More than Liking and Bookmarking?
Towards Understanding Twitter Favouriting Behaviour

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Abstract

Microblogging services, such as Twitter, offer a variety of interactive features that allow users to engage with contacts in their social network and the content they produce. One such feature is the favourite button on Twitter, an icon in the form of a star that users can click on to assign a special status to a particular tweet. Despite evidence suggesting that users increasingly make use of favouriting, little is known about the reasons people have for favouriting or the utility the feature offers. This contrasts with other core features, such as "following" and "retweeting", which have been studied extensively. In this paper we argue that by investigating the motivations for favouriting tweets we can enhance our understanding of what people want to achieve with Twitter and the types of content users find interesting or useful. With these goals in mind we conducted a large-scale survey (n=606), questioning Twitter users on various aspects of their favouriting behaviour. Of these users only 395 were aware of the function and 290 make use of the functionality. The survey responses from these users demonstrate that motives for favouriting tweets are extremely heterogeneous and not always consistent within and between users. Moreover, our findings reveal that user needs when favouriting such as the need for re-finding a tweet or the wish for a more private conversation are often poorly supported and sometimes even go unmet by the Twitter user interface.

Introduction

Despite Microblogging services, such as Twitter, being heavily researched in recent years, the favouriting option on Twitter is one central function of the service yet to receive researcher attention. Favouriting was introduced as a feature in November 2006 (Stone 2006) and since then users have been able to click a small, star-shaped icon displayed with every tweet, in order to mark that tweet as "favourite". Favourited tweets can be located via a separate timeline, which simplifies and potentially quickens access. If the user's opinion or feeling changes with time this action can be undone by clicking on the icon again to unfavourite the tweet. There is evidence that favouriting is becoming ever more popular. In May 2013, Twitter users clicked on the star icon 1.6 billion times, four

times more often then in the previous year (Rosman 2013). Comprehending what this increased usage means, however, requires an understanding of what the favouriting function is used for and whether or not the function caters for these needs sufficiently. Such an understanding would shed light on what people want to achieve with Twitter generally, as well as the types of content users find interesting or useful. It would furthermore help us to understand the types of communication behaviour that have been identified by studies of other features of Twitter and other Microblogging platforms (boyd, Golder, and Lotan 2010). Favouriting is also important to study as it is the primary feature of the service that allows users to manage or archive tweets for the future; a task that previous work has shown people want to do and have difficulties with (Elsweiler and Harvey 2014).

The presented work describes an initial study of favouriting behaviour. In particular we focus on the motivations people have when favouriting. We do this via a large-scale survey, which informs on how often users make use of the favouriting feature and reveals surprisingly heterogeneous motivations people have for doing so. The remainder of the paper is structured as follows: After presenting related work, we describe our data collection methods. A qualitative analysis of the collected data contributes a taxonomy of 25 uses of favouriting behaviour. We continue to discuss the implications the taxonomy has with respect to the literature and the design and communication modes in Twitter, as well as similar, public microblogging services.

Related Work

Anecdotal evidence described in magazines, Internet fora and blog posts suggest that favouriting is used as a private form of communication between users (Rosman 2013) to endorse, to show sentiment or to win competitions [1]. These are certainly beyond the uses described on Twitter's official homepage: "favouriting a tweet can let the original poster know that you liked their tweet, or you can save the tweet for later." (Twitter 2013). Surprisingly, given the research attention that other features of Twitter have received, favouriting has not been the focus of any quantitative or qualitative investigation. In this section we describe research that relates to and motivates the work presented in this paper. This includes investigations of

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[1] http://favstar.fm

Twitter user behaviour generally and with specific functions; studies investigating which types of tweets are interesting to Twitter users and work on filtering and re-ranking Twitter streams.

Twitter features and user behaviour

Java et al. (2007) were among the first to study people's motivation for using Twitter, which they found is mainly to communicate daily chit-chat, to converse with other people or share information and report news. Later, Namaan, Boase and Lai (2010) confirmed and extended these findings with a systematic analysis of the textual content of tweets, identifying nine main content categories and two types of users: "Meformers" and "Informers" . While users in the first group are driven by ego-oriented motives, those in the second have the desire to share valuable information and are characterised by having a lot of followers.

Several of Twitter's key features have been studied in depth. Honeycutt and Hering (2009) investigated how people use Twitter for conversation and collaborating by studying the use of the @-syntax and mentions. Other researchers have also looked at the formation and usage dynamics of hashtags (Romero, Meeder, and Kleinberg 2011; Cunha et al. 2011), while others still have looked at the decisions to follow or unfollow with other users (Satuluri 2013; Kwak, Chun, and Moon 2011).

Interestingness of Tweets

A second topic of interest in the literature relates to the identification of interesting tweets. This is important given that Twitter themself claim that this is a key use case for the favourite button. Alonso, Marshall and Najork (2013) tried to determine if it was possible to identify which tweets would be found interesting by a sample of users without knowing about social features such as retweet frequency. Andre, Bernstein and Luther (2012) also gathered user feedback on the value of individual tweets. Like us, they argue that by knowing why and what people value most, we can use this information to filter high-value content and direct users towards tweets they are interested in most. Counts and Fisher (2011) performed an eye-tracking user study to learn about what users pay attention to while consuming the stream of tweets and which aspects they tend to remember of afterwards. Among other interesting results they found out that the author of a tweet isn't an influential factor for the perceived value of the tweets. Rather than focusing on interestingness, Hurlock and Wilson (2011) provided a taxonomy of 31 factors that either increase or decrease the usefulness of tweets.

