



# Audience design in Twitter: Retweeting behavior between informational value and followers' interests



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## ABSTRACT

With the advent of Web 2.0 applications, practices of news spreading have changed. Now, not only journalists but also average Internet users are able to spread news. This paper examines criteria that influence the forwarding of information in microblogging systems such as Twitter. To test whether and how two different kinds of criteria (contextual criteria and message inherent-criteria) interact in influencing selection decisions of sharing information with others, a  $2 \times 2 \times 2$  laboratory experiment was conducted. Awareness information about one's audience (guiding vs. non-guiding), news topic (educational vs. non-educational), and informational value of the message (high vs. low) were systematically varied. It was hypothesized that participants who received guiding awareness information would show audience design (i.e., adapting communication behavior towards the audience) while disregarding informational value. In contrast, participants who received non-guiding awareness information would not show audience design, but would forward according to informational value. Results confirmed that participants indeed adapted their communication behavior to their audience's interests. However, participants still preferred messages with high informational value over messages with low informational value. Results are discussed and implications are drawn.

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## 1. Introduction

People tend to share information and talk about it with others for various reasons. For instance, information can generate reciprocity (Berger & Milkman, 2012; Fehr, Kirchsteiger, & Riedl, 1998) or can have social exchange value (Gantz & Trenholm, 1978; Homans, 1958). Further, people might share information for self-enhancement purposes (Berger & Milkman, 2012), or for reasons of identity management (Maireder, 2011). Emotional aspects may also play a role in spreading information (Ibrahim, Ye, & Hoffner, 2008; Kubey & Peluso, 1990) as people can discuss emotional experiences with others, make sense of their experiences, or reduce cognitive dissonance (Berger & Milkman, 2012). Sharing information is also part of knowledge management that has become more and more meaningful since knowledge revolution and today's information age cause a growing amount of new information and knowledge that has to be shared and organized (e.g., Smith, 2001). One particular type of information that is shared and spread very often concerns

the exchange of news, as news has conversational value for participants (Berelson, 1949).

Selection and diffusion of news are crucial parts of the journalistic profession and have been investigated by many researchers (e.g., Gans, 2004; Kepplinger, 1989; Shoemaker & Reese, 1996), for example, within the scope of news value theory (Galtung & Ruge, 1965; Lippmann, 1922). However, the advent of Web 2.0 brought along new challenges and circumstances for journalistic work (e.g., Glynn, Huge, & Hoffman, 2012; Lasorsa, Lewis, & Holton, 2012). Now, news can be spread much faster than before and edited in real time (e.g., Armstrong & Gao, 2010; Papacharissi & de Fatima Oliveira, 2012; Poell & Borra, 2012). Further, Berger and Milkman (2012) stated that "[s]haring online content is an integral part of modern life. We forward newspaper articles to our friends, pass YouTube videos to our relatives, and send restaurant reviews to our neighbors" (Berger & Milkman, 2012, p. 192). Panahi, Watson, and Partridge (2013) argued that even information that refers to tacit knowledge might be shared over social web tools. Hence, sharing mechanisms for news offered by Web 2.0 tools are supposed to play an important role in the field of personal knowledge management as they support individual as well as collective knowledge management processes (Razmerita, Kirchner, & Sudzina, 2009). Consequently, sharing information such as news in Web 2.0 has become a meaningful phenomenon in social,

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economic and political contexts (Lee & Ma, 2012). A Web 2.0 technology for very simple and fast information spreading is microblogging. Microblogging applications, such as Twitter, are networks for writing and sharing short messages (tweets). Bandari, Asur, and Huberman (2012) argued that because in Twitter news media can spread their news effectively and to a large population, it is common for many major news sources to have active accounts to take advantage of Twitter's spreading mechanisms. A feature of Twitter that is important for spreading news is called *retweeting*. It is a quick and easy way to spread existing information to an audience, and has therefore become an interesting topic for research (e.g., Boyd, Golder, & Lotan, 2010; Kwak, Lee, Park, & Moon, 2010; Liu, Liu, & Li, 2012; Pfizner, Garas, & Schweitzer, 2012; Suh, Hong, Pirulli, & Chi, 2010). Interestingly, Kwak et al. (2010) found that the majority of retweeted Twitter messages are news items.

