All the News That's Fit to Read: Finding and Recommending News Online

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Abstract. Our survey study of 147 Finns shows that online news is becoming the most important news source today: Online newspapers have bypassed paper newspapers and also TV and radio in importance, especially among young adults. Although most respondents routinely visited their preferred news sites directly, recommendations from their social network also played an important role in helping them find salient news. We analyzed the factors that affected which recommendations were read and why, and also discuss participants' expectations on the behavior of the receivers of the recommendations. The person recommending and the means of recommending affect what gets read. In contrast with previous studies, we found that the role of email as a recommendation tool is decreasing as the use of social media is becoming more common. However, personally targeted recommendations still have a better chance of being influential than recommendations made to the public at large.

Keywords: News, recommending, sociality, online.

1 Introduction

Online newspapers have become a major source of news [19] while media houses struggle to find new earning models to replace plummeting paper newspaper sales in an environment that is used to free access. Simultaneously, the huge number of possible news outlets and news items online means that we need efficient ways to find news items that we are interested to read.

News recommending is an important part of online newspapers' strategy today, as attested by the number of news sites that integrate recommending and social aspects. Huffington Post's integration of Facebook and NYTimes's TimesPeople that allows following other users and editors are popular examples, but many others, such as BBC and Reuters, are also in the game.

We conducted a survey study to see how users in Finland today keep up with news and how they find salient news items online. The most popular method of finding news was to access news sites that the user knew and liked directly. In addition, nearly half of the 147 respondents typically also used recommendations from other people. While recommender sites, aggregation services, and feeds were all used to locate news by some of the respondents, their share in the equation pales in

comparison to the recommendations from other people. The popular channels for giving and receiving recommendations were social media and networks, email, IRC, and instant messaging (IM).

In fact, news recommending appears to be part of the normal social intercourse [4] and is used to maintain relations and frequently share emotions. Recommendations are often related to on-going conversations or meant to be used as material for later conversations. These conversations take place both face-to-face and online, sometimes starting in one and continuing in the other. Thus, it is easy to see why increasingly ubiquitous social media plays such an important role in news recommending.

The more personal and direct the recommendation is, the more likely the item is read. On the other hand, when the recommendation is broadcast to the world-at-large, the item itself becomes the point of decision—we ask ourselves if this is an item that interests me. While social media leads in the number of recommendations made in it, its lead in effectiveness is not as clear. Consequently, when designing ways to recommend news, especially in social media, giving people information about the item behind the link is important to help them make up their mind about reading it. Also, giving recommendations a personal feeling helps.

We undertook this study to better understand online news recommending practices as we were designing a news recommending solution in a research project. We wished to understand the underlying dynamics of news recommending to design a system that answers actual user needs rather than imposes new dynamics on users. This paper focuses on the survey results and design implications on a general level.

After reviewing briefly the related work and introducing our method, we dive into the results. We first discuss the media the respondents used to keep up with the news and then look at how they found salient news items online. Recommending practices, how and why news items are recommended, are studied in more detail. After discussing which news recommendations get read and why, we look at the implications the current practices have for supporting news recommending activity online.

2   Related Work

Today we have access to countless different news sources online and face the challenge of finding interesting news items from the seemingly limitless number of items [2, 15, 19]. This problem of information overload has given birth to such services as Google News and Digg.com, and the research community is constantly looking for new ways to improve news recommendations [18], e.g. by combining collaborative and content-based filtering with each other [e.g. 15] or with other approaches, today increasingly with social network information [e.g. 7, 8, 16, 18].

The phenomenal growth of social networking [7] has resulted in them "fast overtaking traditional web as the preferred source of information" [6] and "transforming the way information is created and distributed" [13]. Social scientists have long known that social networks are central to the spreading of information [13], and today online networks are central to information dissemination, search, marketing, and discovery [14]. In addition, social networks are used for spreading and recommending news [10]. In fact, today social media sites are often "the first to break

the important news" [14]. In contrast, Bernstein et al. [1] found that email is the preferred medium for content sharing and that social networking sites are used for that to a much lesser degree.

In real life, we rely on recommendations from our friends and family in decision making [16]. The person recommending an item also matters online, as we are interested in items on which our friends have shown interest [7, 8]. Sharing online is after all a social act meant to develop social capital by strengthening weak ties (bridging social capital) and maintaining strong ties (bonding social capital) with friends and family, although especially social networking is more associated with bridging than bonding social capital [1, 3]. In fact, familiarity network is a clearly better indicator of user interest than similarity network [8]. In contrast, collaborative filtering does not distinguish friends from other neighbors who share similarities with the user [16]. The explicit social information and social processes offered by social networking sites lend themselves well to recommendation generation and can be a reliable source of recommendations [2, 7].

