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Australian online newspapers: a website content analysis approach to measure interactivity

Nor Hazlina Hashim

University of Wollongong, nhh798@uow.edu.au

Helen M. Hasan

University of Wollongong, hasan@uow.edu.au

S. Sinnapan

Swinburne University of Technology, ssinnappan@groupwise.swin.edu.au

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Keywords

Interactivity, Australian Online Newspapers, Website Content Analysis.

Disciplines

Business | Social and Behavioral Sciences

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Lina Hashim, Helen Hasan
School of Economics
University of Wollongong
Wollongong, Australia
Email: nh798@uow.edu.au; hasan@uow.edu.au

Suku Sinnappan
IT Systems and Multimedia Department
Higher Education Division Lilydale
Swinbourne University of Technology
Victoria, Australia
Email: ssinnappan@groupwise.swin.edu.au

Abstract

This paper addresses the growth and development of the concept of interactivity in online newspapers from the perspectives of computer-mediated communication, journalism, advertising, and information system. This paper discusses the concept of interactivity originally coined by Heeter. The study maps Heeter's dimensions that are content availability and choice, communication opportunity, effort of users, responsiveness, and customization and management of information onto contemporary settings of Australian online newspaper industry. The researchers reviewed 12 Australian online newspapers over two snapshots using website content analysis approach. Results draws out interesting discussions as to the level of interactivity highlighted by the online newspapers industry. Content availability and choice was found to be the most significant element of interactivity. It is noted that, while the majority of Australian online newspapers offer interactive functionality for expressing opinions, blogging, contests and polls, only one online newspaper provided genuine interactive gaming.

Keywords

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Introduction: Overview of Online Newspapers

The phenomenon of online newspaper is one consequence of the expansion and significant development of Internet and the World Wide Web (WWW) in mass media. It has been said that 70% of Australians are Internet users (Central Intelligence Agency's World Factbook) with, 10 million of them active users according to Nielsen//NetRatings report (2006). Accessing online newspapers is part of many individuals daily life to keep abreast of surrounding events. World Association of Newspapers (WAN) was quoted in the Asia Media (2006), indicating a 9% increase in global readership for online newspapers in 2005, which is a enormous 200% increase since 2001. This is not surprising given the increasing importance placed on the Internet as a media. This growing popularity provides new avenues for the newspaper industry.

In Australia, a report from Hitwise revealed the Sydney Morning Herald as the site most bookmarked by users, with 4.36% in year 2003 (Greenspan 2003). Significantly, the newspapers readership survey released by Roy Morgan Research (2005), found that the Herald Sun, Daily Telegraph and Sydney Morning Herald were the top three with readership of 1.5 million, 1.2 million and 0.9 million, respectively. Moreover, a report released from the Audit Bureau of Circulations (ABC) stated the size of the online audience of the Sydney Morning Herald increased 16% within the 6 months time frame, from April 2005 to September 2005 (Lee 2005). For this study,

the researchers took a snapshot of newspapers readership from a survey by Roy Morgan Research (2005) and categorize it into three sections; high, medium, and low to reveal an overview of the top Australian readership of online newspapers (refer Table 1). From the results, the Herald Sun scores the highest rank (7.4%); while, the Courier Mail and Western Australian share in the medium rank (3%) and the Northern Territory online newspaper is ranked low with 0.3% of the Australian population.

The availability of technologies has revolutionised the online newspaper industry in Australia and the ways of disseminating news and other services. Media services now more attractive; products and news are delivered in real time, increased quantity of information, news are upgraded with photographs and videos. Overall enhanced the richness and timeliness of news (Gilder 1994). In some cases, news coverage is extended editorials, feature writings, forums and blogs giving it more variety and appeal. Leading researchers (Palmer & Eriksen 1999; Deuze 2003; Boczkowski 2004) applaud this practice noting that online newspapers must exert multimodality, which offer more communication opportunities and interactivity. Whatever the device it could be, the element of interactivity is crucial. Since Heeter's study, many researchers have adopted and revised the aforementioned six dimensions to contextualise their findings. Although these studies identified different features of interactivity, they all concede to the importance of this element in improving the web delivery to attract web visitors' attention and involvement during their visit. However, much less have been done within the Australian context with regards to interactivity.

Table 1: Online Newspaper readership in Australia

Online Newspapers	Coverage: Location	Owner	Readership	Readership/ Population* (%)	Category
Herald Sun	Regional: Victoria	News Corporation	1,523,000	7.4	High
The Daily Telegraph	Regional: New South Wales	News Corporation	1,194,000	5.8	High
Sydney Morning Herald	Regional: New South Wales	Fairfax Holdings	883,000	4.3	High
The Age	Regional: Victoria	Fairfax Holdings	721,000	3.5	High
The Courier Mail	Regional: Queensland	News Corporation	616,000	3.0	Medium
The West Australian	Regional: West Australia	West Australian Newspaper Limited	606,000	3.0	Medium
The Adviser/Adelaide Now	Regional: South Australia	News Corporation	573,000	2.8	Medium
The Australian	National (based in Sydney)	News Corporation	416,000	2.0	Medium
The Australian Financial Review	National (based in Sydney)	Fairfax Holdings	270,000	1.3	Medium
The Mercury	Regional: Tasmania	News Corporation	124,000	0.6	Low
The Canberra Times	Regional: Australian Capital Territory	Rural Press Limited	109,000	0.5	Low
Northern Territory News	Regional: Northern Territory	News Corporation	52,000*	0.3	Low