These studies have provided useful understandings in terms of which tweets are interesting or of value to Twitter users. However, collecting data in this way is expensive. Favourited tweets, which can be collected via the API for users, is potentially a free, user personalised source of data on this. Nevertheless, interpreting and utilising this data requires understanding the motivations why people favourite.

Information Filtering and Tweet Re-Ranking

A third body of research of interest to our work deals with information filtering and the re-ranking of tweets. This litera-
ture intersects with the work already described because the re-ranking or filtering of timelines requires establishing interest profiles for users. A common approach is to use retweeting as a proxy for interestingness and many researchers have attempted to establish good predictive features for retweeting that can be used in classifiers (Feng and Wang 2013; Suh et al. 2010; Petrovic, Osborne, and Lavrenko 2011; Hong, Dan, and Davison 2011). Common features include the textual content of the tweet, metadata for the tweet (e.g. recentness), and properties of the author of a given tweet (e.g. number of followers). The count of a user's favourited tweets has been used before. However, none of the studies in the literature found that this number was helpful in predicting retweeting behaviour.

While early efforts focused on predicting tweets that would be retweeted by a large proportion of the Twitter userbase, more recent work had tried to perform more personalised predictions. The task here is to determine which tweets will be retweeted by individual users (Macskassy and Michelson 2011; Uysal and Croft 2011; Feng and Wang 2013). Uysal and Croft use, among other content-based, user-based and tweet-based features, the authors' favourite count as a factor in a learning to rank approach. As many of these quantitative features are not easy to interpret in terms of how they actually relate to a user's real behaviour, we decided to take a qualitative approach by surveying users for favouriting motivations.

Closest to our study is the work by boyd, Golder and Lotan (2010) who qualitatively analysed the characteristics and motives behind retweeting. Contrasting with their approach, which is to infer user motivations for retweeting from the raw tweet text, we gather explanations directly from users via a survey. Although their focus is mainly on retweets as a conversational practice, boyd, Golder and Lotan also mention various other motivations for retweeting such as: making one's presence as a listener visible or to save tweets for future personal access. As we will see later, many of these motives can also be identified as reasons for favouriting.

Contribution of our work

Our work contributes to the literature in the following ways:

1. We provide the first in-depth investigation of usage of Twitter favouriting function and motivation for its use.

2. We contribute a taxonomy of 25 motivations for using the favourite button.

3. We shed light on the relationship between retweeting and favouriting, which provides insights on how people use favouriting as an option for the management of information within tweets.

4. We discuss the generalisability of our findings by drawing comparisons with other social networks or microblogging environments, such as Facebook, G+ or Pinterest, which offer similar functionality to the favourite button.

Data Collection

Survey Methodology

We designed a survey such that a comprehensive overview of favouriting behaviour could be established using a large

sample of Twitter users. Initial survey questions captured basic demographic information for the participants, as well as details about their use of Twitter and other social networks. Questions relating to general Twitter usage included how long and how often the participant has used Twitter, how many Tweets they had posted, how many followers they had and how many tweets they had marked as a favourite at that time. To help the user answer these questions we provided a tool that collected these data for the user via the Twitter API. After answering these initial questions, we asked participants whether they were familiar with the option of favouriting tweets and, if they were, they completed several follow-up questions regarding the frequency with which they make use this feature, the reasons that might motivate them to do so, and how often the accessed their list of favourites. Answer options, which were not free form were presented as a 7-point likert-scale ranging from 1 (never) to 7 (multiple times per day). Additionally, we asked participants to log on to Twitter and copy and paste the last tweet that they had favourited and explain the motivation for doing so. This additional question with a specific tweet was designed to eliminate memory bias that can occur when questioning people about their behaviour generally (Teevan, Ramage, and Morris 2011).

Participants

The survey was completed by a total of 606 Twitter users who were recruited via two main strategies. Firstly, we employed a locally hosted, web-based survey, which we advertised via our own Twitter and Facebook networks, as well as via university and personal email lists. We asked recipients of the adverts to forward these on via their own networks, which resulted in a snowball sample consisting of 103 participants. Secondly, we recruited additional participants (503) via TellWut.com, an online survey platform that collects crowdsourced responses. The advantage of using this service is that it provides us with access to a larger and arguably more representative sample of Twitter users. Table 1 provides an overview of the gender and age statistics for both samples. The Tellwut sample provides a more diverse sample in terms of age, with more younger and older participants being reached this way. However, there is a bias towards females in the Tellwut sample; a phenomena that has been reported in other crowdsourcing work (Ross et al. 2010). The overall sample represented generally well educated people. More than half of the respondents (51.9%) were working towards or had already achieved a bachelor's degree.

