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Strike a Pose: Gender and the Public and Private Performance of Magazine Reading

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ABSTRACT

The study of reading has a long history in the digital library community, but one issue that has been largely ignored is gender. Gender is known to play a significant role in the acquisition, reading and use of print material. However, there it is unknown to what degree the influence of reading norms carries into digital reading. In this paper we examine the differences in the readership of a variety of magazines, between their print and electronic editions. The results reveal that digital reading is, in general, less gender-conforming than print reading. However, it also appears that consumption of digital editions on mobile phones reverts towards the gender stereotypes found in print. Together, this data serves to demonstrate that digital library services, including search engines, should consider the risk of reinforcing gender stereotypes that occur when reading is a public performance, and entrenching those biases when reading is done privately.

CCS CONCEPTS

• Information systems~Digital libraries and archives • Human-centered computing~Empirical studies in HCI

KEYWORDS

Digital reading, reading, gender, affordances, magazines.

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1 Introduction

Gender is a key factor in the selection of reading material for both children [8] and adults [10]. Differences in the reading preferences gender with respect to reading appeared with an rising female literacy and leisure time, increasing demand for ‘female-oriented literature’ [4]. This demand has persisted into the 20th century and beyond [15]. Given the highly gendered nature of reading, it is perhaps unsurprising that reading which is seen as being for other women—for example Colette’s novels in the 19th Century [4] and *Fifty Shades of Grey* this century—are done in secret or private.

While in the past the only place to read privately was in the home, the advent of ereaders has been noted to offer privacy in a public space. The emergence of the *Shades of Grey* novels is sometimes credited with the explosion in digital reading—many women wanted to read it, but few were willing to admit to it.

There are other relationships between reading and gender: it is long established that girls have better reading comprehension than boys [21], and women read more than men [20]. In digital reading, though, men are more satisfied than women, and have a greater preference for reading digital media [21].

Given the relationship between gender, reading and privacy or secrecy, it seems logical to wonder whether digital reading will disrupt the gender divisions seen in print. In contrast men’s stronger preference for digital reading may mean that women don’t avail themselves of the affordances of digital reading. To investigate these questions, we return to the reading medium studied earliest in digital libraries: the magazine [12].

Magazines are highly gendered reading material, and their covers are designed to reinforce this, while advertising content. This paper examines the interaction between gender and reading format (print versus online) to understand whether more gender transgressive reading happens online. Our study shows strong interactions between gender and reading format. While we cannot be certain that this is specifically privacy-related, we open up avenues for interesting future work.

This paper starts with our methodology, followed by results. We discuss our contribution to the literature and offer suggestions for DL design before concluding and noting future work.

2 Method

There are several accepted methods for obtaining information about user reading behaviour: e.g. observation; interviews ; diary

studies and surveys [18]. Any study where there is direct interaction with the researcher, though, is likely to over-report gender conforming reading, and under-report socially transgressive reading. This is because the researcher in these instances is likely a proxy for broader society. Anonymous surveys on the other hand give readers the scope to report their behaviour without the ‘creepy’ [11] factor of observation or the social pressures of direct interaction with researchers.

There are many industry surveys of magazine purchasing and readership conducted in a range of countries. These include the National Readership Survey and the Audit Bureau of Circulations in the UK, the Indian Readership Survey, emma in Australia and MRI in the United States. There are a number of challenges with measuring magazine readership [6]. Readership (even, e.g. in dentist’s waiting rooms) is the focus of the National Readership Survey. This survey further began measuring online readership in 2012, and mobile phone based readership (as separate from reading on tablets, laptops or other devices in 2014).

The primary role for the NRS is to provide authoritative information for the advertising industry, so it provides multiple breakdowns of the readership, e.g. by using socio-economic class, age, gender and income. The reputation of the NRS data is strong, given the over sixty years of its history, bolstered by the fact that withdrawing from the NRS is often believed to indicate a failing publication, and in a number of cases (e.g. the New Musical Express—NME) withdrawal has often been shortly followed by closure, cessation of the print edition, or merger.

