

Two Sites, Two Voices: Linguistic Differences between Facebook Status Updates and Tweets

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Abstract. Facebook and Twitter, two of the most popular social networking sites, have different network structures and communication purposes. To examine how their differences affect users' language use, we conducted a comparative analysis on the linguistic pattern of Facebook status updates and tweets. Differences were found in word categories indicating verbal immediacy, emotionality, topic, and colloquialism. Results show that Facebook status updates are more emotional and interpersonal, while tweets are more casual, explicit, and concerned about impression management.

Keywords: Twitter, Facebook, Linguistic feature, LIWC, social media.

1 Introduction

The rise of social media has greatly influenced interpersonal communication. In particular, Facebook and Twitter, two of the most popular social networking sites nowadays, have deeply embedded into the daily life of millions of people. They allow individuals to post messages that are brief, public, and social [1]. However, the two sites have different network topology [2] and user motivation [3]. User communications on the two sites are likely to be influenced by their characteristics. While research has examined the content on these sites to understand users' psychological state [4], emotional experience [5] and social strategies [6], little is known about how language use differs between the two sites.

Therefore, the current research aims to examine language patterns of Facebook status updates and tweets. We hypothesized that users on the two sites would exhibit different language styles, as the function and social network structure of Facebook and Twitter are different.

1.1 Facebook vs. Twitter

Facebook has reached more than one billion monthly active users in December 2012 [7], with more than 300,000 status updates published every minute [8]. A status update allows users to write up to 60,000 characters about their feelings and experiences. Twitter has reached 140 million active users in 2012, with 340 million messages (i.e., tweets) published every day [9]. Each tweet contains a maximum of

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140 characters. Users mainly use Twitter to talk about daily routines, carry out conversations, report news, and share information [10, 11].

While Facebook status updates and tweets are both communication channels for information sharing and self-disclosure, they differ in several aspects. First, social connections on Facebook are bidirectional. They are established based on mutual consent. However, social connections on Twitter can be either directional or unidirectional [12]. Second, connections on Facebook are mainly comprised of existing friends in real life [13], whereas users on Twitter do not need to reveal their true identity and the majority of connections on Twitter are strangers [14]. Third, Facebook status updates are usually only accessible to one's own friends, while tweets are public by default, unless the user restricts their visibility to a private social network. Finally, users on Facebook and Twitter might be different in terms of their motivation and personality [3]. Studies have shown that individuals using Facebook have higher sociability, extraversion and neuroticism than those using Twitter [3]. Twitter usage is correlated with need for cognitive closure and conscientiousness. This suggests that users use Facebook for social connectedness [13, 15], while using Twitter for information exchange [14].

1.2 Linguistic Features

Language plays an important role in human society. It facilitates the transfer of knowledge and ideas [16, 17]. The pattern of language use is an indicator of people's cognitive, social and psychological characteristics [18, 19]. A text analysis software program—Linguistic Inquiry and Word Count (LIWC) [20] has been widely used to capture linguistic characteristics by computing the frequency of words in psychologically meaningful categories. There are approximately 70 word categories in LIWC dictionary. Function words, emotion words, and content words are three primary word clusters that can capture language variation [19].

Function words, including pronouns, prepositions, articles, conjunctions, and auxiliary verbs, can reflect attentional focus [25]. The use of first person singular suggests self-focus, and second and third person pronouns imply social engagement or awareness [26]. Some function words signal cognitive complexity. For example, conjunctions, negations and certain prepositions are found to occur in complex cognitive processing [25]. Certain function words can reflect psychological closeness and intimacy. Specifically, more first-person singular pronouns, short words, discrepancies, present tense verbs and fewer articles indicate high immediacy and occur in engaged social interaction [21].

LIWC has also been used to measure verbal expression of emotion [22]. Recent research on social media has used it to monitor everyday life affect and happiness by analyzing the usage of emotion words on Facebook [4, 5] and Twitter [23, 24].