Consequently, many social networking sites are adding recommending features [8]. Facebook, for example, is encouraging users to "set up their Facebook accounts for news reading" [12], and pundits are discussing the possibilities of Facebook becoming the "world's leading news reader" [12]. Furthermore, Hitwise data shows that Facebook was in fact the 3rd biggest source of visits to news and media sites while Google News was 11th and Twitter 39th (March, 2010—one week's data) [9].

In the beginning of social networks, users mainly posted personal information but today these networks "have metamorphosed into a forum where people post information such as news that they deem to be of common interest" [6]. In effect, users have become strategic thinkers who weigh in various factors when deciding if and what to post and propagate [6]. Thus, we need to understand better the characteristics and driving motivations behind the user activity and the effects of the social networks [14].

3   Method and Participants

The study was carried out as an online survey designed to provide foundation for designing a news sharing and recommending service. The survey topics concerned reading news (online and offline), recommending news, receiving news recommendations, recommender systems, and the impact of recommendations. The survey form was built so that the respondents needed to answer only the relevant questions. For instance, if the "Yes" radio button was ticked on a question about using news aggregators, the form opened to display more detailed questions (2–13 questions per topic), but if "No" was ticked, no further questions about the topic were asked.

The form had 29 questions where different properties (such as the importance of various news media or the importance of a recommender's identity) were evaluated with a 7-point interval scale (1–7; 7 signifying strong agreement) while activity frequencies were asked with a 5-point scale. All these non-open-ended questions had an openable text field for commenting. In addition, there were several open-ended questions with text fields for answering. An English translation of the survey form, originally in Finnish, is available at: http://tinyurl.com/6e9n5af.

The participants were solicited at three Finnish universities through mailing lists distributed to staff and students in several departments. Four movie tickets were raffled among the respondents. We received 147 responses (from 83 males and 63 females). Fifty-eight respondents were students and further 36 worked at a university.

Our respondents were on the younger side with the mode being the 20–29 age group (Table 1). The slant towards younger respondents means that we have to be careful when contrasting age groups, given the smallness of Below 20, 50–59, and Over 60 age groups. Consequently, our results as a whole represent more the attitudes of adults and young adults than those of high-schoolers (or below) or seniors. Therefore, the results offer a good foundation for designing, as they provide a glimpse of up-and-coming use practices.

Table 1. Participants by age (one did not provide) and gender (one did not provide).

	< 20	20-29	30-39	40-49	50-59	60 >	Total
Males		40	32	7	2	1	**83**
Females	4	37	15	5		2	**63**
Total	**4**	**77**	**48**	**12**	**2**	**3**	146
Percentage	2.72%	52.38%	32.65%	8.16%	1.36%	2.04%	

Survey-studies face well-known problems: We cannot be sure how seriously the respondents took their task, and the results are based on self-report, not observation. On the other hand, there is no other practical way of collecting such information in large scale. To improve the reliability of the data, the responses were screened for bogus entries; most respondents included verbal comments indicating that they had given considered responses.

When we study representatives of one culture, as most studies in fact do, we have to be careful when generalizing the results to other cultures. Culture is in many ways a significant factor in communication, as collectivist cultures (e.g. South Korea) emphasize relationship-building aspects in communication while individualistic cultures (e.g. USA) focus on information [5, pp. 196–205]. Scandinavian countries tend to be amalgamations of both approaches [11].

4 Reading News

Our results show that online news constitutes today the most important source for news, at least for young adults. While TV and paper newspapers are still clearly in the picture, their grasp on the audiences is weakening, especially when it comes to younger people. Table 2 summarizes how important the respondents found different media for themselves in following news on average and by age and gender groups.

Overall, online newspapers were clearly the most important medium for following news. It had both the highest rating (5.99) and the lowest standard deviation (STDEV) (1.28). Paper newspapers (4.56/1.96) and TV (4.13/1.96) followed online newspapers, but with lower ratings and higher STDEVs, underlining that they were important only to some respondents. The same applies to online tabloids (4.12/2.10) that had the highest STDEV in the sample. (Tabloids in Finland are between traditional

newspapers and yellow journalism—credible sources of news but tend to go for a more scandalizing angle.) Online tabloids were clearly more important than paper tabloids (2.32/1.49).

Table 2. Importance of different media by age and gender (differences between all distributions are statistically significant except for paper newspaper–Internet tabloid and TV–Internet tabloid pairs).

