
USING THE INFORMATION NEEDS OF INTERNET USERS IN COMBATING DISRUPTIVE INNOVATIONS IN THE NEWSPAPER INDUSTRY

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ABSTRACT

This article focuses on the relatively new concept of disruptive innovation, which has proved to be a useful analytical tool for understanding how technological innovation can play an important role in shaping many industries in society. The impact of disruptive innovations is perceived as a serious problem by most traditional newspapers, and even as threatening the future existence of the newspaper industry in its current form. Also relevant is the so-called Newspapernext strategy, a four-step strategy designed specifically for newspapers concerned about the impact of disruptive innovations. The first of the four steps to combat disruptive innovations consists of determining the information needs of a sample representing a potential new market for the newspaper. The study described in this article consists of an online survey of information needs, conducted amongst a randomly drawn sample of South African Internet users, and is an application of the first phase of the Newspapernext strategy. The article identifies and discusses patterns of information needs found among the respondents, and makes suggestions on how the findings can be implemented by newspapers wishing to proactively combat disruptive innovations.

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BACKGROUND AND MOTIVATION

Technological innovations have always been considered to have the potential to be disruptive. One of the earliest theorists on innovation, Joseph Schumpeter viewed innovation as a critical dimension of economic change. According to Todd (2011: online), Schumpeter argued (e.g. in his book *Capitalism, socialism and democracy*, first published in 1942) that innovation often resulted in an economic process of “disruptive change”. For example, when a new product or technology was superior in performance to existing market-leading products or technologies, the innovation process could bring about disruptive change in the sense of the incumbent(s) losing market share, and often even being replaced.

Subsequent formulation of theories and models of innovation expanded largely on the insights of Schumpeter. According to Scocco (2006: online), these included the distinction between radical and incremental innovation; the Henderson-Clark model (which included, besides the incremental-radical dichotomy, other contextual variables that could influence the circumstances under which a company could innovate); the Teece model (used for predicting who will profit from an innovation); the S-curve framework (used for analysing technological cycles to predict the introduction, adoption, and maturation of innovations); and the Abernathy-Utterback model (linking product innovation, process innovation, competitive environment, and organisational structure).

In 1997 the appearance of Clayton Christensen’s bestseller *The Innovator’s Dilemma* provided a new dimension to the innovation theory debate. This was the introduction of the dichotomy between sustaining innovation and disruptive innovation. A sustaining innovation helps established companies by improving the performance of an existing product in a way that mainstream customers value (Scocco 2006: online). On the other hand, a disruptive innovation does not pose an immediate threat to established companies as it initially appears to be inferior to the incumbent product. Initially Christensen (1997) used the term “disruptive innovation” interchangeably with the term “disruptive technology”, but later the preferred term became “disruptive innovation” (Christensen & Raynor 2003).

The logic of the process underlying the impact of a disruptive innovation can be described as follows:

A disruptive innovation has a particular dynamic that endangers incumbents. The incumbent’s product has two primary dimensions of merit, A and B. (For example, A could be quality and B could be speed of delivery). Mainstream customers are mostly interested in A but there is a minority customer set that values B more than A. The disruptive innovation, at launch, is weak on A but strong on B. As such, it attracts only the minority. Because mainstream customers don’t want

it, incumbents tend to ignore the new entrant and the new technology. But over time, technology improves, and the innovation gets better and better at A. Eventually it meets the needs of mainstream customers on dimension A, and, since they also place at least some value on B, they start choosing the new product. The incumbent is suddenly disrupted; they have ignored the new technology all along (Govindarajan & Trimble 2009: online).

Sandström (2010: online) lists several examples of disruptive innovations as originally defined by Christensen, for example the transistor radio. The transistor radio initially had worse sound quality than the incumbent technology, namely analogue radio, but on the plus side the transistor radio was portable and had low battery consumption, which initially attracted a small portion of customers. Eventually the transistor radio's sound quality was improved, and this led to the transistor radio attracting mainstream customers, and eventually replacing analogue radio. Other examples of disruptive innovations mentioned by Sandström (2010: online) are:

- ♦ Portable pocket calculators that eventually replaced desktop calculators, despite an initial poorer computing performance;
- ♦ LCD TV (with low weight and low battery consumption) that eventually replaced Cathode Ray TV, despite an initial poorer image quality; and
- ♦ Digital cell phones that are replacing regular analogue phones despite being (initially) more expensive and (initially) having an inferior sound quality.