Given the high quality and fine granularity of the NRS, it is this data set that we have used for our evaluation of the interaction between gender and device in online reading.

1.1 The Dataset

The NRS data varies in coverage from year-to-year. We chose the years 2016, 2017 and 2018. These years are the first complete years for which print, mobile and digital information is available. The data for each magazine has to be acquired separately, and we chose thirteen different magazines to focus on.

Following the separation previously used in [10], we divided the magazines into three groups, by the proportion of male to female readers in the print edition. The ‘male audience’ group had at least a 3:2 ratio of male:female readership (8 magazines), ‘female audience’ group the reverse (5 magazines), and the remainder fell between 3:2 and 2:3 female to male (2 magazines). We avoided magazines that were close to the boundary ratios, in order to ensure a clear separation between the groups. The list of magazines was drawn from the select compendium published in 2015, which focussed on the magazines with the largest circulations. We chose only magazines that are published monthly, in order to focus on one consistent publication cycle. From that list, we further eliminated magazines that ceased publishing in print during the period (n=1); those that were digital-only (n=1); those that were print only (n=3); and any that withdrew from the NRS survey during the period (n=1).

This resulted in a final list of thirteen magazines. Annual data was gathered for each title, extracting the number of male and female readers for print, mobile and digital media in each year.

Following this overall analysis, particular magazines were identified as having atypical patterns, and these were investigated in greater detail, studying the magazine’s content across the years.

3 Results

The study tested three factors: magazine title, format (digital versus electronic) and gender, testing the relative number of readers in each case. The key test across the data was whether the proportion of male and female readers of a title was consistent, or varied, between reading media.

The data presented in this section’s table are representative, but not complete. We conducted a log-linear analysis over all the data we gathered. Log-linear analysis is a test used in place of chi-square where there are more than two factors to be tested. It demonstrates whether factors interact, and how strongly.

Table 1 presents a sample of 2016 data showing variations in reading by gender and format (digital or physical). Some data are from magazines with a gendered readership, some are from magazines that typically appeal to a more gender balanced audience. Magazines that typically have an unbalanced readership in print tend towards gender balance in the digital medium.

Table 1: 2016 Print vs Electronic Reading (sample)

Format	Print		Electronic	
	Male	Female	Male	Female
Top Gear	995 (91%)	93 (9%)	198 (80%)	51 (20%)
Empire	548 (75%)	187 (25%)	96 (68%)	46 (32%)
Four4Two	449 (97%)	15 (3%)	89 (88%)	12 (12%)
What Hifi	200 (97%)	7 (3%)	161 (75%)	53 (25%)
Men’s Health	995 (88%)	136 (12%)	93 (92%)	8 (8%)
Gardeners World	492 (45%)	604 (55%)	51 (37%)	86 (63%)
Cosmo	102 (10%)	926 (90%)	537 (22%)	1931(78%)
Glamour	32 (4%)	740 (96%)	222 (28%)	571 (72%)
BBC History	157 (50%)	156 (50%)	45 (46%)	52 (54%)
Runners World	203 (59%)	143 (41%)	54 (47%)	62 (53%)

Testing the full 2016 data indicated that all three factors are individually significant ($G^2=9455$ ($df=37$); $p<0.001$). What is most important is how the factors interact. All two-way interactions were significant ($G^2=404.9$, $df=13$; 5525.5 , $df=24$; 3116.4 , $df=24$); with $p<0.001$. In short, the gender profile of the print readership is not a good predictor of electronic reading. In six magazines the gender imbalance became more polarized, and of those three rose by 4% or less. In contrast, of the 26 where the readership became more balanced, only 4 had changes lower than 4%. The dominant trend is for gender differences to be smaller online than in print.

Table 2 presents sample data from 2018, which divides the data further into PC reading (including tablets & larger screens) and mobile reading. In this three-way split, the interactions of gender and format are more complex and less consistent.

We tested this data for interactions between title, gender and reading format, and there were significant interactions. We analysed this data using a log-linear analysis; and there were globally significant differences ($G^2=7206$; $df=67$; $p<0.001$).