	TV	Radio	Newspaper (paper)	Newspaper (Internet)	Tabloids (paper)	Tabloids (Internet)
AGE (146 respondents as one did not provide age)						
<20	5.75	3.75	6.50	6.75	3.00	4.00
20-29	3.94	2.91	4.36	6.14	2.30	4.08
30-39	3.75	2.96	4.30	6.08	2.21	4.25
40-49	5.42	3.33	5.75	4.75	1.58	3.33
50-59	5.50	4.00	6.00	4.00	2.50	4.00
60>	7.00	4.33	6.00	6.33	6.00	6.33
Below 40	3.92	2.95	4.41	6.14	2.29	4.14
40 and over	5.71	3.59	5.82	4.94	2.47	3.94
GENDER (146 respondents as one did not provide gender)						
Female	4.78	3.46	4.87	6.02	2.57	4.54
male	3.65	2.70	4.30	5.95	2.13	3.83
TOTAL SAMPLE (147 respondents)						
AVG	**4.13**	**3.03**	**4.56**	**5.99**	**2.32**	**4.12**
STDEV	*1.96*	*1.79*	*1.96*	*1.28*	*1.49*	*2.10*

Together, online tabloids and newspapers are a more important source of news than their paper cousins and, in fact, dominate as a source of news for the respondents on average. While online newspapers are a more important source of news for the younger, practically all read them (96%).

TV is still an important source of news for many as are paper newspapers. Paper newspapers were read by 119 (81%) respondents and subscribed to by 59 (40%). Still, 19% claimed never to read them while only 4% claimed not to read online newspapers.

4.1 Computers vs. Mobiles for Reading Online News

On average, the 96% of the respondents who read online papers spent 1 h 10 min a day to read them on PC. The respondents who read online news on a mobile phone (27%) spent on average 15 minutes a day reading news on it.

Altogether 102 respondents (69%) had an Internet connection on the mobile, but only 38% of them read news with the mobile. The four respondents who described their use mentioned reading news when on the move, e.g. sitting in a bus or train.

4.2 How the Participants Found Online News

We asked the respondents how they *typically* found the news they read (Table 3). On average, each respondent used 2.5 ways to find online news. Although the respondents predominantly found news by going to news sites they knew and visited regularly, recommendations also had an important role, as 70 respondents found news through recommendations from others, with 22% of them receiving recommendations *Several times a day* and 53% at least *Several times a week*. Moreover, 15 used recommendation systems, such as Slashdot.org or digg.com, and 15 found news by newsletters from news services.

Table 3. How participants *typically* found online news (later in the paper, the numbers of users for a medium may be higher than here, as here we show the number of respondents who mention using the method *typically*).

Method	Users
Accessing online papers directly	123 (84%)
Accessing TV news online services directly	68 (46%)
RSS etc. feeds	32 (22%)
News aggregation services	30 (20%)
Recommendations from people	70 (48%)
Recommendation systems	15 (10%)
Newsletters from the news services	15 (10%)
Other	8 (5%)

Of the *News aggregation services*, Ampparit (a Finnish news aggregator) was the most popular (25 mentions) and Google News the second most popular (5 mentions). Respondents overwhelmingly used only one news aggregator.

Among the *RSS feeds* mentioned by name (one user mentioned using over 400 feeds and another about 80, and predictably neither named them), the most popular ones were HS (the largest-circulation newspaper in Finland) (8 mentions), YLE (Finland's national broadcasting company) (6 mentions), and BBC (6 mentions).

5 Recommending News

Roughly one third of the respondents (31%) recommended news at least *Several times a week* and over half (59%) recommended them at least *Several times a month*. There is a clear symmetry and reciprocity in making and receiving recommendations: The respondents who made more recommendations also received more of them, and the respondents who made fewer recommendations also received fewer. The correlation is highly significant ($r = .5943$, $p < .0001$).

In addition, the respondents reported receiving more recommendations than making them (which might be at least partially explained by one person often recommending one item to more than one person, considering that Social media and IRC were the most popular ways of recommending).

Reciprocity was not as evident in the rating of how important the respondents considered recommending news back to people from whom they had received recommendations (3.75). On the other hand, respondents did find being able to comment or otherwise acknowledge the recommendation rather important (4.54). In addition, when asked why they recommended news, two respondents stated they did it to get recommendations back. Moreover, another two respondents mentioned having stopped giving recommendations to somebody because of lack of response. Thus, reciprocity appears not limited to recommending news back but also involves other means of responding to the recommendation, as responding showed appreciation.

5.1 How Respondents Made News Recommendations

Figure 1 shows how the respondents recommended news. *Social media* and *IRC* are the winners, closely followed by *IM*. *Tell a friend* (emailing through the news site) type of features, on the other hand, were not popular, as further attested by the fact that in *Other*, giving the recommendation face-to-face was mentioned 21 times, consequently making it more typical than using *Tell a friend*.
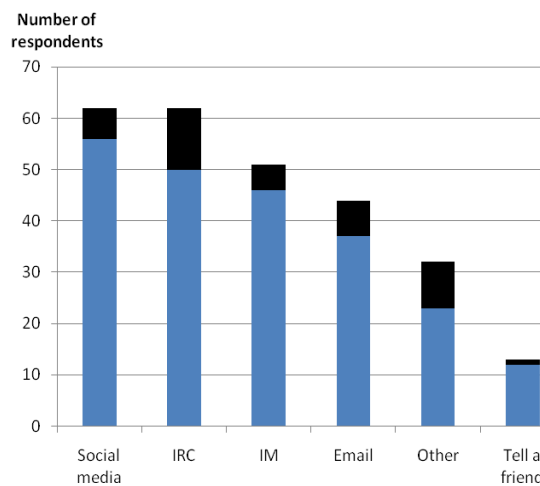

Fig. 1. Recommending means used by respondents (darker top area indicates respondents who did not use any other means to recommend news).