Disruptive innovation has proved to be a useful analytical tool for understanding how technological innovation has played an important role in shaping many industries in society. For this study the changes brought about by innovation in the communication field, and specifically with regard to the newspaper industry, are of relevance, and will be discussed in the next section.

RESEARCH PROBLEM

One of the industries that has been affected most by disruptive innovations is the newspaper industry (Sterling 2008: 20-26). It is a world-wide phenomenon that newspapers increasingly experience competition for audiences from Internet-based self-help services, especially those that are often provided free of charge. Some examples of such disruptive innovations threatening the newspaper industry, as regards advertising income for one, are online classified services (e.g.

Craigslist), online local searches, and online initiatives providing lead generation services, whereby, as described by Lake (2011: online), potential buyers fill in online quote requests on an agency website, and the details of these buyers and their requirements are then sold to businesses. Sterling (2008) also lists direct marketing and mobile solutions to specific information needs (especially those involving the immediacy and interactivity of the Internet in news searches) as disruptive innovations threatening the newspaper industry.

Although the world's print media are struggling to hold on to traditional and shrinking readerships and advertising markets, they still seem able to hold their own against this digital encroachment in developing countries in Africa and South America, and in India and China. In South Africa for instance, publications like *Daily Sun* and the isiZulu newspapers *Isolezwe* and *Ilanga* have prevented an even more serious slump in print newspaper circulation overall. Community newspapers and "freebies" (free newspapers) are doing well, but "a long-term analysis of circulation numbers of leading publications reveals an industry in decline" (Van Niekerk 2012: online).

The impact of these and similar disruptive innovations is viewed as a serious problem by most traditional newspapers, and is perceived by many as threatening the existence of the newspaper industry in its current form. It is reminiscent of the previous "innovation" crisis when new ICT print technology over-ran the traditional production and labour intensive processes that lead to the Electronic Page Layout (EPL) printing process and Desk Top Publishing (DTP) revolution towards the end of the previous century (Melvern 1986; Outing 2005). The way most newspapers initially reacted to this threat was to make their own internal production processes more digital, supported by the financial backing of the likes of Rupert Murdoch and Eddie Shah who saw huge savings through layoffs of redundant employees. This on-going digitisation process has in itself transformed the newspaper industry to a large extent, e.g. contributing to the so-called "death of Fleet Street" in England (Harris 1997: 292; Melvern 1986). Harrower (2008: 2) points out that if newspapers do not adapt and evolve further, they run the risk of becoming as extinct as dinosaurs, or as former communication media such as smoke signals and the telegraph.

Crosbie (2006: online) refers to various stages of media transformation:

[J]ust like how then-new technologies were used a century ago to make the sky a new and practical medium for transportation – new technologies have now been used to create the New Medium for communications ... Among the technologies needed to create this New Medium were the invention of digital communications during the late 1940s, invention of the Transport Control/Internet Protocol ((TCP/IP)

during the late 1960s, ARPANET's creation of the Internet and other people's invention of the personal computer during the 1970s, and to a lesser extent the invention of the HyperText Transport Protocol (HTTP) in the late 1980s, opening of the Internet to the public in 1992, and invention of the graphical browser software later that year. Those and other technological innovations converged to create a new communications medium that has characteristics inconceivable even a decade ago.

In South Africa the competition from online sources is seen as a significant threat to newspaper circulation figures (Myburgh 2011: online). In fact, it appears that it is only the local tabloid press (spearheaded by *Daily Sun*) that has not been plagued by worrying diminishing readership figures over recent years (Joubert 2009: 13). But, since 2009 even this phenomenon in the South African newspaper industry has shed circulation (partly attributed to distribution system problems) from a high of 500 000+ to 375 185 (ABC 2012).

From the above it is clear that the Internet is increasingly being used as a medium for offering information to the public for certain actions that was previously obtained from newspapers. It is for this reason that this article – in an attempt to address this problem facing the newspaper industry in South Africa – focuses largely on the information needs of local Internet users. It is expected that, as access to the Internet in the country increases from year to year, these information needs will become increasingly relevant to all institutions and media involved in information production and/or dissemination in the country. Up till now it seems that some protection has been provided for these newspapers, as South African advertisers have yet to "...substantially shift their spending from print to online (as they have done in the United States)" (Myburgh 2011: online).

