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Karin Schweizer, Tanja Schielein,
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and Günter L. Huber (Eds.)
Beyond Text:
Video and other Medium Use
in Qualitative Research
Center for
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QP

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Content

Introduction

The 10th Annual Workshop of the Center for Qualitative Psychology "Beyond text: Video and other medium use in qualitative research" took place in February 20th-22nd 2009 in Weingarten, Germany. With this workshop we focused on video analyses and related forms of gathering data resulting in content analyses.

Overview

Lorenzo Almazán Moreno, *Juana Maria Ortega Tudela* and *Ana Maria Ortiz Colón* from the University of Jaen (Spain) illustrated the possibilities of video in qualitative research, specifically in discussion groups. This technology was developed and used by the authors as part of a wider research project which focuses on the initial training needs in Information and Communication Technologic (ICT) of school teachers in 21st century society from the perspective of pupils and teachers. For the purpose of the present study, the authors formed a discussion group of eight teaching professionals with different profiles and perspectives on the research topic. With permission of the participants they video recorded their conversations for analysis. The analysis was carried out using the AQUAD 6 program by Günter L. Huber of the University of Tübingen. Lorenzo Almazán Moreno and co-workers explicated the characteristics of the technical assisted qualitative research process, including the codification process of the video segments. As results of the analysis the authors specified three code catalogues, made up of 34 codes: 1. "ICT in general," which covers different opinions about the general use of ICT, 2. "General Competencies," which covers statements about the general competencies of the teacher and 3. "Schools and other learning centers," which covers opinions about how schools face the inclusion of ICT in their daily practice. Based on the results the authors emphasized the need for in-depths changes in initial teacher training. They pointed out, that schools are required to revise and update their principles, taking into account the increasing role of information and communication in 21st century society. The authors also emphasized the important role of universities as the principle centres for the training of future teachers.

Carolin Demuth from the University of Osnabrück (Germany) presented an comparing analysis of about mother-infant interactions among a farming community of Nso in the Western Grassfields of Cameroon and a North German middle class urban community. She re-analyzed 20 mother-infant interactions recorded from May 1995 to June 1996 in Münster/Germany and 20 Nso mothers-infant inter-

actions from Kikaikelaki and their respective 3 month-old infants during 10 minute free play (2002 to 2003). The interactions were analyzed drawing on procedures from discourse analysis (Potter & Wetherell, 1987), conversation analysis (Sacks, 1992; Sacks, Schegloff, & Jefferson, 1974) and documentary method (Bohnsack, 2003). Analysis was supported by the software program Transana. She found that culturally distinct patterns of co-constructing mother-infant interactions can be described along the following dimensions: (1) co-operative vs. hierarchical discourse; (2) narrative-biographical vs. rhythmic-synchronous structuring; (3) individual-centered vs. socially oriented discursive strategies. Furthermore she discussed how these values and ideologies are enacted by specific social constructions of communication and aims at elucidating how culturally informed caregiver practices support or limit infants' autonomy and sense of relatedness.

Samuel Gento, Maria-C. Domínguez, Antonio Medina and *Raúl González* from the Universidad Nacional de Educación a Distancia (UNED) in Spain and *Günter L. Huber* from the University of Tübingen (Germany) described the evaluation of an international Master course on "Educational Treatment of Diversity." In this course e-learning was implemented together with videoconferences and audiovisual materials to facilitate the students' active participation and interaction – an important aspect in distance education. The evaluation was carried out by the staff coordinating the Master program with participation of the academic team, administrative staff and students. It was mainly conceived as a qualitative approach and used interviews with teaching staff, students and administrative staff as well as discussion groups of students. The general opinion of the students regarding their experiences of the Master course is well expressed in the students' report on their discussion group: "The methodology of the Master course facilitated collaborative learning, with which most students felt very satisfied. Apart from the academic, research and professional aspects, the course has also helped to strengthen other human values and to intensify emotional ties among all the participants."

Johanna Drews and *Günter L. Huber* from the University of Tübingen (Germany) presented a video-based analysis of forms and functions of humor in early childhood. The authors pointed out, that although different studies focus on humor, the operationalization of humor usually is reduced to the understanding of cartoons or verbal jokes. Forms of humorous social interactions and their functions in everyday life, especially in early childhood are rarely analyzed. In contrast to that, and in particular referring to those missing perspectives, the present study took into account: 1. the social dimension of children's behavior and experience and 2. the developmental dimension. The study used long-term video-taping of real life interactions between children to investigate humor in early childhood and to answer the open question: "What is the role of humor in communication and social interaction?" The authors

described the arrangements for video observation of humor in a regular kindergarten and the analysis of the video sequences with the software AQUAD 6. Based on the empirical data of many hours of video recording, a category system of humorous events was developed to analyze the functions of specific forms of humor. A main finding is that humor is an important form of expression already for young children and contributes to arrange positive relations in kindergarten.

Karin Schweizer and *Stephan Kröner* from the University of Education, Weingarten (Germany) and the University of Erlangen-Nuremberg (Germany) discussed the method of elicitation studies for developing questionnaires on attitudes, subjective norms, and perceived behavioral control within the context of the theory of planned behavior. They applied a content analysis on data about on student participation in extracurricular musical activities recorded by interviews with N = 44 high school students aged 17 to 20 years. Taken together, the content analysis procedure applied in this chapter provides a useful guideline for analyzing data from future elicitation studies in the context of the theory of planned behavior. They discussed also the potential benefits of video recording interviewees and analyzing their nonverbal behaviors to further elucidate the differences between musically active and musically inactive persons.

