

The socio-linguistics of SMS: An analysis of SMS use by a random sample of Norwegians¹

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1 Introduction and method

Since the late 1990's the use of short messaging system (SMS) or "texting" has seen phenomenal growth. Statistics show that on average there are more than 280 000 SMS messages sent every hour in Norway, that is more than 6.7 million per day and this in a country with only 4 million inhabitants (Sandvin, Dagfinrud and Sæther 2002). Among teens, this is the preferred form of mediated interaction surpassing instant messaging, e-mail, voice mobile telephony and even traditional fixed line telephone calls. SMS messages have several characteristics that make it useful for teens and increasingly for other groups. First of all, it is relatively cheap and it is personal, it is a direct message from one person to another. Since mobile telephones are essentially ubiquitous among teens, one knows that if they send an SMS to a certain telephone number that it will come to that person, and not to another individual. SMS is asynchronous, that is it does not require the immediate attention of the receiver. In addition, it is relatively unobtrusive. If, for example, one turns off the ringing sounds on their mobile telephone, nobody is the wiser that a teen is sending and receiving communications. Indeed research shows that teens send and receive SMS messages in class at school and through the night. Around 20% of teens say that they send and receive SMS messages after midnight on a weekly basis.

In some ways SMS is an odd duck. It is difficult to write messages since there is no traditional keyboard or writing instrument, message length is limited to only 160 characters, the displays for reading the messages are small and, transmission relies on terminals limited by poor batteries. When designed, the system was not even primarily intended as a form for personal interaction, but as a way to alert users to voice mail messages and perhaps as a system to broadcast weather or stock information.

Nonetheless, it is now a living medium. Text messages are used to coordinate everyday events, to maintain social networks and to help entertain oneself in the open moments of one's day. In the words of a 17-year-old boy "Often when you are sitting on the bus and subway it is boring and so you can write messages and that entertains you in those boring moments." To be sure, the culture of SMS lives among teens and in particular among women users. In spite of the fact that men were early adopters of mobile telephones (Ling 2000), it is among these women that one finds the great motor of SMS culture. In the words of a focus group informant "Most of the messages I get from boys are pretty short because they don't think it is so fun to sit there and punch in on the phone. That is more of a girl thing." (Erin 17). In contrast to this, teen women write longer more complex messages. They include more literary flourishes in such as capitalization, punctuation. They are more likely to include emotional elements in their communications and they are more inclined to include refined formalities such as salutations and closings in their SMS messages.

There has started to be a number of studies examining the linguistic properties of e-mail and other computer mediated communication (Baron 2000; Baron 2001; Baron 1998; Yates 1996; see also Herring 1996). A central question in this context is the nature of the communication and the effect of the medium on the formation of the language. Researchers have worked to pin this down. Is e-mail more like speech in that it is spontaneous or does it have the more rehearsed and ponderous qualities of writing? SMS messages have not received the same treatment. It is the intention of this paper to look into this form of communication. It will consider the ways in which the urge to communication has overcome the technological limitations of the system.

In this paper I will examine a corpus of SMS messages gathered from a random sample of 2003 Norwegians. The data was collected in May of 2002 by telephone. Along with demographic, behavioral and attitudinal ques-

¹ Ling, R. 2005. "The socio-linguistics of SMS: An analysis of SMS use by a random sample of Norwegians." Pp. 335 - 349 in *Mobile communications: Renegotiation of the social sphere*, edited by R. Ling and P. Pedersen. London: Springer.

tions associated with mobile and SMS use, we asked the respondents to read (and where necessary, to spell out) the content of the last three messages they had sent. This resulted in a body of 882 SMS messages from 463 (23%) of the 2002 respondents.²

This approach has several advantages, but it also can have colored the data. There is an ethical and a methodological reason that we asked for the last messages sent as opposed to those received. Ethically, it is not possible for the researcher to ask for messages a respondent has received since implicitly one includes data from persons who have not given their consent to participate in the study. Methodically, one does know the background, demography or other characteristics of the sender for messages a respondent has received. Thus, it is not possible to analyze the material in any meaningful way at a sociological level.

