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The Detail of Trusted Messages: Retweets in a Context of Health and Fitness

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Abstract. *Our aim is to know more about the content of a message that is trusted in order to create template messages that users can configure within a system we are designing. To this end, we examine messages that have been forwarded within the social network Twitter in the context of health and fitness. Using content analysis we divide the messages into 3 categories of trust evidence: continuity, competence and motivation. Motivational messages were the most common.*

1 Introduction

What evidence do users seek in order to trust another in social network? In this paper, we investigate trust from a user's perspective and using data provided by users theorise about evidence they seek. To explore our question, we start with and build on Metaxas et al's claim [1] that a message that is forwarded on is likely to be a trusted message. From the social network site Twitter, we collected forwarded messages (otherwise known as 'retweets'). Twitter conversations revolving around the Nike Training Club, a fitness programme originated by the company Nike is used as a case study. The messages have been categorised into three sets using Cofta's [2] dimensions of trust; continuity, competence and motivation.

Our focus is the context of health, in particular, group fitness apps that integrate with social networks. The purpose of this research is to inform the development of health-orientated digital systems (apps and accompanying social media environments) that negotiate trust in the user's interest. Our impetus is to use social network analysis as a form of user study. By studying the messages users create and circulate using Twitter, coined by [3] as the 'language of the wire', we wish to explore how users conceptualise trust and consider trust on their own terms. We intend to build our own trust-enabling system for health messages. It is likely that our users will wish to configure the messages we offer. To create a base template, which users can work with, knowledge is required of the type of content and delivery style users find relevant to trust.

This research is important, as more and more people will turn to digital tools as a way to support their exercise. In the times of a recession, gymnasium memberships

are one of the first items to be removed from a weekly budget [4]. Digital environments could deliver health and fitness communications much better than what is currently available, deconstructing how users function in existing environments can point to fruitful directions [5].

2 Background Research

Like other industries, those in the health and fitness domain have adopted social media networks, such as Twitter, Facebook and Instagram as a means to communicate, develop knowledge, and research. It can be a way to research how best to develop a new digital product, which is what we are using the system for, to understand how to create a mobile application interface (an app). There is now a strong connection between apps and social networks. Users can discuss their apps on social networks via their laptops and work computers and also digital environments are technically interconnected, users can participate in social networks from within an app.

In the context of health informatics and digital environments, understanding trust is crucial. Trust can mean that the listener to a health message not only hears a health message but acts upon it. [6]. Currently, users and stakeholders have limited ways to gauge trust and health advice in the digital environment [7]. The result has an impact on health care resources; Kim and Kim [8] itemise inappropriate health service adoption, increased time inefficiency and patients incorrectly concerned about symptoms. There is a complex pattern of influence that occurs in social networks that has changed the nature of health communications [9]. Rather than communicating with their audiences via broadcasts, such as television advertisements, health communicators need to listen and develop understanding, the traditional actions associated with building trust.

The majority of the work studying social networks in the trust research area is from a quantitative perspective, analysing patterns of behaviour and developing algorithms. For instance, Golbeck [10] models how users evaluate the trustworthiness of another user whilst Tavakolifard et al [11] study who are the most influential message creators. Suh et al [12] study the contextual elements associated with a trusted social network message, such as the amount of follows, the length of time a social network account as existed and how active a message sender is (in contrast, to our work that studies the content of messages). This early work, developing quantifiable measures of trust in social networks, has led to research by several researchers ([11], [1]) that ascertain a link between a forwarded message and trust.

A retweeted message is likely to be a trusted message, according to recent research by Metaxas et al [1] who studied retweeted messages and then surveyed those who sent the messages. Retweeting is the practice of broadcasting a message from another user, on the social network Twitter (on which we base our own study). The convention is for a user to copy the original message that the user wishes to broadcast and precede the words with the text RT. The retweet can also contain the name of the originating author preceded with the '@' symbol. An example is 'RT @NTC: I've been training for 2 years'. Retweeting is the main way information is distributed on

Twitter [12]. Certainly, as Metaxas et al [1] acknowledge, there are a complex set of reasons why users may send on a message, such as the desire to be the first in a network to distribute news; but trust is a common denominator underlying a range of intentions. Metaxas et al study the act of retweeting in general. Their claim linking retweeting and trust has been used by [13], who uses the notion to analyse the Gamegate phenomenon (a particular episode where female video game professionals where subjected to misogynistic abuse). In the domain of journalism, [14] use Metataxas et al's claim to build a system designed for journalists that verifies Twitter messages which may be relevant to a news report. The research we describe in this paper applies Metaxas et al's claim to the domain of health and fitness. We seek detail regarding the type of content in messages that are deemed as trustworthy in order to understand the trust evidence that users value.