South African newspapers should also take heed of recent local Internet availability statistics:

[T]he South African Internet user base had grown from 6.8 million in 2010 to 8.5 million at the end of 2011 – no less than 25% growth. World Wide Worx also forecast that this strong growth would continue during 2012, and the Internet user base would pass the 10 million mark by the end of the year (World Wide Worx 2012: online)

Arthur Goldstuck (2012: online), Managing Director of World Wide Worx, was quoted as saying:

The Internet has finally awoken, fully, in South Africa. Penetration is now approaching 20%, and for the first time we can see the mass market embracing digital tools on their phones.

Justin Zehmke, Executive Producer of howzit MSN, was also quoted as stating that:

[A] total of 7.9 million South Africans access the Internet on their cell phones. Of these, 2.48 million access it only on their cellphones, and do not have access to computers. The remaining 6.02 million users access the Internet on computers, laptops, and tablet computers. However, 90% of this number – 5.42 million – also gain access to the Internet on their cellphones. This means that almost 8 million South Africans sometimes or regularly access the Internet on their phones. This has huge implications for media and social networks. It means that, in the coming years, all services offered online will also have to be offered on cell phones (Zehmke 2012: online).

Crosbie (2006: online) argues that broadly three communication media exist: interpersonal communication; mass media communication; and what he prefers to call the New Medium (as opposed to the now vested “New Media” which he calls “Colloquial”). His viewpoint is that “... the New Medium for communications... is *entirely dependent upon technology* unlike its two preceding media”. The New Medium refers to a communication style of “many to many” which is not possible without technology. Therefore the communication tools (vehicles) like online publications, social media, RSS feeds, etc. used in this medium must utilise the technology fully as instruments in a new communication environment. One could argue that this technology is disruptive because broadcast and publishing executives still do not understand that it is wrong to see “mass media” as a catchall phrase for “all possible media”, as if no other medium can exist except as a mass medium. Not fully embracing the concept of the New Medium with its new technology could lead to an inability to break through from communicating not only interpersonally (one-on-one) or via mass communication (one-to-many), but from many-to many.

The question facing newspapers is what can be done about this problem of online disruptive innovations? In 2003, Christensen published another bestseller on disruptive innovation, this time titled *The Innovator's Solution*, providing a detailed strategy for institutions wanting to counteract the above-mentioned threatening and negative effects of disruptive innovation (Christensen & Raynor 2003).

One well-known initiative in America that is making use of this strategy of Christensen to combat disruptive innovation in the newspaper industry is the initiative of the American Press Institute (API) called the Newspapernext project. The Newspapernext strategy involves the following four steps (Sterling 2008: 20-26):

- ◆ Newspapers should first conduct a survey among potential markets (including readers and non-readers of the newspaper conducting the survey, or advertisers and those who have not yet advertised in the newspaper) to determine what the potential markets' information needs are. In the terminology of Christensen (Christensen & Raynor 2003), the aim of the survey could be formulated as trying to determine what information-related "jobs to be done" (jtbd) the potential markets have.
- ◆ Next, newspapers should develop potential solutions for the identified information needs (or information-related "jobs to be done").
- ◆ Third, each newspaper should assess these possible solutions as to whether or not it is possible and practical (for that particular newspaper) to implement.
- ◆ Finally, the newspapers should implement and test the most promising solutions in practice.

The study described in this article can be seen as an attempt to apply step one of this strategy by conducting a survey among a group of South African respondents (all Internet users) in order to determine what information-related "jobs to be done" the respondents would like to have with regard to the various information and communication media at their disposal. Stated differently, the problem was to determine their information needs with regard to the information and communication media at their disposal. More specifically, Internet users' need for the following nine types of information (many of them traditionally provided by print newspapers) were studied:

- ◆ news-related information (e.g. reports or commentary on local/international events, politics, crime, sport, etc.);
- ◆ entertainment-related information (e.g. about movies, shows, music, reading, hobbies, lifestyle, etc.);
- ◆ education-related information (e.g. teaching materials, publications, educational events/ institutions, schools, etc.);
- ◆ health-related information (e.g. about hospitals, practitioners, medicines, illnesses, etc.);
- ◆ financial or economics-related information (e.g. stock market data, advertisements, buying, selling, etc.);

- ◆ tourism-related information (e.g. about destinations, hotels, maps, etc.);
- ◆ work-related information (e.g. specialist or professional information);
- ◆ social contact/communication-related information (e.g. via letters, postings, notices, messages, etc.); and
- ◆ environment-related information (e.g. global warming, pollution, water, endangered species, etc.).