Content words, including categories such as home, money, and leisure, indicate topical themes [25]. A study showed that participants used more content words in story-telling than emotional writing [20]. Compared with findings on function and emotion words, findings on content words are inconclusive, due to the variety of topics in communication [19].

1.3 Hypotheses

Given the functional and structural differences between Facebook and Twitter, we hypothesized that the language pattern of Facebook status updates and tweets are different.

We hypothesized that there would be fewer emotion words, especially negative ones, on Twitter than on Facebook. Existing studies have shown that emotional expression often occurs between intimate friends [26-29]. As social connections on Twitter tend to be more open and comprise more strangers than those on Facebook, it is likely that Twitter users would share less emotion. Furthermore, people tend to present themselves in a modest manner in front of their friends, but express their emotions in a socially desirable manner when facing strangers [30, 31], because impression management is more concerned when establishing new relationships with unfamiliar others [32]. Positive emotion has been found to be more socially acceptable than negative emotions [33]. Hence, tweets are likely to contain more positive emotion words than Facebook status updates, while status updates would contain more negative emotional words.

We also hypothesized that Facebook status updates would contain more immediacy words than tweets because users focus more on social interaction on Facebook than Twitter. The information seeking need would be stronger on Twitter than Facebook, and therefore tweets are expected to have greater use of cognitive complexity words, particularly exclusive and causal words, which are associated with diverse, integrative, and appraisal thinking style [34].

2 Method

We retrieved the most recent 100 status updates from 127 Facebook users and 100 tweets from 102 Twitter users. All users are Singaporean college students. Before LIWC analysis, we processed the tweets and status updates by removing embedded URLs, timestamps, retweets (contents originally posted by others but shared by the participants), and replacing common emoticons with corresponding emotion words so that LIWC can recognize them. We then applied LIWC2007 to our samples. Multiple t-tests were carried out to compare the frequencies of each word category between the two samples.

3 Results

Results show a number of significant differences between status updates and tweets (see Table 1). First, emotion was expressed differently. Status updates included more emoticons than tweets, while tweets included more affective words. When combining emoticons and affective words, there is no significant difference between the two samples. This suggested that users on Facebook did not express more emotion than those on Twitter; they just tended to express their emotion via non-verbal cues. Results also show that tweets contained more positive emotion words than status

updates, whereas status updates had more negative emotion words than tweets, including anger and sad words. This supports our hypothesis that Twitter users would express less negative emotion than Facebook users due to impression management.

Comparing with tweets, Facebook status updates exhibited greater verbal immediacy—fewer longer words, more discrepancies, more first person singular pronouns. This supports our hypothesis that status updates afford more psychological closeness between the author and audience. Facebook and Twitter users used similar amount of second and third person pronouns, suggesting that users on both sites had similar social engagement. Status updates and tweets had similar amount of present tense words, probably because both Facebook and Twitter allow users to post messages in real time.

Overall, the use of function words did not differ between the two writing samples, suggesting that composing status updates and tweets required similar cognitive complexity. However, tweets had more exclusive and cause words than status updates, suggesting that Twitter users were more likely to employ a diverse, integrative, and appraisal thinking style.

Results of contents words showed that status updates and tweets covered different topics. Status updates included more words about body, health and space, while tweets included more words related to work, money and leisure. Additionally, Facebook users were more likely to talk about biological processes, while Twitter users talked more about perceptual processes. This suggests that users on the two sites favor different topics.

Although it is not our focus, we found that tweets contained more assent words and Singapore colloquial English (SCE) than Facebook status updates, suggesting that users on Twitter utilized more spoken language than those on Facebook. In addition, Facebook status updates contained more words than tweets, likely due to the word limit on Twitter.