The Web 2.0 also brought along an important shift from only publishing to publishing and participating (O'Reilly, 2005; O'Reilly & Battelle, 2009). This means that now not only professional journalists are able to spread news, but also nonprofessional Internet users (e.g., Bruns & Burgess, 2012; Hermida, 2013). Hermida (2010) argued that "...it is undeniable that Twitter has emerged as a significant platform for people to report, comment and share news about major events, with individuals performing some of the institutionalized functions of the professional journalist" (Hermida, 2010, p. 4). However, Twitter users are not journalists, and therefore they do not have a professional journalistic education, nor are they subject to organizational constraints on which news to spread. Instead, Twitter users act privately and might employ different criteria in order to decide which news to share or not to share. It can be argued that their sharing behavior rests more on psychological aspects. Therefore, we introduced the concept of *informational value* (Rudat, Buder, Bodemer, & Hesse, 2013) which we have adapted from news value theory (Galtung & Ruge, 1965; Lippmann, 1922) and which we regard as being an appropriate explanatory concept for spreading news in microblogging systems such as Twitter. We define informational value as a property that makes news meaningful for a large audience and that has the potential to impact others' minds or behavior.

However, not only characteristics inherent in the information, such as informational value, might influence selection decisions for retweeting. In addition, contextual criteria, such as properties of the task and the surrounding, or social information about others might play a pivotal role. Since we will investigate sharing of information in a social media context, social information about other users should have a strong potential to influence selection decisions. Regarding such social information, we refer to mechanisms of awareness and audience design (Clark & Murphy, 1982; Dehler-Zufferey, Bodemer, Buder, & Hesse, 2011): The notion of

awareness refers to a technology's ability to make certain information about other users salient (e.g., what do others think or prefer, who is interested in what). Moreover, the concept of audience design describes the fact that producers adapt their communication behavior to their audience, for example, with regard to the audience's knowledge or interests (Clark & Murphy, 1982; Dehler-Zufferey et al., 2011). Of course, audience design is only possible if information about the audience is available. In Twitter, not much information about one's audience is provided; and although most Twitter users might have a more or less valid image of their audience (Marwick & Boyd, 2011), they usually do not have any overall information about their audience to adapt their communication behavior to. Therefore, in this paper, we will investigate whether and how people are influenced in their selection decisions for retweeting not only by content characteristics of information, namely informational value, but also by summarized information about their audience; and how both factors might interact with each other. In the following we will explain both criteria and discuss their potential influence, starting with the notion of informational value.

### 1.1. The influence of informational value

News value theory is one of three approaches within the research tradition on news selection (Kepplinger, 1989) along with gatekeeping (White, 1950) and news bias (Klein & Maccoby, 1954). Originally, news value theory focused on the relevant characteristics of events, so-called *news factors* that are ascribed by journalists and that influence which events are published as news while others remain disregarded (Galtung & Ruge, 1965). Meanwhile, research has further developed news value theory and news factors and has extended its scope (e.g., Eilders, 2006; Eilders, Geißler, Hallermayer, Noghero, & Schnurr, 2010; Harcup & O'Neill, 2001; Papacharissi & de Fatima Oliveira, 2012; Rosengren, 1974; Ruhrmann, Woelke, Maier, & Diehlmann, 2003; Sande, 1971; Staab, 1990a, 1990b). Among others, it was shown that the value of news influences not only journalists but also recipients in their selection decisions for consumption (Eilders, 1997; Eilders & Wirth, 1999; Fretwurst, 2008).

For our research, we will focus on eight news factors (see Table 1) that have turned out to be stable and meaningful over time (e.g., Ruhrmann & Göbbel, 2007). Although most of these news factors have been found as being important for the selection decisions of journalists (e.g., Badii & Ward, 1980; Eilders, 1997; Ruhrmann et al., 2003; Shoemaker, Chang, & Brendlinger, 1987; Staab, 1990b), we suggest not to generalize the results from journalists' selection criteria to Twitter users. Instead, we propose the concept of informational value as being a reasonable selection criterion for retweeting decisions: News that has informational

**Table 1**

Alphabetically sorted list of news factors, their meaning (cf. Ruhrmann & Göbbel, 2007; translation by the authors) and psychological functions related to selection decisions of Twitter users.

