Content Analysis as a Means of Quality Assurance as Exemplified in a Course on Organizational Development

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Abstract

This paper presents a course design that is used as an example to explore and discuss the applicability, results, and impact of the qualitative content analysis as proposed by Mayring. Furthermore, the results derived from the qualitative content analysis were compared with those obtained from an online questionnaire in a post-test design. As a result, the qualitative content analysis was found most helpful for better understanding what happened in the course and for improving it. However, the qualitative content analysis consumed much effort such that a simplified procedure is sought.

Keywords

Qualitative Content Analysis, qualitative evaluation, Person-Centered e-Learning, quality assurance

Introduction

Since technology enhanced learning is a fairly new, highly dynamic, and widely applied development, it is particularly important to be able to "look into" the way it works in particular educational settings in order to accelerate evolution and progress. So far we have used students' reactions and quantitative post-test design studies complemented by free text fields to assess and improve the quality of courses.

In this paper, we describe and apply the qualitative content analysis (QCA) of students' written reactions to a blended learning course on organisational development (OD). The QCA was performed using the method proposed by Mayring (2003). Its results are intended to complement the quantitative evaluation results obtained through an online questionnaire that was distributed to students at the end of the course. Both measures are part of the evaluation phase in our implementation of the Action Research cycle proposed by Susman and Evered (1978). The findings are used to assess the course's quality in terms of teaching and learning experiences, as well as to inform and to improve the course design for future application. In this way we intend to produce a comprehensive, multi-perspective evaluation to be used in Action Research-based procedures that have proved effective to investigate and improve blended learning courses.

The paper is organized as follows: The next chapter introduces the course on organizational development, and the third chapter describes the procedure of the QCA as applied to students' reaction sheets of that course. In the forth chapter the results of the qualitative content analysis are compared with quantitative data of the online questionnaire to allow one to distinguish the information content and discuss the impact of each procedure. The final chapter summarizes our findings and discusses their consequences.

Description of the Course on Organizational Development

The organisational development course was held at the University of Vienna as part of the "business informatics" master's programme in the summer term 2006 with 20 participating students. The course was based on the principles of Person-Centred e-Learning (PCeL), which integrates Person-Centred Education as developed by the American psychologist Carl Rogers (1961; 1983) with elements of e-learning. PCeL

is a blended learning approach aiming to address the whole person, i.e., his/her intellect, skills, and attitudes and feelings (Holzinger & Motschnig-Pitrik, 2005; Motschnig-Pitrik, 2006a, 2006b; Motschnig-Pitrik & Holzinger, 2002; Motschnig-Pitrik, Kabicher, Figl, & Santos, 2007). The main learning goals of the course were to develop and share personal visions, to be introduced to the concepts of a learning organisation, to improve listening, giving feedback, working in teams, to sensitize students with respect to their own experience and the experience resulting from considering situations/tasks/statements from different perspectives.

The face-to-face thread started with three consecutive workshops (four hours each), followed by a five-day-workshop (with a total of 38 hours) that took place during one week. During the course, students elaborated topics in the context of organisational development and worked on small team projects. This was done in individual and group exercises, discussions, and presentations. During the online thread, students worked on activities supported by the learning platform, for example: responding to surveys, downloading and reading material, uploading project documents, or writing open reaction sheets.

The reaction sheets, which were analysed using the QCA method presented in this paper, were requested after each workshop and after the final week. They offered students the opportunity to reflect on their experiences, cognitions and feelings about the preceding course unit. Since the reactions were accessible to all participants of the course via the learning platform, students and facilitators could benefit from the transparency of settings, experiences, and feelings of themselves as well as others. In class, reaction sheets to the last unit were addressed. The accompanying exchanges of thought, meaning and feeling allowed the group to build thematic and process related bridges between workshops. This supported the course process and contributed to unfolding a vivid atmosphere of equality, freedom in the range that was possible, understanding and acknowledgement, as needed for experiential learning.

At the end of the course, students were asked to submit an online questionnaire including items regarding beneficial aspects (e.g., discussion with peers and facilitator, cooperation with peers, active participation, etc.), teamwork aspects, and aspects related to their self-concept. The results of the questionnaire are compared with findings of the QCA.

