

between two or more parties. By selecting specific words for the scenario to analyze, a network composed by links indicating how the communication makes its path among different participants can be generated.

Keyword Panel is available to collect messages that are already tagged to belong to certain areas of communication, such as messages related to jamming. It is then possible to color this group of messages and paste it into Process Panel, where it will be represented as blocks spanning over the timeline.

The Clustering function of WA categorizes messages into a number of *clusters*, preferably as different from each other as possible. The user can choose to generate a maximum of nine clusters into which the program will distribute messages based on the frequency of discerning terms.

Methods for Data collection

Interviews

The first phase of data collection consisted of seven semi-structured interviews. The participants were chosen based on their experiences of communication analysis, which were equally the main goal of the

the exercises in which the subject had taken part, and also on her or his role therein. Each of the interviews took about one hour. The generated data was transcribed and used to develop a graphic flowchart of a general process of communication analysis.

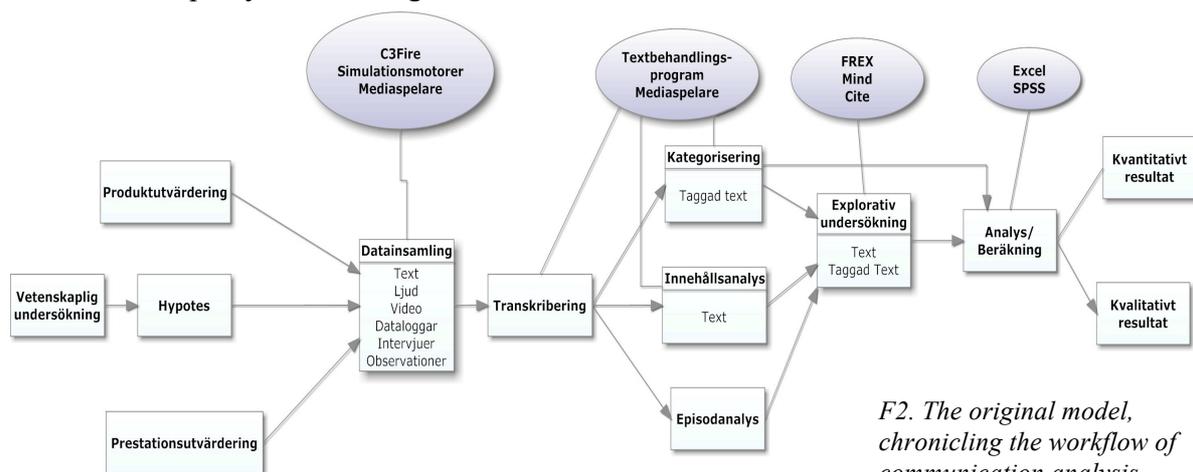
Workshop

The second phase could be characterized as a workshop, in which five of the interviewees participated. During the first of three main parts, we presented the flowchart mentioned above and let them respond to it in an open discussion. During the second and third part, the software developer presented two of the scenarios by which the creation of WA was inspired.

Results¹

Flowchart

The results from the interviews founded the model (F2) we created. The purpose was to provide an understanding and overview of the workflow during communication analysis. The model represents the different processes that are involved together with the forms of the data used in each of these processes. Along



F2. The original model, chronicling the workflow of communication analysis.

interview to chronicle. The agenda was focused on the working scheme of any of

¹ If not explicitly specified, all propositions presented in this section refers to the data collected in the interviews and during the workshop.

with the processes is a presentation of some of the software used, such as Excel and SPSS.

The model starts off with one out of three different purposes; 1) performance evaluation, where the focus is on the performance of staff and personnel during an exercise, 2) product evaluation, in which a completed product is tested to see whether it is user-friendly and fulfills its purpose, and finally 3) the scientific research, where a phenomena is studied to gain more knowledge about it.

The next step is to collect the data, which can be done in a wide range of different ways. Interviews, recordings, diary entries or data logs from simulation software are examples of sources from which data can be collected.

For the data to be processed it needs, in most cases, to be in textual form. In cases of recordings, transcription will be necessary to achieve this.

When the data is converted to text it is possible to take a number of different approaches. Analyzed directly, a content analysis could be made of the content. An episode analysis could be done to describe at which points a certain conversation is initiated or finished. Moreover, it is possible to categorize and tag the text to disclose a qualitative aspect and enable a statistic analysis. An explorative study

could be done for the possibility to find patterns and correlations that may be interesting for further analysis.