News factor	Meaning	Large audience and/or impact on the audience
Aggression	The message is about threatened or practiced violence	No
Controversy	The message explicitly presents differences of opinions	Yes
Negative consequences	The possible or actual negative consequences of events are explicitly mentioned in the message	Yes
Personalization	Individuals get a special meaning within an event in the message. One person or a few people are illustrated or even portrayed standing for a group or a company	No
Prominence	The message is about a popular person, popularity regardless of his or her actual political/economic power	No
Proximity	The message is about an event within a short geographical distance	No
Relevance	The message contains an event or a development that does already or will directly affect a large number of people	Yes
Unexpectedness	The message is about an event or a development that cannot be predicted or stands in contrast to existing expectations	Yes

value potentially affects a large audience and potentially impacts the minds or behavior of the audience. In the following, we will shortly explain the arguments that have made us conceptualizing such an adapted selection criterion.

As we argued earlier (Rudat et al., 2013), important differences between journalists and Twitter users implicate that selection criteria for retweeting decisions rely on other, rather psychological aspects than only journalistic selection decisions. Twitter users act as private individuals without a journalistic mission, hence from a psychological point of view we suppose that they are intrinsically motivated to share news with their followers. This means that they should be interested in keeping contact and maintaining involvement with their audience as “[s]preading tweets is not simply to get messages out to new audiences, but also to validate and engage with others” (Boyd et al., 2010, p. 1). Moreover, Twitter users might seek to gain a “preferential attachment” to their followers (Lasorsa et al., 2012, p. 22), implying that they could gain increased attention from followers if they have been recognized to be useful or helpful in the past. To us, there seem to be two reasonable ways for Twitter users to take care of their (imagined) audience (Boyd et al., 2010; Marwick & Boyd, 2011); from both aspects we derived the notion of informational value: First, Twitter users should aim to address a large audience with their retweeted news items. If more people feel affected by the retweeted content the probability increases that a Twitter user remains interesting for the audience. Second, Twitter users should try to potentially impact the followers’ minds or their behavior with the retweeted news items. If news provokes some change in a recipient’s mind or even behavioral change in recipients, their preferential attachment to an author might increase.

Looking at each of the eight news factors regarding its possible influence on retweeting according to this line of reasoning (Rudat et al., 2013) (see Table 1), we can conclude that some news factors should have the potential to strongly influence retweeting, such as Relevance and Controversy, because they affect a large audience or have the potential to impact an audience. In contrast, other news factors do not have a strong potential to influence retweeting. For instance, Personalization and Prominence neither affect a large audience nor have the potential to impact an audience. Hence, we regard the news factors Controversy, Negative Consequences, Relevance, and Unexpectedness as having high informational value. In contrast, we regard the news factors Aggression, Personalization, Prominence, and Proximity as having low informational value.

In two earlier experimental studies using systematically prepared fictive tweets about news topics (Rudat et al., 2013), we tested the construct of informational value. In Study 1, an online experiment, participants rated 16 tweets with respect to the size of the potentially affected audience and according to the potential cognitive and behavioral impact on the audience. The results of Study 1 confirmed that informational value is associated with the two suggested concepts: (1) affecting a large audience and (2) having the potential to re-structure the minds of recipients or to evoke behavioral change of recipients. News items conveying news factors that were supposed to have high informational value were rated higher on both underlying concepts than news conveying news factors that were supposed to have low informational value. In Study 2, a laboratory experiment, participants received a set of 43 tweets with varying informational value and were asked to select those tweets that they wished to retweet to their fictive followers. Results of the second study showed that high informational value led to more retweeting than low informational value.

Now we aim to extend our insights about selection decisions for spreading information in the Twitter context by considering not only a content criterion, namely informational value, but also a contextual criterion, namely awareness information about the

audience. Therefore, in the following we will discuss the potential influence of such awareness information that might lead to audience design and therefore influence retweeting behavior.