According to Cofta [2], there is general agreement between researchers that trust evidence falls into three dimensions: continuity, competence and motivation. Those considering whether to trust or not, trustors, look for evidence across these three categories. The evidence may lie in elements such as the past actions or reputation of the party they are considering whether to trust, the trustee. Continuity evidence is connected with social embededness, how connected is a trustee to relevant communities? Considerations such as reputation and the length of time a trustee has been connected with a community are pertinent. The evidence dimension of competence refers to whether the trustee has the ability and skill to fulfill the requirements of the interaction. Finally, the dimension of motivation has to do with shared interest: Does the trustee have an interest in working towards the welfare of the trustor? Castelfranchi and Falcone [15] use the label 'belief of unharmfulness' to describe when the trustor feels positive about the trustee's intention. According to Kranz [16], motivation can be expressed by providing personalised feedback to users of a digital health service.

In order to use these dimensions of evidence as a lens to understand social network messages, a structure is required. Health communication and trust researchers, McNeill and Briggs [17] provide a structure that allows a conceptualization of trust (such as Cofta's) to understand the micro-detail of trust evidence, in social network messages. McNeill and Briggs [17] provide a precedent for understanding how the evidence in social network messages can build a picture of trust or distrust. All messages are framed in terms of a metamessage, a predominant message that influence the receiver's worldview. For instance, a 'motivational' frame evokes support and encouragement to the recipient of a message. An example of a 'continuity' frame is when a message conveys a sense that the message sender is connected to a community. A 'competence' frame could suggest a level of skill or experience.

3 Methodology

The methodology involved a process of collecting messages from Twitter, in particular coding and categorizing the messages using content analysis. To develop a system to code the material, we used Cofta's dimensions of trust evidence. The social

network, Twitter, was used for this research because there is a large amount of public data available, making it popular with a range of authors (see Bruns for an overview). It needs to be mentioned that the use of Twitter is controversial, the business model behind Twitter means that it is not possible to query the nature of the sample Twitter offers to researchers, meaning that it is difficult to develop scientific claims. For this reason, Twitter data collection is likened to stepping in the river; it's a different experience every time. However, this does not mean that the data is useless or should not be considered. Rather, we argue, the data has a limitation that must be acknowledged; the ability to make generalisations is constrained. As the aim of this paper is to develop insights into how users conceptualise trust evidence for a design context, the limitations of Twitter do not problematise our research. In order to download our sample from Twitter, we used the Twitter Archiving Google Spreadsheet (TAGS) system developed by Martin Hawksey. TAGS uses Twitter's REST API to access the data. Our sample was 539 messages collected over a 12-day period in late 2014. We collected data until we had in excess of 500 messages.

The collected messages were all associated with the *Nike Training Club* (NTC). Run by the clothing company Nike, the NTC programme is an app and a social media presence where users can undertake custom exercise workouts on their own or with others and share their reflections. In particular, we collected retweeted messages marked by users with the hashtag #NTC. As mentioned in the literature review, a retweet is a message written by one user and forwarded by another. It is marked by the text 'RT', usually at the start of the message. (The text 'via' is sometimes used but is not common). A hashtag, denoted by the symbol '#' preceding a term, is a convention on Twitter that users implement when they want their message to be part of a public conversation (in our example the hashtag text looked like this: #NTC). When a user includes a hashtag in a Twitter message, it is likely that the user is aware that this means that others can search for that certain hashtag and view their message alongside other messages labeled with that hashtag.