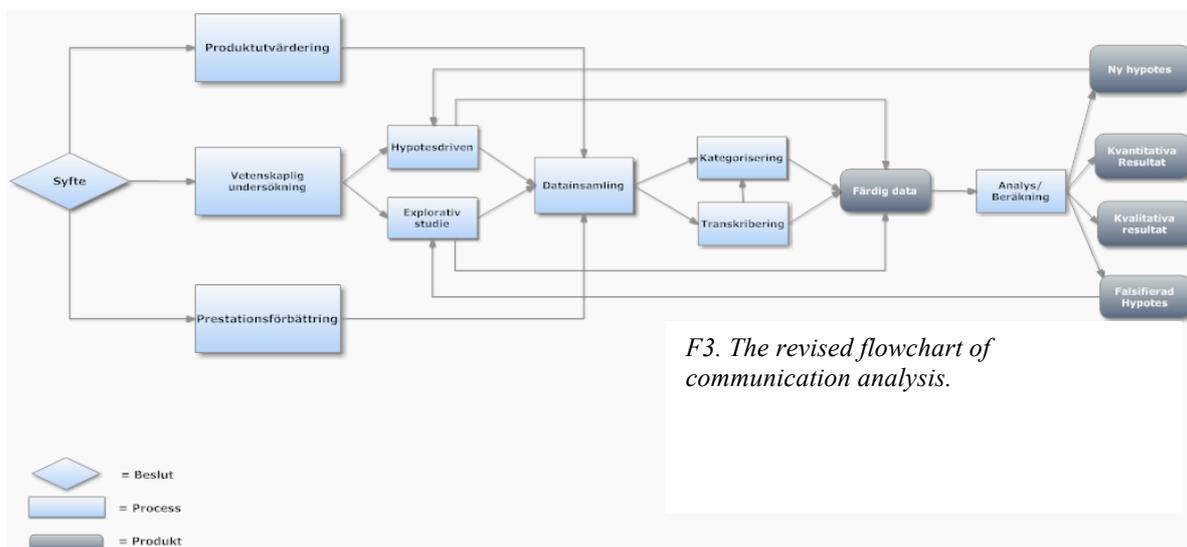
With these steps completed, a final analysis could be made and a result could be presented.

Reactions on the model

The response to the flowchart presented during the workshop mainly concerned its tendencies of simplification. It generally implies that the workflow is very well structured, which usually may not be the case. The node *Kategorisering* has to be specified; moreover, it could be argued that it is completely comprised by the node *Innehållsanalys*. Furthermore, the node *Explorativ undersökning* represents a method of analysis that may well be applied even if no transcription was ever done, which could motivate a more independent positioning.

Commentaries to WA

The responses to the presentation of WA were mostly positive. It was maintained that WA appears to be able to handle great quantities of data and, contrary to many of the available software tools, different sorts of data. It could possibly be used to analyze both audio and video data, and this aspect may support the task of interpreting the different phases of a whole exercise process. Additionally, it may be used to



F3. The revised flowchart of communication analysis.

support explorative studies and the generation of classification schemes.

The tool was also answered with some critique and questions. According to one participant, a complete understanding of the connections between messages in the Keyword Communication Chart requires a more detailed presentation. Concerning this component, it could also be considered a bit obscure how to visualize that a message is misunderstood or somehow changed.

However, the questions mainly concerned the Clustering function. Its purpose was not found entirely clear, and it was also considered somehow vague whether the result could fluctuate depending on the number of clusters generated. One participant raised the question of why you would choose a smaller amount of clusters than the maximum of nine. Moreover, it could be doubted that WA will succeed in handling synonyms and somehow irrelevant words, so that these does not influence the result.

General discussion

Based on the feedback from when we presented our first model, we created a new one (F3). With the exceptions of some changes in content in our new model, we also added an explanation of what the different boxes means. One of the changes in content is that we added alternative results to the model's final stage and a possibility to iterate back when you have reached the final stage. Furthermore, we have deleted the lists of software tools because there are so many different ones.

In the model, the boxes still do not represent the right proportions to each other. The reason for which we created the model was to provide a guide through the workflow in a scientific research in communication analysis, step by step, not to explain each step in detail.

A problem with this setup of our model is that it doesn't show the many hours of work that each step requires. Analysis and

transcribing for example are steps that certainly requires a lot of time compared to other steps.

Conclusions

Out of the data we gathered, we can conclude that the process of communication analysis is not easily explicable. There is a quite big amount of methods to use and lots of ways to apply them, and so our flowchart is a rough generalization. Moreover, it only comprises a single iteration and could possibly draw gains by some more.

The commentaries to WA were mainly positive. The most important criticisms concerned the Cluster function, which could be useful but still needs some additional transparency. In general, WA will not come to its full potential until the user has reached a complete understanding of it. This may itself take some time, which implies that it could be problematic to add WA to the normal workflow of its intended users.

References

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