While the difference to the results of Bernstein et al. [1] is striking— they found email to be the most common tool for online sharing—the importance of social media in sharing evident in our results concurs with some other studies (e.g. [6]). The reason behind the difference can be the different respondent profiles (inc. cultural factors) or that they studied sharing any web content while we focused solely on sharing news.

On average, the respondents who made recommendations used two means for it. Some means appeared to go better together than others. *IRC* and *Social media* use were clearly connected, as 65% of *IRC* users also used *Social media* and 58% of *Social media* users also used *IRC*. Similar reciprocities were found for *IRC - IM* and *IM - Social media*. *Email*, on the other hand, was a natural companion to *Tell a friend*

(69% of its users also used email) and to some degree, those who used *Other* (34% also used *Email*, the most popular second method for *Other* users). It appears that email is the core means for all those not in the previous cluster.

In effect, we see two clusters (circled in Figure 2): One for *ICR*, *IM*, and *Social media*, and one for *Email*, *Other*, and *Tell a friend*. To be sure, the borders are porous and the clusters are not clearly defined, but some formation is evident, nonetheless.
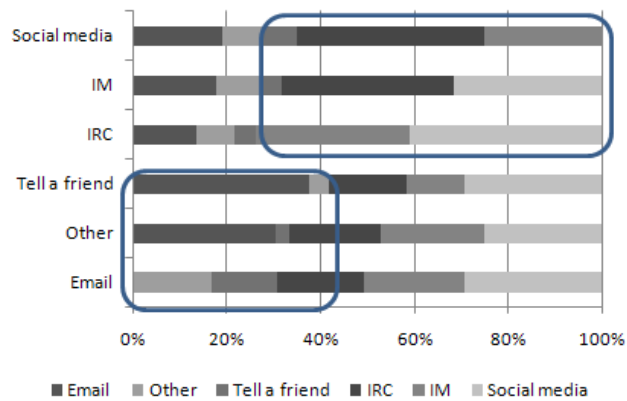

Fig. 2. What other means were used with each means.

The same clusters can be seen in some other characteristics as well. For instance, TV as a medium for news did not appeal to those who used *Social media*, *IM*, and *IRC* to recommend news. These groups rated its importance below 4 (3.65–3.95), while those who used *Email*, *Tell a friend*, and *Other* means to recommend news rated it somewhat higher (4.41–4.66).
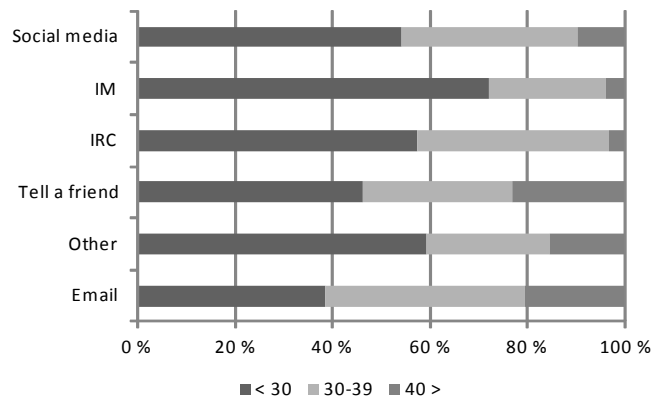

Fig. 3. Recommendation means used by age groups.

We also analyzed the age distribution of users of each recommendation medium (Figure 3). Those using *Email* to recommend news users were on average slightly older: 61% were 30 or over while in the whole sample only 45% were 30 or over. In contrast, those using *IM* were chiefly in the younger age groups.

In *Other*, in addition to the 21 mentions of recommending news face-to-face, 6 recommended them over the phone and 1 mentioned using SMS. Bernstein et al. [1] also found face-to-face link sharing to be very common.

5.2 What Kinds of News Are Recommended

Figure 4 shows the most common types of news categories (those mentioned in 10 responses or more). The similarity in the sent and received news types is evident.
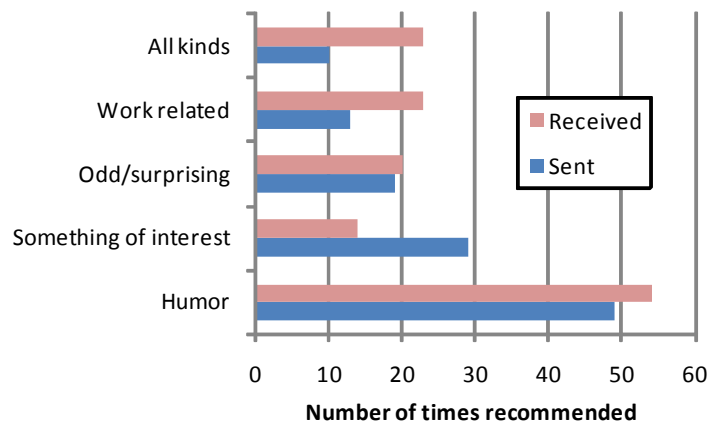

Fig. 4. Most common news types recommended.