Table 1. Mean comparison of word frequencies between Facebook status updates and Tweets

| Linguistic features | | Facebook | | Twitter | | <i>t</i> | Cohen's <i>d</i> |
|----------------------|---------------------|-------------|-----------|-------------|-----------|----------|------------------|
| Category | Example | <i>Mean</i> | <i>SD</i> | <i>Mean</i> | <i>SD</i> | | |
| Word count | | 1433.60 | 489.49 | 1085.54 | 265.65 | 6.85*** | .97 |
| Words>6 letters | | 14.56 | 2.66 | 15.88 | 3.77 | -3.00** | -.45 |
| Total function words | | 43.59 | 6.41 | 43.38 | 6.19 | .25 | .03 |
| Total pronouns | I, them, itself | 12.06 | 2.57 | 11.10 | 3.01 | 2.61** | .35 |
| Personal pronouns | I, them, her | 8.37 | 2.13 | 7.34 | 2.50 | 3.37*** | .45 |
| 1st person singular | I, me, mine | 5.48 | 1.65 | 4.35 | 1.87 | 4.87*** | .65 |
| 1st person plural | We, us, our | .53 | .41 | .48 | .39 | .88 | .12 |
| 2nd person | You, your, thou | 1.57 | .94 | 1.65 | 1.00 | -.67 | -.09 |
| 3rd person singular | She, her, him | .50 | .47 | .51 | .47 | -.11 | -.01 |
| 3rd person plural | They, their, they'd | .29 | .22 | .35 | .30 | -1.61 | -.24 |
| Impersonal pronouns | It, it's, those | 3.70 | 1.04 | 3.76 | 1.04 | -.49 | -.07 |
| Articles | A, an, the | 4.50 | 1.27 | 4.74 | 1.47 | -1.34 | -.18 |
| Common verbs | Walk, went, see | 12.95 | 2.23 | 12.43 | 2.62 | 1.63 | .22 |
| Auxiliary verbs | Am, will, have | 7.36 | 1.51 | 7.10 | 1.76 | 1.20 | .16 |
| Past tense | Went, ran, had | 1.93 | .63 | 2.05 | .87 | -1.17 | -.17 |

Table 1. (continued)