## 1.2. The influence of awareness information

After having shown that the retweet potential of news factors with high informational value is larger than the retweet potential of news factors with low informational value, the question arises whether there are other, interacting factors that influence the retweeting behavior of Twitter users. A promising contextual factor could be the audience, not only because in the context of social media other users are very likely to have an influence on the behavior of (re)tweeting users (Chen, 2011; Kim, Bak, & Oh, 2012), but also because Twitter users are likely to care about their audience: In order to preserve meaningfulness, Twitter users should be interested in addressing a large audience and in impacting it by potentially changing minds or behavior.

In Twitter, the *followers* constitute the audience: users who are subscribed to other users and read their tweets. Usually everyone could be someone’s follower without the need of a reciprocal relationship (Kwak et al., 2010) and thus, with hardly any social pressure (Hughes, Rowe, Batey, & Lee, 2012). In real Twitter, users know the number of their followers, and, if they visit their personal profiles, they might get isolated, but no summarized information about the followers’ interests. However, the more Twitter users know about their audience the more they can tailor information to the perceived needs and interests of their followers. A promising way to provide information about other users is the approach of awareness and awareness tools (e.g., Janssen & Bodemer, 2013). In the research on group awareness (e.g., Bodemer & Dehler, 2011), tools are used to make information about a group and its members salient. While originally awareness tools were intended to substitute the richness of face-to-face settings (e.g., by providing information on users’ presence or activities) (Gutwin & Greenberg, 2002), a shift towards tools that provide information about non-observable entities (e.g., users’ preferences or opinions) has taken place (Buder, 2011; Dehler-Zufferey et al., 2011). Research has shown that such awareness information could be helpful for a better orientation in the information space or even for learning (e.g., Bodemer & Dehler, 2011; Buder, 2011; Buder & Bodemer, 2008; Sangin, Molinari, Nüssli, & Dillenbourg, 2011). Even without a visualizing tool, aggregated and summarized awareness information about others can filter and personalize information and, therefore, can guide (re)tweeting users through their selection decisions. If these Twitter users are provided with awareness information, they could tailor their messages accordingly. This is referred to as audience design: (Retweeting) users adapt their communication behavior according to perceived properties of the audience. Research has shown that increased awareness and audience design has positive effects on user behavior and efficient information exchange (e.g., Buder, 2011; Buder & Bodemer, 2008; Buder & Bodemer, 2008; Engelmann & Hesse, 2011). Moreover, audience design as a possible consequence of awareness should result in efficient communication behavior, which might improve users’ orientation and navigation in an information space. Successful audience design also increases the likelihood that recipients will read information as it matches their interests. Dehler-Zufferey et al. (2011) showed that audience design could even support learning.

However, although a large number of studies could already show that awareness information does have an effect on navigation behavior, communication behavior, and learning (e.g., Buder, 2011; Engelmann, Dehler, Bodemer, & Buder, 2009; Janssen & Bodemer, 2013; Janssen, Erkens, & Kirschner, 2011; Phielix, Prins, Kirschner, Erkens, & Jaspers, 2011; Schreiber & Engelmann, 2010), the

question arises whether some types of awareness information are more effective than others. Buder, 2011 argued that the “effectiveness of [awareness information] is positively correlated to the degree of behavioral adaptation that it brings about” (Buder, 2011, p. 1116). Behavioral adaptation, such as audience design, could be achieved by guidance. This means that the more awareness information leads to behavioral adaptation or immediate action, the more guidance it has; hence, the more effective it is. Thus, in order to increase audience design via awareness information, a criterion of varying the effectiveness could be the degree of explicit guidance of the provided information. To us there seem to be two ways to increase the guidance of awareness information: First, by relying on specific audience information (e.g., interests of others) rather than unspecific audience information (e.g., gender). Second, by providing information about audience percentages that are relatively high. To put it more concrete, the information that 53% of an audience is interested in educational topics (specific audience category, high percentage) should be much more guiding than the information that 53% of an audience is male (unspecific audience category, average percentage). Taken together, aggregated and summarized awareness information in Twitter might lead to audience design regarding the retweeting behavior. However, guiding awareness information should have a stronger influence on audience design non-guiding awareness information.

