THE DIGITAL READER MARKET: SOUNDINGS IN AN EMERGING TECHNOLOGY

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Introduction

As elsewhere throughout the world, most newspaper and magazine brands in the United States have sought to extend and enhance their franchises through the development of internet offerings. In common with other media (e.g. television, radio, etc.), print's internet initiatives encompass a variety of business and content models generally designed to extend their brands to new audiences and enhance content availability to nascent and mature audience through multiple channels. In many ways, it is the development of new (and profitable) channels - new delivery modes – which form a central challenge for print (and other) media enterprises.

Beyond the internet, an emerging channel for print content delivery is digital readers (DR) (e.g. Sony's Reader and Amazon's Kindle), electronic devices designed to deliver books and magazine and newspaper content to readers. While the various digital readers involve different technologies and offer distinct features, broadly DR's feature 1) convenient electronic receipt, storage and access of substantial amounts of print content, 2) high portability and 3) screen technology optimized for character/word, rather than pictorial, display under a variety of available light conditions.

While to date the primary print content offered through DRs is books, a number of magazines and newspapers are making their editorial content available on one or the other of the devices. As such, it is important for magazines and newspapers to understand, even in these early stages, the characteristics and preferences of current DR consumers, the better to assess the potential for their businesses of this emerging print-centric delivery channel, and design and develop compelling content products.

With this ambition in view, and understanding the necessarily preliminary nature of this analysis given DRs very small market penetration, the work at hand attempts to 1) identify the primary characteristics of DR consumers and 2) offer some perspective on the DR market through reference and comparison with other newly introduced media-related technologies.

Data and Analysis Overview

Beginning with the Spring 2009 release of MRI's *The Survey of the American Consumer,* an item designed to identify DR consumers was added to the question of the Types of Books Bought. In particular, survey respondents were given the option of "Digital" (as opposed to Hardcover or Paperback) for the question "Forms of Books: You Personally Bought in Last 12 Months". As reported by MRI, the market penetration of Digital Book Buyers is approximately 4,291,700, or slightly less than 2% of the U.S. Adult (Age 18 or Older) population (259 of a total of 13051 respondents)[1]. Again, while this item is an imperfect measure of DR owners/consumers, understanding the dynamics of this population potentially develops a richer landscape of the current DR market and suggests future trends and opportunities for the magazine and newspaper (and book) businesses.

To understand the characteristics and preferences of the digital book market we designed a fairly extensive analysis utilizing almost 350 variables including personal and household demographics, broad media consumption and attitude measures, internet and consumer technology behaviours and psychographics (see Table #1).