Tiberio Feliz Murías, María Carmen Ricoy Lorenzo and *Sálvora Feliz Ricoy* of the University of Vigo (Spain) discussed possibilities and challenges of the Computer Assisted Qualitative Data Analysis (CAQDAS) software and gave useful guidelines for the use of CAQDAS. The authors used the term CAQDAS to refer to software that is able to analyze texts, videos, pictures or audios, for example AQUAD, ATLAS.ti, MAXQDA or NVivo 8. The authors described the most common functions of those programmes, such as storing and exploring the data, coding and retrieving as well as organizing the data. Different kinds of use according to adequateness, appropriateness and efficiency were discussed and some causes of inadequate use were mentioned. For example the authors explained some relevant mistakes in the use of CAQDAS like short or no training, short or no experience in the use of the software or previous expectations and hopes of the researcher him/herself. The authors also explained some possibilities of artistic use, like the use of timing codes, audio codes or external links to refer to other research data, books or websites. Additionally the authors recommended some helpful guidelines for teaching computer assisted qualitative research. They emphasized the importance of self-reflection and self-reviewing during each step in the research process as well as the importance of triangulation of methods and sources and the positive effects of interdisciplinary working groups and research teams.

The use of video in the discussion group

Lorenzo Almazán Moreno, Juana María Ortega Tudela and Ana María Ortiz Colón

The aim of this study is to show the possibilities of video in qualitative methodology, and more specifically in discussion groups. This methodology has been developed in the framework of the research we are currently undertaking on Information and Communication Technology (TIC) competencies among student teachers at an early stage of their training. We have chosen the discussion group as one of the techniques to be used in a qualitative approach.

This approach allows for direct contact with what has been studied and permits personal interaction between the researcher and the group, which in turn allows the members of the group to express themselves freely and in their own terms (Latiesa, 2000). Therefore, this technique analyses the make-up of the group. For our research, three groups were formed: the first was made up of primary school pupils, the second by primary school teachers and the third by university teachers, primary school teachers and university students. Their conversations are then video recorded for analysis, in order to fulfill the objective of this study.

One of the most important moments is once the video recording is finished. The data are then analyzed, after the video has been divided into shorter sections according to units of meaning, and these units have been categorized. This allows us to discover what each unit of meaning represents within the group and in the context of the research. This set of representations not only reveals what the group members think, but also who they are and what they feel (Bolívar, 2004), which gives a new content space in the context of the group.

In this technique the discussions must be video-recorded. One of the tasks of the moderator is therefore to make the group realize the need for this recording. In contrast to what might be expected, in general the participants rarely oppose the presence of the camera. Although they may feel slightly self-conscious at first, the heat of the discussion always makes them forget that they are being recorded. However, to make the camera 'disappear' in the minds of the group members, it must be placed in the corner of the room so that it can capture all the comments and gestures as well as possible, while interfering as little as possible in the natural development of the discussion. A critical moment is always when the camera or the tape has to be changed; this should be done with the utmost discretion in order not to interrupt the discussion too much.

When the group discussion has ended, the recording must be transcribed. This transcription should include the whole discussion, from the moderator's intro-

duction to the conclusion of the discussion. We have noted in other studies that this transcription stage is sometimes omitted, because the researcher wanted to save time moved directly on to the analysis. However, without a transcription there is missing a great deal in this qualitative research technique, which is based on the study of language. It is interesting to investigate both verbal and non-verbal communication, and therefore we suggest a combined analysis of the transcription and the sections of the video, divided into representative units of content, along with the moderator's notes.

Once the transcription has been made, the results are analysed. It should be made clear that the discourse analysis needed for our approach is not the same as more traditional content analysis. According to Ortí (2000, p. 99), "el discurso espontáneo y (relativamente) libre de un sujeto no constreñido por ninguna contextualización impuesta (esto es, por ningún cuestionario) se resiste a su formalización, y mucho más aún a su cuantificación. Como es sabido, esto es lo que intenta precisamente el denominado análisis de contenido" [The spontaneous and (relatively) free discourse of a subject who is not constrained by any imposed context (that is not by a questionnaire) is difficult to formalize and more so to quantify. This is precisely the aim of content analysis. This fact supports our statement of the importance of carrying out a holistic analysis of the discourse].