### 1.3. Research questions of the present study

In this paper, we aim to answer the questions of whether and how awareness information about the audience interacts with the news topic of the tweet and with informational value regarding their influence on the selection decision on what items to retweet. As we could show in our last study (Rudat et al., 2013), without any awareness information high informational value news factors led to more retweeting than low informational value news factors. However, in the present study, our aim is to explore further factors that could influence selection decisions for retweeting. We consider awareness information about the audience as being one of them, but only if it has enough guidance. Guiding awareness information should lead to audience design and thus, lead to adapting the communication behavior towards the audience, while disregarding informational value.

We argue that if guiding awareness information is provided, people will adapt their communication behavior (Clark & Murphy, 1982; Dehler-Zufferey et al., 2011) in a way that they will consider the interests of their audience and accordingly select information that addresses corresponding topics. To be more precise, if Twitter users would be provided with the information that about half of their followers are interested in news topics concerning education, Twitter users should show audience design by retweeting tweets containing educational news while disregarding the informational value of the tweets. In contrast, if Twitter users are provided only with the information that half of their followers are male or female, this should not lead to audience design. In this case, Twitter users should retweet the tweets only according to their informational value but not according to the topics. To investigate these hypotheses, we conducted an experimental study varying awareness information (guiding vs. non-guiding), topic of the tweets (educational vs. non-educational), and informational value (high vs. low). From these considerations we derived the following hypotheses:

**Hypothesis 1.** We expect an interaction effect of Awareness information  $\times$  Topic. Participants who receive guiding awareness information will retweet more educational tweets than non-educational tweets. In contrast, participants who receive non-guiding awareness information will retweet educational and non-educational tweets in an equal number.

**Hypothesis 2.** We expect an interaction effect of Awareness information  $\times$  Informational value. Participants who receive guiding awareness information will retweet tweets containing news factors with high informational value and tweets containing news factors with low informational value in an equal number. In contrast, participants who receive non-guiding awareness information will retweet more tweets containing news factors with high informational value than tweets containing news factors with low informational value.

## 2. Method

### 2.1. Participants

Data were collected from 61 German-speaking student participant volunteers. Data of one participant had to be excluded because of a failed manipulation check. Thus, data remained from 60 participants (15 male, 45 female). Their age ranged from 19 to 30 years ( $M = 23.45$ ,  $SD = 2.35$ ). Participants were asked about their average knowledge about Twitter and their average usage of Twitter. Both items were measured by a five-point scale ranging from 1 (*very small/rarely*) to 5 (*very good/very often*). Participants indicated their average knowledge about Twitter ( $M = 2.10$ ,  $SD = 1.04$ ) as well as their average usage of Twitter ( $M = 1.37$ ,  $SD = 0.69$ ) as rather small. For their participation in the experiment, which took 60 min, participants were paid 8€. Alternatively, the students could receive credit for their participation if needed for course requirements.

### 2.2. Design

The laboratory experiment used a  $2 \times 2 \times 2$  mixed design to explore the effect of awareness information, topic, and informational value on retweeting. For the between-subjects factor awareness information, we set up two experimental conditions. Participants in one condition (*guiding awareness condition*,  $n = 29$ ), were given guiding information about their followers (“53% of your followers are interested in education-related topics”). In this experimental setting information about the followers’ interests can be regarded as guiding because the interest directly refers to the content of the news, which was manipulated as within-subject factor. Participants in the other condition (*non-guiding awareness condition*,  $n = 31$ ) received non-guiding information about their followers (“53% of your followers are male/female”). We regard information about gender in this case as non-guiding because usually neither news about education nor average news about various topics is gender-sensitive. Moreover, the information that about half of the followers belongs to one of two genders has less guidance than the information that about half of the followers is interested in a certain topic out of many possible ones. The concrete information (“male” vs. “female”) was randomly assigned to avoid gender effects. For the within-subject factor topic, we created material in a way that half of it contained tweets related to education (*educational tweets*). In contrast, the other half of tweets covered a wide range of other news items except education (*non-educational tweets*). For the within-factor informational value, we used the eight news factors and subsumed them into two groups: Controversy, Negative Consequences, Relevance, and Unexpectedness (*high informational value*), and Aggression, Personalization, Prominence, and Proximity (*low informational value*).

### 2.3. Materials

We created the material together with communication scientists who are familiar with news value theory. Material consisted



of 36 fictive tweets about a wide range of news topics based on real German tweets. Half of the material consisted of tweets about educational news, whereas the other half consisted of tweets about non-educational news. All tweets conveyed different news factors in a different number and in different combinations, but each tweet conveyed either news factors with high informational value or news factors with low informational value.