On the negative side, there are two major issues. First, in order to be included the messages must be read by the respondent to the interviewer and transcribed into the database. There may be selective filtering content since the respondents may not wish to read particularly revealing or piquant messages to the interviewer. Interviewees do not always save the messages they send. In addition, given the tendency to use both intended and unintended

| | Men | Women |
|----------|------|-------|
| 13 – 15 | 6,28 | 6,87 |
| 16 – 19* | 5,29 | 9,03 |
| 20 - 24 | 5,97 | 6,32 |
| 25 -34+ | 2,15 | 2,95 |
| 35 - 44 | 0,88 | 1,21 |
| 45 - 54 | 0,55 | 0,56 |
| 55 - 66* | 0,17 | 0,52 |
| > 67 | 0,35 | 0,08 |

Table 1 Mean number of SMS messages sent per day by age group and gender for Norway, 2002

abbreviations and misspellings in the messages, one can suspect that the transcription process resulted in some, errata, emendation and morphing. A limited point of control is offered via a study of SMS texts generated by 82 teens from Grimstad, a small town in southern Norway (Ling and Sollund 2002). In this case the respondents filled out a questionnaire as opposed to being interviewed. Thus, they were asked to transcribe SMS messages themselves. While it is difficult to quantify the differences given the smaller size of the Grimstad sample, the reader is left with the impression that this more direct form of data collection resulted in a slightly “rougher” corpus. The teens seemed willing to include somewhat more profanity and unguarded remarks.

Another weakness with the material is that the messages are often taken out of their context in a sequence of messages sent to another person. Obviously this can make interpretation difficult in some respects and it also eliminates the possibility to do any type of discourse analysis. Unfortunately, this limitation comes with the territory. As noted above, to do any type of data collection wherein one does not have the consent of the authors of the text is not ethically defensible. Given these various limitations, however, the corpus of messages is a relatively good reflection of SMS use across age, gender and socio-economic groups. It provides one with insight into the phenomena and the ability to generalize the results to a greater degree than in convenience samples.

2 Who uses SMS and how often

While there are an enormous number of SMS messages being sent and received on a daily basis, there are clearly some groups who are more prolific. Data from the study shows that it is women³ and teens/young adults⁴ who are the most enthusiastic users of SMS. When considering the frequency of use, more than 85% of teens and young adults report sending SMS messages on a daily basis use.⁵ By contrast only 2.5% of those over 67 reported using SMS with this frequency. When considering gendered differences, the data shows that while 36% of the men reported daily use, more than 40% of the women said that they send SMS messages on a daily basis.

The data also indicates that the same groups were also the most intense users. Women⁶ and teens/young adults⁷ report sending significantly more messages than their counterparts. As one can see in Table 1, 16 – 19 year old

² The data shows that 64.2% of the sample reported sending an SMS at least once a week. Thus, a significant number of SMS users did not provide any messages. This is often because they had not stored the messages on their terminals or we not willing to share the content. There are no statistically significant age or gender based differences between those who did or did not provide messages.

³ $\chi^2(4) = 15.85$, sig. = 0.003.

⁴ $\chi^2(28) = 793.72$, sig. < 0.001.

⁵ According to Hashimoto this picture is quite similar to that in Japan. He reports that 96% of 20-24 year old women as mobile telephone users. “Only” 81% of the men in the same age group report the same (Hashimoto 2002). A somewhat similar use pattern is also found in the work of Roessler and Hoeflich (Roessler and Hoeflich 2002).

⁶ $f(1,1775) = 9.58$, sig. = 0.001.

⁷ $f(7,1769) = 72.89$, sig. < 0.001.

women who were SMS users – and only about 2% of this group does not use SMS – reported sending a mean of slightly more than nine messages per day. If one compares this to the rate of their mothers, or grandmothers, chances are good that the older guard does not use SMS and if they do, their usage rates are literally an order of magnitude below that of their progeny.