Along the same lines, Ibáñez (1986, p. 32), states: "el análisis cuantitativo de contenido tiene un alcance muy limitado, porque parte de una hipótesis clasificatoria (descompone el discurso en categorías de unidades) y no de una hipótesis estructural del lenguaje (el lenguaje forma un sistema y no es un mero repertorio)" [Quantitative content analysis has a very limited scope, because it is based on a classifying hypothesis (it breaks the discourse up into unit categories) and not on a structural language hypothesis (language forms part of a structure and is not a simple repertory)]. In the same way, Ortí (2000, p. 121) states: "por último, la tarea de desciframiento de los discursos, desde la perspectiva de su intencionalidad última o más profunda, nos sitúa en la investigación social ante el siempre complejísimo y a veces enigmático reino de las motivaciones; es decir, ante el desciframiento (cada vez más interpretativo y subjetivo, con menos indicios o soportes materiales) de las supuestas fuerzas motoras, presiones o deseos, que responden al porqué de la interacción social" [Lastly, the task of deciphering discourse from the perspective of its ultimate or deepest intention, places social research in the always very complex and sometimes enigmatic realm of motivation; that is, the deciphering (increasingly interpretative and subjective, with fewer material indications or bases) of the supposed motivators, pressures or desires which are the reasons behind social interaction].

The essence of qualitative analysis of discussion groups is to interpret the discourse and its content, and the final meaning produced by the group.

We agree with Miles and Huberman (1988, p. 72) when they comment that in text analysis, particularly in the case of in-the-field observations, a codification is so wide and complex that the likelihood of losing some details is very high. It is there-

fore essential for the researcher to note everything that comes to mind during an interview, observations, chats, etc., as well as afterwards when they are codifying and reflecting on the central categories and their possible links. Notes should be taken during all stages of a study, as they are always important in allowing the researcher to reflect on the data. The support of the research diary is crucial in registering all the keys which will help to validate the group discussion process and the content created in the study.

This concept highlights the importance of actions, and moves away from the deterministic idea of the mechanical construction of meaning. Applied to group conversations the search for teleologic causality means that an expression or discourse must be considered as a joint construction by the interlocutors. They negotiate the realm of common beliefs, interpreting actions carried out by discourse and interventions. Each turn in the discussion, and also each gesture, look and behavior forms a part of this event, and each gives meaning to the final discourse of the interlocutors.

Currently, many authors concur in conceiving the meaning of any dialogue as a construction which is essentially based on context (situation, contract and interlocutors). In terms of a discussion group, this raises methodological problems which are solved radically by ethnomethodology. In ethnomethodology, the central question which analysis poses is how to move from the study of statements made in the presence of an observer (the moderator) about certain practical activities to the study of these activities which are carried out in the absence of an observer, but are considered true facts. A reflection on this problem deals with the question of the links between statements and the context in which these statements are made. We must understand these contexts in order to understand the facts.

According to ethnomethodological theory, it is not possible to infer, from group interviews, facts (activities, interactions, events) from what people respond during the interview. To do this, it would be necessary to reconstruct explicitly or implicitly the set of reasons which drive a person, in the situation of a group discussion, to state certain facts or objective information and to withhold, twist or invent other facts.

In the light of these reflections it is clear that a discussion group will only reach the status of a method in social science at the cost of prior decoding or deciphering of the working of the conversation. This work, which is the objective of the group discussion, can be applied to the methodology of the research in two ways:

1. The first is to integrate into the analysis of the content of the discourse an analysis of the verbal interactions during the conversation, which would allow the recovery of the original meaning intended by the interlocutors.

2. The second is to use the conversation as an experiment with given limits. The researcher would define a maximum number of communication parameters (situation, contract, interlocutors) according to precise hypotheses about the

type of discourse sought. The group interviews would therefore apply these different parameters to intervention strategies, which would become more precise and effective as the fundamental study of the system of verbal interactions is developed.

The internal validation stage of the group discussion is carried out by giving the participants the results of the content analysis, so that they can verify how their ideas have been recorded. They can then add any information not included or notes which they feel should be made. Finally, the results are presented in a report, which is a key instrument for presenting the results of the study.

The study

Objectives

The discussion group used in the content analysis with the program AQUAD 6 is part of a wider research project which aims to describe and analyse in depth the initial training needs of school teachers in ICT from the perspective of pupils and teachers.

This general objective is differentiated into the following specific research aims:

1. Assess the degree of adequacy, appropriacy and quality of future primary-school teachers in the use of ICT.
2. Determine the level of ICT expertise that future teachers have during their initial training.
3. Describe and analyze in depth the training needs of future teachers in current society.
4. Obtain and show information about the use of ICT by future teachers in different subjects, which can then be incorporated into university teaching.

Subjects

Eight teaching professionals participated in the discussion group. These professionals have different profiles, which allows us to receive different perspectives on the competencies which trainee teachers need in order to then introduce ICT in schools.

The following table shows information about the different profiles of the people invited to the discussion group:

Subject	Profile
Subj 1	University Student in a teacher training course
Subj 2	Student undertaking in-school teacher training
Subj 3	University lecturer
Subj 4	University lecturer
Subj 5	Schools inspector
Subj 6	University lecturer responsible for the coordination of in-school training
Subj 7	University lecturer / tutor of students during in-school training
Subj 8	University lecturer / tutor of students during in-school training

The presence of these subjects was justified by the role they represented and the picture they could paint about the topic under study.

From subjects 1 and 2 (students on a teacher training course), our intention was to obtain information based on their experience in schools during their teaching practice, as well as their training during their university course.

From subjects 3 and 4 (university lecturers) we intended to obtain information about the theory of the introduction of ICT in schools and other centers of learning, along with legal and theoretical references. In addition, these participants are aware of the training in new technologies applied to teaching offered by the university, and the skills which students develop during their courses.