Qualitative Content Analysis of Reaction Sheets

Qualitative content analysis (QCA) is a systematic, rule-guided qualitative text analysis method. It is methodologically strictly controlled, aiming to raise the objectivity, inter-subjective reliability, and transferability of qualitative results. We analysed our content in a procedure of nine steps proposed by Mayring (2003):
1. Collection and determination of text material,
2. Analysis of the situation in which the text originated,
3. Formal characterisation of the material,
4. Specification of the subject of analysis,
5. Theoretically informed differentiation of research questions to be answered,
6. Definition of the unit of analysis (e.g., paragraphs, phrases, words, etc.),
7. Selection of a qualitative analytical technique,
8. Verification of the category system,
9. Interpretation;

Students of the course on organizational development were asked to submit reaction sheets to each of the four course units (on the 7th, 14th, 21st March 2006 and the five-day-workshop from 29th May until 2nd June 2006) via the learning platform. Thus, reaction sheets, the content of analysis, were available as plain text in digital format. In order to develop a category scheme, we used the entire data (rather than selected parts). The advantage of using all the material is to capture all the relevant contents of the qualitative material and to avoid selection bias. Not every participating student submitted a reaction sheet to each unit, therefore the quantum of reaction sheets to a course unit varied (19 reaction sheets to the 1st, 2nd and 4th course unit, 14 reaction sheets to the 3rd course unit). The content body comprises 71 reaction sheets with a total of 10,750 words.

Participants of the course were mostly students of the "business informatics" master's programme. We invited them to share their reactions in an online response form that contained the following open, introductory statement: "We appreciate your personal reaction (what you liked, disliked, and others) to the last unit on organisational development. In particular, let us know about those events and experiences that you perceived as most significant for you". We suggested students to submit their reactions within three days after the end of the respective course unit, such as to accurately capture a whole scope of impressions derived from the course unit.

The subject of analysis of this paper are students' reaction sheets. So far, reading them helped us to capture opinions and feelings of our students and find out more about how they perceive our teaching and learning methods, working in small teams and the interaction within the whole group, as well as their feelings and experiences during and after course units. The primary goal of performing the qualitative content analysis was to find out, in a more "objective" and systematic way, on how the course was received by students and we could "locate" the main areas/issues for improvement. From this intention the idea was born to use/consider the qualitative content analysis as a means for quality assurance, and to compare its results with findings from quantitative studies that we regularly conducted for our courses.

Consequently, the main question of interest underlying the qualitative analysis of course reaction sheets was: What were crucial experiences of the students participating the course (i.e., positive and negative aspects, significant events, etc.)? In this context, we wanted to know if students' experiences were in line with the course's basic concept of whole person learning.

The time schedule of the course led to use each of the four course unit as unit of analysis. We defined the minimal coding unit as a proposition and the context unit (the largest text component which can be allocated to a category) as the reaction sheet of a student to a course unit. To analyze the reaction sheets we used summarization as qualitative analytical technique. Thus, we paraphrased, generalized and reduced the material organized in tables as illustrated by Maring (2003). The category system was developed inductively. Categories are groups of content that shares a commonality and reflect the original material in a clear and easily understandable way. Our category system includes the 3 main categories "course in general", "teaching and learning", and "climate and setting" and a total of 12 subcategories, which are illustrated in Table 1.

Table 1: Category system of the QCA as applied in the course on organizational development.

Category	Subcategory
Course in general	Content, topic and presentation related issues
	Introduction of participants
	Introduction of participants
	English
	Arrangement of the course
Teaching and Learning	Discussions and Dialogues
	Working in small groups, exercises and games
	Team project arrangements
	Learning on three levels
Climate and Setting	Attitudes of participants
	Attitudes and competence of the facilitators
	Atmosphere

As a complement to the QCA we included the absolute frequency of substantial statements for each subcategory. To each substantial statement a rating (positive, neutral or negative) was added. In the following, we present the subcategories, the absolute frequency of substantial statements, keywords, examples and the interpretation of findings with respect to each category.

Category: Course in general

Subcategory: Contextualization
Absolute frequency of statements: 20; positive: 19; neutral: 1; negative: 0;
Keywords: overview, interrelationships, dependencies between topics and practice, real life

Example: "I appreciated that at the beginning of the course an introductory overview of the contents of the course as well as its interrelationships with other courses was given, what I believe is a very important thing: contextualization."

Interpretation of findings: The contextualization of the course in general and the course topics (including an overview of the course contents, course progress, and course structure, interrelationships with other courses of the curriculum and interrelationships of the content to real life) helped many students (14 cases) to find orientation in the course and to look beyond course borders as well as to link theories with real life.