| Linguistic features | | Facebook | | Twitter | | <i>t</i> | Cohen's <i>d</i> |
|----------------------|-----------------------|----------|------|---------|------|----------|------------------|
| Category | Example | Mean | SD | Mean | SD | | |
| Present tense | Is, does, hear | 9.11 | 1.65 | 8.78 | 2.16 | 1.29 | .19 |
| Future tense | Will, gonna | .95 | .40 | .84 | .37 | 2.14* | .29 |
| Adverbs | Very, really, quickly | 4.44 | 1.03 | 5.04 | 1.42 | -3.58*** | -.54 |
| Prepositions | To, with, above | 10.06 | 1.75 | 10.48 | 2.26 | -1.57 | -.23 |
| Conjunctions | And, but, whereas | 4.58 | 1.04 | 4.38 | 1.18 | 1.35 | .18 |
| Negations | No, not, never | 1.70 | .51 | 1.76 | .81 | -.60 | -.09 |
| Quantifiers | Few, many, much | 2.15 | .60 | 2.15 | .58 | -.08 | -.01 |
| Numbers | Second, thousand | .63 | .32 | .65 | .30 | -.41 | -.05 |
| Swear words | Damn, piss, fuck | .43 | .44 | .35 | .38 | 1.52 | .20 |
| Social processes | Mate, talk, they | 7.32 | 2.15 | 7.18 | 2.01 | .53 | .07 |
| Family | Daughter, husband | .29 | .28 | .31 | .37 | -.32 | -.04 |
| Friends | Buddy, friend | .29 | .23 | .23 | .19 | 2.09* | .28 |
| Humans | Adult, baby, boy | .81 | .38 | .75 | .39 | 1.22 | .16 |
| Affective processes | Happy, abandon | 9.66 | 2.58 | 9.81 | 3.37 | -.37 | -.05 |
| Positive emotion | Love, nice, sweet | 6.11 | 2.05 | 7.00 | 2.84 | -2.66** | -.40 |
| Negative emotion | Hurt, ugly, nasty | 3.34 | 1.15 | 2.54 | 1.11 | 5.31*** | .71 |
| Anxiety | Worried, fearful | .34 | .19 | .33 | .27 | .39 | .05 |
| Anger | Hate, kill, annoyed | 1.42 | .74 | .95 | .58 | 5.37*** | .71 |
| Sadness | Crying, grief, sad | .78 | .41 | .53 | .40 | 4.64*** | .62 |
| Cognitive processes | cause, know, ought | 12.80 | 2.26 | 13.04 | 2.28 | -.81 | -.11 |
| Insight | know, consider | 1.85 | .62 | 1.90 | .65 | -.49 | -.07 |
| Causation | because, effect, | 1.30 | .46 | 1.52 | .58 | -3.14** | -.42 |
| Discrepancy | should, would, could | 1.48 | .45 | 1.33 | .54 | 2.16* | .29 |
| Tentative | maybe, perhaps, | 1.90 | .56 | 1.93 | .68 | -.35 | -.05 |
| Certainty | always, never | 1.28 | .50 | 1.21 | .52 | 1.15 | .15 |
| Inhibition | block, constrain, | .54 | .24 | .51 | .28 | .81 | .11 |
| Inclusive | And, with, include | 3.26 | .93 | 3.09 | .98 | 1.34 | .18 |
| Exclusive | But, without | 2.14 | .60 | 2.36 | .84 | -2.26* | -.34 |
| Perceptual processes | Observing, heard | 2.19 | .64 | 2.38 | .79 | -2.00* | -.27 |
| See | View, saw, seen | .84 | .37 | .98 | .47 | -2.53* | -.34 |
| Hear | Listen, hearing | .45 | .28 | .56 | .40 | -2.44* | -.33 |
| Feel | Feels, touch | .70 | .30 | .63 | .34 | 1.58 | .21 |
| Biological processes | Eat, blood, pain | 3.15 | 1.09 | 2.25 | 1.09 | 6.21*** | .83 |
| Body | Cheek, hands, spit | 1.03 | .50 | .73 | .50 | 4.6*** | .61 |
| Health | Clinic, flu, pill | .80 | .40 | .55 | .36 | 5.04*** | .67 |
| Sexual | Horny, love, incest | .74 | .57 | .37 | .33 | 5.82*** | .77 |
| Ingestion | Dish, eat, pizza | .67 | .45 | .69 | .53 | -.32 | -.04 |
| Relativity | Area, bend, exit | 13.46 | 2.54 | 13.60 | 2.82 | -.38 | -.05 |
| Motion | Arrive, car, go | 1.78 | .55 | 1.90 | .91 | -1.21 | -.16 |
| Space | Down, in, thin | 4.61 | .99 | 5.39 | 1.52 | -4.46*** | -.69 |
| Time | End, until, season | 7.25 | 1.67 | 6.42 | 1.90 | 3.53*** | .47 |
| Work | Job, majors, xerox | 1.96 | .92 | 2.22 | 1.06 | -2.01* | -.27 |
| Achievement | Earn, hero, win | 1.50 | .55 | 1.75 | .84 | -2.77** | -.37 |
| Leisure | Cook, chat, movie | 1.29 | .50 | 1.70 | .86 | -4.25*** | -.69 |
| Home | family | .42 | .24 | .39 | .30 | .77 | .10 |
| Money | Audit, cash, owe | .67 | .37 | 1.00 | 1.32 | -2.72** | -.36 |
| Religion | Altar, church | .41 | .57 | .24 | .24 | 2.75** | .37 |