Resource: Roy Morgan Research, 18 August 2005

Note*: source from <http://metro.newsmedianet.com.au/home> and population is based on Wikipedia

In light of this, this study was designed to explore the notion of interactivity within the Australia context by investigating the online newspaper industry. A thorough content analysis was conducted; mapping the website content and objects to Heeter's dimensions. The findings will serve as a preliminary assessment of the contents and web objects that encapsulate interactivity within the websites. This will then be used as a benchmark against Australian online newspaper websites to draw out appropriate discussions based on the background of the study as presented in the next section. The next section also presents a comprehensive compilation of numerous studies related to interactivity. This is followed by a methodology section that used in this study, the data sources and analysis. Then, the findings generated from the web sites analysis of twelve Australian online newspapers. In discussing the findings, we highlight the changes in the content and web objects that were observed from the previous analysis. Lastly, we conclude with some recommendation with limitations and future research.

Adopting Interactivity Dimensions

Previous Research

There are numerous studies linking Internet to with the concept of interactivity in attempt to identify the dimensions, benefits, and implications from various perspectives and disciplines; communication, computer-mediated communication (CMC), marketing, and information systems. However, as the functionality and availability of the Internet is evolving at a great rate, the understanding of this important aspect of interactivity remains vulnerable and deficient. Referring to the definition in Webster's New Millennium Dictionary of English (2005), the verb 'interact' means 'to act on each other', particularly related to activities which involve a social context such as a conversation, playing games, acting or even dancing. This interaction involves negotiation,

cooperation, coordination or influence. In the meantime, the term ‘interactivity’ (a noun), means ‘the extent to which something is interactive’, and more specifically ‘the extent to which a computer program and human being may have a dialog’. In the realms of Internet these relate communication activities; human to human and also that of human to computer interaction involving receiving and disseminating inputs, messages, data or commands.

Early researchers from the communication literature noted that communication is mostly about, and for the purpose of, interaction. The best known and earliest definition of interactivity was from Rafaeli (1988, p. 111), namely: “An expression of the extent that in a given series of communication exchanges, any third (or later) transmission (or message) is related to the degree to which previous exchanges referred to even earlier transmissions”. Subsequently, Rafaeli and Newhagen (1996) proposed five defining qualities of communication on the Net: multimedia, hypertext, packet switching, synchronicity, and interactivity. Likewise for Hoffman and Novak (1996) described interactivity as both the ability to communicate with people (person interactivity) and access information (machine interactivity). Significantly, many believe that interactivity is now the primary characteristic of new technologies and motivating a considerable reassessment of communication research (Heeter 1989; Morris & Ogan 1996; Rafaeli & Newhagen 1996; Rafaeli & Sudweeks 1997; Ha & James 1998).

Because of this, various researchers have attempted to settle upon a single definition with multiple concepts of interactivity. From the work of Pavlou and Stewart (2000), interactivity was defined as an attribute of the consumer, not a characteristic of the medium; as consumers can choose to respond or not. Interactivity is not really new but what is new comes from the speed, scope, and scale of interactivity. These are provided by new information and communication technologies, which make online activities simpler, cheaper and easier. On the other hand, Kopper et al (2000) state that interactivity is the characteristics of the Internet that facilitates association, enabling people not only to receive information (a passive audience) but also to disseminate it. Meanwhile, Kioussis (2002) places stressed more on users as participants who are able to communicate both synronously and asynchronously, and engage in reciprocal message exchanges. Additionally, Kawamoto (2003) claims that interactivity is “a process of engaging active human or machine participation in the process of information seeking and information sharing”.

Significantly, most definitions of interactivity, and the associated body of literature, were developed from the computer-mediated communication (CMC) perspective. Among this body of work is the categorisation of elements of interactivity by Heeter’s (1989) and this study is based on her six elements of interactivity, namely:

- the complexity of choice available: users are provide with a choice of available information or selectivity,
- the effort users must exert: the amount of effort users must take to access information,
- the responsiveness to the user: the degree to which medium can react responsively to a user,
- the monitoring of information use: potential tools to monitor system use,
- the ease of adding information: the degree to which user can add information to the system that a mass can access, and
- facilitation of interpersonal communication: the degree to which media system facilitates interpersonal communication between specific users.

Many researcher have adopted Heeter’s study as it is one of the few analyses of interactivity that offers specific measurable dimensions (Ha & James 1998; McMillan 1998; Massey & Levy 1999; Kenny, Gorelik & Mwangi 2000; Massey 2000; McMillan & Hwang 2002; Gustavsen & Tilley 2003; Şanlıer & Tağ 2005). These researchers have enriched the concept of interactivity by conducting studies involving the Internet, graphics audio and video technologies from disciplines such as marketing, journalism, and information systems. Table 2 demonstrates the diversification of Heeter’s interactivity dimensions to various fields and disciplines.