OBJECTIVES OF THE STUDY

The overall objective of this study was to obtain information that could possibly be used by the newspaper industry to counter the impact of disruptive innovations on the print newspaper industry in South Africa, according to the principles of the Newspapernext strategy's first step (Sterling 2008: 20-26).

The study had two more specific objectives, namely to determine among a sample of respondents of Internet users the following types of information that could be of use to combat the impact of disruptive innovations on the print newspaper industry in South Africa:

- ◆ the respondents' most prominent information needs with regard to a number of specific information/communication media studied; and
- ◆ the respondents' priorities with regard to which of these information/communication media were needed most for satisfying their need for obtaining all of a number of types of information.

RESEARCH QUESTIONS

The overall research question that was studied was:

What are the respondents' patterns of information needs with regard to a number of specific information/communication media studied?

The more specific research sub-questions were:

1. What are the respondents' most prominent information needs with regard to each of the following information/communication media?
 - ◆ print newspapers
 - ◆ television
 - ◆ radio
 - ◆ magazines/journals

- ♦ social media (e.g. Facebook, Twitter, Youtube, MXit, etc.).
 - ♦ online newspapers
 - ♦ other Internet-based databases/services/programmes (e.g. Google, e-portals, Wikipedia, blogs)
 - ♦ interpersonal sources of information (e.g. other people)
2. Which of these information/communication media are perceived to be most important by the respondents for satisfying their need for each of the following types of information?
- ♦ news-related information (including reports or commentary on local/international events, politics, crime, sport, etc.);
 - ♦ entertainment-related information (about movies, shows, music, reading, hobbies, lifestyle, etc.);
 - ♦ education-related information (information on teaching materials, publications, educational events/ institutions, schools, etc.);
 - ♦ health-related information (about hospitals, practitioners, medicines, illnesses, etc.);
 - ♦ financial or economics-related information (including stock market data, advertisements, buying, selling, etc.);
 - ♦ tourism-related information (e.g. about destinations, hotels or maps);
 - ♦ work-related information (e.g. specialist or professional information);
 - ♦ social contact/communication-related information (e.g. via letters, postings, notices, messages, etc.); and
 - ♦ environment-related information (about global warming, pollution, water, endangered species, etc.).

RESEARCH METHODOLOGY

The study consisted of an online survey that was conducted among a randomly drawn sample of Internet users in South Africa. The survey was funded by a grant from the National Research Foundation (NRF). The reason why Internet users were the specific focus of this study was that they are the target users of most of the disruptive innovations that had been found to be impacting on the newspaper industry. Internet users are therefore logically also the most likely target recipients of any future counter measures that could be developed for the newspaper industry on the basis of surveys such as the one conducted in this study.

Population/participants

The target population of this study was adults (i.e. 18 years or older) in South Africa who have access to the Internet. The accessible population was the nationwide online database (consisting of a panel of approximately 16 000 adult Internet users) that has been built up by Gauteng research agency Consulta Research. The sampling procedure used in this study and applied to this accessible population of Internet users was random sampling. A total sample of 1018 respondents was finally obtained.

From Table 1, which provides details of the composition of the realised sample, it can be seen that the sample contained about as many male as female respondents. Also, although the sample contained respondents representing nine language groups coming from nine provinces, most of the respondents were either English or Afrikaans speaking and came mostly from Gauteng, the Western Cape or KwaZulu-Natal. This composition has implications for the external validity of the study, and means that the findings cannot automatically be generalised to all language groups and provinces in the country.