| Theme | % | Norwegian example | English translation |
|--------------------------|----|--|---|
| Coordination | 33 | <i>Bilen er ferdig så vi kan hente den kl 4</i> <i>kan du plukke opp barna i barnehagen</i> | The car is done so we can get it at 4 (M 52) can you pick up the children at daycare (W 30) |
| Grooming ⁸ | 17 | <i>Bra at det gikk så bra på matteprøva di.</i> <i>Du er flink. Hilsen bestemor</i> <i>god natt sexbombe</i> | Good that it went so well with your math exam. You are smart, Love grandma (W 58) Good night sex bomb (W 35) |
| Answers | 14 | <i>ja, nei, ok</i> <i>Har ordnet med det.</i> | Yes, no, ok (2.3% of all messages) I have taken care of that (W 31) |
| Questions | 11 | <i>Har du fått no fisk?</i> <i>er du våken</i> | Have you caught any fish? (M 40) Are you awake (M 31) |
| Information | 6 | <i>jeg fant svampen den lå i korken på flasken</i> | I found the sponge it was in the cork in the bottle (W 28) |
| Commands or requests | 6 | <i>ring meg</i> <i>Husk å kjøpe brod</i> | Call me (1.5% of all messages) Remember to buy bread (M 51) |
| Personal news | 5 | <i>mamma har fått mobil.</i> <i>vi koser oss her det sol og fint vær</i> | Mom has gotten [a] mobile. (W 58) We are enjoying ourselves in the sun and good weather (M 58) |
| Diverse other categories | 9 | <i>Hvor er du?</i> <i>takker for bursdags-presanger.hilsen s</i> | Where are you? (1.4% of all messages) Thanks for the birthday present.love s (W 17) |

Table 2 *The most common themes used in SMS messages, Norway 2002⁹*

3 Linguistic analysis of SMS texts

3.1 Themes in the messages

Beyond the sheer numbers of messages, there is a reason that all of these communications are being sent out. SMS has found a niche in our communication needs. In the words of Gro, an 18-year-old woman “I use it if I am just going to send a short message. For example if I am just going to ask if they are going to go out. It goes a lot faster.” She continues by saying I send messages if I am planning something, if I am bored or if it is something that is important.” Her reported use spans several of the categories found in the data. The SMS messages were coded according to the apparent themes in the messages. This is admittedly somewhat slippery analysis. The messages were often only a single reply in an ongoing dialogue. Given this caveat, the major categories that arose from the data are shown in Table 2.

⁸ This category was a group of messages that did not contain any hint of planning, coordination or responses to questions. They were in essence small gifts from one person to another (Johnsen 2000)

When looking across the various categories one finds socio-demographically based differences. Men, for example, are slightly more prone to using short one-word answers in their SMS messages.¹⁰ When it comes to using SMS messages to plan activities, men are more likely to use them for planning activities in the middle future¹¹ as are older teens and young adults.¹² Women, however, are more likely to use SMS to make plans for the immediate future.¹³ Women¹⁴ and to a less significant degree teens and young adults,¹⁵ were more likely to send “grooming” SMS messages. Along the same lines, women were more likely to send emotionally based “grooming” messages.¹⁶

3.2 Most frequently used words

In order to help understand the nature of SMS I looked into several other characteristics of the messages. This

| | Type/Token ratio |
|---------------------------|------------------|
| 13 – 15 | 0.517 |
| 16 – 19 | 0.487 |
| 20 – 24 | 0.528 |
| 25 – 34 | 0.525 |
| 35 – 44 | 0.609 |
| 45 – 54 | 0.592 |
| Over 55 | 0.507 |
| Men SMS | 0.569 |
| Women SMS | 0.514 |
| Aftenposten editorials | 0.590 |
| Vinje text example | 0.470 |
| 3rd act of A Doll's House | 0.484 |
| Hylland Eriksen's article | 0.546 |
| Rasmussen's article | 0.613 |
| CMC (Yates) | 0.590 |
| Writing (Yates) | 0.624 |
| Speech (Yates) | 0.395 |

Table 3 Type token ratio for SMS messages and various reference texts.

included the types of words used in the messages, the range of words used in the messages as seen in the so called type/token ratio, the length of the messages, the use of abbreviations, capitalization, punctuation, salutations and closings.

The SMS messages were analyzed in order to find the ten most used words in the by gender. *Du* (you) is the most used word and *jeg* (I), including its various alternative spellings is a somewhat weak second place.¹⁷ The words *på* (on/in/at/to) and *i* (in/at) are both in the four most frequently use words for men and for women. The adverb *så* (so) falls completely out of the rankings when considering the SMS messages.

In general one finds more prepositions *på* (on/in/at/to) and *i* (in/at) in the SMS messages. Indeed these two words make up more than 5% of all word use in the SMS messages where only *på* (on/in/at/to) appears in the speech sample making up less than 2% of the total number of words.

