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Corpora in the Social Sciences – How corpus-based approaches can support qualitative interview analyses

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ABSTRACT

Qualitative and quantitative research approaches are often considered as incompatible, and when they are brought together in a study, the analyses often stay within the realm of the same research field. The study at hand aims at combining the two methods from the perspectives of different disciplines and tries to determine to which degree a corpus-based analysis might support the traditional content-focused approach to qualitative data and render additional results.

The basis for this study is a set of interviews taken from a survey in the field of educational science. It has previously been subjected to a qualitative analysis as used in social sciences. By processing the data as a corpus, this study will try to analyse in more detail the language used by the interviewees in terms of word frequencies, typical collocations and pronominal use, putting particular emphasis on the phrasing of criticism and evaluation.

Although these features can be traced relatively clearly when looking at language, they are easily overlooked or lost in an analysis categorising utterances on the basis of content only, as is the case in the given qualitative tradition. A corpus-based analysis of the data can therefore be said to give not only interesting but relevant insight into the structure of an interview and the information conveyed by the interviewees.

Keywords: qualitative research, corpus analysis, interdisciplinary research, interview analysis, evaluative language, speaker identities

ABSTRACT

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Qualitative und quantitative Forschungsansätze werden oft als nur bedingt kompatibel angesehen. Werden sie doch kombiniert, geschieht dies fast ausschließlich innerhalb einer klar abgesteckten Disziplin. Das vorliegende Paper bringt Ansätze und Perspektiven aus zwei verschiedenen Forschungsfeldern zusammen und untersucht, inwiefern quantitative, korpusbasierte Analysen mit linguistischem Fokus qualitative Analysen in der Tradition der empirischen Gesellschaftswissenschaften ergänzen können.

Die Studie basiert dabei auf Interviews, welche im Rahmen eines größeren Forschungsprojektes im Feld der Erziehungswissenschaften geführt und anschließend qualitativ analysiert wurden. Für das vorliegende Paper wurden die Daten zu einem Textkorpus zusammengefügt und die Sprache der Interviewpartner im Hinblick auf Worthäufigkeiten, Kollokationen und Pronominalgebrauch analysiert. Ein besonderer Fokus wurde hierbei auf die Betonung und Formulierung von Kritik und anderen evaluierenden Aussagen gelegt.

Obwohl diese linguistischen Merkmale bei einer genaueren Betrachtung des Textes sehr leicht zu bestimmen sind, werden sie bei klassischen qualitativen Analysen, welche Aussagen nach ihrem Inhalt kategorisieren, sehr häufig übersehen oder nicht in die Auswertung mit einbezogen. Eine korpusbasierte Analyse, welche diese sprachlichen Indikatoren quantifiziert, kann somit neue Einsichten in die Daten geben und andere Perspektiven auf die Interviewstruktur und die Einstellungen des Interviewpartners eröffnen.

Schlagwörter: qualitative Analyse, quantitative Analyse, Korpuslinguistik, interdisziplinäre Forschung, Interviewanalyse, evaluierende Sprache, Sprecheridentitäten

1. Introduction

Every empirical discipline or subdiscipline has its own set of methods, and although some of them might be related, they are usually specified and adapted to the needs as well as by the experience of the research field they are applied in. While this brings with it the advantage of focusing more closely on relevant issues, it also carries the danger of making the focus too narrow – disciplines tend to stick to their own set of methodological variation and thus miss insights that the application of methods from other fields might allow. In this paper, I want to argue for a more regular exchange of methods and the respective expertise of scientific disciplines, especially in related overall areas such as the humanities where many disciplines overlap and boundaries are sometimes more conventional than factual.

The following study will therefore look at an example of interdisciplinary application of methods. The basis of the analysis is a series of interviews that were collected in Germany during a survey on an online self-assessment tool in 2013. The survey was carried out in the framework of educational science and was evaluated in terms of qualitative interview analysis as suggested by Mayring (2010). The results were content-related and in this aspect fairly clear; however, they could not take into account in more detail the language that was used by the interviewees and the

implications various linguistic choices might have. The data has therefore been processed as a corpus and been subjected to a quantitative analysis to find linguistic patterns that might add to the results obtained by the qualitative evaluation.

2. Qualitative vs. quantitative – Why not both?

The mixing of qualitative and quantitative methods is of course far from being a new notion. Several approaches have been tested, all putting their foci on different aspects of the methodological scope and linguistic variety. While Hunston (2007) combines qualitative and quantitative methods *within* the area of corpus linguistics in order to investigate stance, Drew (2004) suggests to first look at linguistic features within their (con)texts and only when their function has been established, process and quantify them in by a corpus-based approach. Dealing with evaluative language, this allows insight into the degree and direction of evaluation of a certain word or construction, and prevents false conclusions (*ibid.*). Contrary to this, van de Mierop's (2005) study works with the, if not much, less ambiguous linguistic feature of pronouns establishing different kinds of identities. Here, the pronouns are quantified first, followed by a more detailed look at certain instances in the form of a qualitative linguistic analysis.