Table 1. (continued)

| Linguistic features | | Facebook | | Twitter | | <i>t</i> | Cohen's <i>d</i> |
|------------------------------|--------------------|-------------|-----------|-------------|-----------|----------|---------------------|
| Category | Example | <i>Mean</i> | <i>SD</i> | <i>Mean</i> | <i>SD</i> | | |
| Death | Bury, coffin, kill | .23 | .23 | .16 | .17 | 2.59* | .34 |
| Assent | Agree, OK, yes | 1.16 | .72 | 2.73 | 2.02 | -7.43*** | -1.35 |
| Nonfluencies | Er, hm, umm | .21 | .20 | .26 | .26 | -1.49 | -.20 |
| SCE | Lah, shiok, sia | .25 | .24 | .44 | .47 | -3.99*** | -.53 |
| Emoticon |); ^^; @@ | 2.24 | 1.64 | 1.43 | 1.25 | 4.25*** | .57 |
| Affect without emoti- con | | 7.42 | 1.53 | 8.38 | 2.64 | -3.26** | -.53 |

4 Discussion

4.1 Language Style Varies Across Media

The current research demonstrates how Facebook status updates and tweets differ in language style. Given the different social network structure and usage purposes, the language used on the two sites showed their unique patterns.

The more frequent use of positive emotion words in tweets than status updates suggests that users on Twitter tend to present a positive social image. According to Hogan's notion of self-presentation in social media [35], when facing a mixed audience, users express themselves in a normatively acceptable way to avoid leaving a negative impression on important others. Alternatively, Facebook users might be less emotionally stable than Twitter users, as a recent study found that the preference to Facebook over Twitter is correlated with neuroticism [3]. This may lead to a higher rate of negative emotion expressed on Facebook.

Findings on verbal immediacy imply that social interactions on Facebook are closer than those on Twitter. As status updates usually are not directed to a specific audience [6] and tweets often involve direct conversation between users, it is likely that Facebook users use more immediate words to engage others. In addition, information exchange on Twitter may lead users to engage in more cognitive processes, causing more frequent use of exclusion and cause words in their tweets.

Content words and perceptual words further demonstrate the divergent focuses between Facebook and Twitter users. Research has suggested that connections on Twitter tend to be built on common interests while those on Facebook derived from real-life relationship [36]. Thus, it is reasonable that Twitter users wrote more interest-related topics such as work, leisure, and money. This is also consistent with the finding that Twitter usage is associated with conscientiousness [3]. In contrast, Facebook status updates reveal more sensational and perceptual topics.

The differences in spoken language and use of emoticons were unexpected. Although both Facebook and Twitter are platforms to share daily experiences, results show that tweets contain more informal and explicit expressions.

4.2 Implications

While an accumulating body of research has investigated computer-mediated communication in the past decade, how people's communication style changes in different

media remains unclear [37]. It is of great importance to understand what and how people communicate through social media. The current work illustrates an approach to study this issue by examining psycholinguistic features of communication.

Practically, understanding user differences across media is insightful, as it would help business to make better use of social media to accommodate user needs. For example, features on Facebook should be designed to promote social connectedness, whereas those on Twitter should facilitate information dissemination. Commercial entities on different social platforms may follow corresponding user norms to show affinity and closeness to the target customers.

4.3 Limitation and Future Work

Our sample only contains college students in Singapore. Future research may examine social media in other cultures to validate our findings. In addition, the mere mean comparison on word frequencies cannot preclude alternative interpretations for what causes the differences in linguistic patterns. Therefore, future studies may employ qualitative methods to examine the underlying causes.

Also, future study may leverage other psycholinguistic approaches to understand user behaviors in social media. One possible extension is to utilize computational linguistic analysis, such as meaning extraction method [38, 39] or latent variable model [40], to further understand the content and themes in social media.