Subject 5, a schools inspector, was able to offer us the perspective of schools on the ICT competencies required by schools, as his scope of work allowed him to know the situation of a large number of schools in the province of Jaén.

Subject 6 is the person responsible for the coordination of the in-school training of all the students of teacher training in the University of Jaén. In this role, he/she was able to offer us the opinions of a large number of students with which he/she has daily contact.

Subjects 7 and 8 are teachers and tutors of students carrying out their in-school training. Their experience as teachers and their work as tutors give us a wide perspective which allows us to complete the different views of the situation.

Procedure

Before the discussion group began, the participants were informed of its objective. In addition, the two people outside this panel of experts were introduced. They were:

- One person who would carry out the role of note-taker (secretary). This person would transcribe the discussion (but not participate at any time in the discussion) and take notes on the development of the discussion group which would subsequently be added to the video.
- One person who would carry out the role of moderator. Among the moderator's key roles is that of establishing the time given to each of the questions

or contributions, establish and distribute turns in the dialogue, and lead contributions towards the objectives of the research, summarize the contributions made by the participants and draw conclusions.

After these introductions, permission was asked of the participants to video record the session, and they were informed that the session would be transcribed. The recording then began with the initial welcome given to the participants and information about the five main points around which the discussion would center.

The participants were also informed about the steps which would be taken in the research project:

1. Recording of the group discussion.
2. Notes taken about important points.
3. Video screening.
4. Addition of important notes to the video.
5. Feedback for participants (Content analysis).
6. Description of special situations. Analysis of the verbal, non-verbal and para-verbal structures. Interaction level of the participants.
7. Conclusions and evaluation process.

Other characteristics of the discussion group are:

• Time: The recording took place on the 5th February 2009 at 18:30.
• The place chosen for the recording was the Seminar of Music, Arts and Performance.
• The recording time was 30 minutes.

The analysis of the video was carried out using the AQUAD 6 program by Huber of the University of Tübingen. This program assigns codes to and catalogues the meaning segments of video for use in our research.

Characteristics of the qualitative research process

The content analysis was carried out using AQUAD 6 as follows:

- Transcriptions of the recording made in Word format, then in rtf format; this allows us to analyze the recording as a complement to the analysis of video and audio contents.
- Inclusion and incorporation of the researcher's notes taken during the observation stage of the discussion group.
- Generate the project University of Jaén Discussion Group.
- Import the transcription.

- Perform content analysis (Huber, 2004; Huber, Smith; Lorenzo & Herrera, 2002) based on:
  - Word counts to determine frequency, as this can be an indicator of the emphasis placed on the concept they express.
  - Search for key words to find relationships between concepts and the basic content of the research.
  - Codification of meaning segments from key words.
  - Establishment of catalogues to group codes.
  - Proposal of metacodes, although these were not necessary, in order to integrate catalogues to be able to establish sub-codes or super-ordinate codes.
  - Establishment of tables to create two-dimensional networks to obtain a structured representation of the passages of text; this also was not necessary in our case.
  - Search for linking codes to determine those which concur sequentially and systematically around given arguments, allowing us to simplify complex clauses.
  - Truth tables. This procedure allows us to identify a category about which we would like to learn more; in our case, this could not be determined.

Following these indications, we carried out an analysis of the data provided by the video analysis and the notes taken.

Codification process

This stage of the study analyses some of the most important results arising from the analysis of the verbal structure of the discussion group.

Using the analysis of the video, we categorized the video segments, each of which was assigned a meaning and a symbol associated to this meaning. Miles and Huberman (1984) call these symbols codes. Along with the creation and assignment of codes, catalogues were established using the AQUAD program. These catalogues create a list of all the codes, allowing us to group them under common meanings.

The catalogues offer a quicker approach to the different meanings of the video segments analyzed. First, we should point out that we have used the following as control codes:

- $azul: To highlight in blue information not provided by the participants.
- $verde: To highlight at the end of the file the identification references of the discussion group, in case they contrast with significant differences if more files are incorporated at a later date.
- $no contar: For all notes made by the transcriber, that is not provided by

the participants. These codes are related to identification data, identifying the actual speaker.

In our case, once the video was analyzed, three code catalogues were specified which offered meaning segments. They were:

- TG (ICT in general) which covers different opinions about the general use of ICT given by the participants in the discussion group.
- CG (General Competencies). Statements about the general competencies of the teacher.
- C (Schools and other learning centers) covers the opinions about how schools face the inclusion of ICT in their daily practice.

Each of these catalogues is broken down into different codes. The following shows some of the codes used and their grouping in catalogues, which shows some tendencies which are examined in more depth later.