These approaches, although combining the different methods, still use these within the tradition and scope of their own research fields (e.g. Waitzkin, 1993; Brannen, 2010). Quantitative as well as qualitative analyses look at the data from the perspective of a solely linguistic or sociological research question. A slight deviation from this is demonstrated by O'Halloran (2011), who investigates argumentation structure in discussions in reading groups. For that purpose, the data transcripts were coded into categories, thus leaning on the rather sociological approach of qualitative methods; the codes however relate to the argumentative functions of the individual discourse parts and are thus concerned with meta-linguistic information rather than an analysis from a different disciplinary perspective altogether. Thus, in almost all cases, studies working with a combination of methods have been restricted to the scope of their own disciplines. The reasons for this might be academic as well as administrative, but from a methodological point of view, the first obstacle to be observed is one of terminology. *Qualitative*, and even more so *quantitative*, share their basic meanings across disciplines, but have very different implications. While in the social sciences there is a wide range of qualitative approaches such as interviews, network analyses or life course research (Rosenthal, 2010; Giele, 2009; Mayring, 2010), linguistics use qualitative methods in much fewer contexts and often limit it to, for instance, a closer analysis of texts (Hunston, 2007). Similar divergences appear in the designs of quantitative analyses: questionnaires are used in many fields, but the expertise and didactics of this method in many

cases lie with the social sciences, where not only the evaluation, but also the construction of questionnaires is taught. Corpus-based analyses on the other hand, although used in social sciences to a certain degree (Diekmann, 2008), are more detailed and complex in linguistic studies where they are applied more regularly.

These different ranges of the methodological concepts can lead to misunderstandings in interdisciplinary research, or even rule out the idea of disciplines gaining benefit from mixing methods altogether. The following analysis thus presents an attempt at combining quantitative and qualitative approaches across research fields and defining the value of a linguistic perspective on a traditional qualitative analysis.

2.1. Dataset

The dataset used for this exemplary analysis consists of fourteen interviews, all collected throughout May and June of 2013. The series was part of a bigger and still ongoing survey that aims at evaluating an online self-assessment tool called “StudiFinder”, which was initiated by the Ministry of Innovation, Higher Education and Research of North Rhine-Westphalia in Germany (Wottawa and Drees, 2012). The purpose of this tool is to offer high school graduates a possibility to test themselves with regard to their learning skills and suitability before picking a field of study at university. “StudiFinder” contains five tests aimed at different aspects and gives out a list of suitable subjects as well as suggestions for universities after completion of the tests. The tool was launched in 2012 and the Department of Educational Science at RWTH Aachen University was commissioned to evaluate it with regard to its popularity, usability and the overall achievement of its purpose².

In the framework of this evaluation, quantitative and qualitative methods as used in the social sciences are mixed. The survey contains a running of questionnaires at schools for teachers and students as well as first-year students at universities, experimental analyses by observing high school students working with the tool, and interview series with various groups of educational consultants. The data for this analysis was taken from the biggest of these groups, which consisted of mentors responsible for high school graduates in various job centers throughout North Rhine-Westphalia.

The interviews for these fourteen persons were standardized and focused on two major aspects, namely the suitability of the tool for the target group and the usability of the tool's output in a mentoring context. The latter contained questions

² www.ezw.rwth-aachen.de / <http://www.rwth-aachen.de/go/id/eft/>

about whether the output is helpful for a student without further mentoring, whether it can serve as a basis for advice and whether it is a realistic reflection of the students' talents and abilities, while the former concentrated mainly on the layout and content of the tool itself. Additionally, the interviewees were asked about their own knowledge of the tool and the degree of its popularity they had observed in the target group of students. The interviews were led by four members of the evaluation team³ and varied in length between 12 minutes and almost an hour. In total, the collection is made up of 6 hours and 19 minutes of audio material, which was transcribed by a professional transcription service to 60,443 word tokens. For the analysis, the interviewers' contributions were excluded, which leaves a sum of 44,159 word tokens to work with.

For the qualitative analysis, the transcriptions were processed with the help of the software Dedoose (2014). For the corpus analysis, the texts were part-of-speech tagged on the basis of the Penn Treebank Tagset and queried using the Corpus Query Processor (Evert and Hardie, 2011). Since the interviews were carried out in German, the results in section 3 will quote the original statements and give translations into English where necessary.

2.2. Approach

The approach chosen for this study aims at combining qualitative and quantitative analyses of the same data set, examining it from two very different perspectives. It is based on a qualitative analysis in the way most commonly applied in the social sciences, and a quantitative analysis drawing on the data being processed as a corpus. The data was originally meant to be evaluated only qualitatively, with the major focus being on its content.

In this first analysis, all interview transcripts were coded, which means that individual statements and utterances of the interviewees were classified into categories depending on the topic.