Table #1 Digital Reader Characteristics

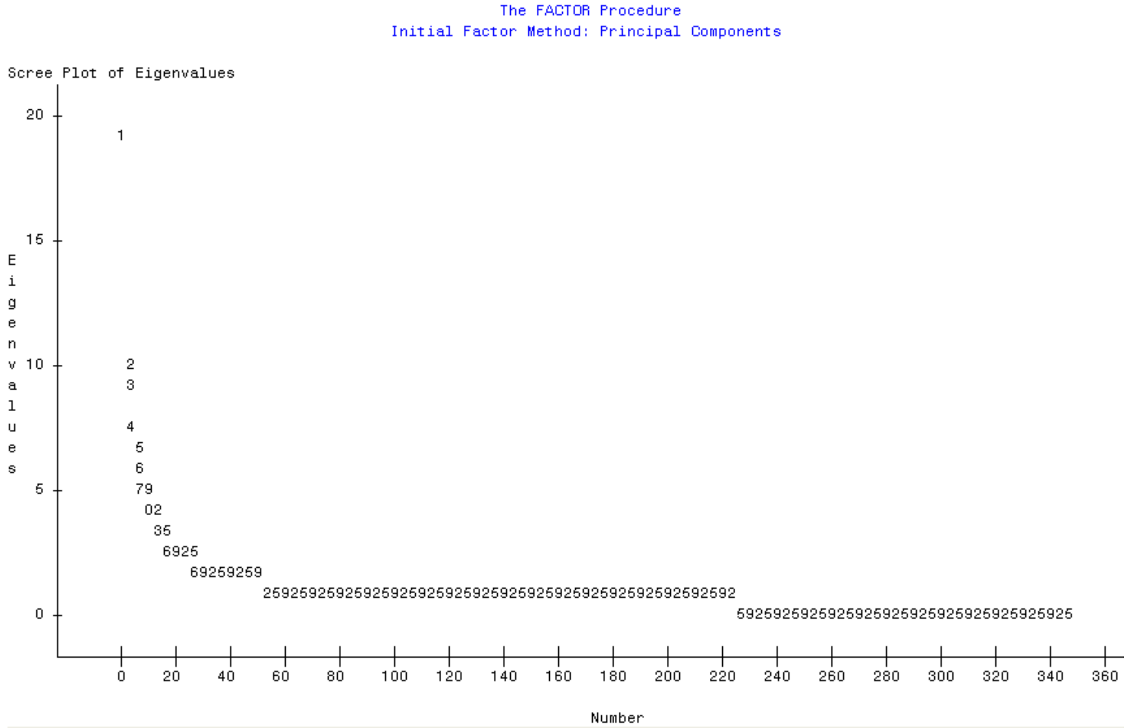
Variable Category	Sample Variables
Personal Demographics	Age, Sex, Years of Education, Language Preference (Spanish/English)
Household Demographics	Household Income, Size, Automobile Ownership
Media	Cable Television Access, Media Quintiles, Outdoor Exposure/Miles Driven
Media and Advertising Attitudes	Magazines are a good source of information. Television advertising is too often repeated
Telephony	Mobile Telephone Features Used, Landline Use
Internet	Home/Work Access, Types of Sites Visited, Search Sites
Technology and Electronic Attitudes/Opinions	Buy Quality Electronics, Like to "Wow" people with my technology
Video Games and Home Electronics	Games Owned, HDTV, Television Screen Size
Magazine and Newspaper	Quintiles of Use, Visit Magazine and Newspaper Internet Sites
Books	Number of Books Purchased, Where Purchased

A factor analysis (SAS) using Principal Components extraction with a Varimax rotation option was performed with three central purposes:

1) Eliminate multicollinearity among the variables thus rendering them more suitable for use in subsequent analyses
2) Create a manageable number of meaningful variables facilitating comprehension and interpretation
3) Identify fundamental consumer characteristics which may significantly influence DR related behaviours

Chart #1 is a Scree Plot of the Eigenvalues resulting from the factor analysis.

Chart #1 – Scree Plot of Eigenvalues from DR Factor



From the Eigenvalue distribution we selected the first twenty (20) factors together accounting for approximately 35% of the total variance of the original approximately 350 variables. In descending Eigenvalue order Table #2 summarizes each of these first twenty factors.

Table #2 – Factor Summary

Factor Number	Highly Loaded Variables	Factor Description
1	Heaviest Internet Quintiles	Internet Involvement
2	Mobile Phone Features, Customize cellphone to express my personality	Mobile Phone Involvement
3	TV, Radio, Internet Ads are useful, informative	Advertising-Positive
4	Radio, Newspaper, Magazine ads are inconvenient, all alike, repeated too often…	Advertising-Negative
5	Television Quintiles	Television Exposure
6	Books – Types and Number Bought	Books
7	Newspapers and Magazines are useful, make me think, a good source of learning	Print Positive
8	Give technology advise, I like it when people say "Wow" about my home electronics	Technology Enthusiasm
9	TV and Radio ads are not credible, too loud, Internet ads occur at inconvenient times	Advertising-Annoying
10	Video Games owned and played	Video Games
11	Internet/Technology and Home Entertainment and Media Influentials,	Influentials-Technology/Media
12	Committed to landline telephone, cell phones too complicated	Mobile Phone Minimalists
13	Outdoor and Miles Travelled Quintiles	Outdoor Exposure / Distance
14	Internet is a good source of current news, information and relaxation	Internet-Information Source
15	Magazine and Newspaper Quintiles	Print Exposure
16	Television is a good source of current news, information and relaxation	Internet-Information Source
17	Heavy Radio listening and Outdoor exposure	Outdoor Exposure / Radio Listening
18	Hispanic, Spanish Language Preference	Hispanic
19	Number of Cell Phones, Household Size, Number of Adults and Children	Large Household Size
20	Individual Earned Income	Employment Income