Codes associated with **TG (Information and Communication Technologies in General)**:

- PDA (Perception of Deficits in ICT because of Addiction)
- PPAA (Positive Perception of Autonomous Learning)
- PPUI (Positive Perception of integral and integrated use)
- PPUPT (Positive Perception of use of Technical Programs)
- PPITS (Positive Perception of Sequenced Integration)
- PPMA (Positive Perception of Classroom Motivation)
- PPOA (Positive Perception of Use of Classroom Observation)
- PPTDT (Positive Perception of working daily with ICT)

Codes associated with **CG (General Competences)**:

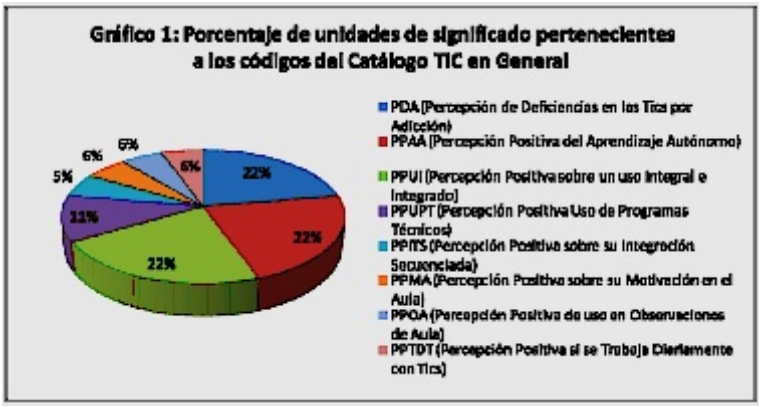
- PTAF (Promote ICT in all University courses)
- PTFF (Little time devoted to training in ICT at University)
- PTFH (Promote ICT along with Human Factors)
- CAM (ICT in Contents of Subjects Motivates students)
- DAN (Doubts about Matching Competencies to Needs)
- CUP (Positive Contents in the Use of Platforms)
- CSA (Sufficient ICT contents in subjects)
- DSFI (Doubts about whether initial Capacity is sufficient)
- PRE (Problems owing to lack of resources in schools)
- PMC (Problems owing to lack of Quality Materials)
- PPDUT (In-school training allows diagnosis of the use of ICT)
- PPGAT (Use of Platforms Generates learning in ICT)

- PUD (Promote Didactic use of ICT)
- TAP (Competence in ICT is acquired through practice)

Codes associated with **C (Schools and Other Learning Centers)**

- FAPT (Reinforce Positive Attitudes to ICT)
- ADT (Support for Diagnoses by Specialists about the use of ICT)
- APTC (Positive Attitude to teamwork)
- API (Positive Attitude by Infant teachers)
- APITC (Support for Programs integrating ICT in the curriculum)
- APFC (Support for Training Programs in ICT in the school)
- AATRA (Education Authorities should support integration of ICT in the classroom)
- AAUTN (Autonomy from teaching Authorities to respond to specific needs)
- CCC (Cultural Problems dealing with Change)
- APM (Help teachers to overcome fear of ICT)
- PCBF (Problems of low level of training of many teachers)
- TS (Superficial handling of ICT)

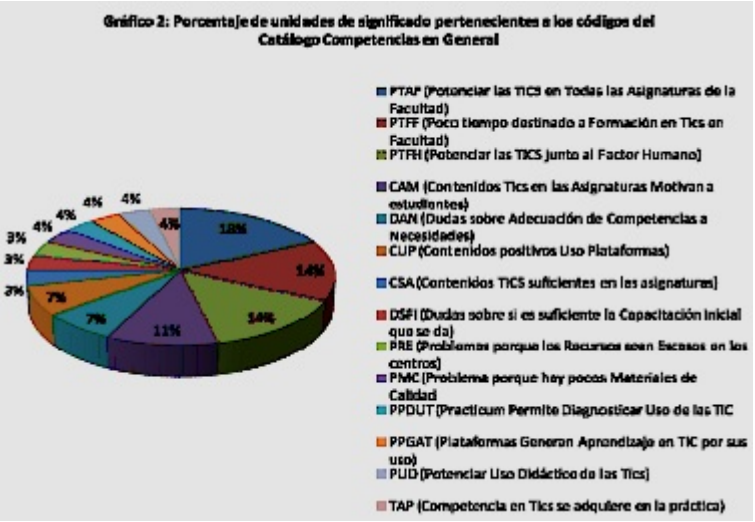
Once the video had been analyzed and segmented into different meaning codes, we obtained for each of the three catalogues the following distribution of segments by code.



This catalogue contains 18 meaning units which correspond to the eight codes it comprises. Of the 18 meaning units, eight refer to the first three codes, which highlight the positive perception of the participants towards ICT, due to the possibilities offered by the high autonomous learning component, which can be put to educational use from an integral and integrated perspective.

Along with this argument, it is indicated that a better development of educational programs is important to improve the competencies of the users, their motivation, more generalized work with ICT and an increase in the possibilities of observing the results in the classroom.

This catalogue shows only one negative attitude towards the possible difficulties which may arise from a misuse of ICT; the participants noted in four meaning units the possible addiction problems which could be found in schools.



In the CG catalogue (General Competencies related to initial training), there are 28 meaning units, contained in 14 codes.

These codes reflect to a great extent the need to emphasize the use of ICT in teacher-training establishments, in the early stages of teacher training. Five of the contributions made by participants were focused on the need to promote the use of ICT in all the courses of the teacher training program.