The categories were then analyzed individually, resulting in a list of the major statements or suggestions and a statistical reflection of how many of the interviewees, for instance, agreed or disagreed with a specific point. In this process, all utterances are considered purely on the basis of the content they display in their isolated state. This means that stylistic devices or linguistic patterns, although often having underlying evaluative qualities, are not taken into account. Features like the

³ I gratefully acknowledge Marold Wosnitza, Ralph Delzepich, Philip Nolden and Svenja Kischewski of the Department of Educational Science at RWTH Aachen University, who were involved in collecting the data.

preference for certain pronouns over others (as discussed in van de Mieroop, 2005) or a high frequency of the passive voice can strengthen or weaken the degree of identity an interviewee displays with the subject, allowing the speaker to create a distance between themselves and a statement and to focus on a matter rather than related agents, thus voicing possible criticism without any personal references (Neumann, 2013). Furthermore, linguistic choices such as the use of modal verbs, hedges or qualifiers can weaken a statement or even turn it into the opposite (Biber et al., 1999; Durik et al., 2008).

These linguistic characteristics thus are important to consider when analyzing interview data with regard to its content, but are not a designated part of a qualitative analysis. The data therefore has been subjected to a second examination based on the quantification of specific linguistic features. As this paper aims at methodological insights rather than new facts about the dataset as such, the usage of different pronouns, modal verbs and qualifiers have been chosen to allow a pilot study in combining these approaches. These three features are by no means an exhaustive list of linguistic means of evaluation, but are believed to be highly relevant in this aspect as well as revealing with regard to the specific dataset.

Van de Mieroop (2005) distinguishes between three types of identity, namely of the speaker, the audience and the company or institution behind the speaker, and connects these with the pronouns they are most commonly represented by. Since the interviews for this study were not conducted in group situations, but led individually, the audience in this case consisted only of the interviewer. This aspect of identity can therefore be neglected in the present analysis, while the distinction between personal and professional identity is of particular interest here. All participants of the survey worked in job centers and were therefore in a way representatives of the North Rhine-Westphalian government, including the ministry responsible for the development of the self-assessment tool. However, the focus of the interviews was on a personal evaluation of this tool, drawing on the experiences of the individuals from their everyday job as mentors for high school graduates. The interviews therefore show traces of both identity patterns, which are reflected in the usage of the pronouns *ich* (*I*), *mein*, *meine*, *meiner* (*my*) and *mir* (*me*) to reflect the personal, and *wir* (*we*), *uns* (*us*) and *unser*, *unsere*, *unserer* (*our*) to reflect the institutional identity. Furthermore, *man*, the German equivalent of the English generic *you*, indicates the company but at the same time excludes the speaker and thus functions differently from the inclusive first person plural pronouns. Also, *man* is a very generalized address and can therefore be used to make a statement appear weaker or less specific (Ballweg, 1995; Zifonun, 2000). In this aspect, *man* functions similarly to qualifiers and also modal verbs, which are often used as what Kjellmer (2003) refers to as “shock absorber”, that is to decrease the impact of a

statement or rephrase a critical evaluation into a piece of advice. This effect is particularly strong with modal verbs in the subjunctive mood, such as *könnte* (could), *sollte* (should) or *müsste* (would have to).

3. Results

In the following sections, the results of the two different perspectives will be discussed in more detail. As the data were originally collected to be evaluated in a qualitative way, this will be the first section of this chapter. The corpus analysis will be based on the results and discussed in the context set by the qualitative analysis.

3.1. Qualitative analysis

As was mentioned above, the transcribed interviews were analyzed using the online-based tool Dedoose. The utterances were classified into 18 categories that reflected the interview outline on which the interviews had been based. These categories were very fine-grained and covered as many diverse aspects about the test as possible, but can be said to represent five major areas of questions.⁴

The first part of the interviews dealt with the popularity of the tool, assessing how well known it was at the time among high school students as well as mentors at job centers. The second part was aimed at defining the target group of the tool, judging either the appropriate age or high school status (close to graduation, a year before graduation etc.) the interviewees deemed reasonable. Furthermore, this section of the survey tried to establish the questions most frequently asked by high school students in career counselling situations and whether or not they are covered by the tool. The last question in this part concerned the sources students in the established target group used most often to collect information on universities and degree programs, and whether students who had worked with self-assessment tools in general appeared to be better informed than those who had not made use of any such means. Immediately relating to this matter, the third part of the interview looked in more detail at the usability of the tool, asking for an evaluation of the layout and its suitability for the target group. The fourth, again related, part of the interview dealt with the output the tool gives its users. As described above, "StudiFinder" offers five tests aiming at different aspects such as learning skills, interests, competence in team work as well as in several fields of research and also demographic information to take into account if a participant wishes to stay within a certain region of the country or prefers certain universities over others. This last test

⁴ For a detailed list of all 18 categories, see the Appendix.

is not part of the direct evaluation but rather functions as a filter for the results, whereas the other four are mandatory to be given an output by the tool. This output then contains a list of most suitable subjects, possible degree courses across North Rhine-Westphalia that cover these subjects as well as the universities by which they are offered. Since the skills a user demonstrates while doing the tests can result in very different, and, most of all, diverse suggestions in this output (retrieving for instance architecture and literature as equally suitable), the interview aimed at assessing whether these test results constitute a helpful basis for career counselling and how the mentors deal with possible dissonances in the results. Additionally, the interviewees were asked whether they would classify the results as representative of the respective students and of university life, and whether they would advise people to use self-assessment tools if they had not done so already.