Table 2: Studies That Use Heeter’s Interactivity Framework

Contributors	Discipline	Interactivity Framework Used
Ha & James (1998)	Marketing	Playfulness, Choice, Connectedness, Information Collection, and Reciprocal Communication
McMillan (1998)	CMC	Complexity of Choice, Effort of users exert, Responsiveness, Monitoring of information, and Interpersonal Communication
Jensen (1998)	CMC	Transmissional, Consultational, Conversational, and Registrational Interactivity
Wu (1999)	Advertising	Navigability and Responsiveness
Massey & Levy (1999); Massey (2000)	Journalism	Complexity of Choice, Responsiveness, Facilitation of Interpersonal Communication, Ease of Adding Information, and Immediacy
Kenny, Gorelik &	Journalism	Complexity of Choice, Effort users must exert, Responsiveness, Facilitation

Mwangi (2000)		of Interpersonal Communication, Ease of Adding Information, and Monitor System Use
Dholakia et. al (2000)	Communication Studies	User Control, Responsiveness, Connectedness, Real Time Interaction, Personalization, and Playfulness
Downes & McMillan (2000)	CMC	Direction of Communication, Time Flexibility, Sense of Place, Level of Control, Responsiveness, and Perceived purpose of Communication
Leung, Chan & Wu (2002)	Education	Control (Instructor and Learner) and Message (form and content oriented)
McMillan (2002)	CMC	Direction of Communication (One-way and Two-way) and Level of Receiver Control (High and Low): Monologue, Feedback, Responsive Dialogue, and Mutual Discourse
McMillan & Hwang (2002)	Advertising	Direction of Communication (Two-way Communication), User Control (navigation/choices), and Time (loading/finding)
Kiousis (2002)	CMC	Interactivity is established by three factors: technological structure of the media used, characteristics of communication settings, and individuals' perceptions
Middleton (2002)	Information Systems	Control of the Communication Process and Content between Provider and User
Liu & Shrum (2002)	Marketing/ Advertising	Active Control, Two-way Communication, and Synchronicity
Chou (2003)	Web-based Learning (Education/ Information Systems)	Choice, Non-sequential access of Choice, Responsiveness to learner, Monitoring Information Use, Personal-choice Helper, Adaptability, Playfulness, Facilitation of Interpersonal Communication, and Ease of Adding Information
Gustavsen & Tilley (2003)	Public Relations	User Control, Personalization, Responsiveness, Connectedness, Real Time Interactions, and Playfulness
Deuze (2003)	Journalism	Hypertextuality, Multimediality, and Interactivity (navigational, functional, and adaptive)
Chen & Yen (2004)	Information Systems	Playfulness, Choice, Connectedness, Information Collection, and Reciprocal Communication
Paulussen (2004)	Journalism	Choice Complexity (Responsiveness, Facilitation of Interpersonal Communication, Ease of Adding Information, Immediacy), Hypertextuality, and Multimediality
Şanlıer & Tağ (2005)	Journalism	User Control, Exchange, Information Collection, and Personalization
Yadav & Varadarajan (2005)	CMC	Bidirectional, Timely, Mutually Controllable, Responsive
Ko, Cho & Roberts (2005)	Communication Studies	Human-Message Interaction and Human-Human Interaction
Ferber, Foltz & Pugliese (2005)	Communication Studies	Content, Usability, Interactivity, Transparency and Audience
Fortuni et. al (2005)	Journalism	Interactivity confined to users, between users and editorial staffs, and between users and specific journalists or moderators.
Lowry et al. (2006)	Information System	Active Control, Two-way communication, and Synchronicity

The Five Dimensions of Interactivity

Based on the above review of various interactivity definitions and frameworks, this study proposes that interactivity should be defined on a continuum with the highest level of interactivity occurring when there is human-to-human and human-to-machine communication. This follows Stromer-Galley (2004) emphasis on two phenomena: interactivity between people and interactivity between people and computers (or networks). Increasingly online readers want freedom to use and navigate the websites, not only retrieving the news online but also communicating with other readers and having need to be 'engaged'. Therefore, this research posits the following five dimensions of interactivity as most significant to online newspapers websites. The researchers have operationalised the Australian website content and objects by mapping them to appropriate dimension for the content analysis, similar to Yadav and Varadarajan (2005) in attempt to operationalise marketplace interactivity. The mappings are justified and presented in the following sections, categorised by each dimension.

Content Availability and choice. The researchers introduce a new concept, Peripheral Value Proposition (PVP) based on the widely accepted term value proposition (VP). For the purposes of this study VP represents news information content, while PVP refers to non-news information content. The word 'value proposition' is well known in the business and marketing area, and refers to the customer segment that a competitor targets and states the primary differentiation of a product or service (which portray an image brand) from competitors. According to

Chaffey et al. (2000, p. 145), “an Internet website should have an additional value proposition to further differentiate a company’s products and services. A clear Internet value proposition has several benefits: distinguish the site from its competitors, provide a focus to marketing efforts, and company staff are clear about the purpose of the site, and can be linked to the normal product propositions of a company or its product”. In online newspaper environment, the proposition offered in the website should be clear content, providing news and related news information to readers, which should synchronise with the news company’s objectives, products and services. The VP for an online newspaper is mainly concerned with news related items, for example news articles placed on the front page, provide links to articles on the same issue, latest news update, news in audio, video, and pictures, archives, and news alerts. The PVP in this context means, non news related items, for instance offering the company’s business information, a SiteMap, a search engine, choice of languages, advertisements, graphs/charts, job opportunity, and weather updates. PVP can also include infotainment such as games, polls, contests, cartoons, and entertainment guide.