5.3 Why News Are Recommended

When the respondents were asked why they recommended news, 6 reasons were mentioned by more than 10 respondents: *Sharing funny things* (77 times), *Informing* (56 times), *Conversation* (24 times), *Participation* (15 times), *Feeling that the item would interest the receiver* (13 times), and *Staying in touch* (12 times).

In addition to *Conversation* and *Participation* being common reasons for recommending news, many reasons mentioned by fewer than 10 respondents were also related to maintaining social bonds: *Topic of common interest* (3 times), *Sharing an emotion* (3 times), *Giving a good feeling* (2 times), and so on.

With 24 respondents referring to starting or maintaining an ongoing conversation as a reason for recommending news, news recommendations are clearly part of overall social behavior. The conversations can take place face-to-face, virtually (computer-mediated), or partially virtually and partially face-to-face.

Furthermore, out of the 9 respondents who reported having stopped recommending news to somebody, 2 explained that it was because they were having less and less to do with the person. All this goes to underline how recommending news is part of overall maintaining of human relationships within our social network.

5.4 Framing the Recommendation: What to Include

The respondents saw being able to include one's comment (4.81/1.90) and being able to include a piece of the article (4.20/1.90) as quite important. Commenting helps avoid misunderstandings as to sender's opinion—"*That's where I say what I think about the article, I don't want somebody to think that I actually consider the item important, usually the opposite*"—and allows the receiver estimate if he or she should read the item: "*Comment could be used to emphasize what made the news article important in the first place or why it's sent to this person*".

5.5 Using Social Media to Recommend

Social media was the single biggest means of sending and receiving news recommendations. *Social media* here is largely synonymous with Facebook, as only it and Twitter were mentioned, and Twitter use was very low in comparison: 56 respondents recommended news in Facebook while only 4 did so in Twitter.

Many *Social media* users gave a description of how they recommended news in social media. These descriptions show that like with *Tell a friend*, tools provided by news sites to add news items to Facebook are not that popular—only 2 mentioned using them. One reason might be that other methods offer better ways to comment the recommendation: "*… Facebook—I post the interesting URL there and write as short a comment as possible*".

In fact, no method offered by Facebook for recommending was a clear winner. Respondents mentioned using Wall, Inbox (private messages), Feeds, Status, Share feature, Chat, and Groups for sharing news items. In effect, Facebook offers both means to recommend directly to persons and means to recommend to the world-at-large. As a result, *Social media* recommendations can be direct or indirect, i.e. personal or aimed at a larger audience. In addition, Facebook is also an IM environment: "*Facebook. That's where I talk with my homies the most as I am surfing and I drop them a hint if I read something funny…*" Thus, categorizing Facebook simply as a *Social media* is somewhat misleading—as a social media site, it actually covers many bases in online communication. Although Twitter has caught on slowly in Finland, it appears to be coming along, as more people receive (and would like to receive) recommendations from it than currently use it for making recommendations.

6 Which Recommendations Get Viewed and Why

6.1 How respondents acted on recommendations

Overall, a significant number of recommendations get read (Table 4): 65% read *All* or *Most* news items recommended to them, 83% read at least *About half*, and only 4% claimed never to read them. Interestingly, the decision on whether or not to read an item appears to hinge significantly on the relation between the sender and the receiver of the recommendation: "*I don't get that many news recommendations but when I do, I read them (if they're from somebody I know well)*". In fact, the respondents rated the

importance of the person making the recommendation to reading the recommended news item as 5.45, thus underlining the importance of the sender to reading.

Table 4. How many recommended items respondents read and expected others to read.