Using this repertoire of media, technology and demographic factors as the independent variables and DR as the dependent variable in a stepwise logistic regression the results contained in Table #3 were obtained. (Note: Only eight (8) independent variables / factors were significant at the 95% confidence interval. The *gamma* for the model was 0.698.)

Table #3 – RD Logistic Regression Summary

Step	Variable	Coefficient	Chi Square Significance
0	Intercept	-4.7220	<0.0001
1	Factor #6	0.9437	<0.0001
2	Factor #20	0.3489	<0.0001
3	Factor #1	0.4382	<0.0001
4	Factor #8	0.4184	<0.0001
5	Factor #2	0.2675	<0.0001
6	Factor #14	0.2237	0.0003
7	Factor #17	-0.1437	0.0223
8	Factor #5	-0.1347	0.0427

The results align with reasonable expectations:

1. Factor #6 – As a reading technology with most of its content being book related, DR is strongly and positively related to Book – purchases, variety of book genre and books bought, etc.
2. Factor #20 - Given the initial cost of the DR device and continuing purchases of reading content, that this consumer group tends to have higher Individual Earned Income (and by implication education attainment) is reasonable.
3. Factor #20 - IEI as a manifestation of Employment (Full-Time/Part-Time), may indicate that those who are employed find the convenience afforded by DR appealing.
4. Factor #1 - Heavy Internet Involvement, as a measure of the extensive use of and comfort with computers and technology, supports an inclination toward 1) electronic content consumption and 2) technology generally.
5. Factor #8 – An eager interest in new technological developments and the desire to own and display leading edge devices support DR ownership.
6. Factor #2 – The extensive appeal and use of mobile telephone devices finds an analogue with DR. In fact, a primary appeal of DR over internet reading is its ability to access previously downloaded print-related material even in the absence of wired internet connectivity. In fact, the Amazon Kindle employs wireless technology to access/purchase new content.
7. Factor #14 – DRs and the content to which they provide access are digital information/learning sources, complementary to the internet
8. Factor #17 – Substantial Outdoor Exposure (driving) and/or Radio Listening compete with the usefulness of DR
9. Factor #5 – Heavy Television viewers tend to be lighter readers, older, with fewer years of education and lower incomes, all of which discourage DR ownership.

In summary, the primary drivers of DR consumption are 1) income, 2) embrace of technological, 3) convenience and 4) book and information orientation – a natural constituency of characteristics for DR consumers.

Conspicuously missing from the regression outcome, and perhaps most interesting to the magazine and newspaper community, is Factor #7 – a strong preference for magazine and newspaper reading. While it is true that DR users are somewhat more likely than the general public to be heavy magazine readers (See Appendix 1), this appears to be incidental to other factors (particularly heavy book reading). At this point in time, it seems as if a predilection for periodical reading is no segue to an embrace of DR. In fact, a logistic regression with Factor #7 as the sole independent variable indicates that 1) it is negatively related (-0.0755) to DR and 2) not significant at the 95% confidence interval (0.2353). Of necessity speculative, a number of factors may account for this negative and weak relationship:

1) Limited availability/selection of periodicals on DR
2) Multi-color graphic and pictorial content, important components of most magazines and newspapers, are largely missing from DR
3) Advertising is largely excluded from DR magazine and newspaper content, but is an important component of the hardcopy and internet channels
4) Subscription costs for dual hardcopy/DR purchases are largely incremental
5) The “digest” format of DR is more comparable to books than typical magazine and particularly newspaper products
6) Magazines and newspapers are typically more conveniently available (e.g. morning home delivery, newsstands, mail delivery of subscriptions, etc.) than books.