Effort of Users. This can be classified as the amount of the user’s activity required to complete their task. In the case of online environment, clicking once too often to retrieving news or information can be exhausting and discouraging. The user would want to minimize their effort in retrieving the news or desired information to provide flow opportunities (Novak, Hoffman & Yung 2000). Based on Loiacono et al. (2002) the ‘intuitiveness’ of the each website page is important to the user to read, understand and also navigate easily between pages. This also means that the connectedness or ‘the flow’ using hyperlinks providing a range of ‘easy and fast’ links and avoiding broken links, will impact the effort of users in accessing news or information. In this context the main hyperlinks flow refer to links within the same subdirectories site of a home page, for example: < <http://www.smh.com.au/news/health/another-day-at-the-office/2007/05/22/1179601414005.html>> is a hyperlink from < <http://www.smh.com.au/>>. Another less important type of hyperlink refers to another site, such as < <http://www.smh.com.au/>> to <<http://moneymanager.com.au/>>.

Communication Opportunity. This dimension refers to dissemination of information; asynchronous (one-to-many interaction) and synchronous communication (many-to-many interaction). It contains three types of communication opportunities; sessional, semi-permanent and permanent communications. Sessional communication is the type of communication which has a ‘cut-off’ time once the user log off or ends off the connection. For example, a Chat room, video conference, games and multiplayer game (video game in which multiple people are able to play within the same time). Semi-permanent communication refers to communication that has time limits or display in certain time frame. Emails, forums, opinions letters, and bulletins are examples of semi-permanent communication. Finally, permanent or archive communication refers to communication which is ‘put on view’ on the website for longer period of time. A Web blog (web-base publication diary consisting of periodic articles with text, images and related media/web links) is in this category.

Responsiveness. According to (Alba et al. 1997) response time concerns the speed of response via computerised interface. This could be captured by the time lapsed in between a stimulus and the response to it. Responsiveness here has two aspects: firstly, the level of responsiveness between the reader and webmaster, editors and/or reporters (two-way communication), and secondly, computer response or system response time. System response time refers to time taken by the system in reacting or retrieving news. Ideally, the response time is minimal and the result of a request is reflected immediately to the reader. For example, Bouch et al. (2000) assigned the range of latency/response time into three stages: high (0-5 seconds), average (6-10 seconds) and low that is more than 11 seconds. These responsiveness factors are the key to productivity in interactive applications especially to Web usage.

Customization and information management. On a website, customization and information management leads to a highly interactive experience. Through personalization, a user is able to ‘custom make’ any news he/she requires. The personalization may be done by the user through a registration process. Personalization options of online newspapers range from choosing topics and news headlines, getting newsletters and alerts/updates via emails, community information and/or events calendar. From these activities, customer profiling (Wiedmann, Buxel & Walsh 2002) can be developed and it is a key to identify customers’ demographic and behavioural analysis. Besides that, web tracking by cookie files and hit counters (which are now run by a web agent) is one of the ways to capture user interests on relevant information. This study also includes privacy as part of the dimension of customization and information management. Privacy refers to the degree to which an individual can determine which personal information is to be shared. In terms of the Internet, privacy means the quality of being secluded from the presence or view of others (disclosure) and the condition, which been concealed or exposed. When a user somehow feels secure in using a website this will develop a level of trust and loyalty.

Methodology

This study was conducted using website content analysis, which normally, covers the subject material within print newspapers. This is explained in the study from Krippendorff (1980) that identified four primary advantages of content analysis: it is unobtrusive, it accepts unstructured material, it is context sensitive and thereby able to process symbolic forms, and it can deal with large volumes of data. All of these advantages seem to apply equally to the Web as to media such as newspapers and television. Hence, McMillan (2000) itemizes five primary steps that are involved in the process of conducting analysis research for application to the Web. These steps are: formulate the research question and/or hypothesis, select a sample, define categories, well train the coder to determine reliability, and, finally, analyse and interpret the data. Nevertheless, the challenge of doing Web content analysis is significant. Bates and Lu (1997) believe that, “with the number of available websites growing explosively, and available directories always incomplete and overlapping, selecting a true random sample may be next to impossible.” Ha and James (1998) also claim that coding a website can be extremely time-consuming and introduce biases based on website size. Therefore, the study will take into these concerns into account and follow the primary steps mentioned to ensure a smooth process of conducting content analysis research of the Web.