Frequency	Read		Expected others to read	
	No.	%	No.	%
All	37	26 %	34	26 %
Most	57	39 %	62	48 %
About half	26	18 %	23	18 %
Less than half	19	13 %	7	5 %
None	6	4 %	3	2 %
No reply	*2*		*18*	
Altogether	**145**		**129**	

In addition, the medium through which the recommendation is received also plays a role. Figure 5 summarizes the effect of the medium through which the recommendation was received. If *Social media* has shone in other aspects, here it shines for all the wrong reason: Only *Other* had a lower reading rate. While 61% of the users who received recommendations through *Social media* read *All* or *Most* recommended items, the respondents who received recommendations through *Email*, *IM*, and *IRC* read over 70% of them, and the respondents who received recommendations through *Tell a friend* read 90% of them.
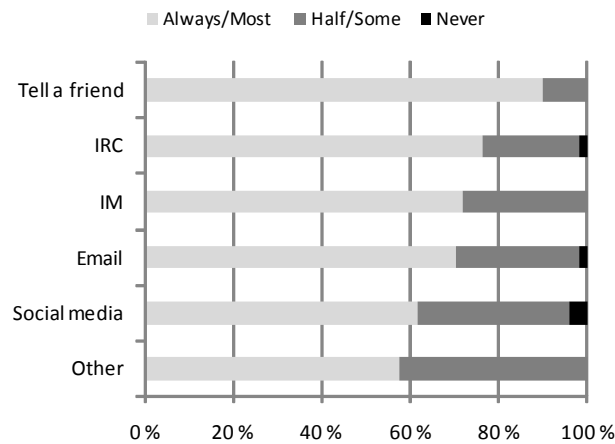

Fig. 5. What share of the recommended news gets read by the means of recommending.

We also found that the perceived importance of *Social media* was lower than that of others for its users—only *Tell a friend* was perceived as less important by its users than *Social media*. Thus, although *Social media* was used a lot, other (less used) means were considered more important means of recommending, perhaps due to their directness. The importance of the medium shows even more pronouncedly in the respondent comments: "*The recommendations I get in Facebook are not as 'important' as the ones I receive in email. I check out the links in Facebook only if I*

got extra time. The links I get in email I check almost always, because they are directed to me and are thus more personal." Repeatedly, the message is the same—if it is directed personally to me, it is important, but if it is not directed at me personally, it is not as important. Facebook is mentioned repeatedly because of its popularity, but at the end of the day Facebook simply appears to represent a medium where the recommendations are not direct or personal but rather broadcast at the world-at-large. Email is considered more important because it is both direct and personal. Thus, how direct and personal a recommendation is determines to a large extent if it gets read, somewhat reducing the importance of *Social media* in news recommendations.

We conjecture from our data that when it comes to indirect, non-personal recommendations, different factors determine if the item gets read or not. First, the significance of the headline to an item getting read was rated very significant at 5.63 (1.33). The significance of the title is likely to increase when the recommendation is neither direct nor personal. Therefore, whether or not the receiver reads an article recommended in Facebook depends much more on the information available about the item itself, such as title, since its importance cannot be determined from the relationship (e.g. "Because of my relationship to this person I should check it out" and "This person often makes good/bad recommendations" type of factors).

The title is a good indication of the topic and theme of a news item, and resultantly a very important factor in deciding whether or not to check the item out. If the topic and theme are shown in the recommendation, the receiver can easily decide whether it is of interest. When it comes to news in particular, the source is also likely to be important as it gives hints of the treatment of the topic (e.g. Fox News vs. NYTimes). Therefore, when the person making the recommendation is not the deciding factor, the available information on the topic and source becomes a more significant factor.

When there are too many recommendations that are not salient to the receiver, they all tend to get treated as spam. For example, while some respondents received news recommendations from online services, at least some ignored them: "*I get some but I consider them spam and I don't read them...*" Consequently, in giving news recommendations, a large enough number of the recommendations need to interest the receiver or the recommendations are perceived as spam.

This applies not only to services but also to people who make personal recommendations, as seen in: "*Well, if it's from some jerk-off, then I won't bother*". As O'Donovan and Smyth [17] state, we also need to trust the quality of the recommendations a person makes, and the past quality of the recommendations the person has made appears to weigh in the equation. Also, the trustworthiness of the person making the recommendation may be context-specific.

6.2 How Respondents Expected Others to Act

The respondents expected the receivers to read their recommendations roughly as often as they reported reading the recommendations they received. The correlation is highly significant ($r = .4016$, $p < .0001$). Interestingly, the respondents rated the importance of reading recommendations sent to them (4.79) much higher than the importance of others reading their recommendations (3.58). In addition, the respondents rated the possibility of being able to comment received recommendations

at 4.54 but getting a response from the receiver of their own recommendations only at 3.51: "*This is a difficult one, because [getting a response] is not that significant but … since we tend to talk and joke [about it], it is important in that sense.*" In effect, the respondents placed more responsibilities on themselves than others.

In summary, making recommendations between people who know each other and engage in many forms of social intercourse is different from recommending news to unknown people. When the sender and the receiver know each other, the sender considers the interests of the receiver, and news recommending takes place within the larger frame of social intercourse. On the other hand, when making recommendations to a faceless mass, for instance "digging" something, we are more involved in spreading the word. The content of the piece becomes important instead of the recommendation being aimed at building and maintaining relationships. It seems likely that the recommended items and topic are also different.