To compare the two groups of news factors, we subsumed all tweets into two sets of tweets. The first set (*high value set*) contained all tweets that conveyed news factors with high informational value, whereas the second set (*low value set*) contained all tweets that conveyed news factors with low informational value. Informational value was balanced for educational vs. non-educational tweets. We prepared the material in a way that each news factor occurred in the same number (eight times per news factor) within all messages. Further, occurrence of news factors within one informational value set was uncorrelated, which means that the number of each news factor was not related to the number of any other news factor. The created tweets were not longer than 140 characters each and looked like real tweets. They were presented in a simulated Twitter environment.

Examples for tweets are: “Chancellor Angela Merkel visits a primary school in Stuttgart” (as example for an educational tweet containing the news factors Prominence and Proximity and therefore belonging to the low value set), and “Spanish crown prince was spotted during bar-hopping” (as example for a non-educational tweet containing the news factor Prominence and therefore belonging to the low value set).

#### 2.4. Measures

As the dependent variable, we measured retweeting of information.

**Retweeting.** For retweeting a particular tweet, participants had to click a button adjacent to the message to indicate their decision to retweet the information. This means, retweeting was measured dichotomously, with 0 indicating *not retweeted*, and 1 indicating *retweeted*.

#### 2.5. Procedure

We recruited German-speaking participants from a database of all local university students via mailing list asking them to take part in a “Twitter – Microblogging study” in a laboratory where they would have to read and select information given to them. If they agreed to take part, they sat in front of a computer and the material was presented. All instructions were presented on the screen. Participants were told to read the instructions and ask about anything they did not understand. Each participant was randomly assigned to one of two experimental conditions (guiding awareness or non-guiding awareness condition). The tweets were presented in a random order for each participant to avoid sequence effects. We measured retweeting by the participants' choice of retweeting a tweet or not. To do this, they had to decide after reading the tweets, which tweet they wanted to retweet to their followers. Participants received different information about their fictive followers. Participants in the guiding awareness condition were told that 53% of their followers were interested in education-related topics. In contrast, participants in the non-guiding awareness condition were told that 53% of their followers were male or female, respectively. Gender was assigned randomly to avoid gender effects. Participants decided by marking the checkbox of those tweets that they wished to retweet. For a manipulation check, participants had to indicate at the end of the experiment which kind of information about the followers they were provided with. Finally, participants were thanked and debriefed.

### 3. Results

First, we will present the descriptive results of the particular news factors regarding their influence on retweeting (see Table 2). Participants selected mostly that information for retweeting that conveyed the news factors Relevance, Controversy, Negative Consequences, and Unexpectedness. These are all news factors with high informational value.

Before analyzing treatment effects, we checked the variables “average knowledge about Twitter” and “average usage of Twitter” to ensure that differences were not due to pre-existing differences between the two conditions. Regarding both, the average knowledge about Twitter and its average usage, independent *t*-tests yielded no differences between the two conditions (knowledge:  $t(58) = 0.97, p = .335$ ; usage:  $t(58) = 0.99, p = .327$ ). In the following we will present the results regarding our hypotheses.

#### 3.1. Retweeting

All descriptive statistics regarding our hypotheses are summarized and presented in Table 3.

To test our hypotheses, we performed a mixed design analysis of variance (ANOVA), with awareness information (guiding vs. non-guiding), topic (educational vs. non-educational), and informational value (high vs. low) as independent variables and retweeting as dependent variable. According to Hypothesis 1, participants in the guiding awareness condition should retweet more educational tweets than non-educational tweets. In contrast, participants in the non-guiding awareness condition should retweet educational and non-educational tweets in an equal number. First, the ANOVA revealed a significant main effect of topic,  $F(1, 123) = 10.46, p = .002$ , partial  $\eta^2 = .153$ , indicating that participants retweeted more educational tweets ( $M = .37, SD = .23$ ) than non-educational tweets ( $M = .28, SD = .20$ ). However, the ANOVA

**Table 2**

Percentage of retweeted Tweets regarding each news factor (out of eight possible ones) by each person ( $N = 60$ ).

