**Communicating official statistics and its quality in blogs, a rhetorical analysis**

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**Abstract**

*The use of social media as additional channels for communicating official statistics is increasing. Social media provide possibilities of highlighting and explaining statistics and building the ethos of NSI:s for new groups of users. At the same time, texts in social media have a tendency to be oversimplified and overstated. I.e. social media place new demands on the NSI:s.*

 *In this article, rhetorical theory is used to analyse how the quality of official statistics is described in social media compared with how it is described in publications and databases. The case of how the Swedish Board of Agriculture, the organisation responsible for official agricultural statistics in Sweden, describes the quality of official statistics on consumption of food has been chosen. A blog, a traditional publication and a database are compared. First, differences in the rhetorical situation, i.e. audiences, constraints and exigencies, between the three ways of presenting statistics are highlighted. According to rhetorical theory, ethos, pathos and logos are essential for building trust and the article therefore discusses how trust in the statistics might be affected by the use of social media as opposed to the more traditional channels for communicating official statistics.*

 *The findings show that the blog focuses on the consumption of meat, i.e. a type of food that is widely discussed in media. The blogposts are used by media and the public and are timely posted when meat consumption is debated in society. The language in the blog is simplified compared with the language in the publication. The description of quality is mostly concerned with one aspect, content. While the description of the quality is not as thorough in the blog as in the traditional publication, it is easier to comprehend and cover the aspects most essential to the content presented.*

**Keywords:** rhetorical analyses, social media, blogs, ethos

1. **Introduction**

The use of social media as additional channels for communicating official statistics is increasing. Agerdal-Hjemind and Valentini (2015) highlight advantages such as the fact that social media are inexpensive, fast and enable direct and interactive communication with the public. Being able to use a new format while following the organisation’s information policy is mentioned as a challenge together with issues of privacy and security. Their own study from governemental agencies in Denmark show that the agencies’ purpose with blogging was to be visible and viewed as experts in the subject field, but that interaction with the public was less common than expected.. Macnamara and Zerfass (2012) show that social media are often used in an ad-hoc way and are less incorporated in the media policy of the organisation. They therefore advocate a balance between the goals of openness and diversity and the need to represent the interest of the organisation.

Social media thus provide possibilities of highlighting and explaining statistics and building trust in new groups of users but may also entail disadvantages regarding the communication of statistics. Even though social media such as Twitter and Instagram are becoming more and more common, this article will focus on the use of blogs.

**1.1 Aim and method**

The aim of the paper is to discuss how the prerequisites of a blog compares with the different prerequisites of a statistical report or of a database regarding the possibilities to communicate statistics and describe its quality. Blogposts, database tables and traditional statistical PDF-publications on agricultural statistics, especially food consumption, for three years between 2015- 2017 will be compared.

**2. Dissemination of agricultural statistics**

According to the Swedish Official Statistics Act (2001:100), official statistics must be made available as general information, for investigations, studies and research. The statistics are to be objective and made available to all users at a publically set time. The Board complies with the demands of the law by using the statistical reports as the official way of disseminating statistics. The report has a format containing a summary, explanations in the form of text and diagrams, tables and a section about the most important facts required to understand the quality of the statistics. Agricultural statistics is made available in a part of the website of the board. [[1]](#footnote-1)Table 1 shows that during the studied period 2015-2017, 150 reports have been published with in total 1 481 tables. Prices and animal production are published monthly, which explains the large number of tables. For the structural statistics, the census performed in 2016 created a large number of tables. For consumption, 3 reports were published, one each year, containing in total 93 tables.

At the same time as the statistical report is published, tables are uploaded to the database. The database contains a portion of the content of the reports, mainly figures suited for comparisons over time. For several areas like crops, yields, animals and holdings, comparable statistics is available on NUTS3 level since the 1960:s. In the database there are footnotes explaining the quality of the statistics.