Messages around #NTC were selected as the focus of our research to find users discussing fitness in a community environment. As the inclusion of the word 'club' in the name suggests, #NTC aims to develop a community around fitness, so there is a lot of data with users discussing exercise together and motivating each other; displaying trustworthiness. Other fitness programmes tend to have users lodging their accomplishments with minimal interaction or conversation with others. The wide exposure of Nike brand means there is a large volume of data to be tapped into. There was a stark difference between the quantities of messages collected across different days. The difference is due to whether the Nike department controlling #NTC issued a message that resonated in the NTC community and forwarded by members. Within our message collection, there are also messages originally generated by community members not part of the NTC official team, but these messages are small in comparison with the coverage that the Nike itself can generate.

There are precedents for academic researchers studying #NTC. #NTC is one of only three digital systems that currently meet medical researcher, Padmasekara [18] recommendations for what a fitness digital systems should be; free, and not requiring any special equipment (which are qualities we plan with our app). Researchers Yoganathan and Duwaraka [19] have also used digital systems produced by Nike as a focus of their study. Less corporate orientated programmes were also reviewed for

possible inclusion in our research, such as #ZombieRun, but interestingly, we found that within these conversations, users tended to discuss a range of issues beside fitness that were difficult to code in a meaningful fashion.

To analyse our data, content analysis (CA) was used, to filter and categorise the messages. Trust researchers across several domains use CA as a systematic way to form valid elucidations from a body of text data, whether the data is a television news transcript or a body of social network communiqué [20]. For example, business researchers, [21] use the technique to understand the link between informal social network recommendations and purchases. In the domain of Public Relations, [22] investigates how not-for-profit organisations use Twitter. Health communication researchers Sillence et al [23] use CA to explore the content of websites to understand user's trust perceptions. The method can give a sense of how users 'really' feel about an issue in the context of their daily lives [20].

To adopt meaningful categories to allocate the messages and guide the basis by which a message was allocated to a particular category, we were informed by the work of Cofta [2] to divide trust evidence into three categories, as discussed in the literature review of this paper. Depending on the emphasis of the message, the twitter messages in our corpus were allocated into one of the three categories: continuity, competence and motivation. The two researchers crosschecked coding decisions.

The problems that affect all content analysis and qualitative coding techniques were also encountered during this project. There is no means within a small-scale research design with limited resourcing to validate the category choices made by researchers. Sometimes the nature of a message means that it is difficult to easily categorise the content. Alternatively, sometimes a message could be placed into more than one category, and it is a judgment call on the part of the researcher to allocate the message. However, as qualitative coding can gather detail informing a research question that other methods cannot access, we adopted the method to inform our research.

4 Findings and Discussion

During the process of categorising retweeted twitter messages, we observed users displaying and considering trust. In this section we discuss how the three categories of trust evidence, continuity, competence and motivation were expressed in the messages. The most significant category in our data set was motivational messages (total of 329 messages), followed by continuity messages (total of 119 messages) and finally the category of competence was represented by 89 messages. However, an exploration of the data from a quantitative perspective will be the focus of another paper. Some of these messages may have been distributed by Nike's marketing department rather than by individual users. However, the origin of the message is not important to us, it is the validation of messages expressed through the act of retweeting a message. Nike's marketing department may know how to design messages that are trusted by their target audience and our research taps into their findings.

To examine the data from a qualitative perspective, we build on the claim of McNeill and Briggs [17], mentioned in the literature review, that there is an essence to a message that can be categorised. We combine this work with that of Verbeek [24], a technology philosopher who presents a design methodology that focuses on the values within the messages produced by technology design. In Verbeek's view, technology and design is a mediator. Users shape their own communications using technology and technology design changes in response to user needs. Verbeek's work is useful because it is a means to link analysis of technology and design with a wider socio-political context. In particular, Verbeek identifies 'user logic', which underlies how users interpret and value messages they exchange, and this notion underlies our following analysis of our data.

In the context of fitness digital communities, the **continuity** dimension of trust was expressed in messages demonstrating that the writer has social connections and is part of a community. For example:

> RT Got my best friends in the #NikeZoom campaign with me!!!