TABLE 1: REALISED SAMPLE OF RESPONDENTS

Variables	Categories (frequencies and percentages)	Total
Gender	Male = 510 (50.1%); Female = 507 (49.8%); Missing/other = 1 (0.1%)	1018 (100%)
Age	18-25 yrs. = 33 (3.2%); 26-35 yrs. = 197 (19.4%); 36-45 yrs. = 266 (26.1%); 46-55 yrs. = 258 (25.3%); 56-65 yrs. = 170 (16.7%); 66+ yrs. = 85 (8.3%); Missing/other = 9 (0.9%)	1018 (100%)
Home language	Afrikaans = 261 (25.6%); English = 732 (71.9%); IsiXhosa = 2 (0.2%); IsiZulu = 8 (0.8%); Sepedi = 4 (0.4%); Sesotho = 3 (0.3%); Setswana = 3 (0.3%); Tshivenda = 2 (0.2%); Xitsonga = 2 (0.2%); Missing/other = 1 (0.1%)	1018 (100%)
Province	Eastern Cape = 26 (2.6%); Free State = 27 (2.7%); Gauteng = 534 (52.5%); KwaZulu Natal = 141 (13.9%); Limpopo = 11 (1.1%); Mpumalanga = 21 (2.1%); North West = 20 (2.0%); Northern Cape = 7 (0.7%); Western Cape = 225 (22.1%); Missing/other = 6 (0.3%)	1018 (100%)

Data gathering instrument and procedure

Questionnaire

An online survey was conducted, containing the following types of questions:

Questions on media use (Section A): Respondents were asked how many hours they spent during the past week on each of the eight types of information media that were listed in the research questions, namely print newspapers, television,

radio, magazines/journals, social media, online newspapers, other Internet-based databases/services/programmes, and interpersonal sources of information.

Questions on perceived importance of media to satisfy information needs (Section B): Respondents were asked to indicate (on a five-point scale) how important they considered each of the above-mentioned eight types of information media were in terms of satisfying their need for each of nine types of information. The scoring of the possible response alternatives was 1 = not important at all; 2 = unimportant; 3 = not sure; 4 = important; 5 = very important. The nine types of information were the same as those mentioned in the research questions of this study, namely information that was either news-related, entertainment-related, education-related, health-related, financial or economics-related, tourism-related, work-related, social contact/communication-related, or environment-related.

Questions yielding demographic information about the respondents (Section C): Variables included were gender, age, language (spoken most at home) and province.

Data-gathering procedure

The survey was conducted online during the last few days of February 2012 by the staff of the agency Consulta Research from their head office in Centurion, using their nation-wide panel of Internet users from which the sample was obtained. All completed questionnaires were checked first for completeness and for suspicious response sets indicative of the respondent having opted for an obvious pattern of responses instead of applying his/her mind to the questions. All responses were captured in a Microsoft Excel spread sheet, which was then transformed into an SPSS dataset that could be used for statistical computations.

With regard to ethical issues, this study followed the guidelines as set out by the Research Ethics Committee of the Tshwane University of Technology's Faculty of Humanities. This meant *inter alia* that the researchers had to ensure that the participants' identity would remain anonymous, that their participation in the study was entirely voluntary, and that participation did not result in the participants experiencing any physiological/physical stress or pain, any emotional/psychological stress, or anxiety, or any cultural, social or financial risk/harm.

Data analysis

The data analysis was done by means of the SPSS statistical package and consisted of descriptive statistics, such as the calculation of frequencies and means, as well as standard errors and 95% confidence intervals for the means.

FINDINGS

This section contains the findings of the survey, presented in such a way as to link up with the two research sub-questions mentioned above. However, in order to place the other findings in perspective, some background data obtained from the question on the media usage of the respondents is provided first.

Background data on media usage

As part of the online survey, the first question that the respondents were asked was: “During the past week, about how many minutes did you spend on each of the following media/information sources?” In Table 2 the respondents’ answers are summarised by presenting the mean number of minutes that was spent on each medium/information source during the foregoing week. The table also provides the 95% confidence interval for each mean, which in turn can be used to compare any two means to determine whether or not they are statistically different. According to Knezevic (2008: online), if the 95% confidence interval of two means overlap, these means are not statistically different from each other, but if it does not overlap, the two means are statistically different on the 5% level of significance.