Subcategory: Content, topic and presentation related issues
Absolute frequency of statements: 41; positive: 30; neutral: 5; negative: 7;
Keywords: topics, presentations by the facilitator, and by university staff, materials, movie, platform
Example: "The presentation about the learning organisation was very motivating too. I heard some useful information and got new impulses to think about."
Interpretation of findings: The topics and materials of the course covered most students' (16 cases) interests and fulfilled expectations stemming from the course title. Some theoretical parts of the course (like the elaboration of definitions and repeating modeling processes) were considered as unnecessary, boring and time consuming by some students. The learning platform was seen as a supporting tool with helpful information, but could be used more interactively (concerning tasks and homework). After having had positive experiences with interactively elaborating topics in class, a couple of students mentioned presentations as a waste of time because slides could be read at home. Reaction sheets enabled students to give feedback to colleagues and to post thoughts after the course, which could be read as often as wanted via the learning platform.

Subcategory: Introduction of participants
Absolute frequency of statements: 15; positive: 14; neutral: 0; negative: 1;
Keywords: introduction, interview
Example: "I also liked the Interview with an unknown colleague and so to get to know somebody who I might never talk to without that course. It was very interesting to see how other people think about their future and how similar this is in certain points to mine. Also to get to know every one in that course a little bit better so that there is a basis to talk to each other. This introduction was very important and should be done in every course where you work together so closely."
Interpretation of findings: Knowing each other's names, interests, intentions, plans for the future helped many students (11 cases) to get to know each other better, and discussions became more fluent. Some students felt that the introduction of the participants was too detailed, because all the information was hard to remember.

Subcategory: English
Absolute frequency of statements: 10; positive: 8; neutral: 2; negative: 0;
Keywords: course language, English
Example: "Furthermore I was a little disturbed when I learned that parts of this course would be taught in English. But now I see it as a chance to improve my English … I don't have had much practise in English and so it's quite good for me. Even to write this reflection in English is a real challenge for me. :-)"
Interpretation of findings: A fair amount of students (7 cases) saw English, the course language, as a chance to improve their language skills. Although some students had the feeling that their language skills were not good enough, their motivation to practice and improve their English grew. They wished to understand what happened in the course. However, several students mentioned, that it was hard for them to express themselves in a foreign language and thus, some students were less active in discussions.

Subcategory: Arrangement of the course
Absolute frequency of statements: 42; positive: 7; neutral: 2; negative: 33;
Keywords: time schedule, organization of the course, breaks, tempo
Example: "What I did not like was that there was only one break again, so the course was exhausting."
Interpretation of findings: Almost every student (17 cases) tended to complain about some aspect of the arrangement of the course. Complaints regarded the long course duration, too few breaks, a course

block continuing for one week, and the large gap between the workshops and the final course block. Concerning time management during the course, students criticized that there was not enough time to discuss certain topics and to do certain exercises. Thus, administrative discussions should be shortened. Games and presentations should be distributed over the week and not be placed at the end of the course unit, as it was difficult for students to pay attention at the end of the course units. It was appreciated to start the lessons early in the morning. Watching and discussing a movie (which dealt with coaching teams, interaction and motivation within a team, team leading…) placed at the end of the course was estimated as a good final activity.

Category: Teaching and Learning

Subcategory: Discussions and Dialogues
Absolute frequency of statements: 34; positive: 33; neutral: 1; negative: 0;
Keywords: Discussion within the whole group, discussions on reactions
Example: "I found the discussion of the reactions to the last session very important, as we got feedback to the input (what we liked and what not) we provided…"
Interpretation of findings: One main element of the course was to express opinions about personally relevant topics within the border of the course topics. Nearly all students (18 cases) experienced these discussions and dialogues as important and useful because these allowed expressing different opinions, supported clarification, feedback, better understanding of course contents and new knowledge. Students felt that sharing was more encouraged in this course than in other courses. Furthermore, some students argued that discussions stimulated them to participate more actively.

Subcategory: Working in small groups, exercises and games
Absolute frequency of statements: 16; positive: 12; neutral: 3; negative: 1;
Keywords: Work and discussions within small groups, exercises in the course and at home (incl. reaction sheets) and games.
Example: "I also liked the discussion about a full functionally person in the small group."
Interpretation of findings: Other elements of the course were exercises, games and teamwork in small groups. A lot of students (12 cases) saw these exercises and games as instructive and as supporting attention by fun. For knowing each other better, small groups were formed with varying members. Reaction sheets were rated as interesting as these accessible reactions via learning platform enabled transparency among students.