The participants were for the most part long-term Twitter users. 74.8% posted their first Tweet over a year previously. Whereas 17.9% started using the service in the last 6 months and 7.3% were new to Twitter having started in the month proceeding the study. For a lot of respondents (89.6%) the Twitter Website is the most common way to access and using Twitter. Only 37.4% claimed to use the official Twitter smartphone client. Other desktop or smartphone applications did not seem to be particularly popular among our respondents. Although most of the respondents had been Twitter users for some time, only a few reported tweeting regularly. Nevertheless, at least 35.6% of the respondents typically post tweets on a weekly basis or more frequently. More than half

of the participants (54.9%) responded that they rarely tweet or tweet only a few times a month. 9.2% stated they never post a tweet themselves.

In addition to using Twitter, participants reported using a variety of other social networks. Almost all of the respondents (92.5%) reported using Facebook and other common SNs were Pinterest (37.1%), Google+ (37%) and LinkedIn (27.3%). Our sample follows a highly skewed, long-tailed distribution for both the number of tweets the user had posted (median=118, min=0, max=73,940 IQR=1,013), and the number of tweets they had marked as favourites (median=5, min=0, max=55,660 IQR=40), which is what one would expect from a random sample of Twitter users. In two extreme cases, participants reported having 55,660 and 8,000 favourited tweets. We discuss these high numbers separately as a specific behaviour captured in [C2] of our taxonomy.

To summarise, while we do not claim our sample to be completely representative of all Twitter users, it does represent a relatively large, heterogeneous sample of users with varying demographics. Additionally, the reasons given for favouriting demonstrate a breadth of uses of the function not reported previously in the literature, including examples that were repeated for multiple users. We explain the utility of the findings below.

Data Analysis

The likert-scale questions were analysed using elementary descriptive statistics. The free form questions, which provided reasons for using favouring generally, as well as the reasons for favouriting the last tweet were analysed qualitatively using an approach aligning with Glaserian Grounded Theory (Glaser and Strauss 1967). This analysis resulted in a set of categories (or codes) for the favouriting reasons. As there is no prior work that deals with reasons for favouriting, it made sense to choose a method for data analysis allowing patterns to emerge from the collected data.

The main part of the data analysis is a four-stage coding process involving all three authors. The first stage of the process referred to in the literature as "open coding" is characterised by assigning codes to interesting aspects of each user reported reason and involves "breaking down, examining, comparing, conceptualising and categorising data" (Strauss and Juliet 1990). These codes or tags "serve as shorthand devices to label, separate, compile, and organise data" (Charmaz 1983). The second stage is referred to as 'focused coding'. In this phase all of the authors met and the codes they generated separately were compared and grouped in a bottom-up fashion into concepts. The concepts were then further organised into higher-level categories (the top level labels in Figure 2), which, in our view, best reflected the phenomena observed in our data. This step, which Strauss and Corbin name axial coding, involves "a set of procedures whereby data are put back together in new ways after open coding, by making connections between categories"(Strauss and Juliet 1990). The outcome of this step was a complete coding scheme - a set of categories that reflects the described motivations for searching Twitter at a useful level of abstraction. Throughout the analysis, the raw data were treated as

GENDER	Male	Female	Not Given	total		
initial survey	68(66%)	34(33%)	1(1%)	103		
tellwut	135(26.8%)	362(72%)	6(1.2%)	503		
combined	203(33.5%)	396(65.3%)	7(1.2%)	606		

AGE	<19	19-29	30-39	40-49	49>	total
initial survey	3(2.9%)	54(52.4%)	35(34%)	4(3.8%)	7(6.8%)	103
tellwut	31(6.6%)	171(34%)	109(21.7%)	85(16.9%)	107(21.3%)	503
combined	34(5.6%)	225(37.1%)	144(23.8%)	89(14.7%)	114(18.8%)	606

Table 1: Demographics of the two samples in comparison

potential indicators of concepts and the indicators are constantly compared - a point emphasised by (Glaser and Strauss 1967) - to see which concepts they best fit with. This means that the link between the data and more abstracted concepts and categories is not lost. In an optional final coding stage, "selective coding", an overarching, "core" category has to be selected and it's relation to the other categories has to be explained. While we were not able to fully achieve "selective coding", we were able to further group the existing categories into three major abstract use cases which explain why favouriting is being used.

To test the coherency and reliability of the coding-scheme, the three authors each re-coded 50 randomly chosen reasons from the dataset and an inter-annotator agreement statistic was calculated. As multiple codes can be applied to each description, we used a multiple code multiple coder Kappa proposed by Harris and Burke(Harris and Burke 2005). The three authors achieved a Kappa of 0.83 which, according to Landis and Koch (Landis and Koch 1977), indicates an almost perfect agreement. After establishing the robustness of the coding-scheme, the complete data set was subsequently coded by the lead author. The final coding-scheme can be seen in Figure 2 with counts for each code. Numbers in parenthesis indicate that the higher-level code applied, but it was unclear due to lack of details in the description, which sub-code to use. The following chapter will present results of the analysis with a strong focus on the coding scheme and its application i.e. the coding of reasons. We present example reasons, what codes apply for the reason and explain the code choice as well and the significance of the findings. To make comparison and allocation of codes easier each reason is assigned a unique reference number in brackets, for example [R5]. Codes are referenced with a similar syntax, e.g. [B3.1] refers to Code B3.1, favouriting as a means to engage in a non-commerical competition like at Favstar. In the discussion section we interpret what the findings mean in terms of how information filtering for Twitter streaming data can be improved by utilising favouriting motives.

