analysis attempted to identify factors that predict the use of specific interactive features. The findings show that men, those who perceived themselves as having adept Internet skills, and those who perceived online news to be credible were more likely to use medium interactive features. This makes intuitive sense in that the medium interactive features scale consists of the use of audio and video files. Individuals who were confident of their Internet skills would more likely attempt to use these types of interactive features. The results of the perceived Internet skill level variable, a self-efficacy measure, show that if news organizations are truly interested in providing their audiences with various story telling options through multimedia, perhaps, it is necessary for news organizations to educate their audiences about using the Internet and accessing news on the World Wide Web through various technologies. This will help individuals gain confidence in their Internet skills. While perceived credibility of online news also surfaced as a positive predictor, the largest predictor here was being male, and men may also be characterized as having qualities that are linked to familiarity and ease with technology.

The analysis also found that those who were politically engaged were most likely to use medium/human interactive features. Thus, it appears that individuals who were politically active were likely to customize news headlines, topics and weather information to their liking. Individuals who perceived themselves to have adept Internet skills were also likely users of medium/human interactive features, but political engagement was the stronger predictor.

The findings further revealed that younger individuals, those who perceived online news to be a credible source of information and those who were involved with their communities and are politically engaged are likely to use human/medium interactive features. Here, the strongest predictor by far was political engagement. Because these human/medium interactive features allow the audience to express their views, it seems reasonable that those who are socially active would also be active online participants. While most news audiences are not using interactive features extensively, those who are taking advantage of the human/medium interactive features are individuals who are the movers and shakers of their communities. They are also individuals who are political activists who attend local government meetings and donate money to political campaigns. Thus, news organizations should consider adopting human/medium interactive features to provide a forum for those news audiences



who are interested in communicating their opinions. In addition, it is worth noting that younger individuals are less shy in expressing their views online and making use of human/medium interactive features that facilitate social expression.

Finally, this study revealed that those who perceived online news to be a credible source of information, men and politically engaged individuals were most likely to use human interactive features that facilitate two-way interpersonal communication. Human interactive features are what make online news truly different from news delivered through traditional media channels, but it appears that they are generally used infrequently. Most interestingly, individuals who found online news to be credible were most likely to engage in dynamic human-to-human interaction online—even more so than politically engaged individuals. Overall, politically engaged individuals and those who perceived online news to be credible were most likely to use all forms of interactive features and were consequentially making the most out of online news.

Not all news readers are politically engaged or have a positive perception of online news credibility, however, and news organizations may seek to first understand who their online audiences are and then subsequently provide interactive features according to their audiences' characteristics and backgrounds. For example, an online newspaper serving readers who are mostly younger female audiences may spend less time on adopting much of the technology driven medium interactive features but place more focus on the human/medium interactive features that allow for personal expression. Additionally, online newspapers may seek to educate their online audiences about how to use various interactive features on their sites and also make efforts to build their reputation for credible news. This study, thus, points to the importance of quality news reporting that will in turn build credibility of the news organization and subsequently encourage audiences to actively participate in their online news consumption experiences.

While this study provides somewhat discouraging results to the initial enthusiasm about online news and the application of interactivity through the adoption of interactive features, news organizations that are sincerely interested in communicating with their news audiences should not discard their efforts in applying interactivity. On the other hand, it may be helpful to be aware that providing all forms of interactive features may not be the most effective approach to engage online news audiences as the interactive features serve distinct purposes in the news consumption experiences of online audiences.

While this study provides critical findings toward audiences' use of interactive features, it also suffers from several shortcomings. The initial list of 22 interactive features may not be an exhaustive list as new information communication technologies (ICTs) are constantly developing, and several features did not load on the four extracted factors. Therefore, the analysis was limited to the use of 15 interactive features as rigorous scale construction was employed for the creation of the four categories of interactivity scales. Future studies should further examine and identify various other forms of interactive features to refine and solidify the interactive

feature scales. This process will contribute to the understanding of different categories of interactive features and how online newspaper audiences use them.

The regression models accounted for about 8 to 25 percent of the variance. The model for use of human/medium interactive features is somewhat effective in explanatory power, but a large portion of the variance is still left unexplained—especially in the regression models for use of medium and medium/human interactive features. Future studies should further identify possible predictors of uses of interactive features.

This study was conducted through the assistance of a medium-sized local newspaper located in a Midwestern city in the U.S. Thus, the generalizability of the study is limited to the geographic scope of the sample. In addition, the sample populations consisted of predominantly white and female participants. Future studies should make efforts to sample from more diverse populations, which may provide differing results. The online survey method itself may also be cited as a weakness of the study. Individuals who participated in this survey were self-selected, thus, those who felt more comfortable online to begin with may have been more likely to participate in the survey. Thus, the inherent nature of the online survey itself also contributes to the limitation of the generalizability of the findings as it may be likely that individuals who participated in this study represent a specialized subset of the online news population.

More importantly, the unsupported hypotheses point to the need for much extensive research in order to better identify factors that are associated with the uses of distinct type of interactivity. The findings from this report provide an important foundation about news audiences' uses of interactive features. It may help online news publications better target their online audiences with greater understanding of how to engage them as active information consumers.