> RT Together soon! RT @liztrinnear: @EvaRedpath you yelling "don't give up, push harder girls" in my head, gets me through my #NTC app workouts

> RT @SuperNoodleRach: Thanks kailoha for my Waanngg yoga mat _Ù÷ ! This morn's @nikewomen #ntc session - post Christmas http://t.co/saHcG1dTC5

Some writers hint at their contribution to a community as well as their connection:

> RT @geniebouchard: So amazing to inspire young girls to be active! Had so much fun working out & dancing! @nikewomen @mariepurvis #NTC

Several messages use a sense of community as a way to promote an event. For instance:

> RT @NikeSF: The city is our playground. Step up to 2015 with Nike Training Club. Tonight at 6:30pm. #NTC

The dimension of **competence** is demonstrated in messages that communicate the message writer's level of skill to those in the network. The design of the Twitter technology allows users to broadcast and share their fitness exploits. An example message is:

> RT @surayafaye: I just smashed 45 minutes with Nike+ Training Club http://t.co/0zEnHSVGns #NTC #TrainLikeAMachine #ChristmasWorkOut

Some display their competence by providing expert advice to others. For instance:

> RT Trainer tip from @evaredpath: Strengthen your core and hamstrings with The Roll Up

Nike, who design the #NTC campaign, has capitalised on the popularity of new media formats to display competence and provide tools for users to capture and distribute their achievements, as these messages indicate:

> RT @SkyDigg4: Check out my Zoom in 5 #NTC workout with @NikeWomen!!

> RT @nikewomen: Earn your selfie. Share minutes, milestones and your personal bests in the new #NTC app.

Finally, the ***motivation*** category of trust evidence in the context of our research was expressed in the messages as encouragement to and support for others to improve their skill and commitment levels. For example, the message might be to inspire others to tackle a particular fitness goal. A message illustrating this point is:

> RT @nikewomen: Challenge the weather one rep at a time with @evaredpath on #Vine

The intention conveyed in these messages resonates with Hardin's [25] claim that those who are trusted demonstrate an intention of concern for others and to work in their interests; in other words, 'encapsulated interest'. Some examples from our data, of messages written to inspire others, include:

> RT Get ready to relax and recharge with my @NikeWomen ab workout!! Coming soon to the #NT

> RT @nikewomen: @imagin_IT_ive Congrats on your #NTC milestone. Keep getting after it.

> RT @vshuguet: A big shout out for the #Nutanix french team. Thanks for being awesome guys!

Sometimes the message is written in the format of a question, which is a way to draw in the reader. For example:

RT @nikewomen: @thefaradaykage No better time to break them in. Which #NTC session did you smash?

Trust researchers such as [25] and [26] outline how difficult it is for individuals to establish encapsulated interested in the 'real', offline world as individuals may need to demonstrate binding commitment to each other and expose themselves to an element of risk. However, we see on Twitter, that it is easy to express motivation to assist another with their goals. What we may be seeing here is the development of familiarisation. Building on authors such as Luhmann and Möllering, Frederiksen (2014) [26] argues that familiarization is part of the process of demonstrating encapsulated interest, the development of 'from one of being strangers to then acquaintances and finally friends involves the transition from risk to trust. Perhaps the writers of the Twitter messages are establishing the basis of trust by broadcasting gestures of support. If this is correct, it explains why Twitter has the potential to be a powerful marketing tool.

So how can we use the insights from our analysis of the Twitter messages? Commercial researchers would suggest that these insights inform the type of messages a product-owner can send out in order to increase the appearance of trustworthiness. However, the aim of our project is to design systems that enable users to negotiate trust on their own terms. The emphasis is on how users communicate with each other in a system. Users may need to decide who to socialise and train with in a system, or whose training advice to accept. Using the insights we have gathered, we will design base messages, guided by what users consider important in the formation of trust (which will form the basis of another paper) and what they expect or prefer from others. In terms of Verbeek's [24] design methodology, this is 'script logic' (as distinct from 'user logic') the design of norms into technology as a base for users to appropriate. Verbeek describes the design process as modest, not an autocratic steering of user behaviour but rather an activity that creates tools for others to adapt during use.

5 Conclusion

In conclusion, using content analysis, we explored the trust evidence users prefer as represented by 'retweeted' social network messages. Some messages demonstrated trust by expressing continuity and connections with community. Others indicated competence and a level of skill. The most popular type of trusted communications contained motivational messages, for instance, encouraging others to commit to their fitness training. These insights will be used to design template messages for a digital system we are creating that aims to enable users to negotiate trust on their own terms.

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