7   Recommendation sites, Aggregation services, Feeds, and Recommendation Emails

While recommendation sites (e.g. Slashdot, Digg, and Reddit), aggregation services (e.g. Ampparit and Google News), feeds, and email recommendations from online services were used by some respondents, their share of the news recommending cake pales next to the human-to-human(s) recommending activity taking place. However, to their own users, they were important to finding news.

The 36 respondents who used aggregation sites and services (*typically* used by 30) rated their importance at 5.03. A few mentioned using filtering to get rid of Big Brother (a reality TV-show) and similar types of news or to get news only from some categories. Their comments underline that aggregation site users are happy with the services: "*An easy way to get a general view of especially the foreign news without any personal trouble*" and "*They are easy and pleasant to follow during the day...*"

Feeds were used by 34 respondents (*typically* used by 32) of whom 85% were males. The feed users rated their importance to news following at 5.28, therefore more important than aggregation sites or recommendation sites were to their users.

Recommendation sites, mainly Slashdot (15 mentions), Digg (5 mentions) and Reddit (3 mentions), were used by 19 respondents (89% males). Recommender site users rated their importance to following news at 4.47, therefore also fairly high.

The 19 users who received email recommendations from online services (*typically* used by 15) all used different services—no service was mentioned even twice. Some were connected to the user's work, some to hobbies, and some to more general interests, such as economic newspapers. What set the respondents who received such email recommendations apart from the overall sample was their age: 37% were 40 years old or older, while in the whole sample only 11% were 40 or older. Interestingly, the respondents who received email recommendations from online services did typically not pay that much attention to them. No respondent said anything positive about them but many mentioned not reading them: "*I don't*

remember. I ignore most of them.", "*I get some but I consider them spam and I don't read them…*" and "*Much of the time I don't read them…*"

8 Who to "Follow" for News Recommendations

The respondents were also asked to rate the importance of following friends, editors/journalists, specialists (in a given field), unknown people who shared the same interests, and of getting automatically generated recommendations that took their interests into consideration. We asked them to rate them independent of whether they used such systems, as we wanted to probe their attitudes towards such features.

It turned out that the respondents were not that enthusiastic of any of these options. Getting automatic recommendations based on their interests was the most highly rated (3.06/1.85). The comments, while often mildly positive—"*Could be interesting…*", "*If such feature existed…I'd sure use it*"—also focused on potential problems and showed a decided lack of faith in automatic systems, e.g. "*I don't believe there could be an efficient automatic news recommending system for my interests*" and "*Would be an interesting feature if it worked, otherwise it would simply be irritating if it produced extraneous, uninteresting stuff.*" The lack of trust on automatic recommendations appears symptomatic, and this can be one significant reason behind their relative lack of popularity among our respondents.

Following friends or editors were not greeted with enthusiasm, either, at 2.29 and 2.20, respectively. Neither did following unknown people with shared interests at 2.48 fare much better. In fact, following specialists in a particular field was seen as more important than the other options at 2.77. We postulate that the reason for this is partially the control it offers over the type of news. In addition, the effect of the authority position such people may enjoy should also be studied, as our results do not shed light on this aspect of the equation.

Consequently, recommendations coming from friends were important and likely to be read (if direct and personal) but following friends was not considered important. We conjecture that the reason is that simply following friends means that the friends have not pre-selected news items that are likely to be of interest to us (quality). Also, following friends does not strengthen our social ties the way making and commenting recommendations does (part of larger social intercourse). Thus, if a news recommending system enables following, it should also provide features that enable sociality or improve the recommendation quality from a dull stream of what others are reading.

9 Implications of Current Practices

9.1 Quality vs. Sociality

There appear to be two dimensions working in news recommending practices: 1) getting good recommendations, and 2) recommending being part of the larger social intercourse between people. The two are, of course, not contradictory to each other, as the people who know us are in position to give us good recommendations. Social

recommending serves both needs but emphasizes social aspects while automatic news recommendations, such as those based on collaborative filtering, tend to emphasize quality aspects and ignore social aspects.

Significantly, many recommendation providers have begun to add social aspects to their service, e.g. following friends in Digg. On the other hand, sociality-emphasizing recommending systems cannot ignore the quality issue, or they might end up being regarded as spam and therefore ignored, as has happened to recommendation emails. The reason why *Email* and *Tell a friend* recommendations get read is not only because they are from our social contacts (personal) and likely of high quality. They are also typically not too many. On the other hand, Facebook recommendations not made personally to us are judged on other merits than maintaining social connections, and so the title and other aspects that tell us about the news item itself become more important. With this type of recommendations we need to help the user receive only good recommendations and not be flooded with semi-targeted ones.

The challenge is to apply the two ingredients in right proportions to different services. Is the purpose of Digg to provide a social experience or help people find salient reading? If it is to provide good recommendations, then the focus should be on quality of recommendations and social aspects should be used to spice the experience but not allowed to come in the way of recommendations. In contrast, in Facebook news recommendations are a spice and a consequence of the larger social experience, something that nicely integrates into the social intercourse. Consequently, Facebook needs to give tools that make news recommending within its ecosystem an easy and enjoyable addition to the overall social experience and make sure that these tools do not distract users from the social experience.