Subcategory: Team project arrangements
Absolute frequency of statements: 12; positive: 9; neutral: 1; negative: 2;
Keywords: Team project arrangements, moderation unit of the teams, discussions and exercises during and after team moderations.
Example: "The topics discussed in class were interesting and I think every team did quite a good job. Each team tried to involve the class in its presentation and thus the presentation became more interesting."
Interpretation of findings: Concerning team project arrangements, half of the students (10 cases) experienced the brainstorming and the definition of the topics as rather confusing. But they had the feeling that they generated interesting themes. Thus, it was stated as very important to take time for discussing topics for team work. It was pleasant for students to feel the freedom to choose a team and topic. During the course block, students had been asked in which way they wanted to contribute and be graded. They decided to moderate (using certain moderation elements, like moderation cards, exercises, games …) their team project. Students indicated that these moderations were stimulating them in terms of active participation. The administrative work concerning team projects should be supported by the learning platform to save time.

Subcategory: Learning on three levels
Absolute frequency of statements: 13; positive: 13; neutral: 0; negative: 0;
Keywords: Learning on three levels, skills, knowledge, self experience, feelings, learning for life
Example: "I don't see that week as a teaching lesson but as an opportunity to learn more about myself and how I interact with others. As well as to learn how I could change myself and how I react or/and interact with others."

Interpretation of findings: The theory behind the course was learning on the three levels: intellect, skills and personality. About half of the students (10 cases) explicitly formulated in their reactions, that they could improve their soft skills (like interacting with others, communicating, and working in teams), *as well as* their professional skills (like modeling and building processes) during the course. They realized an opportunity in the course to learn about themselves and to learn for life.

Category: Climate and Setting

Subcategory: Attitudes of participants
Absolute frequency of statements: 12; positive: 11; neutral: 0; negative: 1;
Keywords: Attitudes of the participants
Example: "+ people who are in this course seem to be very open minded"
Interpretation of findings: Some students (9 cases) mentioned in their reactions, that the course had high quality for them because of the attitudes of the participants. They observed that the participants of the course acted in interested, active, open minded, critical ways, and offered new perspectives, shared ideas and prepared themselves for the course in advance.

Subcategory: Attitudes and competence of the facilitators
Absolute frequency of statements: 27; positive: 25; neutral: 0; negative: 2;
Keywords: Attitudes and competences of the facilitators, teaching style, freedom in class
Example: "First of all I have to say that I really enjoyed that Antonio was with us that week. I really liked how he worked with us and treated us. I felt very comfortable with him and how he tried to teach us things. I think he is a real congruent person."
Interpretation of findings: The attitudes and competence of the facilitators were experienced as facilitating and positive too. Nearly all students (18 cases) experienced the facilitators as communicators of openness, freedom in class, congruence and realness, who delegate and share responsibility and include students in decision making. Thus, students had the feeling of equality. Furthermore they realized that a given structure by the facilitator is not always necessary. One facilitator worked in a different professional background, which was perceived as positive and opening up new perspectives.

Subcategory: Atmosphere
Absolute frequency of statements: 18; positive: 16; neutral: 0; negative: 2;
Keywords: Atmosphere and climate during the course, room conditions, fun, group efficacy
Example: "+ there doesn't seem to be a big hierarchy=> very good climate"
Interpretation of findings: Half of the students (9 cases) argued that the atmosphere of the course was influenced by the openness for being critical and having fun, the equality and the informal ambience in class, and the decision making processes in the group, as well as the sitting arrangement (sitting in the circle enabled to see the faces of each other which raised the acceptance in the group) and the size of the classroom (bigger classrooms were more pleasant than small ones). The atmosphere facilitated working together, expressing one's opinion and thus it supported group performance.

Comparison with Quantitative Data

One question of the questionnaire was to indicate, how much students estimated to have benefited on each of the three levels of learning. The level of skills got the highest rating (4.67), and was followed by the personality level (4.33), and the knowledge/intellects (3.94). The QCA of the reaction sheets confirmed that students felt that they had learned on all three levels: We identified statements referring to learning at each of the levels. Furthermore, the QCA illuminated more details about what students (and also each student) perceived to have learned on each of the levels, in which context the learning occurred, and what quality the learning was assigned.

At the end of the course we also asked our students to submit an online questionnaire which included 24 aspects from which students can learn in a course. Students were asked to indicate to what degree (on a scale from 1 meaning "not at all" to 5 "very much") they benefited from each of them. The five aspects with the top average values were:

1. Exchange and discussion with colleagues (4.47)
2. Cooperation with peers (4.28)
3. Exchange and discussion with the instructor (4.28)
4. Interpersonal relationships within the team (4.22)
5. Practical exercises during the lab hours (4.06)

This shows that the results of the questionnaire were consistent with findings of the QCA. They underlined, first of all, the meaningfulness of discussions and dialogues, as well as practical exercises and games within the course. However, the mean average value did not indicate that, for example, students considered the discussions regarding administrate issues too long or that the constructive atmosphere encouraged honest expression and hence contributed to the quality of sharing. On the other hand, the high average mean values in the aspect of cooperation with peers points to the high perceived importance of cooperating with others that might lead one to investigate this aspect more thoroughly by identifying statements that qualify it more precisely.