The study uses Li’s (1998), Massey and Levy’s (1999), and Massey’s (2000) method which analyses the key part of online newspaper’s home page. The homepage or front page is the most often visit by Internet users because this serves as the ‘front door’ to visitors and it is the point at which most web features are implemented. If visitors have to search through several steps to find a feature, they are likely to experience frustration and leave. To begin with, the coder set and saved twelve web addresses (for example, <http://www.smh.com.au/>) in the computer (Added to Favourite) as the default page domain to standardize and make the coding process easier. Only one coder was involved so that no between coder reliability measure was required. The chosen websites were originally operating as print-based newspapers only. Two different snapshots were undertaken; first in autumn 2006 and another a year later. As explicated above, the five major interactivity features were measured:

- content availability and choice – value proposition (news links placed at the home page, related news items, news updates, news in audio, video, and pictures, archives, and news alerts) and peripheral value proposition (sitemap, search engine, choice of languages, advertisements, graphs and/or charts, jobs, weather updates, and infotainment like games, polls, contests, cartoons, and entertainment guide),
- communication opportunity – sessional (chat room, video conference, games), semi-permanent (Emails, forums, opinions letters, and bulletins), and permanent communication (web blogs),
- effort of users – easy to navigate (offer registration before retrieve news, getting news with single click and multi clicks) and connectedness (offer links within same subdirectories and other sites),
- responsiveness – user response time (communication between user and reporter/editor), and system response time (time taken in retrieving news), and
- customization and management of information – personalization (require user’s password), hits counter and privacy (clear statements of privacy policy act, user’s security and access to the collected information, shared third party or partners, and contact details).

Results

Content availability and choice was found to be the most significant element of interactivity featured prominently in the top four Australian online newspapers (Herald Sun, Daily Telegraph, Sydney Morning Herald, and The Age). However generally, all twelve newspapers indicated an increase in the amount of news on their homepage although not all top stories provided relevant links within the issue. Comparing 2006 to 2007, The Canberra Times and West Australian demonstrated more than a 80% increment of news, followed by the Australian Financial Review (AFR) with a 75% increment. In addition, there were now significantly more news articles displayed with pictures and videos. The majority prominently identify the latest news update by using titles such as, *Breaking News*, *Latest News* and *News Wire*. AFR also provided the time and source of news (e.g.: Reuters and AAP) in each news article. Unfortunately, AFR launched a subscription service in mid year 2006 and this limited the study by restricting free analysis on the AFR website. Archives and news alerts are the other most available content elements in Australian online newspapers. Surprisingly, The Australian and Canberra Times placed editorial cartoons on their homepage as all others, except Northern Territory, who provide a link to this feature. In addition to these VP elements, PVP elements too had some significant findings. For example, a large amount of advertisements and contests appeared on the homepages. The Canberra Times offered an in-house search engine similar to those owned by News Corporation. Others that were owned by Fairfax and the West Australian, offered both internal and Yahoo search engine, none had Google. The majority locate weather, entertainment guide (except AFR), calendar, company’s background, and jobs opportunity information within the

homepage. Herald Sun, West Australian and Daily Telegraph included internal recruitment opportunities. Unfortunately, no choice of languages was offered by any of the Australian online newspapers.

In regard to the effort of users, most news was retrieved only with a single click from the homepage. This is in line with Massey and Levy (2000) who also found 'hard' news published and carried through at least with one link. Links within the same site were found more frequently than links to other sites. As mentioned by Ha and James (1998), most companies only wanted to confine their visitors to the connected world of the company and not to other sources. On communication opportunity, the majority of online newspapers (excluding West Australian, Mercury and Northern Territory) offered discussions – semi permanent communication, for instance *Opinions* and blogs (permanent communication opportunity), which give readers the opportunity to interact and draw comments in addition to other channels such as Letters to Editor and Feedback columns that are generally available. For sessional communication opportunities, the Northern Territory was the only online newspaper to gratify users' desire for a games element (15 games). Neither chat rooms nor a reporter's direct email on a news article was found in this study.

In respect of responsiveness, AFR, which was placed in medium category, has an average system response time (within 6-10 seconds). Graphs and charts that are frequently placed on the home page may be responsible for this. In terms of the user's response time, some were in the high and medium category. Online readers were expected to receive notification of email on average within 72 hours. Other interactivity elements were equally poor for example, with respect to customization and management of information many are not clear on their privacy policy. Some such as The Canberra Times had no information on customer's full access to the collected information and no contact details were provided.

Comparing the news outlets throughout the year, The West Australian had tremendous change from a simple website to a competitive layout by displaying more news links, pictures and increase online advertisements. Meanwhile, the Canberra Times had significant change by increasing news links, adding in new columns such as a regional news folder at top right of the page, *send us your news* and *Reader's Poll* at the centre of the page, and *most viewed articles* at the bottom. Overall, there were no changes on SMH and The Age. In fact, they shared similar layout except for the content priority between National and World news. Also, there were some content differences; Column 8, Entertainment Blogs and Obituaries Column were not included in The Age online newspaper. Meanwhile, The Courier Mail and The Australian online newspapers, owned by News Corporation maintained the same layout across both years. The current layout for the Herald Sun, Daily Telegraph, Advertiser and Mercury appear to resemble The Courier Mail website design. In specific, the Herald Sun and Daily Telegraph menu folder was shifted from the left to top of the page to now incorporate a 'multimedia' screen at centre and bottom page. The Advertiser, were recently named Adelaide Now, carried a similar design but with different colour presentations. The Mercury now has additional columns such as Your Say, Our Say, and Entertainment: Gigs and Events which were included in the new outlook. Lastly, Northern Territory is judged to be the simplest layout compared with others under News Corporation. It now has an even simpler layout than the previous year with no sitemap and most news links revert to the main News Corporation news website. The 2007 snapshot, we saw distinctive developments of coherent image and standardization from the big company like Fairfax and News Corporation.