The last part of the interview was designed to simply offer all participants a chance for further comments, regarding the interview, self-assessment tools in general or “StudiFinder” in particular. Suggestions that occurred more than once were bundled, and a list of comments concerning the test was put together. Apart from this, the category contained many statements that were not of direct use for the content-based analysis but were either questions about the survey in general or stories about counselling high school students that were not related to self-assessment tools.

The number of utterances per category varied depending on how much the individual interviewees had to say on the matter. In total, 410 excerpts were classified, the largest fields being explanations and statements about the test results in counselling contexts and remarks on the layout. Overall, the statements were mainly positive with regard to the tool and its usability, but more critical about its popularity among the target group. In the following, the results of the qualitative analysis will be given in more detail. As the focus of this study is not on an extensive discussion of these results however, the individual categories will be summarized under their respective interview areas as described above.

3.1.1. Popularity of “StudiFinder”

In this first part of the interview, the interviewees answered several questions concerning their own knowledge about the tool and the popularity they had observed among high school students. With regard to their own familiarity with “StudiFinder”, most participants stated that they had been informed about the development and launch of the tool via e-mail newsletters or internal brochures. Some also took part in a training session concerning university orientation, where the tool had been presented by the developers. Apart from that, ten participants

said that they had done some of the tests in the tool themselves to look at it in more detail. Two had tried the tool together with students, and two stated that, so far, they had not had contact with “StudiFinder” altogether apart from knowing of its existence. Concerning the popularity among the target group, the evaluation from the interviewees was more negative. Most answered that they had not yet dealt with students who had worked with the tool, and that the tool urgently needed publicity. Two added that, of course, there were many alternatives, other web-based tests which functioned similarly and had been established throughout the years. The tenor in this category was therefore rather diverse, with positive and negative reports clearly distinguished between the two aspects of internal and external popularity.

3.1.2. Target group

The second major part of the interviews dealt with the description of the target group and the way this group can be reached. This matched the first category and the two were very often not processed chronologically, but adapted to the course of the interview. First, the participants were asked to determine at what age or in which high school grade they would advise students who wish to proceed to university to start collecting information on degree courses and requirements. This question was not directly linked to “StudiFinder” itself, but served to establish the background of such tools in general. Opinions on this aspect differed, ranging from “shortly before graduation” to “as early as possible”, the majority of interviewees settling somewhere in between. As to where the students looked to find information, the internet in general was, unsurprisingly, named as the main source. Furthermore, flyers and information handed out by teachers as well as university brochures were named. All participants agreed that online sources and especially social media were to be considered the major platforms via which to reach students and increase the popularity of such a tool.

After these background-oriented questions, the last aspect in this section returned to “StudiFinder” itself, thereby leading over to the next interview part. The interviewees were asked to evaluate whether students who had worked with any self-assessment tool were better informed or prepared than those who had not, thus giving their opinion on the overall usefulness of such tools. Only nine of the participants could answer this question as the others had not yet met any students in their job who had taken any self-assessment tests. Of these nine, six answered that these students were not necessarily better informed, but usually displayed a different attitude towards the topic, showing more willingness to discuss future prospects and fulfil the requirements. It was stated twice however that students often did those tests, but did not look at the results in more detail or use them as a

means to follow up. One last remark concluded that many students did not make use of any tests out of their own motivation, but because parents or teachers told them to.

3.1.3. Output and results

While the previous section suggested that online tools might be a useful preparation for students, the answers were not overly positive as to their actual usability for them. The rest of the interview therefore looked at these aspects, with particular focus on “StudiFinder”. To begin with, all participants were asked to comment on the results the tool produces as an output after the tests have been completed. As several of the participants had not dealt with “StudiFinder” before and had not come across it in their working routine, all interviewees had been sent an exemplary output several days before the interview to be able to prepare for this particular section.

The overall opinion on the output and its layout was positive; however, certain issues were named such as the output being too extensive and complex for its target group, and the already mentioned dissonances that occurred in the suggested fields of study. Concerning the latter point, ten participants stated that dissonances could be problematic as they confused the user, and the results therefore needed to be followed by a later discussion with teachers or mentors. Several participants uttered the wish to know more about how the tool worked and processed data so as to be able to explain to students how these dissonances emerged.