Results

Of our 606 survey participants, only 65.1% (or 395 participants) said they were aware of the favouriting function on Twitter, despite the function being a core part of the Twitter functionality. Of those that were aware of favouriting, only 73.5% (or 290 participants) had favourited a tweet. This re-

stricts the size of our dataset that can be analysed qualitatively. Figure 1 shows frequency characteristics of how the favouriting feature is used. 26.8% of all respondents answered to never favourite a tweet. This is opposed to 31.6% stating to use the favourite button on a regular basis, some (5%) even multiple times per day. The favourites list is highly neglected as 77.4% never or rarely visit it. Moreover favouriting is mostly a permanent activity as 91.8% claim to either never unfavourite tweets or do so extremely rarely.

Qualitative Analysis

Two questions queried participants on their motivations for favouriting tweets. The first asked for free text descriptions of reasons explaining why they tend to favourite tweets, generally. The second requested a specific explanation for the last tweet that they had favourited. The thinking here was that the first question would capture broad motivations, while the second question, due to the concrete example, would include reasons that might not typically spring to mind, i.e. would address issues of memory bias. After data cleansing and deleting uninterpretable responses, we were able to analyse 331 user reported reasons for favouriting a tweet on Twitter i.e. answers to questions one and two described above. Reasons were given an average of 1.6 codes. The maximum number of codes used for a response was 7, although 1 code was often sufficient for shorter responses.

According to our qualitative analysis, pressing the favourite button is motivated by a range of heterogenous reasons, as represented by the Taxonomy shown in Table 2. Motives behind favouriting can be grouped into two major uses cases: response and function. Firstly, favouriting is used as a reaction or a response to a tweet [A]. This higher-level category encompasses motives and reasons where using the favourite button is a reaction to the tweet's content or its metadata (e.g. the author) of the tweet. Beyond the simple notion of liking a tweet [A3], our data suggests that people also favourite a tweet as reaction to the creator of the tweet e.g. a celebrity [A2.3] or a relative [A2.2]. Secondly, favouriting is often used for a specific purpose or as a function [B]. This higher-level category encompasses motives and reasons where the favourite button serves as a utility function to fulfill a certain goal or purpose. For example people use favouriting to bookmark [B1] a tweet, but also to function as a form of nonverbal communication [B2]. Below, we present each of these codes in more detail.
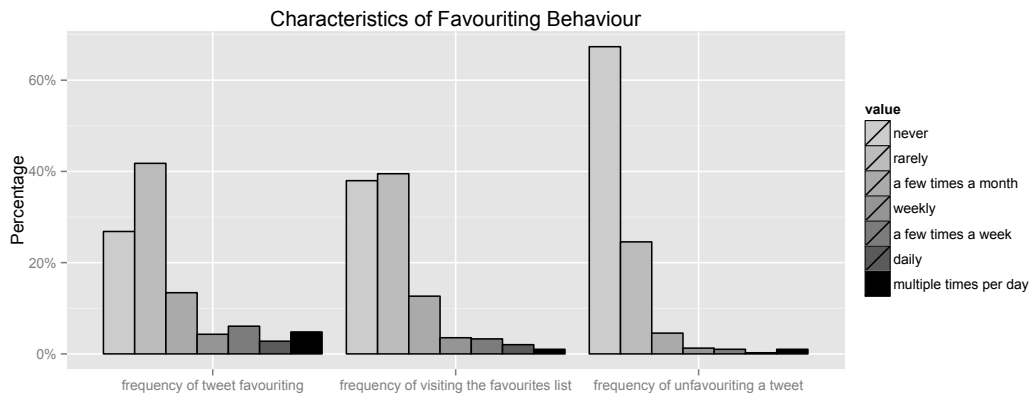
Figure 1: Favouriting Frequency

Coding Category [A]

Liking [A3]   The most dominant code category in the scheme, and perhaps the most expected for the functionality, is the liking category, which was applied to 206 responses. Beyond being described by Twitter as one of the primary uses of the favouriting button, many people associate Twitter's favourite button with the Facebook's "Like" button: *"Generally use it analogously to 'like' on facebook"* [R183], or *"almost like "liking" it on facebook"* [R191]. Closer investigation reveals subtle differences with respect to what it means for a user to utilise favouriting as a method of communicating that they "like" a tweet. Many responses described the user's intensity of liking [A3.1]: *"If i really like them, i will favourite"*[R96], *"When I like them a lot"*[R205], *"Cause i loved it"* [R322]. This code often accompanied the code [A3.2], which qualified the liking with a reason. Example reasons included: *"I find the tweet funny or the tweet announces something that i like."* [R77] and *"Find it amusing or valuable"* [R89]. We differentiate these from reasons focused on the nature of the tweet [A 3.2], i.e. the tweet being funny, and also from [A5] which is focused on how the user felt about the tweet - something much more personal. As stated earlier, sometimes the focus of liking was related to metadata such as the author: *"Something that a friend posts that i really like or agree with."* [R25]. Code [A2] accounts for this liking reason and is presented further below.