TABLE 2: MINUTES SPENT ON MEDIA/INFORMATION SOURCES DURING THE PREVIOUS WEEK

Media/information sources	Mean number of minutes spent on each medium per week	
	Mean	Confidence interval (95%)
Print newspapers	72.65	67.015 to 78.285
Television	540.63	482.89 to 598.37
Radio	438.98	408.702 to 469.2
Magazines / journals	70.19	63.228 to 77.152
Social media	165.31	143.521 to 187.099
Online newspapers	62.46	57.605 to 67.315
Other Internet	202.71	189.414 to 216.006
Interpersonal (other people)	364.77	319.743 to 409.797

It was found that of all eight media studied, the respondents spent relatively the most time on **television** – on average just over 540 minutes (i.e. about 9 hours) per week. The second position was shared between **radio** (with a mean of about 439 minutes per week) and **other people** (interpersonal) (about 365 minutes), but, as the confidence intervals of the two means overlapped, the difference between

TABLE 3: MEAN IMPORTANCE RATINGS OF MEDIA FOR SATISFYING DIFFERENT TYPES OF INFORMATION NEEDS

Medium	Mean importance ratings* (on rating scale from 1=Not important at all to 5= Very important)																	
	Info need: News		Info need: Entertainment		Info need: Education		Info need: Health		Info need: Finance/econ		Info need: Tourism		Info need: Work		Info need: Social contact		Info need: Environment	
	Mean	Conf interv	Mean	Conf interv	Mean	Conf interv	Mean	Conf interv	Mean	Conf interv	Mean	Conf interv	Mean	Conf interv	Mean	Conf interv	Mean	Conf interv
Print newspapers	3.58	3.541-3.619	2.94	2.899-2.981	3.33	3.288-3.372	3.15	3.107-3.193	3.93	3.893-3.967	3.34	3.299-3.381	3.41	3.367-3.453	2.63	2.588-2.672	3.84	3.802-3.872
Television	3.85	3.816-3.884	3.84	3.805-3.875	3.56	3.522-3.598	3.51	3.47-3.55	3.68	3.643-3.717	3.82	3.785-3.853	2.94	2.899-2.981	2.69	2.648-2.752	4.23	4.201-4.259
Radio	3.97	3.878-3.942	3.52	3.483-3.557	3.34	3.302-3.378	3.36	3.32-3.4	3.70	3.663-3.737	3.23	3.192-3.268	3.04	3.00-3.08	2.94	2.897-2.983	3.89	3.855-3.925
Magazines / Journals	3.19	3.154-3.226	3.27	3.232-3.308	3.57	3.533-3.607	3.59	3.553-3.627	3.53	3.493-3.567	3.91	3.877-3.943	3.55	3.511-3.589	2.77	2.729-2.811	3.88	3.845-3.915
Social Media	2.79	2.749-2.831	2.98	2.937-3.023	2.86	2.822-2.898	2.45	2.411-2.489	2.39	2.352-2.428	2.82	2.778-2.862	2.58	2.539-2.621	3.68	3.636-3.724	2.94	2.896-2.984
Online newspapers	3.56	3.52-3.60	3.03	2.99-3.07	3.26	3.22-3.30	3.06	3.019-3.101	3.57	3.529-3.611	3.14	3.099-3.181	3.28	3.237-3.323	2.67	2.628-2.712	3.56	3.519-3.601
Internet	3.87	3.837-3.903	3.69	3.655-3.725	4.18	4.148-4.212	4.06	4.027-4.093	4.03	3.996-4.064	4.20	4.168-4.232	4.22	4.188-4.252	3.62	3.583-66	4.06	4.027-4.093
Other people	3.76	3.728-3.792	3.88	3.848-3.912	3.71	3.676-3.744	3.80	3.766-3.834	3.57	3.536-3.604	4.03	3.999-4.061	3.97	3.938-4.002	4.01	4.373-4.427	3.80	3.757-3.833

* The **shaded** cells contain the statistically most prominent means; underlined values in shaded cells indicate the statistically most prominent mean(s) in a row; **bold italic values** in shaded cells indicate the statistically most prominent mean(s) in a column.

the means was not statistically significant, resulting in the shared second position. The most prominent media were therefore broadcasting and interpersonal sources of information.

Next in the line of prominence were the relatively “new” online media, namely in fourth place **other Internet services** (just over 202 minutes per week), and in fifth place (with about 165 minutes) **social media** (e.g. Facebook, Twitter, YouTube, MXit, etc.).

The sixth position was shared (again because of overlapping confidence intervals) between three media, namely **print newspapers**, **magazines/journals**, and **online newspapers**. It is therefore clear that if time spent on media was to be taken as a measure of their popularity, then print media and newspapers (in print or electronic form) were relatively the least popular of the media studied.