Apart from this, eight participants explicitly stated that dissonances in the results were helpful in mentoring situations, as they are very often the reason students asked for a mentor in the first place:

„Meistens kommen die ja nicht, weil die das Ergebnis verstanden haben und damit einverstanden sind, sondern die kommen ja in der Regel, legen das auf den Tisch und sagen: Also stellen Sie sich mal vor, und jetzt soll ich das und das studieren. Das verstehe ich überhaupt nicht, ich bin doch so schlecht in Mathe!“

[“Most of the time students come to us not because they understood their results and were happy with them, but they come here, drop the results on the table and tell us: Can you imagine that, that thing tells me to study this or that. I don’t get it, I’m really bad at maths!”]

(Interview ID Arb_2013_07)

In this context, five interviewees added that such discrepancies were plausible

results:

"...ich glaube, Menschen lassen sich nicht auf einen Topf reduzieren, in den sie dann gepackt werden. Und schon gar nicht junge Menschen, die eben halt noch so nach ihren Talenten gerade suchen."

[,...I think that humans cannot be reduced to one subject, put into one drawer, least of all young people who are still looking for their talents.]"

(Interview ID Arb_2013_06)

Thus, the occurrence of dissonances as such was not deemed fatal, as long as the results were put into context, if necessary with the help of mentors or teachers. All participants were careful however to judge "StudiFinder" as representative of everyday life at university or the content of individual degree courses, stating that the test should be regarded as a first orientation, and not as the ultimate tool to choose a future career.

3.1.4. Usability and layout

The last major part of the interviews apart from the open comment and suggestion section again focused on "StudiFinder" in particular, this time looking at the layout and usability of the tool. Matters discussed here ranged from the phrasing of individual test questions to technical issues and the suitability of the layout and design for the intended target group.

Again, the overall tenor was a positive one, judging the design to be appealing to young people and the tool to be easy to handle throughout most of the tests. Negated questions and repetitions in the content were among the major points of criticism for the tests themselves, while the output was described as too long and yet too general by twelve of the interviewees. Apart from this, the main aspect was the density of information provided by the tool; six interviewees suggested not only a more compact presentation of the results, but also hyperlinks and references to external sources such as university webpages and also job centers to distribute the information more widely and yet make it easily accessible.

In general, the tool was evaluated positively throughout the interviews. The degree of positiveness varied across statements and depending on the immediate question however, an aspect that can only be taken into account very narrowly in a qualitative analysis. Tools like Dedoose offer the possibility to not only sort statements into categories, but also to define scales along which the strength of utterances can be defined. But although this is a helpful feature when considering this issue, the grading is a very subjective process which is usually not based on any linguistic criteria. Furthermore, since very often several people are involved in categorizing the

data, the rating may become even more arbitrary.

Nevertheless, the idea is a quantification on a linguistic basis, which already suggests that language is considered an important part of regulating the content. A corpus-based analysis is thus the next logical step, as it avoids the problem of subjectivity and arbitrariness while looking at specific linguistic features in their immediate context.

3.2. Quantitative analysis

Like the results of the qualitative analysis above, the following subsection will be divided with regard to the features that were investigated. The queries for these features were all carried out on the whole collection of interviews, thus working with the dataset as one corpus, excluding only what was said by the interviewers. In contrast to O'Halloran (2011), who produced several small corpora containing the statements of one category each, I decided not to split the data further as the samples would have been too small for a quantitative analysis. Instead, the overall positive picture that is painted by the qualitative evaluation will be set against an overall linguistic impression gained from the corpus analysis.

3.2.1. Pronouns

As described in section 2, pronouns are an effective way for speakers to refer to different identities in a discourse situation (van de Mierop, 2005; Fest, 2011). This of course holds true also for the interviews at hand, as it shows whether the interviewees expressed their own opinion, as was asked, or related to a group or employer. When looking at the first person singular and plural pronouns, the results offer some very interesting insights indeed.

1st Person Sing.				1st Person Pl.			3rd Person Sing.
ich (I)	mich (me)	mein* (my)	mir (myself)	wir (we)	uns (us)	unser* (our)	man (generic you)
1570	122	101	217	237	63	41	452
Σ 2010 (4.55%)				Σ 341 (0.77%)			Σ 452 (1.02%)

Table 1. Frequencies of pronouns⁵

First of all, it is obvious that the participants spoke from their personal perspective. As table 1 shows, the use of the singular pronouns *ich (I)*, *mich (me)*, *mir (myself)* and *mein, meine, meiner, meines, meins (my)* is significantly higher than that of the plural

⁵ Percentages in this table are derived from the total number of tokens in the corpus.

ones *wir* (we), *uns* (us / ourselves) and *unser, unsere, unseres, unserer* (our). Furthermore, there are several instances of the German pronoun *man*, which serves as a general pronoun and leaves the reference open.