**Table 1. A comparison between the blog, the statistical reports and the database 2015-2017**

|  |  |  |  |
| --- | --- | --- | --- |
| Content | Nr of  | Nr of blogposts1 | Nr of database tables |
|  | statistical report tables | Published | Clicks  | Published | Downloads |
| Statistics not pub-lished at the Board | .. | 26 (71) sum 97 | 17% | . | . |
| Farm structure | 309 | 106 (40) sum 146 | 25% | 51 | 28 142 |
| Agr. production | 252 | 51 (38) sum 89 | 14% | 11 | 11 447 |
| Organic farming | 90 | 22 (21) sum 43 | 4% | 8 | 42 11 |
| Prices | 401 | 20 (3) sum 23 | 20% | 40 | 15 593 |
| Farm economics | 168 | 14 (4) sum 18 | 1% | 41 | 2 326 |
| Aquaculture | 6 | 2 (0) sum 2 | 0% | - | - |
| Horticulture | 69 | 26 (5) sum 31 | 3% | 6 | 2 182 |
| Consumption | 93 | 13 (14) sum 27 | 16% | 2 | 9 749 |
| * *meat*
 | *6* | *4 (4) sum 8* | *68%* | *..* | .. |
| * *milk*
 | *6* | *4 (3) sum 7* | *8%* | *..* | .. |
| * *vegetables, fruits*
 | *12* | *1 (1) sum 2* | *5%* | *..* | .. |
| * *other*
 | *69* | *6 (4) sum 10* | *12%* | *..* | .. |

1. The number of blogposts that combine two or more areas are given in parentheses, i.e. one blogpost can be counted more than once.

As shown in Table 1 there are 160 tables in the database and a total of 74 000 downloads have been made. The most popular areas are farm structure and prices. Both the report and the tables of the database are marked with the Swedish logotype of official statistics. The report and the database are published together with a declaration of quality in a format decided by Statistics Sweden (the NSI). The declaration follows Regulation (EC) No 223/2009 art. 10 on European statistics of 11 March 2009. The headlines of the quality declaration include the components given in article 10 as well as administrative information about the statistics. The report is published at the same webpage as the report and the database links to the declaration.

Agerdal-Hjemind and Valentini (2015) argue that the organisational choice to use social media in general are driven by the public’s information searching habits rather than an interest from the organisation in social media as such. That was also the case for the Board of Agriculture. In 2009-2010 it was seen as a problem that inexperienced users especially had difficulties finding statistics they were searching for, despite attempts to tag published statistics. Furthermore, through a performed user study it was concluded that when a sudden need for specific statistics raised, it was difficult to find appropriate channels to spread and explain relevant statistics. Several social media were tested and besides the blog, Wikipedia, Facebook and Twitter were also tested with the purpose of helping inexperienced users finding the statistics and highlighting interesting figures.

The blog jordbruketisiffror@wordpress.com started in 2011 and was the social media that survived, mainly because it attracted the largest number of users. The longer format of a blog compared with Twitter and Facebook was also considered best suited to fulfil the aim of helping users find and understand statistics. The Board has a social media policy stating for example that blogs should be easy to read and that the sender of the messages is the Board, not the blogger. In the blog, the quality of the statistics is explained in the text, along with the diagrams.

Table 1 shows that during the three year period studied, an average of 2-3 blogposts per week or 635 blogposts in total have been published. The total number of viewed pages are 635 000, i.e. 17 600 per month. Table 1 shows that 97 of the posts and 17 % of the clicks contained statistics relevant to the agricultural area but not published by the Board. Examples are consumer prices and import and export statistics. However, in most of the posts, the blog combined external statistics with statistics produced at the Board. It is also common in the blogposts that several areas are combined, for example a comparison of production and consumption of different kinds of meat. Regarding consumption, it can be seen that 6 out of 93 tables in the reports on consumption have statistics on meat consumption, while 8 out of the 27 blogposts and 68 % of the downloads on consumption have information about meat consumption. I.e. the users use the blog more frequently to find information about meat consumption than on other types of consumption. This reflects the number of blogposts about meat that is also proportionally high in relation to the different kinds of consumption disseminated in the report and possible to blog about.

**3. Rhetorical theory as a framework for analysing quality**

Aristotle defines rhetoric as “the faculty of discovering in any particular case all of the available means of persuasion". Rhetoric can thus be described as using language as effectively as possible to reach a communicative goal in a specific situation.

Within rhetorical theory, Lloyd F. Bitzer (1968) developed the concept of “the rhetorical situation” in a well-cited article with the same name. He argued that a rhetorical situation arises if there is a problem, something that requires a change, and that this change can be brought about by influencing the audience. Bitzer argues that a rhetorical situation consists of three elements: a pressing problem (exigence), an audience, and constraints.