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References

1. Naaman, M., Boase, J., Lai, C.-H.: Is it really about me? Message content in social awareness streams. In: Proceedings of the 2010 ACM Conference on Computer Supported Cooperative Work, pp. 189–192. ACM Press, New York (2010)
2. Kwak, H., Lee, C., Park, H., Moon, S.: What is Twitter, a social network or a news media? In: Proceedings of the 19th International Conference on World Wide Web, pp. 591–600. ACM Press, New York (2010)
3. Hughes, D.J., Rowe, M., Batey, M., Lee, A.: A tale of two sites: Twitter vs. Facebook and the personality predictors of social media usage. *Computers in Human Behavior* 28, 561–569 (2012)
4. What's on your mind?, <http://www.facebook.com/notes/facebook-data-team/whats-on-your-mind/477517358858>
5. Kramer, A.D.I.: An unobtrusive behavioral model of “gross national happiness”. In: Proceedings of the 28th International Conference on Human factors in Computing Systems, pp. 287–290. ACM Press, New York (2010)
6. Bazarova, N.N., Taft, J.G., Choi, Y.H., Cosley, D.: Managing impressions and relationships on Facebook: Self-presentational and relational concerns revealed through the analysis of language style. *Journal of Language and Social Psychology* (2012)
7. Facebook news room, <http://newsroom.fb.com/Key-Facts>

8. Pring, C.: 100 social media statistics for (2012), <http://thesocialskinny.com/100-social-media-statistics-for-2012/>
9. Twitter truns six, <http://blog.twitter.com/2012/03/twitter-turns-six.html>
10. Java, A., Song, X., Finin, T., Tseng, B.: Why we twitter: Understanding microblogging usage and communities. In: Proceedings of the 9th WebKDD and 1st SNA-KDD 2007 Workshop on Web Mining and Social Network Analysis, pp. 56–65. ACM, San Jose (2007)
11. Naaman, M., Boase, J., Lai, C.-H.: Is it really about me?: Message content in social awareness streams. In: Proceedings of the 2010 ACM Conference on Computer Supported Cooperative Work, pp. 189–192. ACM Press, New York (2010)
12. Google+ vs. Facebook vs. Twitter vs. ... Part 2: The danger of a one-way fast lane, <https://lithosphere.lithium.com/t5/science-of-social-blog/Google-vs-Facebook-vs-Twitter-vs-Part-2-The-Danger-of-a-One-Way/ba-p/29868>
13. Ellison, N., Steinfield, C., Lampe, C.: The benefit of Facebook “friends”: Social capital and college students’ use of online social network sites. *Journal of Computer-Mediated Communication* 12, 1143–1168 (2007)
14. Huberman, B., Romero, D., Wu, F.: Social networks that matter: Twitter under the microscope. *First Monday* 14 (2008)
15. Köbler, F., Riedl, C., Vetter, C., Leimeister, J.M., Krccmar, H.: Social Connectedness on Facebook—An explorative study on status message usage. In: Proceedings of 16th Americas Conference on Information Systems (2010)
16. Maynard, D.W., Peräkylä, A.: Language and social interaction. In: DeLamater, J. (ed.) *Handbook of Social Psychology*, pp. 233–257 (2006)
17. Krauss, R.M., Chiu, C.Y.: Language and Social Behavior. In: Gilbert, D., Fiske, S., Lindzey, G. (eds.) *Handbook of Social Psychology*, vol. 2, pp. 41–88. McGraw-Hill, Boston (2007)
18. Pennebaker, J.W., Graybeal, A.: Patterns of natural language use: Disclosure, personality, and social integration. *Current Directions in Psychological Science* 10, 90–93 (2001)
19. Pennebaker, J.W., Mehl, M.R., Niederhoffer, K.G.: Psychological aspects of natural language use: Our words, our selves. *Annual Review of Psychology* 54, 547–577 (2003)
20. Pennebaker, J.W., Booth, R., Francis, M.: *Linguistic Inquiry and Word Count* Erlbaum, Mahwah, NJ (2007)
21. Cegala, D.J.: A study of selected linguistic components of involvement in interaction. *Western Journal of Communication* 53, 311–326 (1989)
22. Kahn, J.H., Tobin, R.M., Massey, A.E., Anderson, J.A.: Measuring emotional expression with the Linguistic Inquiry and Word Count. *The American Journal of Psychology*, 263–286 (2007)
23. Dodds, P.S., Harris, K.D., Kloumann, I.M., Bliss, C.A., Danforth, C.M.: Temporal patterns of happiness and information in a global social network: Hedonometrics and Twitter. *PLoS One* 6, e26752 (2011)
24. Golder, S.A., Macy, M.W.: Diurnal and seasonal mood vary with work, sleep, and day-length across diverse cultures. *Science* 333, 1878–1881 (2011)
25. Chung, C.K., Pennebaker, J.W.: Counting little words in big data: The psychology of communities, cultures, and history. In: László, J., Forgas, J., Vincze, O. (eds.) *Social Cognition and Communication*. Psychology Press, New York (in press)
26. Rimé, B., Mehdi-zadeh, S., Philippot, P., Boca, S.: Beyond the emotional event: six studies on the social sharing of emotion. *Cognition and Emotion* 5, 435–465 (1991)