Findings with regard to first research sub-question

The findings in this section are relevant for addressing the first research sub-question, which focuses on what the respondents’ most prominent information needs were with regard to each of a number of information/communication media. Table 3 provides a summary of the mean importance ratings/scores allocated to eight types of information/communication media for satisfying different types of information needs (e.g. the need for news, entertainment, education, etc., inclusive of all the types of information mentioned in the research sub-questions). These mean scores are based on a rating scale that ranges from 1 (not important at all) to 5 (very important). The table also contains the 95% confidence intervals for each mean, which can be used to compare any two means in the table to determine whether or not they are statistically different.

The first research sub-question was addressed by comparing the means (and confidence intervals) in Table 3 on a row-by-row basis (in other words, separately for each medium). In order to illustrate the findings visually in the table, the statistically most prominent mean(s) in each row were underlined and the cells containing these means were shaded. The following findings were obtained:

With regard to the respondents’ need for information from **print newspapers**, in the position of the statistically most important need (on a 5% level of significance), there was a tie between financial/economics-related information and information on environmental issues. Third most prominent was the need for news-related information (i.e. reports or commentary on local/international events, politics, crime, sport, etc.).

The statistically most important information need regarding **television** broadcasts was for environment-related information. In second place there was a tie between

the need for news-related information, entertainment-related information, and tourism-related information.

For **radio**, in the position of the statistically most important information need there was a tie between news-related information and environment-related information. The third most important information need was for financial/economics-related information.

The respondents' statistically most prominent information need regarding **magazines/journals** consisted of a tie between the need for tourism-related information and the need for environment-related information. The third position of importance was a four-way split between health, education, financial/economics and work-related information.

With regard to **social media** the respondents' need for social contact/communication-related information was statistically the most important – in other words the respondents viewed social media mainly as vehicles for social contact and communication. In second place was the need for entertainment-related information, and in third place the need for environment-related information.

For **online newspapers**, in the position of the statistically most important need there was a three-way tie between the need for information relating to financial/economics, environment and news. This bears some resemblance to the pattern found for print newspapers.

For the respondents the most important information needs fulfilled by **other Internet-based databases/services/programmes** were the need for work-related information, tourism-related information, and education-related information. Statistically next in order of perceived importance there was a tie between the need for health-related and environment-related information.

The most important information need perceived to be fulfilled by **interpersonal sources of information (e.g. other people)** was the need for social contact/communication-related information. In second place was the need for tourism-related information, and in third position of importance was the need for work-related information.

Findings with regard to second research sub-question

The findings in this section are relevant for addressing the second research sub-question, which focuses on a number of specific information needs, and asks which information/communication media are perceived to be most important for satisfying each need. The process followed in order to answer this question was to compare the means (and confidence intervals) in Table 3 on a column-by-column basis. In order to illustrate these findings visually in the table, the statistically

most prominent mean(s) in a column were presented in italic text, and the cells containing these means were shaded. The following findings were obtained:

With regard to **news**-related information, there were three media that statistically (on a 5% level of significance) were found to be most important as information sources, namely radio, the Internet and television. The next most prominent source was “other people”.

Two media were found to be statistically equally most important for providing **entertainment**-related information, namely “other people” and television. The next most prominent medium as source of this kind of information was the Internet.

The medium perceived to be most important for providing **education**-related information was the Internet. Second in importance was “other people”, while the third place was a tie between magazines/journals and television.

The medium perceived to be most important for providing **health**-related information was the Internet. Second in prominence was “other people”, while magazines/journals were in the third position.

Two media were found to be statistically equally most important for providing **financial or economics**-related information, namely the Internet and print newspapers. In the third position of prominence there was statistically a tie between radio and television.

The medium perceived to be most important for providing **tourism**-related information was the Internet. Second in perceived importance was “other people”, while magazines/journals occupied the third position.

The medium perceived to be most important for providing **work**-related information was the Internet. Second in prominence was “other people”, while magazines/journals were in the third position.

The medium perceived to be most important for providing **social contact/communication**-related information was “other people”. In second place there was, statistically speaking, a tie between social media and the Internet.

The medium perceived to be most important for providing **environment**-related information was television. Second in prominence was the Internet, while radio, magazines/journals and print newspapers were tied for third.

DISCUSSION OF FINDINGS

The findings presented in the previous section show a two-fold pattern describing (a) what types of information needs the sample of respondents perceived to be most important with regard to each of a number of communication media, and

conversely (b) which media were rated as being most important for satisfying each of these information needs.