Discussion and Conclusion

This exploratory study investigated interactivity concepts of online newspapers within the Australian environment. The researchers used website content analysis approach to map Heeter's six interactivity dimensions, namely: content availability and choice, effort of users, communication opportunity, responsiveness, and customization and information management. Two snapshots of the websites were taken on two different days twelve months apart. As expected, the results show an increase in the number of news placed on the homepage of online newspapers. Also, obvious is the improvement in presentation with varied colours, pictures, slides, audio and videos as noted by Gilder (1994) who stressed that the news industry needs to attract more readers in delivering their products and news in real time, increasing the quantity of information, upgrading news with photographs and videos while enhancing the richness and timeliness of news. Non news links have also increasing. New designs now incur users less effort in retrieving news. This is in accord with the research of McMillan (1998), Heeter (1989; 2000), Dholakia et al (2000), and Deuze (2003). They stressed the importance of easy navigation structures especially at the front page of the website as shown in this study, which is central to avoid user exhaustion while reading online news.

As to future directions, Australian online newspapers may need to consider the *playfulness* element as mentioned by Ha and James (1998), which arouses reader's curiosity. From the results, the Northern Territory was the only Australian online newspaper that incorporated games while the rest merely offer contests and polls. Clearly, curiosity avenues like games will attract readers' attention and entice their participation during their visit to an online newspaper, for example online Sudoku and Wordo. This could be a turning point for an online newspaper companies who lack emphasise in elements on infotainment and entertainment. Moreover, it may attract the younger population to visit the website. According to Bressers and Bergen (2002), male and female users differ, as female access more science/health news, entertainment news and local news. Indeed, online newspapers are evolving and *interactivity* is the keyword (Kenny, Gorelik & Mwangi 2000; Şanlıer & Tağ 2005). Interactivity improvements could allow users not only to link with local related news and relevant sites, to access original source material, audio or visual materials, archives, online discussion groups and newspaper staff etc; but also to allow users to create their own news stories. Online newspapers should also incorporate *diversification* of online products and engage elements of *playfulness* which include developing products designed to attract specific demographic groups, for example, males, to read and play on recreation/sports (Ha & James 1998; Bressers & Bergen 2002).

This study serves as a preliminary study in exploring interactivity among Australian online newspaper industry using website content analysis approach, while future research should seek more creative users' perceptions towards online newspaper. Looking at the increasing capability of computer technology, the news industries should try to attract and engage more readers by delivering their products and news in real time, increased the quantity of information, upgrade news with photographs and videos while enhanced the richness and timeliness of news. In some cases, the news industry has expended their news coverage with extended editorials, feature writings, forums and blogs, but more could be offered such as in Three-dimensional (3D) virtual environment - Second Life. As Palmer and Eriksen (1999), Deuze (2003), and Boczkowski (2004) agree, online newspapers must expand in multimediality, which offer more communication opportunity and interactivity. All of these elements can be added into modern interactive media and may able to facilitate the effector growth. Such featured devices hopefully, may attract the future web visitors' attention and involvement during their visit to online newspapers.

References

- Alba, J, Lynch, J, Weitz, B, Janiszewski, C, Lutz, R, Sawyer, A & Wood, S 1997, 'Interactive home shopping: Consumer, retailer, and manufacturer incentives to participate in electronic marketplaces', *Journal of Marketing*, vol. 61, no. 3, p. 38.
- Asia Media: Media News Daily 2006, 'Tsunami: One Year Later, Whither the newspaper?' *Japan Times*, viewed 3 July 2006, <<http://www.asiamedia.ucla.edu/tsunami/1yearlater/article.asp?parentid=47491>>
- Bates, M & Lu, S 1997, 'An Exploratory Profile of Personal Home Pages: Content, Design, Metaphors', *Online & CDROM Review*, vol. 21, no. 6, pp. 331-40.
- Boczkowski, PJ 2004, 'The Processes of Adopting Multimedia and Interactivity in Three Online Newsrooms', *Journal of Communication*, vol. 54, no. 2, p. 197.
- Bouch, A, Kuchinsky, A & Bhatti, N 2000, 'Quality is in the Eye of the Beholder: Meeting Users' Requirements for Internet Quality of Service', paper presented to Proceedings of the ACM CHI 2000 Human Factors in Computing Systems Conference, The Hague, The Netherlands.
- Bressers, B & Bergen, L 2002, 'Few university students reading newspapers online', *Newspaper Research Journal*, vol. 23, no. 2-3, p. 32.
- Chaffey, D, Mayer, R, Johnston, K & Ellis-Chadwick, F 2000, *Internet Marketing: Strategy, Implementation and Practice*, Pearson Education, Harlow, England.
- Chen, K & Yen, DC 2004, 'Improving the quality of online presence through interactivity', *Information & Management*, vol. 42, no. 1, p. 217.
- Chou, C 2003, 'Interactivity and interactive functions in web-based learning systems: a technical framework for designers', *British Journal of Educational Technology*, vol. 34, no. 3.
- ClickZ Stats 2006, *Trends & Statistics: The Web's Richest Source* viewed 5 April 2007 <http://www.clickz.com/showPage.html?page=stats/web_worldwide>
- Deuze, M 2003, 'The Web and its Journalisms: Considering the Consequences of Different Types of Newsmedia Online', *New Media Society*, vol. 5, no. 2, pp. 203-30.