7) While magazine and newspaper readers tend to have higher incomes and have more years of education (qualities supportive of DR consumption), that they are generally slightly older and are not necessarily technophiles do not necessarily support DR consumption.

While currently prevailing, these factors may change over even the near term for a variety of interrelated reasons:

1) As the number of DR consumers increases, additional magazine and newspaper companies may see market potential and thus offer content appealing to their existing and potentially new consumer bases.
2) DR devices are undergoing substantial development and may shortly support multicolour pictorial display thus more fully supporting both editorial and advertising content
3) Complementary subscription pricing and delivery options may prove reasonable with increases in market size, thus lowering the price threshold.
4) Work on flexible devices and a variety of electronic "ink" technologies may enhance format and display options in ways consonant with magazine's and newspaper's content.
5) The DR consumer base, albeit small at the moment, is constituted of desirable higher income and more technologically oriented **readers** and as such is a compelling, almost natural, constituency for magazines and newspapers to approach to expand their own audiences.
6) While DR readers are not necessarily heavy readers of hardcopy magazines and/or newspapers they index very highly on visiting a magazine (~150) or newspaper (~240) internet site and as such have some exposure to these media brands albeit online.

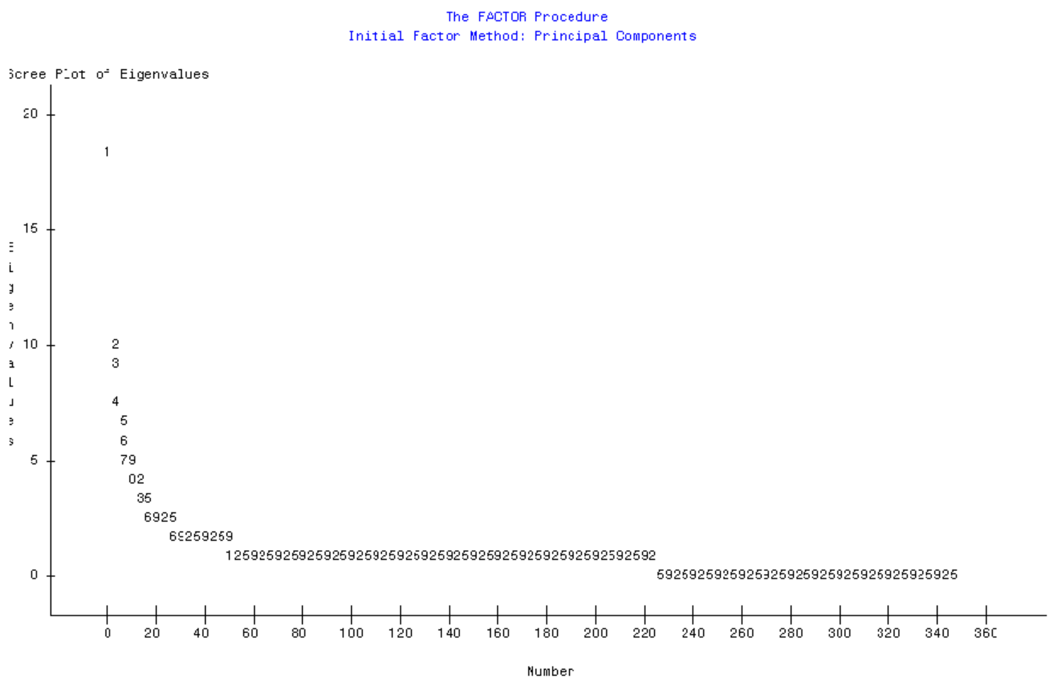
Perspective – Reading Devices in Contrast with iPods and MP3 Players