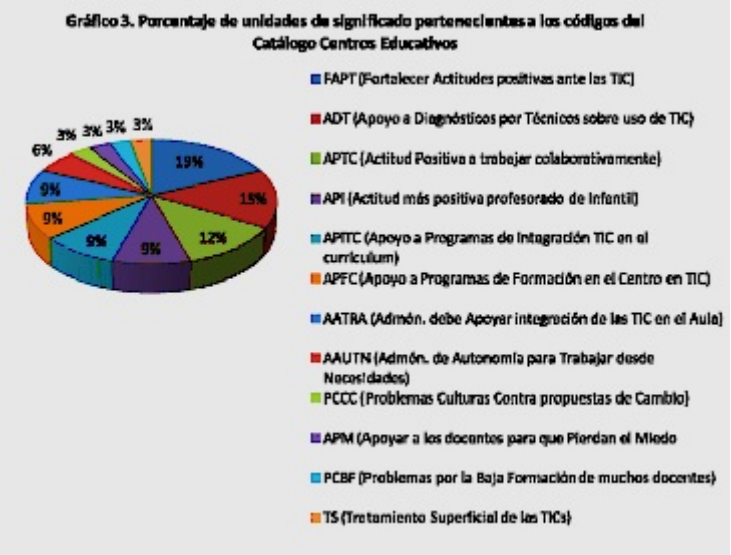
Both the university lectures and the students noted the lack of time and credits currently offered in ICT. Special mention was made of the fact that at present, students of teacher training have only one course of 4.5 credits dealing with New Technology Applied to Education.

All participants agreed in highlighting the deficiency of this course faced with the demands that the modern society of Communication and Information makes of teachers in their daily work.

Other codes observed referred to isolated meaning units on different aspects such as problems arising from the lack of resources in schools, the low quality of materials, the need to promote the use of ICT etc.

Another argument present in this catalogue refers to the need to bear in mind the importance of the human factor in the teaching and learning process.

The participants also indicate that platforms and the use of ICT motivate learners, but doubts arise about whether the contents are related appropriately in order to respond to the needs of the teachers. The participants consider that it is necessary to promote the use of ICT, that there are few quality materials available, that schools have trouble maintaining equipment in good working order, and that competence in handling these tools is achieved through practice.



The third catalogue, Schools and other Learning Centers contains the highest number of meaning units: 33, grouped in 12 codes.

These codes refer to various questions, such as the need for support by the Education Authorities to promote the integration and work with ICT in the classroom, or the need to help teachers to overcome their fear of using ICT. In this case the participants highlight the importance of generating positive attitudes in schools to the use of ICT, and also the promotion of specialist diagnoses to define the type of use made of IT tools, which can in turn help to promote teamwork.

The participants also indicate that there is a more positive attitude among primary teachers, and this attitude should be extended to the rest of the school; a good means of achieving this would be to integrate ICT into the School Curricular Plan. Therefore, the Education Authority must support educational policies which are designed to integrate ICT into classroom tasks, and give sufficient degrees of autonomy to schools to develop their own projects which respond to their specific needs. The biggest problems which schools will face are associated with a culture of reluctance to change among teachers, either because of fear and apprehension about new technologies, or because their low level of training in ICT makes them unwilling to accept the challenge of integrating them into their teaching, leading to a very superficial handling of ICT.

However, in this catalogue, the codes which have the highest number of meaning units are those referring to FAPT (Reinforce Positive Attitudes to ICT), ADT (Support for Diagnoses by Specialists about the use of ICT) y APTC (Positive Attitude to teamwork), with 6.5 and 4 meaning units respectively.

Results

As we have shown, based on the 79 meaning segments we have established three catalogues made up of 34 codes. By analyzing these meaning units, codes and catalogues we have found the following tendencies:

At different times during the discussion reference was made to the use of ITC in general related to different questions. One of the arguments presented in the discussion group referred to the current abuse or misuse of ICT. Nowadays, it is almost impossible to conceive our daily lives without a mobile phone or email. These are recurring themes which cause preoccupation among those who are most critical of ICT, and are used as arguments against their use. This line of argument can be seen in the comments made by subject 7 and the response of subject 8. This dialogue is a clear example of the meaning units which make up the code PDA.

Code PDA (Perception of Deficits in ICT because of Addiction)

> Subj. 7: … *there is also the risk you mentioned at the beginning, (addressing subject 8) the high workload, and you get hooked, we are hooked on email all day, taking the computer with us wherever we go.*
>
> Subj. 8: …*you're right, you get hooked….., it's true,…… you get addicted.*

Another argument present in the dialogue in this discussion group centered on the perception that the subjects have of the need to view training in ITC from an overall perspective, and not as a single subject . This can be seen in comments made by subject 7.

Code PPUI (Positive Perception of Integral and Integrated Use)

> Subj. 7: … *ITC should be made indispensable, cross-curricular, and in all subjects.*

Along with the need to see the importance of ITC as an integrated part of the training of future teachers, it is also necessary to introduce ICT gradually into schools. Some of the comments made in this discussion group lead us to think that a gradual introduction of these contents from infant stages onwards. This can be seen in the comments made by subject 1:

Code PPITS (Positive Perception of Sequenced Integration)

> Subj. 1: …*children change quickly from infant to primary education, as in infant education they have all the material themselves, and they can do what they like, whereas in primary school the teacher tells them what they can use. I think that if in Infant education more use*

was made of new technologies, especially in the last year, in primary education they would be much better used.