Of course, these examples describe exactly what Digg and Facebook are doing. There are also many other approaches being developed and tested today, such as NYTimes's TimesPeople (based on following other users and NYTimes editors and journalists) and Huffington Post's integrations with Facebook (the integration means that the readers do not need to build their social networks once again in yet another service). The key is to know what one's focus is and not to try to be a be-all-end-all.

9.2 Design Implications

How to approach news recommending and the inherent recommendation quality vs. supporting social intercourse equation hinges very much on the service and its focus and its business model. News providers need to decide how and at what level they want to take part in existing social networks and recommending services. Judging by the number of Facebook and Digg icons popping up next to news items, the news providers do see some level of integration with these services as desirable.

Provide item title and other salient information in the URL: Whether a news item is recommended directly to the reader or to the world-at-large, the news provider should strive to provide as much information about the news item as possible. A trusted person making a recommendation combined with an interesting item is a winning combination.

Although in the context of social network integration the news provider can to some degree affect the amount of information provided to the receiver, many news items are still recommended as URLs and whatever else accompanies the recommendation is beyond the provider's control. News providers should therefore strive to provide as much information about the item in the URL as feasible. In an URL like *http://www.somepaper.com/article/iU6040?type=mN?src=mv* all we see is the source (*somepaper*). In comparison, *http://www.somepaper.com/news/asia/2010-April-12/Is-the-West-Engaging-China.html* gives us a lot of information to whet our appetite.

Make it personal and direct: Personal and direct recommendations are likely to get read: If a friend who knows us recommends us personally something, it means that he or she has selected it for us and has a reason to believe that we should read the item and by reading it we can strengthen the relationship (we might discuss the article over lunch) and by not reading we might hurt the relationship (the sender asks us about the article or refers to it and realizes that we did not read it). Therefore, the recommendation is likely to be good and we stand to gain social capital (or lose it, perhaps even a stronger motivator).

Consequently, a social networking site—or any other site, for that matter—should make sure that there are tools for direct recommending, from one user to one or more users (that may provide features to facilitate commenting or discussing the item). In fact, this is what social networking is about in part. By providing such tools, we can make it more likely that users do news recommending within our service rather than switching to another service or email.

Recommending to the world-at-large: On the other hand, social networking sites also need to allow recommending news to the world-at-large. While enabling such recommendations and providing social networking tools, such as a commenting feature, is a start, there are also other possibilities to enhance such recommendations.

Although following friends or other users was not rated that important in our study, the success of TimesPeople has shown that it does have its place even if it is not to everyone's liking. Giving the users who agree to be followed a possibility of selecting what they recommend (instead of a stream of everything they view) has two advantages. First, it allows the users being followed to show explicit liking—not everything they view is to their liking—and consequently improves the quality of recommendations and keeps their number down, and second, it provides privacy protection that encourages users to allow the following to begin with.

To make it easier for users to follow recommendation streams, the number of items has to be sensible and they have to have a high enough occurrence of salient items not to be seen as spam. One approach is to support filtering the streams (also discussed by Bernstein et al. [1]). We found that some feed and aggregation site users had a tendency to filter recommendations explicitly to get certain types of news and to avoid other types. While these means were not used by the majority, their users were quite happy with them, suggesting that services should support such means. Another approach is to automatically filter the recommendation stream to reduce the number of items and improve the overall quality of recommendations. Social networks offer an especially good foundation for filtering with the ready networks of friends in place.

10 Conclusions

While our participants found most news by going directly to the news sites they knew and liked, recommendations from others also played a significant role in how they located salient news items. In effect, news recommending is part of the normal social intercourse where we keep in touch with people and share emotions and information.

The more directly the news recommendation is made, the more likely we are to read the item. For less direct recommendations, we make the decision more based on what we know about the item, i.e., we try to judge if the item interests us. Consequently, the sites involved in news recommending have to decide whether their focus is on sociality (with news recommendations being only a part of the larger social intercourse taking place between people) or quality recommendations (with social aspects providing spice to the experience). The question is to understand one's focus and to blend the right mixture for it. Understanding the larger social intercourse taking place between people helps us understand better how to integrate recommending news and other online information into that intercourse.

If we do not provide means for recommending with sociality taken into consideration, humans will find a way to add sociality to the experience, for example by emailing the URLs to each other. Email was not built with news recommending in mind but it continues to serve it well, in part because it opens way for all kinds of related social discourse. If we want to take things beyond this, we need to design for supporting human behavior. One of the secrets behind Facebook is that it supports well human sociality and consequently offers support for what we do all the time in any case—deal with other humans for fun and profit.

Acknowledgments

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