While the pace of development and evolutionary direction of the DR market is difficult to predict with precision as it is still in its early stages, comparison with another recently emerging and rapidly maturing electronic media product, MP3 players and particularly Apple Corporation's, may be informative with respect to market characteristics and potential. By way of reference with respect to market size, MRI estimates that approximately 66,000,000 adults have some sort of MP3 player. In fact, some industry analysts have suggested that the initial growth rates of DR devices are comparable to those for Apple's iPod. The comparison is a relatively natural one insofar as both product groups emphasize 1) portability and convenience, 2) storage of and access to substantial media content, 3) easy and immediate online/wireless purchase of relevant media content and 4) refined user interfaces.

To develop this comparison an analytic route similar to the one developed for the prior DR analysis was performed – a factor analysis followed by a logistic regression. As before, the factor analysis used Principal Components extraction with a Varimax rotation. The differences between this analysis and the prior DR one are that 1) the DR variable was included and 2) iPod and MP3 measures were excluded so as to minimize conditioning on the dependent variable in the subsequent logistic regression.

The results of the iPod/MP3 factor analysis were essentially identical to those for the DR one. Twenty factors were extracted based on the Eigenvalue distribution as displayed in Chart #2, with the selected factors again explaining approximately 35% of variance of the original variables.

Chart #2 – Scree Plot of Eigenvalues from iPod/MP3 Factor Analysis



The only material difference in the factor solution was in the ordering of two of the factors. Factors #10 (Video Games Played) and #13 (Outdoor and Miles Travelled Quintiles) were in reverse order, with Factor #10 now being Outdoor and Miles Driven Quintiles and Factor #13 being Video Games Played. That these two factor solutions should be almost identical is to be expected insofar as the variables added and removed constitute only a very small proportion of the total number (almost 350) of the variables constituting the factor space.

While the factor analyses produced almost identical results the logistic regression on iPod/MP3 using the twenty factors as independent variables produced a more extended set of relationships as summarized in Table #4 (the *gamma* for the model was 0.602).

Table #4 – iPod/MP3 Logistic Regression Summary

Step	Variable	Coefficient	Chi Square Significance
0	Intercept	-1.4810	<0.0001
1	Factor #13	0.6199	<0.0001
2	Factor #1	0.7006	<0.0001
3	Factor #10	0.4693	<0.0001
4	Factor #2	0.3557	<0.0001
5	Factor #14	0.3142	<0.0001
6	Factor #5	-0.2688	<0.0001
7	Factor #6	0.2162	<0.0001
8	Factor #18	0.2007	<0.0001
9	Factor #8	0.1657	<0.0001
10	Factor #9	0.1491	<0.0001
11	Factor #11	0.1299	<0.0001
12	Factor #19	-0.0958	<0.0001
13	Factor #12	0.0862	0.0009
14	Factor #17	-0.0749	0.0019
15	Factor #20	0.0674	0.0020
16	Factor #4	-0.0592	0.0115

The two sets of regression results indicate that there are some similar characteristics in the iPod/MP3 and DR markets. All of the significant factors in the DR regression enter into the iPod/MP3 one and, with the exception of Heavy Television (Factor #5), all possess directionally similar coefficients. Both are characterized by internet use/involvement and enthusiasm for technology, use of cellular/mobile phones, higher incomes and, for the reasons stated above in the DR analysis, this makes sense.

With respect to reading related behaviours – Factors #6 (Books) and #7 (Magazines and Newspaper reading) – only Factor #6 enters into the regression. This outcome is similar to the DR analysis results – heavy magazine and newspaper reading are conspicuously absent. In fact, adding Factor #7 to the sixteen other significant factors in the iPod/MP3 regression shows that it is almost completely insignificant (3% confidence interval) and negligibly positive with a coefficient of 0.0009. As with DR, these results again suggest that strong preferences for magazine and newspaper reading alone and iPod/MP3 use are essentially unrelated.