Summarizing, the QCA of students' reaction sheets helped us to inductively find aspects which were not explicitly asked in the online questionnaire. Consequently, we conclude that the two research approaches, namely the QCA and the quantitative study have the potential to bring up complementary aspects and that neither one can fully substitute the other. Nevertheless, we found the qualitative content analysis more informative for the sake of learning from various perspectives and improving the course. However, the QCA was also more time consuming which led us to looking for an abbreviated procedure that would be faster yet comparably systematic and comprehensive.

Quality Assurance in the Course

The quality assurance of our course consisted of formative and summative evaluation procedures. During the course, the course's quality was assured by reacting on students' reaction sheets. With reading reaction sheets and sharing viewpoints in the following course unit, students and facilitators received regular feedback. They could let the feedback influence the further course progress. At the end of the course, we used the qualitative content analysis of reaction sheets and an online questionnaire as summative evaluation. Based on the results of the qualitative content analysis, we arrived at the following preliminary "conclusions" that tend to evolve with each new course experience:

- It is essential to provide an overview of the course and to communicate it to students in a clear and understandable way, including target group of the course, position within the curriculum and interrelationships with other courses, course philosophy, initial learning goals, core course contents and their interrelations to real life, course process, and course structure as well as the theory behind it.
- A content framework enables students to follow individual interests within core themes of the course.
- The need of *presenting* material as opposed to providing it for initial self-study, for example via learning platform, shall carefully be considered.
- Whereas students tend to appreciate discussions regarding the subject matter, they consider lengthy discussions and decision making concerning administrative/organizational issues as time wasters. Hence, it appears that students tend to prefer a process-directive approach, i.e. one in which the facilitator places breaks, makes schedules, allocates presentations and exercises, to a more student oriented, spontaneous organization of the course process. The process-direction shall save time for topic related discussions, exercises or games.
- An introduction of the participants is very welcome and helps students to know each other better which in turn facilitates working together. However, the introduction is preferred to be kept short.
- Course units should be organized in such a way as to leave enough time between individual units, but not too large gaps between units to assure continuity.
- Breaks are an important issue.
- The atmosphere is not only influenced by the facilitator and participants, but also by sitting arrangement and room size. It is surprising which important weight the room size and sitting arrangement aspect was attributed to by students who experienced small and large rooms during the course.

Several of the insights listed above could not be derived from the questionnaire data, and although they were expressed in the individual reaction sheets, the categorization of statements as delivered by the QCA resulted in a more systematic, more "objective" image or map. This map finally leads us to pose questions such as the following: Should students be made co-responsible for the organization of the individual units, or should the facilitators direct the course process? Clearly, the majority of students did not like lengthy discussions on organizational issues. Yet, they liked the positive atmosphere of the course that, to a significant degree, resulted from cooperative decision making on as many aspects as possible. Thus, the students experienced how difficult and time consuming participative decision making is, but also that listening to everybody tends to result in feeling included and respected. We conclude that the answer to the question posed above depends on the learning goals: Do we prefer to develop listening and decision making *skills and attitudes*, or knowledge *about* organizational learning, or either one that comes up? In either case, the QCA of students' reactions can support us in finding out to what degree and in which respect students the course was successful and what needs to be improved in the future.

Discussion and Conclusion

On the basis of performing a qualitative content analysis of students' written reactions throughout and in the end of a course, we found that the procedure proposed by Mayring (2003) proved highly insightful. It let us derive conclusions that complemented findings resulting from a quantitative study performed in a post-test design. Furthermore, it delivered a systematic "map" of course features that can be shared and communicated to other persons. This "map" or whole image would not form just by reading the individual reaction sheets. The only disadvantage of the qualitative content analysis as a means of quality assurance and research is the high effort of performing the procedure as proposed by Mayring (2003).

Consequently, we are in the process of considering shortcuts and/or adaptations to the detailed procedure in the context of analyzing reaction sheets. Thereby, the main question of interest underlying the qualitative analysis of reaction sheets is: What were the essential experiences of the students participating the course (i.e., positive and negative aspects, significant events, etc.)? Our goal is to propose a procedure that would allow one to achieve results more efficiently without loosing the quality and expressive value of the original investigation process.

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