There were again reliable gender effects. Some specific cases presented here are of interest – Cosmopolitan and Harpers both see mobile readership profiles that are similar to print, but have noticeably higher male readerships on PC; Runner’s World has a higher proportion of women within its mobile readership, while Empire’s mobile readership has fewer than expected women.

Table 2: 2018 Print, PC and Mobile Readerships (sample);

Format	Print		PC		Mobile	
	M	F	M	F	M	F
Top Gear	377 (84%)	73 (16%)	184 (82%)	40 (18%)	914 (78%)	248 (22%)
Empire	239 (74%)	85 (26%)	56 (76%)	18 (24%)	278 (84%)	51 (16%)
Runners World	102 (59%)	71 (41%)	25 (61%)	16 (39%)	89 (24%)	282 (76%)
Men’s Health	442 (90%)	47 (10%)	72 (93%)	5 (7%)	514 (81%)	52 (18%)
What Car	99 (88%)	14 (12%)	89 (68%)	42 (32%)	188 (73%)	56 (27%)
Gardeners World	237 (33%)	480 (67%)	90 (42%)	123 (58%)	306 (38%)	497 (62%)
Cosmo	49 (7%)	574 (93%)	148 (36%)	261 (64%)	197 (16%)	835 (84%)
Harpers	19 (11%)	148 (89%)	33 (32%)	68 (68%)	52 (7%)	216 (93%)
Country File	90 (46%)	107 (54%)	37 (66%)	19 (34%)	127 (50%)	126 (50%)
Country Life	181 (39%)	289 (61%)	55 (65%)	29 (35%)	236 (39%)	318 (61%)

In both datasets, most magazines have a more gender-balanced digital readership, but there are a few cases where mobile readership reverts towards the proportions found in print.

Our samples do not include extreme cases – two are Stuff, a technology magazine, in 2017, where the female readership was 8% in print and 44% in digital; Cosmopolitan’s data for 2018, using the older data gathering method, reported 6% male in print and 42% male electronically. Note that the data in Table 2 uses a different method for both gathering data and summarizing it.

In addition qualitative inspection of content was done to understand outliers: e.g. BBC history magazine suffered a major fall in female readership in all formats, following a change in editorial content policy, increasing the proportion of military and criminal history from 16 to 27% in a two-year period.

4 DISCUSSION

The results show a clear difference in the male:female ratio of readership between print and electronic formats. However, it is

not the case that this difference in ratio reveals a general format preference by gender. Rather, we see that for several magazines the ratio of the majority gender (perceived as ‘male audience’ or ‘female audience’ magazines) is higher in print and lower in the electronic medium. This difference occurs in both directions—it is neither gender shows a preference for a certain format. This is in contrast with earlier research, which showed that men prefer online reading and women prefer print [15]—our results show women read more digitally than men. More importantly, though, digital reading is more gender balanced than print reading in nearly all titles. This effect is particularly marked for magazines with a more skewed print readership, and in some cases the effect is surprisingly large—as much as a shift of 20% overall in comparison to print (in the case of Glamour, this represents a six-fold growth in male readership relative to women).

This paper is quantitative and based on public data. We can only speculate as to the underlying reasons for these differences; to truly understand the differences we need qualitative work. It is, of course, possible that the data is poor quality, or the findings artifactual, however these scenarios are unlikely. The data is used to sell advertising, so the publishers have a strong incentive to ensure it is high quality. The findings repeat across several titles, making an artifact explanation seem implausible; the same artifact is unlikely to occur in the same way across titles.

Another possible cause is content variation between formats. However, in the NRS; the magazines have to be substantively identical to be deemed the same title in their terms and conditions. Individual articles may be minimally longer or shorter between formats, and font size and image quality may not be identical.