This suggests that the interviewees followed the survey's aim of gaining insights by drawing on personal experience and knowledge. What is striking however are the contexts in which these pronouns are most commonly found and the implications this entails.

The pronoun *I*, which is by far the most frequent in the above table 1, co-occurs with several verbs of cognitive nature, all of which serve to express an opinion in one way or another. The most frequent ones are in the constructions *I believe* (*Ich glaube / glaube ich*, 113 instances), *I find* (*Ich finde / finde ich*, 82 instances), *I know* (*Ich weiß / weiß ich*, 81 instances) and *I think* (*Ich denke / denke ich*, 44 instances). Although all of these constructions clearly mark the statement as subjective, the degree of certainty varies depending on the phrasing, and is used in this function. Of the 113 instances of *I know*, 61 go together with a negation, thus relativizing the impact of the verb. In contrast to this, the other verbs do not occur in combination with negations very frequently; there are only two combinations with *I think*, six with *I find*, and four with *I believe*. Nevertheless, also when not negated, all of these variations are used to utter suggestions and hedge points of criticism, as the following examples show:

“...bei diesen Studienfeldern, finde ich sehr umfangreich die Auflistung, ich weiß nicht, ob man das vielleicht ein bisschen mehr zusammenfassen könnte.“

[...“in the output describing the study fields, I find this list very extensive, I don't know whether you could summarize this a bit”]

(Interview ID Arb_2013_01)

„...für mich jetzt auch von der Darstellung her, ich denke, dass man es vielleicht anders machen könnte.“

[...“to me, concerning the layout, I think you could probably do this differently.”]

(Interview ID Arb_2013_11)

„Denn ich finde den StudiFinder in einigen Bestandteilen doch auch recht komplex formuliert, was die Anleitung angeht, das heißt also, ich selber finde es zum Teil nicht ganz verständlich, was jetzt da nun eigentlich gemeint ist.“

[„Because I find that StudiFinder is phrased in a rather complex way in some parts, especially concerning the instructions, that is to say, personally I don't always find it comprehensive what is meant.“]

(Interview ID Arb_2013_03)

„...ich glaube, der StudiFinder ist nicht bekannt genug.“
 [“...I believe StudiFinder is not popular enough.”]
 (Interview ID Arb_2013_02)

In contrast to the use of singular *I*, plural *we* does not co-occur frequently with any of these verb. In general, the plural pronouns are used to express a more professional identity, as has been suggested in section 2. However, the professional level does not extend to the ministry or the developers of the tool, but in almost all cases refers to the immediate team at the respective job center, or colleagues in other institutions with which the interviewees cooperate closely, such as student advisory services at universities. In this context, what the results show seems logical, namely that these pronouns more often co-occur with verbs of activity, such as *we do*, *we make*, *we tell*, and *we say*:

„Wir gehen in die Schule, die Lehrer sind da eigentlich auch grundlegend informiert, die Studienberatungen sind immer gut verfügbar“
 [“We go to the schools, the teachers are usually informed rather well, and the student advisory staff is always available.”]
 (Interview ID Arb_2013_01)

The professional identity expressed is thus often depicted as a group effort. Not all cases of *we* however refer to a professional identity; many extend far beyond this and are used to draw a line between the students of the target group and the interviewee's own generation, stating facts about differences between the past and now:

„Die sind wacher als wir es vielleicht, oder ich zumindest, meine Generation, wir waren nicht so wach wie die. Wir haben Abitur gemacht und dann haben wir weiterguckt.“
 [“The kids today are more aware than we were, or than I was at least, my generation, we were not so aware. We graduated, and then started looking ahead.”]
 (Interview ID Arb_2013_02)

In these cases, an identity is created which is of no direct consequence to the interview and the analysis. The main message of a statement like this – that the students nowadays are prepared very early to look at their future – can be transported without the comparison to a future generation or the identity-building of the interviewee. Keeping in mind what the topic of the investigation was however, it is natural to assume that such cases of pronominal use occur and therefore have to be accounted for in an analysis so as not to confuse them as markers of professional identity.

Apart from these perspectives represented by different pronominal use, the interviewees of this particular survey created another protagonist when giving evaluating statements, namely the test itself. There are 129 instances of the word “test” with reference to “StudiFinder”, and 109 instances of the name “StudiFinder” itself, and in many cases, the tool is referred to as an agentive component. Constructions such as *the test should...* or *StudiFinder shows...* are used in these cases to direct comments or criticism at the developers while avoiding the personal reference.