Subj. 1: …*But many primary teachers are worried about having to explain how to use them (the computers), they are afraid that the children will break things if they don't know how to use them… that's why I think that if children are taught how to use and look after the computers, in primary the teachers would be able to teach w i t h the computers, everything would be much smoother and they would feel less pressured when teaching with new technologies.*

Reference was also made to the possibilities offered by teaching materials developed for different levels of education, and how programs make these materials easier to use by teachers, giving students new and more motivating ways of learning.

Code PPUPT (Positive Perception of use of Technical Programs).

Subj. 8: …*what is good about educational programs is that they are very well prepared and technically very well developed, with a powerful theoretical framework. The teams that have written these programs are experts, and you have to make the most of all these things, as well as how you work with them.*

In reference to the competences in ICT the students of teacher training courses should develop, some of the arguments presented refer to the need to promote the cross-curricular training of students in ITC. This is one of the fundamental debates in the teaching of this type of content, the need for a single discipline versus the need to introduce this type of content into all subjects and courses. The argument presented by subject 7 expresses the need the convert ICT into cross-curricular content.

Code PTAF (Promote ICT in all University courses).

Subj. 7: …*We should start by making ICT content a necessary part of all subjects.*

However, it is necessary to differentiate between the training given to students as users of ICT, and that given to future teachers of contents through ICT. In terms of this second aspect, one of the arguments that arose from the discussion group was the little time devoted to training in ICT in teacher training establishments and universities.

Code PTFF (Little time devoted to training in ICT at the university).

Subject 4 made the following comments related to this question:

> Subj. 4: *I think that a course of one term in the last academic year in not enough, because students need a much more solid grounding in new technologies, given that we are seeking not simply to motivate them, but also to train them so that in turn they can take this knowledge to a school and bring about change in the school.*
> This subject later states, *..if we want to train experts for schools, one term of training is insufficient.*

Subject 5 provides another of the meaning units which make up this meaning code.

> Subj. 5: *One term is officially 15 weeks, which is such a short time that it is difficult to train a person in all the possible resources; all you can do is provide a basis for more training later. This problem will lead us to revise the study plans.*

Subject 8 also states the need to allocate more credits to the training programs in ICT.

The participants consider that the training given to future teachers is sufficiently intense to awaken in them the need to receive further training. Subject 1 expresses this idea.

Code CSA (Sufficient ICT contents in subjects):

> Subj. 1: …*I think that more could be taught, because we are taught superficially, the educational value, educational programs, video… that sort of thing, but it's what he (subject 5) has said, we need to know whether we can teach children to read and write with a computer, without using a game. I think that the course we have at university opens a window on to this knowledge, and it is later in practice when we learn to do these things.*

As well as this perception of training in ICT though a course which introduces students to the world if ICT as means of teaching, there is the need to train students to be users of ICT in their own learning.

Code CUP (Positive Contents in the Use of Platforms).

This can be seen in the comment made by subject 8:

> Subj. 8: …*we mustn't forget the double channel, students don't learn computing through subjects which they have to study, but by being users of a virtual platform…this generates associated learning, which isn't just a subject, but all they learn in the platform becomes ICT learning.*

However, some opinions are expressed about continued and further training for future teachers (Code DAN – Doubts about Matching Competencies to Needs)

and about the possibility to obtain a sound theoretical basis which can later be expanded on with teaching practice in schools.

Code TAP – Competence in ICT is acquired through practice)

> Subj. 8: *More training is required for students...when you get into the classroom you really learn, all the theory you learn at here (at university) gives you an idea, but where you really learn is in day-to-day teaching, working with colleagues, in teamwork workshops, that's where the teacher learns solid content.*

One of the arguments that suggest most debate, and therefore most meaning units, referred to code PTFH (Promote ICT along with Human Factors). The need to situate ICT in the man-machine dichotomy is one of the most important debates in the world of new technologies applied to education. Different arguments emphasize the need to understand the use of ITC in the process of human communication. The following are various examples of these comments.

Code PTFH (Promote ICT along with Human Factors)

> Subj. 6. *The teaching and learning process has a great deal of human contact, which must not be removed, but we must see how both mix together; although we cannot ignore computers, we can never forget the human factor in teaching.*

> Subj. 7: *I'd noted down a phrase related to this point: 'you don't talk to the person next to you and you're talking to people 12,000 km away. All day'.*

> Subj. 8: *We mustn't think of teaching with a computer exclusively, it is a complement to traditional teaching.*

> Subj. 5: *One thing is a virtual platform, and another the ecosystem in the classroom, where there is direct contact.*

Code PCCC (Cultural Problems dealing with Change)

> Subj. 7: *I don't think we can go to extremes…not only ICT, not only books. We have to have a compromise, fifty-fifty. We can't ignore new technologies, I do all my banking via internet, shopping via internet…it's a question of practice, like with anything.*

Among the difficulties that all the professionals observe and express in the group are the problems arising from the scarcity of resources in schools. This can be seen in comments made by subjects 4 and 6.

> Subj. 4: *There is a lack of curricular material adapted to ICT in all schools.*

Subj. 3: *Also, there are resources which are old fashioned because they're not updated. the problem with computers is that they become old fashioned.*

Along with this lack of equipment, the participants observe the difficulties arising from the few existing programs which promote integration into the curriculum. Some of the comments suggest that the participants consider that teachers feel isolated and there are no programs which help them to introduce ITC, although they are offered unconnected courses which they find difficult to integrate into their day-to-day teaching. These statements, which fall into the catalogue Schools and other learning centers, can be observed in comments coded as APITC.