News factor	Informational value	Retweeting	
		<i>M</i>	<i>SD</i>
Aggression	Low	.29	.21
Controversy	High	.44	.20
Negative consequences	High	.41	.21
Personalization	Low	.20	.18
Prominence	Low	.22	.17
Proximity	Low	.25	.17
Relevance	High	.48	.21
Unexpectedness	High	.41	.23

**Table 3**

Percentage of retweeted Tweets.

Informational value	Topic	Awareness information		
		Guiding	Non-guiding	Total
High	Educational			
	<i>M</i>	.54	.41	.47
	<i>SD</i>	.21	.25	.24
	Non-educational			
	<i>M</i>	.31	.41	.36
	<i>SD</i>	.22	.23	.23
Low	Educational			
	<i>M</i>	.31	.23	.27
	<i>SD</i>	.22	.22	.22
	Non-educational			
	<i>M</i>	.15	.24	.19
	<i>SD</i>	.14	.19	.17

also revealed a significant interaction effect of Awareness information  $\times$  Topic,  $F(1,58) = 12.54$ ,  $p = .001$ , partial  $\eta^2 = .178$ . Pairwise comparisons of the retweeted topics using Bonferroni adjustment revealed that participants in the guiding awareness condition retweeted more educational tweets ( $M = .43$ ,  $SD = .19$ ) than non-educational tweets ( $M = .23$ ,  $SD = .16$ ),  $F(1,58) = 22.21$ ,  $p < .001$ , partial  $\eta^2 = .277$ . In contrast, participants in the non-guiding awareness condition retweeted educational ( $M = .32$ ,  $SD = .21$ ) and non-educational ( $M = .32$ ,  $SD = .17$ ) tweets in an equal number,  $F(1,58) < 1$ , *ns*. Thus, the interaction effect explains the main effect, and therefore [Hypothesis 1](#) can be confirmed: The influence of awareness information on retweeting is moderated by the topic of the tweet.

According to [Hypothesis 2](#), participants in the guiding awareness condition should retweet tweets from the high value set and tweets from the low value set in an equal number. In contrast, participants in the non-guiding awareness condition should retweet more tweets from the high value set than tweets from the low value set. The ANOVA revealed that there was no difference between the conditions: Participants from both conditions showed the same retweeting behavior regarding informational value. This means, there was no interaction effect of Awareness information  $\times$  Informational value,  $F(1,58) < 1$ , *ns*, and [Hypothesis 2](#) was not corroborated. Instead and against our expectations, we found a significant main effect of informational value,  $F(1,58) = 75.07$ ,  $p < .001$ , partial  $\eta^2 = .564$ , indicating that all participants retweeted tweets from the high value set ( $M = .42$ ,  $SD = .23$ ) more often than tweets from the low value set ( $M = .23$ ,  $SD = .20$ ). Further, and in line with our expectations, we neither found a main effect of awareness information,  $F(1,123) < 1$ , *ns*, nor an interaction effect of Topic  $\times$  Informational value,  $F(1,58) = 1.22$ ,  $p = .274$ , *ns*, nor a three-way interaction effect,  $F(1,58) < 1$ , *ns*.

#### 4. Discussion

This study aimed to explore criteria influencing selection decisions for retweeting in Twitter. After having investigated a message-inherent criterion in a previous study ([Rudat et al., 2013](#)), we now were interested in interaction effects of contextual factors and message-inherent criteria. Regarding characteristics inherent in the message, we again employed the news value theory, and more specific, the adapted concept of informational value. Additionally, we manipulated the topic of the tweets. Regarding contextual factors, we focused on awareness information about the followers which should lead to audience design and thus influence the selection decision. We argued that people should adapt their communication behavior if they are provided with guiding awareness information about the followers' interests. Thus, we suggested that in this case, selection decisions should be driven more by the relevant topic rather than by informational value. In contrast, we expected that if non-guiding information about the followers' interests is provided, people select only by informational value while disregarding the topic.

First, we indeed found an interaction effect of awareness information and topic. The interaction effect means that the difference in retweeting of educational and non-educational tweets was larger in the guiding awareness condition than in the non-guiding awareness condition. Contrary to our expectation, however, we did not find an interaction effect of awareness information and informational value. Instead, we found a main effect of informational value, indicating that high informational value news factors led to more retweeting than low informational value news factors. With this result, we replicated our former findings about informational value ([Rudat et al., 2013](#)), indicating that the effect of informational value on retweeting might be strong and stable.