3.2.2. Modal Verbs

The preceding analysis of pronouns already demonstrated that not just the number of occurrences, but the immediate context of the linguistic features is relevant for such a study. For the understanding of modal verbs, this again holds true. In German, six verbs are usually considered modals, namely *können (can)*, *müssen (must)*, *wollen (want)*, *sollen (shall)*, *mögen (like)* and *dürfen (may)* (Wermke et al., 2009); all in all, they make up 1.94% of all words in the corpus and 10.71% of all verbs. The exact distribution is given in table 2:

	können (can)	müssen (must)	wollen (want)	sollen (shall)	mögen (like)	dürfen (may)
of the corpus	457 1.03%	192 0.43%	91 0.21%	79 0.18%	32 0.07%	10 0.02%
of all verbs	5.69%	2.39%	1.13%	0.98%	0.4%	0.12%

Table 2. Frequencies of modal verbs

Of course, the mere use of modals is not very meaningful, especially as modals are rather frequent in spoken language in general (Biber et al., 1999). As has been suggested in section 2 however, the subjunctive mood in German often functions as an element which mitigates the impact of a statement (Mortelmans, 2003). With regard to the investigation at hand, this again means that the interviewees might use this means to phrase suggestions rather than direct criticism, and a look at the subjunctive forms of the above mentioned modals confirm his hypothesis.

While there are no subjunctive forms of *wollen (want)*, *dürfen (may)* and *mögen (like)*, there are 22 instances for *sollen (shall)*, 30 for *müssen (must)* and 73 for *können (can)*. These 125 occurrences are mainly used in order to transport suggestions with regard to the tool or its usability, and statements such as the following circumvent the expression of direct criticism:

“Wenn man die Studienorientierung (...) nachhaltig unterstützen würde,

müsste man, ja, an manchen Stellen noch eine kleine Brücke bauen, auch über NRW hinaus.“

[“To really support university orientation in the long run, one would have to build in bridges, links, at some points, that reach further than North Rhine-Westphalia.”]

(Interview ID Arb_2013_04)

In the example, the interviewee suggests that the tool should contain more hyperlinks and references to other parts of Germany – the critical aspect that the tool is restricted to degree courses and universities available in the region is only present implicitly. In the qualitative analysis, statements like this would therefore have been classified as suggestions and comments, while they might have been sorted differently had they been more direct. This, of course, cannot be fulfilled by a quantitative approach but again requires a qualitative perspective; it is an important step however to realize that modals, and especially the subjunctive forms, are most often connected to negative aspects like this, and have the power to transform them from criticism to constructive remarks. The identification of such patterns therefore serves as a pointer for the qualitative analysis, indicating where difficulties for the classification of utterances might occur.

3.2.3. Qualifiers

The last linguistic feature that is to be part of this analysis is provided by qualifiers. These adverbs or, in some cases, adjectives, can function as intensifiers or downtoners of a statement, depending on their use and context (Biber et al., 1999). Like English, German sports a long list of words that can work in this way, and this analysis will focus on the most frequent ones, as are listed in table 3:

Downtoners			Intensifiers		
bisschen (a little)	etwas (slightly)	ganz (pretty)	sehr (very)	absolut (absolutely)	total (totally)
115	30	170	118	7	8
Σ 315 (0.71%)			Σ 133 (0.3%)		

Table 3. Frequencies of qualifiers

When looking at the immediate contexts of these words as given in the concordance lines, the first notable result is that the two most frequent ones, *ganz (pretty)* and *sehr (very)*, both co-occur most frequently with the same adjective, namely *gut (good)*. There are 20 instances of *ganz gut (pretty good)* and 17 of *sehr gut (very good)* in the corpus, which shows a slight tendency towards stressing positive aspects. Praise for the tool is often emphasized by the intensifier *very*, whereas the construction *ganz gut* rather equals an only slightly better than neutral evaluation, like *okay*, but still

includes a positive connotation by using the adjective *good*⁶.

The other qualifiers do not have such striking co-occurrences, but are used in both positive and negative statements alike. In these two variations however, their function within the interviews is very clear. Especially *etwas* (*slightly*) and *bisschen* (*a little*) often work as modifiers of criticism, as they mitigate the critical point and thus function as what has earlier been identified as “shock absorbers” (Kjellmer, 2003):

“Das ist ein fachlicher Inhalt, den ich ein bisschen dünn finde, aber etwas unbefriedigender finde ich die Seite, Informationen zur Lehrerlaufbahn.”
 [“This is a bit of technical content which I think is a little thin, but I find the page ‘Information on Teaching Programs’ slightly more unsatisfying.”]
 (Interview ID Arb_2013_04)

The qualifiers do not just introduce direct criticism however, but like modals often contain implicit comments phrased as suggestions. They thus function as indicators as well, and should be given special attention when classified during the qualitative analysis.

4. Conclusion

The analysis in this paper was aimed at finding out how qualitative and quantitative approaches from different disciplines can be combined to gain insights from each other and make the analysis of data more reliable. To this end, data from a study from educational science was first subjected to a qualitative analysis based on categorizing statements regarding their content only. This was followed by a corpus-based analysis with a linguistic focus, working with three linguistic features to represent evaluative language patterns that might be overlooked or not taken into consideration during a purely qualitative analysis.