- Dholakia, RR, Zhao, M, Dholakia, N & Fortin, DR 2000, *Interactivity and Revisits to Websites: A Theoretical Framework*, viewed 26 June 2006 <<http://ritim.cba.uri.edu/wp/>>
- Downes, EJ & McMillan, SJ 2000, 'Defining Interactivity: A Qualitative Identification of Key Dimensions', *New Media & Society*, vol. 2, no. 2, pp. 157-79.
- Ferber, P, Foltz, F & Pugliese, R 2005, 'The Internet and Public Participation: State Legislature Web Sites and the Many Definitions of Interactivity', *Bulletin of Science, Technology & Society*, vol. 25, no. 1.
- Fortunati, L, Raycheva, L, Harro-Loit, H & O'Sullivan, J 2005, 'Online News Interactivity in Four European countries: A Pre-Political Dimension ', paper presented to Digital Utopia in the Media: From Discourses to Facts: III International Conference Communication and Reality, Abalance.
- Gilder, G 1994, 'Fidler's Electronic News Panel is a better bet for the future than home shopping', *ASNE Bulletin*.
- Greenspan, R 2003, 'What They're Doing Down Under', *ClickZ Stats*, viewed 3 July 2006, <<http://www.clickz.com/showPage.html?page=3090361>>
- Gustavsen, PA & Tilley, E 2003, 'Public relations communication through corporate websites: Towards an understanding of the role of interactivity', *PRism*, vol. 1, no. 1.
- Ha, L & James, EL 1998, 'Interactivity reexamined: A baseline analysis of early business Web sites', *Journal of Broadcasting & Electronic Media*, vol. 42, no. 4, pp. 457-74.
- Heeter, C 1989, 'Implications of New Interactive Technologies for Conceptualizing Communication', in JL Salvaggio & J Bryant (eds), *Media Use in the Information Age: Emerging Patterns of Adoption and Computer Use*, Lawrence Erlbaum Associates, Hillsdale, NJ, pp. 217-35.
- 2000, 'Interactivity in the Context of Designed Experiences', *Journal of Interactive Advertising*, vol. 1, no. 1.
- Hoffman, DL & Novak, TP 1996, 'Marketing in hypermedia computer-mediated environments: Conceptual foundations', *Journal of Marketing*, vol. 60, no. 3, pp. 50-68.
- Jensen, JF 1998, 'Interactivity: Tracking a New Concept in Media and Communication Studies', in PA Mayer (ed.), *Computer Media and Communication: A Reader*, Oxford University Press, Oxford, pp. 160-87.
- Kawamoto, K 2003, *Digital journalism: Emerging media and the changing horizons of journalism*, Rowman & Littlefield, Lanham, Md.
- Kenny, K, Gorelik, A & Mwangi, S 2000, 'Interactive Features of Online Newspapers', *First Monday*, vol. 1, no. 1.
- Kiouis, S 2002, 'Interactivity: a concept explication', *New Media Society*, vol. 4, no. 3, pp. 355-83.
- Ko, H, Cho, C-H & Roberts, MS 2005, 'Internet uses and gratifications: a structural equation model of interactive advertising', *Journal of Advertising*, vol. 34, no. 2, p. 57(14).
- Kopper, GG, Kolthoff, A & Czepek, A 2000, 'Research Review: Online Journalism - a report on current and continuing research and major questions in the international discussion', *Journalism Studies* vol. 1, no. 3, pp. 499-512.
- Krippendorff, K 1980, *Content Analysis: An Introduction to Its Methodology*, Sage, Newbury Park, CA.
- Lee, J 2005, 'Australia: Mixed news for papers', *Asia Media: Media News Daily*, viewed 3 July 2006, <<http://www.asiamedia.ucla.edu/article.asp?parentid=31541>>
- Leung, C-H, Chan, Y-M & Wu, AK-W 2002, 'Importance of Interactivity and Customization in Online Learning', paper presented to Proceedings of the International Conference on Computers in Education (ICCE'02), Auckland, New Zealand.
- Li, X 1998, 'Web Page Design and Graphic Use of Three U.S. Newspapers', *Journalism and Mass Communication Quarterly*, vol. 75, no. 2.
- Liu, Y & Shrum, JL 2002, 'What is Interactivity and Is It Always Such a Good Thing? Implications of Definition, Person, and Situation for the Influence of Interactivity on Advertising Effectiveness', *Journal of Advertising*, vol. 31, no. 4.
- Loiacono, ET, Watson, RT & Goodhue, DL 2002, 'WebQual: A Measure of Web Site Quality', paper presented to American Marketing Association Conference Proceedings.