This analysis seems to point out several things. The speech sample indicates that when talking we have a certain, perhaps limited vocabulary in active use. This may be particularly true in the speech sample reported here in that it was a focused conversation.

The analysis also reveals the role of SMS as a coordination communication. One uses SMS to coordinate and to make agreements with others. This necessarily involves a vocabulary describing where and when events will take place. This accounts for the predominance of *du* (you), *på* (on/in/at/to) and *i* (in/at) in the SMS

⁹ In the SMS messages shown here are loyal to the original material. I have not changed spelling, punctuation or capitalization. The translations also try to retain the spelling, punctuation and capitalization and flavor of the original Norwegian texts. It also needs to be noted that users often use the so-called “T9” – or Text on 9 keys – method of text entry. It is basically a dictionary that is linked to the appropriate keys so that instead of doing multiple taps to get to a letter, one more or less spells out the word and the telephone suggests a word. Most of the time it is the correct word, particularly in longer words since it can narrow down the universe more. The program does not add automatic abbreviations unless you code them in. One actually have to tap in all the letters of a word in order to enter it. More than anything else it adds to the speed of the writing, not necessarily the length of the messages. There are various attempts to extend this to word and even phrase prediction.

¹⁰ $\chi^2(1) = 3.35$, sig. = 0.067.

¹¹ $\chi^2(1) = 4.76$, sig. = 0.029. Planning in the middle range future was defined as making agreements for activities that had not already started and were to take place within the next few days.

¹² $\chi^2(7) = 17.83$, sig. = 0.013.

¹³ $\chi^2(1) = 4.77$, sig. = 0.029.

¹⁴ $\chi^2(1) = 8.77$, sig. = 0.003.

¹⁵ $\chi^2(7) = 13.28$, sig. = 0.066.

¹⁶ $\chi^2(1) = 9.634$, sig. = 0.002. Emotionally based grooming messages were typically greetings that included declarations of love.

¹⁷ There are several alternative spellings of *jeg* that include *eg* and *e*.

sample, i.e. “Do *you* want to meet *in* an hour *at* school?” In addition the absence of the adverb *så* (so) indicates that SMS communication is not necessarily given over to description, but rather more telegraphic type communication. That is, one does not often describe something as being “*so* big” or “*so* difficult” when using SMS.

Looking more carefully into this, a sample of the words used in the SMS messages was examined for the types of words being used.¹⁸ All words in a sample of the SMS messages categorized as to the part of speech they took. This analysis shows that men use more pronouns and nouns while women use more verbs, adjectives and propositions than men. These findings, however, need to be treated gingerly from a statistical perspective. They seem to only indicate a tendency as opposed to solidly significant findings.

3.3 Type/token analysis

The type/token analysis basically determines the number of different words used in a text (types) as opposed to the total number of words (tokens). If each word in a manuscript were unique one would find a score of one. On the other hand if one used only one word in a 1000 word manuscript the ratio would be 0.001. Thus, the greater the number of different words used, the higher the ratio.¹⁹

In general one expects that, as the medium for producing language becomes faster, in other words, the shorter the link between thought and expression, the lower the ratio. That is, there is often little delay between the conceptualization of an idea and its vocalization and little time to reflect on alternative and perhaps more extensive word choice. Writing in its various forms – with a pen, on a chalkboard or on a keyboard – is much slower. Theoretically the mechanics of the language mediation allow one to reflect slightly more and thus to draw on a broader range of their vocabulary. Finally, formal writing wherein one proofs, revises, strives to eliminate repetition and uses various reference works, theoretically allows one to draw on the broadest vocabulary and thus generally has the highest type/token ratio (Yates 1996). In this analysis I have compared the standardized SMS texts to other sources in order to provide a basis for comparison. These include examples of speech events, various written material and also the work of Yates.²⁰ The results are found in Table 3. SMS, however is an odd duck. The text production is actually quite slow but the mechanics of production are far more complex than with alternative writing forms. Thus, one might expect that the sluggish production process would mean a long time to think about alternative words. At the same time, challenging form of text entry means that one has to concentrate on the writing instrument and not the writing.