Tweet is informational [A1]   This category encompasses codes where tweets were favourited because of the topical relevance of the tweet's content [A1.1] as well as if the tweet had a specific type of media (e.g. link, picture, video) attached. In particular, the focus of favouriting was for the utility of the information of media. Reasons with the code [A1.1] often included specific topics such as sports, music, news or religious content. The respondents typically favourited specific content that they judged to be significant or relevant to their interests: *"People put on good shopping sites"* [R134], *"CRICKET MATCHES"* [R207], *"tweets for political figures that I agree with, Statements that I agree with"* [R194], *"I love his gospel music"* [R270]. Despite

being short, [R194] is also a good example of when a reason was attributed to 3 different codes, which have already been introduced. First of all a specific topic is mentioned [A1.1], second, the favouriter wants to express a stronger affinity than simply liking [A3.1], and third, the favouriting was qualified with a reason [A3.2]. Code [A1.2] is similar to Code [A1.1] but focuses on the type of media that is attached with the tweet. [A1.2] highlights when the reason states that tweets are favourited because they contain links, photos, videos or quotes. *"They have useful links in them"* [R120], *"Interesting articles, blogs, pictures, videos, memes (obviously)."* [R199]. *"It's a good quote"* [R294]. [A1.2], however, is different to justifications relating favouriting to bookmarking or to the future use of a tweet, which is covered by part [B] of the taxonomy.

Special person as author [A2]   The motive for favouriting was often focused on the creator of the tweet. People described reacting to the tweet of a specific author by favouriting it. At the same time our data shows that it is important how the author and favouriter are related. We identified three author groups that respondents described: 1) Friends and lovers [A2.1] (*"(Best friends!)"* [R236], *"Something that a friend posts that i really like or agree with."* [R25]). 2) Family members [A2.2] (*"Relative"*[R94], *"Because my god daughter tweeted it"* [R289], *"Bcuz it was important to family i have that knew him"* [R311]), and 3) Celebrities (*"Shout outs from celebs"* [R28], *"favourite song or singer or quote"*[R140], *"If the il divo official posts important information about their album or something like that or one of the guys puts a cute quote"* [R95]). Celebrity endorsement becomes especially relevant in combination with category [A4.3], as people tend to favourite tweets from celebrities they were replied to, or mentioned.

Tweet relates personally to the favouriter [A4]   [A4] accounts for ego related tweets that are, in some form, personally relating to the favouriter. First, this includes favouriting because the tweets were specifically benefical to the favouriter in a certain situation e.g. for problem solving or

decision making [A4.1]. Keywords that hint towards this include: "important" and "relevant to me". Second, an ego related favouriting occurs when the tweet reflects the user's opinion or attitude [A4.2]. The favouriter can identify himself with the content and as a reaction favourites it: *"Can relate highly to the tweet"* [R210], *"Sounds like something i would say about the topic"* [R266], *"messages that I believe and felt at the time"* [R221], and *"I feel the same way"* [R313]. Interestingly, reason [R221] also mentions a temporal context, but it's not clear if such a tweet would be potentially unfavourited at a later time. Third, code [A4.3] accounts for the most egocentric reason: tweets that get favourited because the favouriter was mentioned, or directly replied to. Egocentrism is evident in motives like: *"friends mentioning me"* [R190], *"It was directly to me by one of my favourite people"* [R228], *"Because they mentioned me"* [R238], or *"A very interesting reply to me"* [R6]. A mention or reply becomes even more valuable to the user, when the author of the tweet was a celebrity e.g.: *"Because it was a reply from robert englund and freddy krueger is my favourite horror movie villain of all time."*[R296], *"[...]a reply from a celebrity so i can find it again quickly."* [R112].

[R112] also highlights that favouriting can provide a function [B], where the favouriter said they wanted to quickly re-find [B1] the referral from a celebrity.

Emotional Stimulis [A5] The last code category in [A] is where favouriting is performed as a a reaction or a response, focused on the emotional stimulus of the tweet itself. These tweets may be predisposed to invoking an emotion with many users, or may be meaningful for particular users given a personal context. Some favourited tweets were described as: *"inspiring"* [R146], *"happy"* [R321], *"exciting"* [R275], or a general emotive state *"They make me love or have some kind of emotional meaning resonating with me."* [R201]. More generally speaking people stated that the tweet had these properties [A5.1], but sometimes also described their response to it [A5.2]: *"Made me feel special"* [R246]. Conversely, users also favourite other peoples' tweets to invoke emotion in the author: *"I wanted to make her laugh"* [R256], *"It's an admirable milestone, i wanted to grand her recognition so she would feel like people recognize her accomplishment"* [R288].