27. Rimé, B., Philippot, P., Boca, S., Mesquita, B.: Long-lasting cognitive and social consequences of emotion: Social sharing and rumination. *European Review of Social Psychology* 3, 225–258 (1992)
28. Pennebaker, J.W., Zech, E., Rimé, B.: Disclosing and sharing emotion: Psychological, social, and health consequences. Psychological, social, and health consequences. *Handbook of Bereavement Research: Consequences, Coping, and Care*, 517–543 (2001)
29. Rimé, B., Finkenauer, C., Luminet, O., Zech, E., Philippot, P.: Social sharing of emotion: New evidence and new questions. *European Review of Social Psychology* 9, 145–190 (1998)
30. Tice, D.M., Butler, J.L., Muraven, M.B., Stillwell, A.M.: When modesty prevails: Differential favorability of self-presentation to friends and strangers. *Journal of Personality and Social Psychology* 69, 1120–1138 (1995)
31. Vohs, K.D., Baumeister, R.F., Ciarocco, N.J.: Self-Regulation and self-presentation: Regulatory resource depletion impairs impression management and effortful self-presentation depletes regulatory resources. *Journal of Personality and Social Psychology* 88, 632–657 (2005)
32. Chester, A., Bretherton, D.: Impression management and identity online. In: Joinson, A.N., Mckenna, K., Postmes, T., Reips, U.-D. (eds.) *The Oxford Handbook of Internet Psychology*. Oxford University Press, New York (2007)
33. Ekman, P., Friesen, W.V.: The repertoire of nonverbal behavior: Categories, origins, usage, and coding. *Semiotica* 1, 49–98 (1969)
34. Tausczik, Y.R., Pennebaker, J.W.: The psychological meaning of words: LIWC and computerized text analysis methods. *Journal of Language and Social Psychology* 29, 24–54 (2009)
35. Hogan, B.: The presentation of self in the age of social media: Distinguishing performances and exhibitions online. *Bulletin of Science, Technology & Society* 30, 377–386 (2010)
36. Bontcheva, K., Rout, D.: Making sense of social media streams through semantics: A survey. *Semantic Web Journal* (2012), <http://www.semantic-web-journal.net/sites/default/files/swj303.pdf>
37. Walther, J.B.: Theories of computer-mediated communication and interpersonal relations. *The Handbook of Interpersonal Communication* 4, 443–479 (2011)
38. Chung, C.K., Pennebaker, J.W.: Revealing dimensions of thinking in open-ended self-descriptions: An automated meaning extraction method for natural language. *Journal of Research in Personality* 42, 96–132 (2008)
39. Pennebaker, J.W., Chung, C.: Computerized text analysis of Al-Qaeda transcripts. In: Krippendor, K., Bock, M. (eds.) *Content Analysis Reader*. Sage, Thousand Oaks (2008)
40. Danescu-Niculescu-Mizil, C., Gamon, M., Dumais, S.: Mark my words!: Linguistic style accommodation in social media. In: *Proceedings of the 20th International Conference on World Wide Web*, pp. 745–754. ACM Press, New York (2011)