With that said, the regressions suggest that while the markets for DR and iPod/MP3 share important characteristics, there are very fundamental differences. The most significant among them is Video Games (Factor #13 for iPod/MP3, Factor #10 for DR). The 0.6199 coefficient for Factor #13 suggests that the iPod/MP3 and Video Games markets substantially overlap, most probably among their younger and potentially more male constituencies. (In contrast, the DR and Video Game markets are relatively unrelated one with the other. A separate logistic regression against DR with the Video Game factor added to the eight significant variables as identified in the initial DR stepwise model, shows that this measure is only very slightly positive at 0.0809 and only significant at the relatively relaxed 85% confidence interval.).

The import of Video Games in the iPod/MP3 regression also suggests that the character of the content offered on the device has some (substantial) impact on the market size. In the case of iPod/MP3 much of the content is youth-oriented, a population segment with a strong technological affinity. The confluence of technology and certain content herein has a natural constituency. In the case of magazine and newspaper content their natural constituency may not be as large for several reasons. First, magazine and newspaper audiences skew somewhat older and generally away from technology enthusiasm. Second, display limitations of current generation DR redact what for many is a fundamental aspect of magazine and newspaper content, the graphical and pictorial.

Summary and Conclusions

At this point in DR's evolution, it appears that many of the forces driving consumer demand are shared with other mobile media devices, particularly iPod/MP3. This suggests that while this market is currently small, it has the potential to expand, at least to the population interested in mobile, electronic book reading. Recent announcements related to the introduction of text/reading applications on a variety of other mobile devices suggest that commercial demand is perceived. The challenge for magazines and newspapers at this point in time seems to be the development of strategies to 1) introduce their content more extensively and effectively onto mobile devices and 2) bring their current hardcopy audiences and new audiences to this new content channel. Readers, as in **Book Readers,** are in the mobile-electronic media market, the challenge is to bring magazine and newspaper centric readers along, all the while designing content appealing to the widest possible technologically oriented consumer groups.

Endnotes

1. Amazon does not release sales figures for its Kindle, but Citi analyst Mark Mahaney estimated in February of 2009 that Amazon sold approximately 500,000 in 2008 before exhausting their supply in mid-November 2008. Had the supply been sufficient he estimates that 2008 sales would have been 750,000. Using Sprint's 10Q filings, which report Kindle activations, he estimates that in the first and second quarters of 2008 activations were approximately 100,000 per quarter. Assuming that these rates existed for 2007 (400,000 per year) and that the higher rate of 250,000 per quarter was maintained into 2009, the total Kindle sales through June 2009 would be approximately 1,400,000 (400,000 in 2007, 500,000 in 2008 and 500,000 for the first two quarters of 2009).

   Sony reported in December 2008 that it had sold 300,000 of its Reader devices, and current estimates place sales at 28,000 per month. (Other reports suggest that total Sony Reader sales were 400,000 through December 2008.) Assuming that sales rate, total Sony Reader sales through June 2009 would be 568,000. Together Kindle and Reader would account for approximately 2,000,000 device sales through June 2009.

   While these estimates suggest that this market is somewhat smaller than MRI's measure, MRI's estimate may include device sharing, audiobooks, and digital reading devices other than Kindle and Reader.

Appendix #1 – Selected Characteristics, Activities and Psychographic Attitudes of Digital Book Purchasers and Owners of MP3 Players