- Lowry, PB, Spaulding, T, Wells, T, Moody, G, Moffit, K & Madariaga, S 2006, 'A Theoretical Model and Empirical Results Linking Website Interactivity and Usability Satisfaction', paper presented to 39th Hawaii International Conference on Systems Science (HICSS-39 2006), Kauai, Hawaii USA.
- Massey, BL 2000, 'Market-based predictors of interactivity at Southeast Asian online newspapers', *Internet Research*, vol. 10, no. 3, p. 227.
- Massey, BL & Levy, MR 1999, 'Interactivity, online journalism, and English-language Web newspapers in Asia', *Journalism and Mass Communication Quarterly*, vol. 76, no. 1, p. 138.
- McMillan, SJ 1998, 'Who Pays for Content? Funding in Interactive Media ', *Journal of Computer-Mediated Communication*, vol. 4, no. 1.
- 2000, 'Interactivity Is in the Eye of the Beholder: Function, Perception, Involvement, and Attitude toward the Web Site', paper presented to Proceedings of the 2000 Conference of the American Academy of Advertising, East Lansing, Michigan State University.
- 2002, 'A four-part model of cyber-interactivity: Some cyber-places are more interactive than others', *New Media Society*, vol. 4, no. 2, pp. 271-91.
- McMillan, SJ & Hwang, J-S 2002, 'Measures of perceived interactivity: an exploration of the role of direction of communication, user control, and time in shaping perceptions of interactivity', *Journal of Advertising*, vol. 31, no. 3, pp. 41-54.
- Middleton, CA 2002, 'Exploring Consumer Demand for Networked Services: The Importance of Content, Connectivity, and Killer Apps in the Diffusion of Broadband and Mobile Services', paper presented to Proceedings of the Twenty-Third International Conference on Information Systems, Barcelona.
- Morris, M & Ogan, C 1996, 'The Internet as Mass Medium', *Journal of Computer-Mediated Communication*, vol. 1, no. 4.
- Novak, TP, Hoffman, DL & Yung, Y-F 2000, 'Measuring the Customer Experience in ONLINE Environments: A Structural Modeling Approach', *Marketing Science*, vol. 19, no. 1.
- Palmer, JW & Eriksen, LB 1999, 'Digital newspapers explore marketing on the Internet ', *Communications of the ACM* vol. 42, no. 9, pp. 32-40.
- Paulussen, S 2004, 'Online News Production in Flanders: How Flemish Online Journalists Perceive and Explore the Internet's Potential ', *Journal of Computer-Mediated Communication* vol. 9, no. 4.
- Pavlou, PA & Stewart, DW 2000, 'Measuring the Effects and Effectiveness of Interactive Advertising: A Research Agenda', *Journal of Interactive Advertising*, vol. 1, no. 1.
- Rafaeli, S 1988, 'Interactivity: From new media to communication', in JMW R. P. Hawkins, & S. Pingree (ed.), *Sage Annual Review of Communication Research: Advancing Communication Science: Merging Mass and Interpersonal Processes*, Sage, Beverly Hills, CA, vol. 16, pp. 110-34.
- Rafaeli, S & Newhagen, JE 1996, 'Why Communication Researchers Should Study the Internet: A Dialogue', *Journal of Computer-Mediated Communication*, vol. 1, no. 4.
- Rafaeli, S & Sudweeks, F 1997, 'Networked interactivity', *Journal of Computer-Mediated Communication*, vol. 2, no. 4.
- Roy Morgan Research 2005, *Australia: New Readership figures for the year ending June 2005*, Roy Morgan Research viewed 1 July 2006 <http://www.publicitas.com/display.asp?id=6.8&chp=6.3&foot=6.9&cpny=* &PARAM1=14865>
- anlier, Ö & Ta , 2005, 'Interactive Features of Online Newspapers and News Portals in Turkey', paper presented to 3th International Symposium Communication in the Millennium, Chapel Hill, NC, USA, May 11-13.
- Stromer-Galley, J 2004, 'Interactivity-as-Product and Interactivity-as-Process', *The Information Society* vol. 20, no. 5, pp. 391 - 4
- Webster's New Millennium Dictionary of English 2005, viewed 3 July 2006, <<http://dictionary.reference.com/serach?q=interactivity>>
- Wiedmann, K-P, Buxel, H & Walsh, G 2002, 'Customer profiling in e-commerce: Methodological aspects and challenges', *Journal of Database Marketing*, vol. 9, no. 2, p. 170.
- Wu, G 1999, 'Perceived Interactivity and Attitude toward Website', paper presented to Proceedings of the 1999 Conference of the American Academy of Advertising, Albuquerque, New Mexico.

Yadav, MS & Varadarajan, R 2005, 'Interactivity in the Electronic Marketplace: An Exposition of the Concept and Implication for Research', *Journal of the Academy of Marketing Science*, vol. 33, no. 4, pp. 585-603.

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