The theory has been criticised mainly from an epistemological point of view for being too deterministic compared with for example the view that the problem is something all participants in the situation interpret and shape (Vatz, 1973, Biesecker, 1989). The concept of the rhetorical situation, however, does provide a framework for discussing different requisites regarding different ways of communicating and will be used to discuss how quality is communicated in official statistics.

**3.1. The pressing problem (exigence)**

Bitzer (1968) defines the pressing problem as "something that is not as it should be". In the case of disseminating agricultural statistics, the overall problem is to fulfil the main purpose of official statistics to make it available. Hence, it is a pressing problem that the users might not know that the statistics exists or have the knowledge or skill to use it for their needs. In order for the users to trust the statistics, it is also important that the users trust the organisation responsible for the statistics. Consequently, it can be seen as an ongoing problem to maintain this trust. The problem is, at least at this level, considered to be the same for the blog, the reports and the database.

In some types of situations, where the pressing problem requires a prompt response, the blog provides an opportunity to comment on statistics where the other channels do not. There are several examples of the blog being used as a reference when many journalists seek information in relation to some issue gaining public interest. One such example is the “horse meat crisis” in 2013, when the amount of slaughtered horses became extra interesting to the public.[[2]](#footnote-2) Another example is the peak in public interest in the consumption of red meat and meat imports from Brazil.[[3]](#footnote-3)

**3.2 Audience**

The audience as defined by Bitzer (1968) is a group that the rhetorician wants to influence to do something. The audience is rarely homogenous, as is pointed out by for example Palmer & Mazali-Lurati (2016). Instead, the audience consists of several sub-groups with different values and knowledge that the rhetorician needs to address.

Even though the pressing problem is considered to be the same for all channels, the audience is not. The audience of the database, for example, is assumed by the Board to have knowledge of how to work with statistics and an understanding of how to put together figures into tables. The database users are assumed to be capable of finding the quality declaration via the link to obtain the information they might need from it. The audience of the reports receive more help in that they are provided with completed tables and text describing the content of the tables. In the blog, only small fractions of statistics are presented as diagrams, very seldom in numbers but there are explanatory text is written in a conversational style. I.e. the different channels, including the blog, give the Board the opportunity to address different audiences in different ways. Not only the skills and experience of the users, but also their information needs are met differently through the different communication channels. The database assumes a need of long time series of basic data, the reports a need to find information about a single subject area at the time, while the blog to a larger extent combines areas but gives mere glimpses of content in each post.

Subgroups of users of agricultural statistics found in user-studies are for example different kinds of journalists, people who are looking for a specific figure such as the number of cows or the consumption of milk, NGO:s and governmental organisations. Direct contacts with users of statistics have also shown that experienced users use the blog as well, while it is less common that inexperienced users try to use the database.

**Constraints**

Bitzer (1968) writes about two groups of constraints: artistic and non-artistic constraints. The non-artistic constraints are formal, like objects and relations. The artistic constraints are ethos, (the rhetorician’s wisdom, virtue and goodwill) logos, (the arguing and reasoning) and pathos (the emotions the rhetorician wants to convey are important for solving/dealing with the pressing problem).

The format can be viewed as a non-artistic constraint. In the statistical reports and the database, the content and the time of publication are decided beforehand and the format is strict. This is an advantage, as the users know when statistics will be published and know beforehand where in the report information needed can be found. The content of the blogposts is not predetermined. The blogpost can also contain information that is not produced by the Board, for example making comparisons between Sweden and other countries using Eurostat and FAO statistics. During the studied 3-year period, 15 percent of the blogposts are international comparisons.

The blog has a more personal tone than the statistical reports and each blogpost is signed with a name. In the blogposts there are personal notes such as: “I saw on TV that arable land is decreasing, which made me curious of what I can find in our database”. “It is so cool to be able to study a 100 year long time series.” The approach is more conversational and there are also subjects, like a comparison of the most popular names of dogs and people, which could be seen as trite.

In relation to the pressing problem, pathos in this case could be described as the users finding the statistics reliable and comprehend the content and its impact on the use they have in mind for the statistics. In the blog, the users are addressed through a more personal voice, discussing and highlighting the statistics and the idea is that all relevant information for understanding and using the data should be given in the text. The goal is that the user feels safe using the figures. In this case, logos is connected to pathos given that the explanatory text must be coherent and have a logical flow.