Coding Category [B]

Bookmarking [B1] Along with [A3], the bookmarking category was the most dominant reason recorded, used 75 times. Bookmarking is the second *official* use case for favouriting, according to Twitter (Twitter 2013). After favouriting a tweet, the tweet is kept in the user's public favourites list, which can be reviewed from their profile. Consequently the concept of future use [B1.1] was well represented in the bookmarking category. Within this concept, we can differentiate between sub-codes in their concreteness of the action to come:*"later"*, *"use later"* or *"again"*. The common activities mentioned in these reasons were to read, to show, to view, to search or to re-find: *"I want to read them again"* [R 162], *"I use the favourite feature like a bookmark feature; tweets i like so i can see them again later."* [R101] or *"I want to find it*

A	FAVOURITING AS A RESPONSE/REACTION	384
A1	Tweet is informational	(3) 58
A1.1	Topically relevant	32
A1.2	Relevant multimedia	23
A2	Special people as author	(12) 31
A2.1	Friends/Lovers	5
A2.2	Family	3
A2.3	Celebrity	11
A3	Liking	(2)206
A3.1	Liking intensity	19
A3.2	Subjective liking reason	172
A3.3	Objective liking reason	13
A4	Personal relating	49
A4.1	Situationally relevant	7
A4.2	Tweet reflects the authors opinion	28
A4.3	Favouriter was mentioned/recipient	14
A5	Emotional stimulus	40
A5.1	Objective	15
A5.2	Kind of emotion	25
B	FAVOURITING FOR A PURPOSE /AS A FUNCTION	144
B1	Bookmarking	(4) 75
B1.1	Future Use	52
B1.1.1	Future interaction step	47
B1.1.2	Anticipated need	5
B1.2	Memory	19
B1.2.1	Encoding step	1
B1.2.2	Memento	18
B2	Unwritten Communication	40
B2.1	Agreement or approval (privacy)	27
B2.2	Engaging in conversation	7
B2.3	Trying to engage others	6
B3	Competitions	(5)13
B3.1	Non-commercial	2
B3.2	Commercial	6
B4	Twitter-Functions Relationship	(1)16
B4.1	Favouriting means less than retweet	13
B4.2	Favouriting means more than retweet	2
C	NO REASON BUT INTERESTING BEHAVIOR	9
C1	Accident	3
C2	No specific reason	6

Figure 2: Coding scheme developed

again easily" [R212], and *"[...]I generally favourite things that I think I will want to re-find again in the future. This is extremely difficult to do using the Twitter search system."* [R181]. [R181] highlights that re-finding is a common need

users have with tweets. Further, it illuminates concerns that re-finding is perhaps poorly supported by the Twitter search feature. While some reasons were vague about their intended reuse [B1.1.1], some also explicitly stated for which activity the favourited tweet will be used [B1.1.2]: *"I am a foodie and a fitness fanatic! i favourite workout routines or recipes to try later. also, motivational pics and sayings to inspire me when i need it"* [R63] and *"So i can use it when i work out"* [R229].

The second concept within Bookmarking [B1] is focused on "memory" [B1.2], but which covers two different meanings. First, users indicated that the act of favouriting can simply help them remember something for longer, i.e. supporting the memory encoding step [B1.2.1]. Whether or not the favourited tweet is revisited, they described the decision of choosing to favourite a tweet as helping them remember it in general: *"I use favourites as bookmarks, to remind me to look up a tweet or topic in more detail later..."* [R200]. Similar effects of memory encoding have been identified by Elsweiler, Baillie and Ruthven 2008 for filing emails. The keywords *"remembering"* and *"reminding"* occur quite often, but not in every case a step of memory encoding can be identified. The second notion of memory is favouriting to build mementos of special tweets [B1.2.2]: *"So i can always remember the tweet."* [R14] *"Quotes or links that i want to remember"* [R133], *"Memorable or funny quotes /stories, things to remember"* [R174], and so forth.

The two aspects of [B1] indicate that the favourites list tries to fulfill two separate user needs. First, for tweets that are saved in the favourites list for a later interaction step, which may then be unfavourited. This would also explain why some people don't have any favourites at all because they regularly unfavourite visited tweets (e.g. in form of a spring cleaning); a behaviour also observed in other personal information management contexts (Whittaker, Bellotti, and Gwizdka 2007). Second, for high valued tweets, which users collect for keeping, and to potentially revisit on more than one occasion.

Unwritten Communication [B2]   Many users reported having used favouriting as an unwritten method for showing agreement or approval, which parallels non verbal communication within face to face conversations [B2.1]: *"I did it [favouriting] because it was an opinion that i agreed with"* [R234] or *"Because i agree with the author"* [R15]. Although this seems quite close to liking, some users differentiated between these two concepts as an additional motivation: *"Something that a friend posts that i really like or agree with."* [R25] or *"I agree with them, or like what they say."* [R143]. While liking and agreeing seem similar, they differ in who the favourite is aimed at; liking for the favouriter and agreeing for the author. Beyond plain agreement, which is often reinforced with a retweet, some users focused on the aspect of a more private approval [B2.1]. Many respondents said that favouriting was a way to show that they agree with or show approval for what was said, but did not feel the need to rebroadcast it with a retweet: *"[...] 3.To signal approval of a tweet that I don't want to retweet to my followers."* [R176], or *"[...] to show support of a tweet that doesn't really ap-*

ply to me (so I don't want to retweet it)[...]" [R191]. Some participants suggested that they try to avoid a more public approval, if they think their followers won't be interested in it. This code, therefore, is linked with category [B4] and the role favouriting plays in the hierarchy of Twitter interaction options, discussed further below.