	Digital Book Purchased Last 12 months		MP3 Player Personally Owned	
	(000)	Index vs. General Population	(000)	Index vs. General Population
TOTAL	4,292	100	66,119	100
Male	2,290	110	32,986	103
Female	2,002	90	33,133	97
Graduated college plus	2,004	**176**	23,461	**134**
Attended college	1,362	115	21,281	117
Graduated high school	598	45	14,940	72
Did not graduate HS	328	52	6,437	66
Post graduate	836	**221**	7,760	**133**
HHI $150,000+	910	**207**	9,550	**141**
HHI $75-149,999	1,538	**129**	24,502	**133**
Median age	40.3		36.5	
Median HHI	$84,026		$77,216	
Internet Quintile I (Heavy)	1,428	**166**	19,778	**150**
Internet Quintile II	1,086	**126**	18,038	**136**
Internet Quintile III	1,164	**136**	14,216	107
Magazine Quintile I	1,130	**132**	15,799	**120**
Magazine Quintile II	1,122	**131**	14,635	111
Magazine Quintile III	894	104	13,763	104
TV (Total) Quintile III	1,048	**122**	13,948	105
TV (Total) Quintile IV	726	85	15,689	119
TV (Total) Quintile V (Light)	1,314	**153**	16,264	**123**
Visited a magazine's website as a result of reading or looking into the hard copy	814	**154**	11,824	**146**
Visited the website for a national newspaper, yesterday	318	**241**	3,248	**159**
“I think of my mobile phone as a source of entertainment.”	1,412	**154**	18,884	**133**
“I am interested in watching video clips on my cell phone”	1,304	**154**	17,370	**133**
“My cell phone is an extension of my personality”	1,224	**142**	16,043	**121**
“I enjoy customizing the look and sound of my cell phone.”	1,946	**142**	27,719	**131**

Source: Mediamark Research & Intelligence (MRI), National Survey, Spring 2009

Appendix #1 (Continued)– Selected Characteristics, Activities and Psychographic Attitudes of Digital Book Purchasers and Owners of MP3 Players

	Digital Book Purchased Last 12 months		MP3 Player Personally Owned	
	(000)	Index vs. General Population	(000)	Index vs. General Population
TOTAL	4,292	100	66,119	100
"I am among the first of my friends and colleagues to try new technology products."	2,120	**186**	21,261	**121**
"I enjoy reading about new technology products."	3,112	**143**	36,605	109
"I'm willing to pay more for top quality electronics."	3,216	**140**	38,942	110
"I give others advice when they are looking to buy technology or electronics products."	1,964	**140**	26,209	**121**
"I'm fascinated by new technology."	3,170	**126**	43,451	112
Pure entertainment: Internet	1,438	**124**	22,682	**127**
Pure entertainment: Magazines	1,620	**126**	22,988	116
Pure entertainment: Newspapers	852	**190**	5,821	84
A good escape: Internet	2,164	**128**	32,439	**124**
A good escape: Magazines	1,304	87	24,316	106
A good escape: Newspapers	582	**122**	5,639	77
Puts me in a good mood: Internet	1,398	**144**	19,067	**127**
Puts me in a good mood: Magazines	1,218	118	16,998	107
Puts me in a good mood: Newspapers	606	**174**	4,867	91
Purchased Audiobooks, last 6 months	624	**1170**	1,248	**152**
Internet activities, past 30 days:				
Downloaded podcasts/podcasting	770	**498**	5,037	**212**
Downloaded a video game	356	**331**	2,822	**171**
Downloaded a TV program	388	**290**	4,024	**195**
Wrote an online blog	384	**261**	3,790	**167**
Looked up movie listings or showtimes	1,678	**215**	18,948	**158**
Visited a TV network or TV show's website	1,486	**198**	17,771	**154**
Made a purchase for personal use	2,726	**192**	32,159	**147**
Looked for recipes	1,846	**189**	21,138	**140**
Visited online blogs	812	**187**	11,153	**166**
Looked at TV listings on-line	550	**180**	7,491	**159**
Obtained financial information	1,886	**170**	24,572	**143**
Watched online video	1,520	**162**	22,828	**158**
Obtained the latest news/current events	2,784	**156**	37,649	**137**
Downloaded Music	1,200	**144**	22,362	**174**
Uploaded or added video to website	128	82	4,301	**177**

Source: Mediamark Research & Intelligence (MRI), National Survey, Spring 2009