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**Interactive Features of Online Newspapers:  
Identifying Patterns and Predicting Use of Engaged Readers**

**Abstract**

This study seeks to identify 1) categories of interactivity, which are promoted through different types of interactive features, 2) patterns of online newspaper readers' uses of interactive features, and 3) factors, if any, that predict the use of different types of interactive features. Based on an online survey of 542 respondents, four categories of interactive features were identified. Findings show that interactive features are generally used infrequently, especially the features that facilitate human-to-human communication and the features that allow audiences to express their views. Regression analyses show that different user characteristics and backgrounds predict the use of specific types of interactive features. This study illustrates that news organizations need not worry about applying all types of interactive features to engage their readers as the features serve distinct functions. Instead, news organizations should focus on building credibility and may seek to identify their online news audiences and then subsequently provide interactive features accordingly. (152)

## **Interaktive Angebote in Online-Zeitungen: Die Identifikation von Mustern und die Vorhersage der Nutzung durch engagierte Leser**

Diese Studie versucht 1) Kategorien von Interaktivität zu identifizieren, welche durch verschiedene Typen interaktiver Funktionen begünstigt werden, 2) Muster der Nutzung dieser interaktiven Funktionen durch Online-Zeitungsleser herauszuarbeiten und 3) Faktoren, wenn es sie denn gibt, zu extrahieren, die die Nutzung der verschiedenen Arten interaktiver Funktionen vorhersagen. Basierend auf einer Onlinebefragung von 542 Befragten wurden vier Kategorien interaktiver Funktionen identifiziert. Die Ergebnisse zeigen, dass interaktive Funktionen im Allgemeinen eher unregelmäßig genutzt werden. Dies gilt insbesondere für solche Angebote, die Mensch-zu-Mensch-Kontakt fördern und Angebote, welche dem Leser erlauben, seine Meinung auszudrücken.

Regressionsanalysen zeigen, dass sich die Nutzung bestimmter interaktiver Angebotstypen durch verschiedene Nutzercharakteristika und Hintergründe voraussagen lässt. Die Studie zeigt außerdem, dass sich Nachrichtenorganisationen nicht damit belasten müssen, alle Möglichkeiten interaktiver Angebote bereitzustellen, um ihre Nutzer zu binden, da die Angebote jeweils spezifische Funktionen erfüllen. Besser ist es, wenn sich Nachrichtenorganisationen darauf konzentrieren, ihre Glaubwürdigkeit auszubauen und ihr Online-Nachrichtenpublikum zu identifizieren, um so passende interaktive Angebote bereithalten zu können.



## **Las Características Interactivas de los Periódicos Online: Identificando las Pautas y Prediciendo el Uso de los Lectores Comprometidos**

### **Resumen**

Este estudio busca identificar 1) las categorías de interactividad que son promovidas a través de tipos diferentes de características interactivas, 2) las pautas de uso de las características interactivas de los lectores de periódicos online, y 3) los factores, si los hay, que predicen el uso de tipos de características interactivas diferentes. Basado en una encuesta online de 542 participantes, cuatro categorías de características interactivas fueron identificadas. Los resultados muestran que las características interactivas son generalmente usadas no muy frecuentemente, en especial las características que facilitan la comunicación de humano a humano y las características que permiten a las audiencias expresar sus opiniones. Los análisis regresivos muestran que las características diferentes de los usuarios y sus antecedentes predicen el uso de tipos específicos de características interactivas. Este estudio ilustra que las organizaciones de noticias no necesitan preocuparse por aplicar todos los tipos de características interactivas para comprometer a sus lectores porque éstas sirven funciones diferentes. En cambio, las organizaciones de noticias deben focalizarse en desarrollar la credibilidad y en buscar identificar las nuevas audiencias online y luego subsecuentemente proveer de características interactivas como corresponde (152).

Palabras claves: Interactividad, características interactivas, periódicos Online, nuevas audiencias online

**网络报纸的互动性特征：  
界定模式并预测热心读者之使用**

**摘要**

本研究寻求界定（1）由各种互动性功能推动的互动性的种类；（2）网络报纸读者使用互动性功能的模式；以及（3）可预测各种互动性功能之使用的可能因素。在网络调查 542 个用户的基础上，我们界定了四种互动性功能。发现表明：受众总体使用互动性功能的次数不多，尤其是不经常使用那些促进人与人沟通以及允许受众表达其观点的互动性功能。回归分析显示：不同的用户特征及背景可预示特定互动性功能的使用情况。本研究证明新闻机构无需担心需要应用所有种类的互动性功能来招徕读者，因为这些功能有不同的效果。然而，新闻机构应将重点放在信誉塑造方面，并努力界定他们的网络新闻受众，然后提供相应的互动性的服务。

## 온라인 신문의 상호적 특징: 참여적인 독자의 형태 확인과 사용예측에 관한 연구

### 요약

본 연구는 1) 다양한 상호성 특징들의 형태에 따라 촉진되는 상호성의 범주들, 2) 온라인 신문 독자들의 상호성 특징의 사용형태, 그리고 3) 다양한 상호성 특징들의 형태사용을 예측할 수 있는 요소들을 확인하기 위한 것이다. 542 응답자들의 온라인 조사에 근거, 4 가지 형태의 온라인 상호성 특징들이 확인되었다. 연구 결과, 상호성 특징들은 일반적으로 자주 사용되지 않는 것으로 나타났는바, 특히 인간대 인간 커뮤니케이션을 수월하게 하는 특징들과 독자들이 그들의 견해를 표현하는 특징들에 있어서 더욱 그러했다. 회귀분석 결과, 다른 사용자 특징들과 배경들은 상호성 특징들의 특정한 형태의 사용을 예측하고 있다는 것을 증명하고 있다. 본 연구 결과, 뉴스 조직들은 그 특징들이 다양한 기능을 위해 사용되는바 모든 형태의 상호성 특징들을 독자들과 서로 연계하려고 걱정할 필요는 없다는 것을 보여주고 있다. 그 대신, 뉴스 조직들은 신뢰도를 발전시키는데 중점을 두어야 하며, 온라인 뉴스 독자를 확인한뒤 지속적으로 상호적 특징들을 제공하여야 한다는 것을 지적하고 있다.