By far the most likely explanation for the differences in gender ratios between print and digital reading is privacy. Privacy affordances differ between print, mobile and digital reading. Paper magazines are designed with prominent covers to entice purchase and reading. A side-effect is that it is often very visible which magazine you are reading in a social setting [10]. Digital versions, by contrast, are more discreet, but reading mobile phones on public transport may content more visible. The need and desire for privacy in reading material that might not be socially approved has been noted in previous research [3; 4]. Indeed, there has been technology research on how to make digital reading more private, to prevent ‘shoulder surfing’[17]. In contrast, readers like to display books in their homes, and the existence of ‘adult’ covers of Harry Potter show that reading matter—including magazine covers—may be part of a public ‘presentation of self’ [5]. We know that both adults [10] and children [8] select reading material they believe to be appropriate to their gender. As such, hiding the reading of material perceived as being for the other gender would be a significant driver of the use of the private purchasing, reading, and discard facilities afforded by digital reading.

We believe that this privacy affordance is the strongest candidate explanation for the clearly substantial gender ratio differences we see in digital reading when contrasted with print. To determine whether this is the driving force for this difference, though, requires further, likely qualitative work.

Finally we need to emphasize the limitations and opportunities of data repurposing, an issue that has seen considerable notice in

DL research [1; 2; 13; 14]. We did not collect this data and it was not collected for DL research—rather, for marketing purposes. We believe it is high quality for that purpose. However as with all data repurposing, additional care must be taken in interpreting results. We know from the NRS that gender is self-selected. Furthermore, many experts consider gender to be a spectrum rather than a simple binary, but this dataset has only male and female values. We draw attention to these issues because with the growth of commitment to data sharing, not only will replication and reproducibility issues arise, but also issues such as these which occur in data repurposing: the use of data in a way different from the intentions of those doing the original collection. That has important implications for interpretation, trust and quality. A dataset can be of excellent quality for the purposes it was collected for, but substantially lower quality for its repurposed use. Nevertheless repurposed data can still be extremely valuable if this difference is acknowledged and accounted for in analysis.

5 IMPLICATIONS FOR DIGITAL LIBRARY RESEARCH AND DESIGN

Our data shows there is some factor that affects the choice of reading format by gender. While it is clear that we need further research to ensure we understand this relationship, there are some immediate lessons for DL research and design.

The first lesson is that any DL or reading interface must be tested across genders. We do not posit that any difference between genders is innate; indeed, if our affordance hypothesis is correct, that is yet more evidence that these differences are socially derived. Nonetheless there are behavioural differences between genders that must be accounted for in design.

The second implication for digital library design is that format matters in reading. Using paper reading patterns to predict what readers may choose on tablet devices, for example, is unlikely to produce the most useful results for the reader. This is particularly important in the field of recommender systems, which have been a core part of DL research in the past [19].

Finally this work has implications for actual reading technologies, which have also been a core part of digital library research (e.g. [16]). It seems likely that there is a tension between public display of reading material and private reading that has not been explored; the DL community is well placed to do this work.

6 CONCLUSIONS AND FUTURE WORK

This study has examined the relationship between reading format (print, mobile phone, and digital) and gender with respect to magazine reading. More ‘gender transgressive’ reading happens on digital devices, in comparison with print or mobile phones. The most plausible explanation for this is that digital devices afford the illusion, at least, of privacy: using these devices it is hard for readers to be directly overlooked while purchasing, reading or disposing of their magazines.

We believe that these differences may be indicative of a performative use of reading material that is only just emerging in the literature (e.g. [7; 9]). The key to understanding reading performativity will not be found in quantitative analyses: rather

qualitative work, such as diary studies of acquisition and reading, is needed. We intend this paper to be the kindling of a foray into understanding the performance elements of reading. Performance in reading, if it has the effects we suspect, will have significant impacts on DL design and development. On the one hand, digital libraries afford the privacy that readers may wish to do reading that is counter to the self they wish to present to the public. On the other, there is rich research opportunity in designing libraries and devices that allow readers to show who they are to the world.

Whatever the cause of the differences in reading behaviour by gender and format, it is clear that gender is a significant factor in how readers interact with reading material and devices. This difference needs to be taken into consideration of both the design and testing of digital library services and reading devices.

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