With regard to the first set of findings (which addresses the first research sub-question of this study), it is clear that for print newspapers, information provision regarding finances/economics, the environment, and to a lesser extent also news (local/international events, politics, crime, sport, etc.) were perceived to be the most important. Much the same pattern was found for online newspapers, which means that the audiences of the two types of newspapers were similar in that the same information needs were being met.

For a print newspaper wanting to combat potentially disruptive digital innovations by broadening the range of information needs being satisfied in its audience, it would therefore not be enough to bring out an online version of the newspaper. Also, if the newspaper decided instead to diversify by publishing a new print magazine, the findings suggest that the respondents would use such a magazine mostly for meeting their need for tourism information and environmental information. If, on the other hand, the print newspaper decided to diversify in ways that involved other Internet-based databases, services or programmes, the findings suggest that such new initiatives would be most suited for fulfilling the respondents' needs for information on work-related issues, tourism-related issues, and education-related issues.

As the finance sections of South African newspapers have shown growth and quality reporting over the last decade, the relatively important focus on finance/economic news in newspapers is to be noted, and should be of interest to publishers. Could it be general interest in financial news, or the quality of the content, or both, that led to this indication? Further research into this indicator could prove useful. Also of interest are findings from other countries, e.g. some earlier studies (McLeod & Choe 1978; Sobal & Jackson-Beeck 1981) that show business/finances featuring last on the list of news preferences; and the more recent 2007 Pew Centre report on occurrences that impact on news/ information that pointed out that in America interest in finance news as a news category rose sharply over a twenty-year period (Brainard 2007: online).

Regarding the second set of findings, it was found that the Internet was rated by the respondents as being the most important medium for satisfying six of the nine types of information needs studied, namely the needs for information on issues related to work, tourism, education, health, finances, or news (although radio and television were perceived as being equally important as the Internet for satisfying the need for news). It is therefore clear that the Internet was generally perceived as being the relatively most important information source. By way of contrast, print newspapers, online newspapers, and print magazines/journals were not rated

as being the most important for satisfying any of the nine information needs. This underscores the importance for newspapers to find innovative new ways of using the Internet as a vehicle for meeting the needs of existing and new audiences.

The poor ratings afforded to print newspapers and magazines correlate with research results concerning the decline of print media not only internationally, but also for most newspapers in South Africa (Van Niekerk 2012; Harris 1997: 292; Melvern 1986; Harrower 2008: 2; Myburgh 2011; Joubert 2009: 13). The online presence of these publications has also not notably improved the situation (cf. the selection of print media and online newspapers and magazines in the tables). This concurs with Crosbie's view that more than a billion people did not turn to the Internet "...to read traditional media on computer screens" (Crosbie 2006: online). He explains that the traditional mass media apparently do not understand that "... the hallmark characteristics of the New Medium (New Media) are about: Uniquely individualized information (that) can simultaneously be delivered or displayed to a potentially infinite number of people. Each of the people involved — whether publisher, broadcasters, or consumer — shares ... that content" (Crosbie 2006: online).

CONCLUSION

The Newspapernext strategy (Sterling 2008: 20-26) is a four-step strategy that was designed specifically for newspapers concerned about the impact of possible future disruptive innovations. The first of the four steps for newspapers to follow in order to combat disruptive innovations consists of obtaining a pattern of information needs from a sample representing a potential new market for the newspaper. The study described in this article consisted of such a survey of information needs among such a potential new market of South African Internet users, and can be seen as an application of the first phase of the Newspapernext strategy. Each of the information needs studied represents an information-related task that the potential market would like to do, or in the terminology of Christensen, a "job to be done".

In the sections above certain patterns of information needs among the respondents were identified and discussed. What is needed next from any newspaper wishing to proactively combat disruptive innovations by applying the results of this study is for that newspaper to study the pattern of identified needs in order to identify more clearly and formulate such possible "jobs to be done", and also to develop potential solutions for such jobs. The Newspapernext strategy finally suggests that each such newspaper should then implement and test the most promising solutions in practice – those that are assessed to be most possible and practical for that particular newspaper to implement. In this way it is hoped that the results of this study will contribute positively to such efforts to better understand and adapt to possible disruptive innovation processes in our society.

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