The analysis shows that the younger users employed a relatively limited number of different words in the production of their SMS messages. The 16 – 19 year old teens had a ratio of 0.487 that puts them only slightly above the ratio found in the spoken samples. This indicates that for the teens either SMS messages are written impetuously at the speed of thought, that they are purposely limiting their vocabulary for effect or that the teens have a more limited linguistic reach. Or perhaps all three. In contrast to this, the mature adults in one case had a ratio of 0.609 that is exceeded by only one of the academic articles examined for purposes of comparison. Interestingly the analysis indicates that men use more different words in their messages than women though one cannot claim that the results are statistically significant.

3.4 Word length, message length and message complexity

Another dimension for examining the material is the mean length of the words and messages as well as the complexity of the message structure. The analysis shows that there is no significant difference in the length of the words used when examined by gender or age nor can one find an age-based difference in the number of words per SMS message. However, there is a significant gender based difference in the number of words per SMS message and in the complexity of the messages. The data shows that women generally write longer SMS mes-

¹⁸ The same was the same as that used in the type/token analysis. The words that had been used more than once by either men or women were included.

¹⁹ On order to correctly compare various texts one must compare texts of similar length (Youmans 1990). In this case the length of the manuscripts was limited to text samples of 470 words.

²⁰ Written material includes editorials from *Aftenposten* (the major Oslo daily newspaper and a bastion of the urban *bokmål* dialect), a text fragment from Vinje’s description of *Husvære i Kristiania* (an example of the rural dialect from 1865), the third act of Ibsen’s *A Doll’s House* (minus the stage instructions giving the speaker’s name so as not to jigger the results with too many mentions of Torvold and Nora) and excerpts from two academic articles in Norwegian, one by Thomas Hylland Eriksen and another by Terje Rasmussen. All of these text fragments were the same size in terms of the number of words. For reference statistics from Yates are included (Yates 1996).

sages. The mean number of words per message for men was 5.54. By contrast, the mean number for woman was just shy of seven at 6.95 words per SMS message.²¹

Sentence complexity is defined here as the number of separate clauses, sentences or what one can perhaps call separate thoughts in an SMS. The material was separated into two groups, simple and complex messages. Simple messages included only a single sentence, clause or thought. An example of a simple message is one sent by a 15-year-old boy: *møttes klokken 5* ([We will] meet at 5 o'clock). The message is short, direct and shorn of all unnecessary grammatical and punctuational niceties. This type of message made up about 66% of all the messages in the sample.

By contrast about one third of the messages were more complex in their construction. An example of a complex SMS is: *hei du! joda det går bare bra med mæ vettu! prøvde å ring dæ nettopp men nr var iikke i bruk? vet ikke om æ kommer opp eller ikke...* (hi, yea things are good with me you know! tried to call you just now but the number was not in use? do not know if I passed [my exam] or not...). There is a lot happening here. A report on the individual's situation, confirmation of her attempt to call and finally a request for information.

Examination of the material from this perspective showed that women, write more complex messages. More than 74% of the messages sent by men were simple one sentence or one-clause messages. Only 60% of the messages sent by women fell into this category.²² Looking at particular age groups, it seems that 16 to 19 year old girls are particularly adept at writing complex SMS messages (51.61% of all their messages are complex). At the same time boys in this age group are particularly oriented toward simple "one thought" messages (84.85% are simple while only 15.15% are complex).²³

3.5 Use of abbreviations and rural dialect

Much has been made of teen's use of abbreviations in e-mail and SMS. Indeed directories have been published – and sold – providing one with a variety of acronyms and pruned spellings and emoticons. Given this interest, I examined the data both for abbreviations and emoticons. The analysis shows that in spite of all the discussion of this issue, only about 6% of the messages contained any form of abbreviations.²⁴ The data shows that teens and young adults SMS users are the biggest users of abbreviations and that there is a rapid decline of use with age.²⁵ Women SMS users also use abbreviations and emoticons significantly more than men.²⁶ Indeed, slightly more than 20% of 13 – 15 year old women used abbreviations in the SMS messages examined here. Only 3.5% of the women in the 35 – 44 year old group did the same. Women in the 35 – 44 age group and, to a less significant degree those in the 13 – 15 age group,²⁷ used more abbreviations than like aged males. Interestingly, the data also shows that teens are more inclined to use the dialects than older users.²⁸ There were no significant gender based differences in this case.