In terms of unwritten communication, the favouriting function was also used as a means of showing engagement and awareness [B2.2]. People described using the favouriting function as a notification option, to inform others that they received the message, or read a specific tweet: *"show people I know that I've read and appreciated their tweet[...]"* [R172], *"[...]2.To signal that I saw a particular tweet from a person that I know well[...]"* [R176] or *"I wanted the tweeter to know i read it and liked it."* [R233]. Some users reported this action as involving less effort than replying, or that replying with a new post was unnecessary: *"I asked a question, more than one person answered, and i didn't want to answer either of them so i just favourited their tweets."* [R257]. Beyond showing how favouriting relates to question answering(Morris, Teevan, and Panovich 2010), it shows that favouriting was also used as an unwritten form of concluding conversations, in this case to express appreciation. Ending a conversation was also explicitly cited e.g. *"To end a conversation[...]"*[R49].

The last concept in category [B2] refers to reasons that describe favouriting as an option to socially engage with others [B2.3]. [B2.3] encompasses a wide range of activities like supporting causes or people (*"support an event"* [R21]), support the author (*"I agree with the author"* [R15]), encouraging others to engage (*"To get people to join"* [R272]) or simply to increase the visibility of a tweet (*"to spread the word"* [R332], *"[...]i wanted to share it with someone"* [R247]). It is important to mention that the latter two also reveal misconceptions, as favouriting does not make a tweet more visible like a retweet, unless the user expects many people to browse their favourites list.

Competitions [B3]   Category [B3] refers to engaging in competitions as motivation for favouriting. This category is more straightforward, as there are less interdependencies with other categories or codes and the given reasons are easier to identify and interpret. Here, participants used favouriting as a function in order to achieve winning a freebie such as tickets to a sports event. These reasons can further be distinguished between commercial [B3.2] and non-commercial [B3.1] related contests. Often it is hard to distinguish which code applies because of the missing context and the reasons are only stating *"To try to win a contest"* [R244] or simply *"A contest"* [R29]. But in a few cases keywords like "giveaways" hint to a commercial context like in *"I did because i love giveaways!"* [R317] or *"Who wouldn't want to win world series tickets?"* [R249].

Twitter Interaction Hierarchy [B4]   Code [B4] deals less with favouriting as a function, but focuses on the relationship between favouriting and other Twitter features, primarily retweeting and what motives their separate uses. As seen before, code [B2.2] highlighted that favouriting is sometimes used as an act of more private approval or agreement.

Favouriting, rather than retweeting, was used show approval without resharing *"[...]I don't retweet them cause I don't think others might find them funny (often because they're offensive / too geeky / too niche)"* [R184]. Beyond privacy, motive for favouriting was often that it was not *worth* a retweet, which is different in the sense that it introduces an interaction hierarchy of Twitter features based on perceived value. Some stated that it was not worth a retweet, or it simply wouldn't make sense to retweet it, without losing context [B4.1] e.g: *"Funny/interesting but not worthy of a RT"* [R206], *"I feel they're perfectly expressed but would not make sense if i retweeted them, which is what i usually do instead"* [R137] or *"It was well said but not worth retweeting. it was too late to retweet"* [R305]. Conversely, some participants reported that the action of favouriting was perceived as *more valuable* than retweeting [B4.2] for example: *"I like them more than a retweet"*[R123]. This conception, however, occurred much less frequently in the data. Besides this hierarchical relationship, in terms of feature value, there are motives hinting to the fact, that there is sometimes a sequential dependency, where one is the sub-process or pre-process of the other: *"So i can retweet it."* [R292]. Favouriting, in this case, is characterised as a first-pass interaction for later retweeting. As seen in the bookmarking section the notion of favouriting as an initial interaction step or pre-process for further actions was mentioned frequently by participants. Generally speaking, favouriting seems to be the function that offers more privacy for the user, but also attributes less value to a tweet.

No reasons but interesting behaviour[C]

Besides the many favouriting motives people stated, there were also a lot of comments which weren't reasons per se but hint to unexpected Twitter behaviour.

Tweet was favourited accidentally [C1] This category refers to reasons that indicate some kind of usability issue with the Twitter user interface. As the icons for replying, retweeting, favouriting and so on are very small and spatially close, some users seemed to accidentally favourite tweets, while intending to use another function.

No Reason [C2] Some participants stated no need or simply: *"no reason"* [R82]. At first glance these answers seemed like bad survey response. Perhaps strangely, this response was not uncommon, and often from respondents who otherwise provided good answers. As mentioned above, some users have thousands of favourited tweets, and the action is perhaps considered like marking an email as read. Some people seem to have the habit to favourite almost everything in their stream, rather than using the function for a reason.

Discussion

One of our key findings is that the favouriting button is used for a range of functions and communication mechanisms. Favouriting provides notably different functions than retweets, which we discuss below, but also provides a means of non-verbal, or non-textual, communication for acknowledgement and agreement. In particular, these forms of non-verbal communication are considered a key element of Computer-Mediated Communication, but aside from replying with an entire post purely to send an emoticon, Twitter users only have the option of Retweeting or Favouriting.