In the following, we will discuss the result patterns, starting with the interaction effect of awareness information and topic. This result means that users who are provided with guiding awareness information adapt their communication behavior regarding the topic of the retweeted messages. Thus, assumptions about audience design can be confirmed as users tend to adapt their communication behavior to their audience if they are provided with information about it. This might be due to such reasons for sharing information as reciprocity ([Berger & Milkman, 2012](#); [Fehr et al., 1998](#)), or even altruism ([Gantz & Trenholm, 1978](#)). Nevertheless, users adapt to their audience only if the provided awareness information is actually guiding. However, out of all available messages about a relevant topic, people still chose tweets with high informational value news factors over tweets containing news factors with low informational value. In other words, although we found adaptation in the communication behavior, informational value still remains an important factor for deciding which news to actually retweet.

This study tested predictions under controlled and experimental laboratory conditions which entail both strengths and limitations. First, using carefully and systematically prepared material and conducting the study under lab conditions means that ecological validity will be decreased. However, we were interested in mechanisms that we would not have been able to obtain in the real Twitter: It would not have been possible to compare retweeted and non-retweeted items "in the wild". As a second limitation, participants for the study were mainly students and had rather low experiences with Twitter. Only about 18% of participants indicated that they had their own Twitter account. Therefore, it would be helpful to additionally investigate whether this effect would also be replicable with participants having more Twitter experience. Third, we analyzed only one possible contextual criterion, namely, awareness information about the audience. However, other contextual criteria, such as information about retweeting behavior of other users, might be influential and will be considered in future studies. Fourth, we argued that specificity of audience categories (interests vs. gender) and relative audience percentages (high vs. average) of an information lead to guidance and therefore to audience design. However, as we did not separate both aspects, we cannot draw a conclusion about which aspect might be the crucial one for varying the guidance of awareness information. This might be addressed by future research.

Besides the limitations due to the experimental nature of the study, the findings contribute to answering the question of selection criteria for information in Web 2.0 settings in which typically a huge amount of information is available, and which therefore require selection decisions. In the context of an existing competition for users' attention, it should be meaningful to know which cues and criteria users comply with. As people in general tend to share information, the question arises, which kind of information, or in this particular case, which kind of news is more likely to be retweeted. By introducing the concept of informational value we attempted to respond to changed circumstances that Web 2.0 brought along, such as the fact that now also non-journalistic Internet users are acting as news multipliers. Moreover, in the context of social media, in which issues of self-presentation and identity management are relevant ([Krämer & Winter, 2008](#); [Maireder, 2011](#)) it might be meaningful which kind of information about oneself is fed back to other users. For instance, in learning contexts information about different opinions might provoke conflicts, which are supposed to foster elaboration and therefore can lead to learning ([Johnson & Johnson, 1993](#)). Further, information about interests might evoke high audience design because of its guidance and therefore should result in efficient communication behavior and possibly in good identity management. In contrast, if only less guiding information is provided and made salient, other users

hardly can adapt their communication behavior towards these users. In general, it can be argued that aggregated awareness information about other users can help to get better orientation in social media and Web 2.0 as they represent filtered and structured traces left by other users. This might be helpful for searching information, for finding sources or additional cues, or for receiving personalized recommendations. Moreover, aggregated awareness information could be beneficial not only for oneself but also for other users as better orientation could result in better communication and interaction with others. Instead of only substituting the richness of face-to-face settings, awareness information should go beyond this. Moreover, awareness information should have guidance in order to achieve an adaptation of the communication behavior. This then might lead to fruitful and sustainable interaction behavior. Therefore, insights into the usefulness and the influence of awareness information on the behavior of users should be interesting not only in the context of Twitter but also for other social media applications.

To conclude, the present study provides evidence that users employ awareness information about their audience and adapt their communication behavior accordingly, but only if this awareness information has enough guidance. Moreover, although users do adapt their communication behavior to their audience, message-inherent criteria such as informational value still remain important for the actual selection decision which information to share with others.

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