3.6 Capitalization and punctuation

The analysis shows that the SMS messages from the younger users were more likely to have advanced capitalization and punctuation. Looking first at capitalization, one can distinguish three different levels of use. These are 1) no capitalization, 2) capitalization of only the first letter in the message – sometimes the default function in the mobile telephone – and finally 3) complex capitalization including the use of capital letters in names, proper nouns and at the beginning of secondary sentences. Approximately 82% of the messages had no capitalization, another 11% had only first letter capitalization and the remaining 7% had complex capitalization. By a light but insignificant margin, more men than women used first letter capitalization (12.4% vs. 9.9%).²⁹ The

²¹ $f(1,478) = 10.445$, sig. = 0.001.

²² $\text{Chi}^2(1) = 9.87$, sig. = 0.001.

²³ $\text{Chi}^2(1) = 9.64$, sig. = 0.001.

²⁴ In the case of the study carried out in Grimstad the number of abbreviations was about 10% higher. This leans one to suspect that some of the abbreviations did not survive the data collection process. In terms of the demographic analysis presented here it is hoped that the bias imposed by the transcription process was similar across all the messages.

²⁵ $\text{Chi}^2(1) = 35.19$, sig. < 0.001.

²⁶ $\text{Chi}^2(1) = 9.30$, sig. = 0.002.

²⁷ $\text{Chi}^2(1) = 4.17$, sig. = 0.002 and $\text{Chi}^2(1) = 3.41$ sig. = 0.06.

²⁸ $\text{Chi}^2(7) = 19.94$, sig. = 0.006. An issue here is that the T9 system of spelling assistance is only available for the urban *bokmål* dialect, not the rural dialects.

²⁹ $\text{Chi}^2(1) = 2.22$, sig. = 0.136

SMS messages written by women were significantly more likely to have complex capitalization (4.9% for men vs. 8.5% for women).³⁰ Interestingly it is young adults aged 20 – 24 who are most likely to use capitalization in any form³¹ and also most likely to use first letter capitalization.³²

The analysis of punctuation compared those persons who used no punctuation in their message vs. those who used punctuation. Young adults are also the most likely to use punctuation in their SMS messages.³³ Women use punctuation slightly more than men but the relationship does not appear to be significant. Interestingly an analysis of texting in the Philippines shows the use of extremely stylistic punctuation (Ellwood-Clayton 2003).

3.7 Openings and closings

Another measure of the social nature of SMS messages is the degree to which the writers followed the form of traditional letter writing in their messages, i.e. including salutations and closings. On the whole, there are relatively few messages that had either of these formulations.

When looking at the material there were what one can consider simple openings and closings and more advanced or formal versions. The informal openings were often a chatty *hei* (Hi) followed in about half of the cases with a punctuation mark of some kind. In very few cases the openings were more formal including both a greeting and the name of the person being addressed. The informal closings were either their name or initial of the writer, or something like *Koz* (a stylized spelling of hug) with perhaps an emoticon. The more formal closings used the common formulation of, for example *Hilsen Jens* (greetings Jens) following a period.

In terms of the distribution of the salutations and closings, only about 10% of the messages had either an opening or a closing. The most common were the simple forms with about 3.5% of the messages have a simple opening and 4.5% having a simple closing. The remaining 2% were distributed between messages with formal openings, formal closings and those that contained both an opening and a closing. Thus, when considering only the roughly 90 messages with these features, simple closings were most common. Amongst these, about half were the name or the initial of the sender and the other half were endearments, emoticons or both.

Looking beyond this general finding, it is again women and the teens that are in the forefront here. In general one finds salutations and/or closings in the SMS messages written by women more often than those written by men.³⁴ Those under age 19 were also more likely to include these formulations in their messages.³⁵

4 Conclusion

4.1 Written vs. spoken language

At the linguistic level SMS seems to be trans-linguistic drag queen. It has features of both spoken and written culture but with enough flare of its own to catch your attention. There are several elements that cause one to think that SMS is more like speaking than writing. First, one often finds immediacy to the communications. This can be seen in the message sent by a 15 year old girl: *Eg kjeder meg* (I am bored). As with much of spoken language, her statement is produced in first person present tense. As with most spoken language SMS makes the assumption of informality. In addition, there is generally a lack of ceremony associated with the messages. Ironically this varies by age in that teen women use salutations and closings more frequently than others giving their messages a tone of being a formally constructed letter. However, SMS messages are more ephemeral than letters. While one can save SMS messages within certain limits, it is doubtful that in 50 or 100 years one will find a package of Grandma's intimate SMS messages in the attic.