So does blogging build trust, build ethos? Mckenzie and Özler (2014) show that a World bank blog made the results from the banks’ research more known, but also influenced the attitudes towards the bank in a favourable way and led to more downloads of the research. They also saw that recognition of a blogger led to more trust in the research. Thus, the more personalised tone in the blog could lead to more trust in both the statistics and the organisations. However, there are also dangers, for example blogposts are written more hastily and they are often not scrutinised in the same way as the reports which means that errors are more likely to occur. Furthermore, the tone could be seen as subjective and the choice of fields of statistics to highlight might lead to concerns about objectivity.

In consumption statistics the concept of “total consumption per capita” is used by the Board. This is the same definition as for example also FAO uses. The quantities of meat is given as slaughter weight. In the official Swedish statistics the concept of “direct consumption” is also used, meaning the quantities as you would buy them from the store. These definitions of consumptions has on several occasions been confusing for users who interpret them as “quantity on the fork” i.e. the amount you actually eat.

On several occasions when consumption has been discussed publically, the blog has been used to explain the concepts. Furthermore, in blogposts about consumption, the definitions can be explained in conjunction with the statistics.[[4]](#footnote-4)

**4. Rhetorical strategies regarding quality components**

The quality components defined in Regulation (EC) No 223/2009 art. 10 on European statistics of 11 March 2009 will be discussed in relation to the way statistics are disseminated in a blog.

*Relevance refers to whether the statistics meet the users’ needs.* In relation to the blog, several examples have been given where the content of the blog provides a background to a specific question discussed, as in the example of the Brazilian meat or the number of horses slaughtered. There are also examples when the blog summarises content that especially the newspapers want to find in relation to specific seasons, like strawberries and potatoes in the summer or sweets and lamb for Easter. It could also be observed that dairy related blogposts where more clicked during the milk crisis of 2016. The phone calls from users wanting to know more about land rent prices also indicate that they have found the statistics through google searches that directed them to the blog rather than to our statistical reports. I.e the tagging of the blog is effective. The blog thus provides possibilities of achieving relevance in situations where the statistical databases and statistical reports cannot.

*Timeliness* could be viewed as how fast the blog provides statistics for an area discussed in the news. Except for seasonal statistics, the blog responds to detected needs rather than predicts them. The response, however, is usually prompt.

*Accuracy refers to the closeness of estimates to unknown true values.* Regarding accuracy, little is said in the blog. In the statistical reports and databases, standard error is shown in the tables and in the text it is often explained whether values constitute statistically significant changes or not. In the blog, however, the problem of accuracy seems to be solved by not writing about statistics with large standard errors. Standard errors are only mentioned in three blogposts during the studied period, once in relation to land rent prices[[5]](#footnote-5) once in relation to the changes of number of sheep on NUTS3 level[[6]](#footnote-6) and once in relation to yields.[[7]](#footnote-7) A comparison between the tables in the statistical reports showing standard errors and the blogposts, shows that most of those tables are not used in the blog.

In some cases, such as crop yield statistics, standard errors are not mentioned. However, with the statistics about consumption the definitions are thoroughly described in the text, which makes it easier to comprehend the accuracy of the values provided.

Regarding *Accessibility and Clarity,* the blog provides a third option besides the report and the database to access the statistics. Since each blogpost highlights one small portion of the statistics, it will provide good accessibility if this is the statistics you want. However, it could also be that writing about the statistics in small segments and sometimes with inventive comparisons might make the results more difficult to understand than the more straightforward presentation in the statistical reports and databases.

Regarding the components of *Comparability* as well as *Coherence,* the blog shows what could be done through examples such as the agricultural land compared with the total land area.

1. **Conclusion and discussion**

Several advantages of the blog as a complement to statistical reports and databases regarding the goal to make agricultural statistics easily available in contexts where it is needed has been discussed in the article.

The article shows that the blog Jordbruketisiffror.wordpress.com is used to improve several quality components, especially relevance and accessibility. However, the study also shows that accuracy could be addressed further.

Further studies of how blogs can be used to communicate statistics could be carried out, for example by not merely observing how the blog has been used from the NSI perspective, but also by conducting more user studies to explore how the users perceive the blog and the other channels of communicating statistics.

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