Retweeting vs Favouriting

Reasons and motives for retweeting as identified by boyd, Golder and Lotan (2010) were also found to be motives for favouriting. For example both features were used to show engagement in a conversation, to enforce friendships, to show loyalty, and homage towards a celebrity, or to save the tweets for future personal access. Respondents said they used the favouriting feature to re-find previously seen tweets, our data shows that the favourite list is rarely visited. Moreover, despite indicating that they might unfavourite tweets after being used, very few said that they had actually done this. Further, we observed a narcissistic dimension of favouriting as a reaction to a mention, which boyd, Golder and Lotan referred to as ego retweets. According to our data we can see that tweets from special people like close friends, family members, or celebrities were valued by some respondents, and cited as the primary reason for favouriting. This stands in contrast to the findings of Counts and Fisher, who found out that the author of a tweet was not of specific value for the users.

We can see that the relation between the two features is very versatile as they are both used for similar motives, but judged differently in their expressiveness. Some valued retweeting higher, while others regarded favouriting as more meaningful. Additionally our results suggest that sometimes people use both in a specific order to achieve their goals.

Favouriting and Privacy

A common theme underlying many of the reasons cited by users for favouriting is in how it differs to retweeting. Retweeting on Twitter, involves reposting a tweet to your own followers. Although a sign of approval, retweeting to your own followers indicates that you too consider the information worthy of mass broadcast. Instead, favouriting provides a more private form of approval, in that many of our survey participants noted that it was less public, and sometimes more meaningful form of acknowledgement or approval. Retweeting and favouriting could be considered a choice between using mass communication and interpersonal forms of nonverbal communication.

A tension for this more private form of nonverbal communication is that a user's favourites are collected in one public place. The function of collecting them together provides the underlying motivation for using favouriting as a bookmarking tool. However, favouriting as a less-public form of communication and the public nature of the favourites list are in opposition to one another. Moreover, some users reported using the favourites list as a means of self-presentation online (Marwick and boyd 2011).

Favouriting in other Social Networks

One concern for this work is whether the findings are generalisable, or translate to other networks. This is a key area of future work, but the Favouriting feature of Twitter has parallels in many other microblogging platforms and social

networks. Both Tumblr and Pinterest provide a liking, or favouriting, mechanism via a button with a heart symbol. Further, both Tumblr and Pinterest provide mechanisms for reblogging and repinning, respectively, which are similar to retweeting. Similar to Twitter, many more users repin images on pinterest than favourite them (Gilbert et al. 2013), yet favouriting was a strong predictor of repinning. There is a high chance, therefore, that many of the same motivations found in our study drive the use of favouriting on other platforms that are limited to re-sharing and favouriting of homogenous objects.

Facebook and G+ provide a much more diverse application of their Like and +1 functions. Users are able to like posts, like in Twitter, but also on comments about posts. Twitter prescribes that users send new posts as responses, while Tumblr and Pinterest, for example, let you comment, but do not let users like or favourite comments. Further, Facebook and G+ allow users to like People, Places, Events, Topics, etc (Bunker et al. 2013) which get represented on a user's profile like the favourited tweets of Twitter users. Although using a single mechanism, the range of types of things that can be liked on Facebook and G+ alter the way they are used. On Twitter, and Tumblr and Pinterest as examples, users can only favourite a post, as a uniform object, and so perhaps there is a need for a slightly broader range of functionality to support: keeping, nonverbal communication, and presenting self. Re-sharing is also possible on Facebook and G+, and so it seems that the range of motivations discovered in our survey are spread across a wider range of functions and on a wide range of objects.

Implications

According to our findings, the favouriting feature is currently being overly repurposed, because there are things that users cannot do in any other way; some users are consciously using it for more than one purpose. The implication, therefore, is that perhaps additional functionality is required in order to support all of the motivations. One practical benefit of our primary contribution, the taxonomy, is that it articulates the full range of motivations for using favouriting features, as opposed to re-sharing features. Microblogging platforms may wish to consider whether it is possible, practical, or ideal to consider supporting them with the introduction of small but subtle new features. The introduction of a 'keep' feature on Twitter, for example, could function more like bookmarking to a private list, diversifying it away from the communication functions of liking or acknowledging. Alternatively, favourites could be left uncollected and purely for communication, while keeps are collected. This change would, for example, better support re-finding tasks. On the other hand, there are still many people who are not aware of the favouriting feature at all, which is a sign for Twitter functionalities being not clear respectively self-explanatory enough. Besides considering to additional features, one could also think of ways to make the present favouriting feature more prominent.

Conclusion

This paper has contributed the first study of Twitter favouriting behaviour, which before now has received little focus in comparison to tweeting and retweeting behaviours. We collected 606 responses to a survey of Twitter users about their favouriting behaviour. Although a large number admitted either not using and even not knowing about the favouriting function, the remainder described a varied heterogeneous set of motivations. A qualitative analysis of these responses produced a novel taxonomy of 25 motivations for using the favourite button, which could be broadly categorised as 1) being in response to tweets, and 2) providing a function for both nonverbal communication and later reuse or re-finding. Our findings highlight that the favouriting feature is currently being over-utilised for a range of motivations, whilst under supporting many of them. The discovered uses highlight a) the function of favouriting in relation to other features, and b) issues of privacy. Our contributions provide potentially transferable insights for microblogging platforms in general, but much more work can be done to investigate these forms of 'liking' and 'favouriting' in other social media platforms.

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