The conclusions which can be drawn from this study are manifold, with certain ones standing out in particular for future research. First of all, the combination of the two approaches definitely provided new insights into the data. All three linguistic features were prominent in the corpus, and while the use of pronouns in this particular dataset reflected that the aim of gaining personal opinions was met, the other two features showed certain systematic distributions with regard to critical aspects and opinions. It showed very clearly that all participants of the survey made use of modal verbs and qualifiers when addressing crucial points regarding the

⁶ It is important to bear in mind that *ganz* can function as an intensifier as well as downtowner in German. Which is the case depends on the parameter it refers to. When combined with *gut*, its effect is a mitigating one (Kirschbaum, 2002).

“StudiFinder” tool, thus weakening criticism or rephrasing the statements so it got lost in all but an implicit sense.

This implicitness is not easy to account for in a non-linguistic analysis, which leads to a major methodological insight when combining these two disciplines and approaches. The overall tenor of a set of interviews is covered more extensively in a content-based analysis of a qualitative nature; however, once meaningful linguistic markers have been established based on their frequency and collocations, the occurrences of these linguistic indicators can be taken into account in the process of the qualitative analysis. This way, their implications are not lost, but are not subjected to a rather arbitrary and subjective scaling and rating within the qualitative analysis either. Thus, a dataset does not necessarily have to be subjected to these methods subsequently, but a parallel analysis can be helpful instead.

The linguistic features which formed the basis of the quantitative analysis in this paper were chosen because they have been found to function as elements of evaluative language in previous studies. It should be kept in mind however that this is not only not an exhaustive list of such features, but furthermore that linguistic characteristics that are relevant will vary depending on the matter of the survey itself. The constellation of topic, interviewee and circumstances of the interview all play an important part in determining which linguistic features are worth analyzing. In the study at hand, the pronominal use to create identities was a useful mechanism to check the perspectives the speakers took when talking about various aspects. Qualifiers and modals were further indicators of the handling of criticism, which was relevant in this study due to the origin of the tool and the connection to the interviewees. The interviews were supposed to lead to suggestions for improvement of “StudiFinder”, which made it important to filter also implicit criticism so as not to lose valuable comments.

For a different dataset and a different study, other linguistic features might have been more useful in order to complete the qualitative analysis with linguistic data. On this basis, it is necessary to carry out studies with different foci and larger samples to define more clearly the parameters within the research that link qualitative and quantitative as well as sociological and linguistic approaches. In general however, it can be concluded that a linguistic perspective on a sociological content-based analysis is a valuable contribution, and constitutes a way of data triangulation that, if developed further, is applicable to much wider domains and research questions.

About the author

Jennifer Fest is a PhD student at the Department of English, American and Romance Studies at RWTH Aachen University in Germany. She graduated from RWTH Aachen University in 2011 with a Master of Arts, majoring in Sociology and English Literature and Linguistics. In her master thesis, she analysed the language of football journalism from a systemic functional perspective, using a quantitative, corpus-based approach. Since then, she has been working as a research assistant in linguistics as well as empirical educational science. Her current research interests focus on media language, forms of variation in English as well as applications of corpus linguistics in other disciplines, most prominently those of literature studies and the social sciences.

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Appendix

Categories of the Qualitative Analysis

Interview Area	Category	Description
State of the Art	Prior knowledge about the tool	Did the interviewee know about the tool before the interview?
	Source of information	Where did the interviewee learn about the tool (if applicable)?
	Relevance of the tool	Has "StudiFinder" played any role in the interviewee's working context so far?
	Popularity among the target group	How popular does the interviewee think the tool is among the target group?
Target Group	Best / Most appropriate target group	What is the most appropriate target group, based on age or high school status, of the tool?
	Common sources of information for target group	What are the most common sources of the target group concerning information on universities and degree courses?
	Accessibility of target group	How can the target group be reached to make the tool more popular?
	FAQs of target group members	What are the most frequently asked questions of high school students in career counselling situations?
	Level of information	Are students who have done a self-assessment test informed in a better way than those who have not?
The Tool in the Context of	Motivation for Career Counselling	Do students use the output of such tests as a motivation to

Career Counselling		seek career counselling, for instance to discuss the results further?
	Basis for Career Counselling	Does the output of "StudiFinder" constitute a useful basis for career counselling?
	Handling dissonances	How can possible dissonances in the results of the tests be handled?
	"StudiFinder" vs Reality	Do the tests and output of "StudiFinder" reflect university life and expectations in a realistic way?
	Recommendation	Would the interviewee recommend the tool to high school students?
Suitability and Usability	Layout appropriate for target group	Is the layout of the tool appropriate and suitable for the target group?
	Output appropriate for target group	Is the output of the tool appropriate and suitable for the target group?
Miscellaneous	Other comments / points of criticism	Are there any further aspects that have not been covered so far?
	Miscellaneous	Are there any comments / remarks not directly related to the subject?