Further, statements such as that produced by the bored 15 year old cited above, are addressed to specific individuals. Unlike writing that can be addressed to any reader who chances by, the vast majority of SMS messages are written with the intention of sending them to a single individual. Along the same lines, there is a high degree of personal disclosure in the SMS messages. That is, the sender and receiver have a high degree of insight into each other's lives. While not the dominated category of messages, the database includes a representative number

³⁰ $\chi^2(1) = 7.35$, sig. = 0.007

³¹ $\chi^2(7) = 21.33$, sig. = 0.003

³² $\chi^2(7) = 14.99$, sig. = 0.036

³³ $\chi^2(7) = 25.87$, sig. < 0.001

³⁴ $\chi^2(1) = 4.98$, sig. = 0.025

³⁵ $\chi^2(7) = 17.48$, sig. 0.0014

of emotionally based grooming messages. It has also been reported, for example, couples initiate and end romantic relationships via SMS.

SMS messaging is like writing in that it does not assume that the interlocutors are in physically proximate. It is generally more reserved than spoken language in that it does not use adjectives and adverbs in any broad way, at least in the Norwegian context. The analysis of the 10 most frequently used words shows that there are literally no adjectives or adverbs when examining SMS messages. By contrast in spoken language they at least make the appearance as seen in the use of the word *så* (so) as in "It is so long since I have seen you." Like writing, the text is editable, to some degree though the features for editing are more cumbersome than those found in PC based writing. In addition, some mobile telephones provide the writer with the ability to automatically capitalize certain words, suggest spellings and to search through saved texts. Thus, there are several features associated with SMS that indicate that it is like writing.

In addition to the characteristics that are more like writing or speaking, SMS seems to have characteristics that are ambiguous. For, example, SMS is an asynchronous form of communication. I send a message with the assumption that the addressee will eventually read it and respond when they get around to it. It is assumed that one cannot necessarily command the attention of their counterpart in the same way that one does in spoken interaction. SMS, as with e-mail and traditional letter writing, is not like a conversation where pauses in turn taking are interpreted as being impolite. This said, among teens the dialogues can take on the characteristics of a conversation with the development of topics, the inclusion of farewell sequences and indeed the interpretation of pauses in turn taking.

Another ambiguity is the spontaneous nature of the medium. As with other forms of writing, one can edit an SMS text before sending the message. Obviously this allows one to monitor the content of the message and avoid embarrassing communications. However, the ubiquitous nature of mobile telephony means that one can send ill-advised messages on the spur of the moment. Indeed people describe "drunken" messages sent late on particularly "damp" evenings. In this case the sender is perhaps too uncontrolled in their comments and there is no natural check on their ability to send the message across time and space. These have the unfortunate combination of being text based, archivable and spontaneous. It is in this case that one hopes that another characteristic of SMS kicks in, i.e. the assumption of the privacy of the transmission. SMS is somewhat more private than a letter in that it is password protected and that one can easily and permanently erase the message. However, it is also easy to copy and resend the message should one choose to do that.

4.2 Sociolinguistic analysis

What does all this tell us about the socio linguistic nature of SMS? At the broader social level the results here indicate that as in other spheres of language use that the culture of SMS lives among younger women users. In spite of the fact that men were early adopters of mobile telephones (Ling 2000), it is among these women that the great motor of SMS lives. Women, and in particular younger women, seem to have a broader register when using SMS. They use them for immediate practical coordination issues and also for the more emotional side of mobile communication. In addition, their messages are longer, have a more complex structure and retain more of the traditional conventions associated with other written forms than men (Fishman 1978; Sattle 1985; Treichler and Kramarae 1983; Rosenthal 1985). This competence is also extended to telephonic communication (Ling 1998; Moyal 1992; Rakow 1988; Rakow 1992; Rakow and Navarro 1993). The material here seems to suggest that women are also more adroit "texters."

This is not to say that the writing of the teen women is the polished prose of Margaret Mead, Toni Morrison or Virginia Woolf. These as short and slapdash messages intended for immediate response. There is often a type of breathless, I-can't-wait-for-your-response nature to the messages. None-the-less, it is shows that it is the youngsters who have, in many ways the most respectful prose in their SMS messages. At least in this format and in this medium, it is the teens and teen women that have control.

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