Code APITC (Support for Programs integrating ICT in the curriculum)

Subj.3: *Courses are needed so that when a teacher goes to a school he/she can implement, design and then develop a course plan which includes video, webquests,… and see how this is introduced in the course plan, how this person can introduce ICT in teaching their contents. This is didactic use of ICT.*

Subj. 5: *Teachers know about using ICT but they don't use it because they tend always towards traditional teaching, because there is no collaborative structure to construct a project which says, 'how are we going to introduce ICT in the subjects we are going to teach, in mathematics, Spanish, geography…all gathered in one teaching project.*

Subj. 3: …*the need for training programs in teacher training centers dealing with teaching plans which include ICT….I remember that I did a course to learn how to use a camera, and then in class I didn't use the camera at all.*

Subject 5 also refers to the programs run by teaching authorities to promote this.

Code APFC (Support for Training Programs in ICT in the school)

Subj. 5 *The teaching authorities show interest in training in two specific areas; one is bilingualism and the other is ICT. Whether or not the school is an ICT center, the authorities offer anything you ask them for.*

However, the fear and apprehension that teachers feel towards ICT is still one of the greatest impediments to the inclusion of ICT in schools.

Code APM (Help teachers to overcome fear of ICT)

Subj. 7: *You have to get over your fear, make mistakes, lose files and information, whatever…what's important is to overcome your fear.*

Conclusions

Once more, the difficulties faced in the inclusion of ICT in schools lead those involved in training new teachers to consider the need for in-depth changes in initial teacher training.

Our current society of information and communication requires schools to revise and update its principles, and calls for a rethinking of the initial training of future teachers.

The university, as the principal center for the training of future teachers, has to plan the competencies which these teachers will need in order to carry out their work in the classroom. All the factors which play a role in this field should be involved in some way in the debate about teacher training in this area. Some of the general conclusions drawn from their comments refer to this reform, to the impetus which has to come from the teaching authorities, and to the need to demand better training, which in turn will promote the use of ICT.

> Subj. 6 *School should form part of life. New technologies are today in all walks of life and the schools should not forget this.*

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Video-based discourse and conversation analysis in cultural developmental psychology: mother-infant interactions in Kikaikelaki/Cameroon and Münster/Germany

Carolin Demuth

Abstract

The present paper aims at exemplifying how discourse and conversation analysis of videotaped mother-infant interactions can be fruitfully applied in developmental psychology research. Special emphasis is given to cultural orientations that become evident in the organization of those interactions. For this purpose, it compares mother-infant interactions among a farming community of Nso in the Western Grassfields of Cameroon and a North German middle class urban community. The focus of the paper lies on methodological questions rather than on presenting the overall results of the study. It will therefore use empirical findings for exemplification purposes of the methodological procedures.

Introduction

In recent years there has been an increasing call within the field of developmental psychology to study child development in terms of children's mundane activities (Greene & Hogan, 2005; Mey, 2005). This is related to the recognition that child development is intrinsically involved with the infant's participation with others in culturally organized activities. The task of developmental research therefore must be to examine the relations between people, culture, and community based on sociocultural practices (Keller, 2007; Rogoff, 2003). Discursive practices take a special role in every day activities with children in that it serves to regulate the child's behavior and in so doing is the primary tool to mediate cultural meaning (Schieffelin & Ochs, 1998). Cultural notions of self and modes of interpreting social reality are inscribed in everyday caregiver discourse, making it possible to discern and investigate the relationship between everyday discursive practices and broader cultural models (Keating & Egbert, 2004; Ochs & Schieffelin, 1984; Schieffelin & Ochs, 1986). As Forrester states: The desire of any parent for his/her child to be a self expresses itself through culturally specific discourses: language as social action presupposed on the beliefs, narratives and everyday understandings of what is appropriate in context (1999, p. 42). Through repeated exposure to these 'frames' and ways in which the infant is positioned in the interaction, infants gradually learn

and integrate intersubjective experience about themselves, the parent, their interrelatedness as well as about the social environment and the role they play in this environment. That is, the infant acquires a specific consciousness of self and of self in relation to others in the society. As novices they will readily internalize the concrete experiences they make as the given norm about 'the world' (Papoušek, 2007, p. 258/259). Infant care-givers hence function as mediators of the outside world, dragging elements of the larger social world into the inter-subjective sphere and thus emphasizing meaningful aspects of the world that exists beyond the interacting dyad (Gratier, 1999-2000, p. 97).

The present study investigates *how* cultural orientations are discursively achieved in mother-infant interactions by a moment-to-moment development. The aim is to lay open the *process* of cultural transmission through communication; that is, to investigate *how* and *what kind of* 'contracts' (of what is acceptable and permissible, or even desirable) are tacitly negotiated (Hundeide, 1993) between mother and infant. This approach is based on an understanding that (cultural) meaning *develops* in the course of the interaction in a process of negotiating intersubjectivity. According to this view, the meaning of an utterance is not a straightforward matter of external reference but depends on how an utterance relates to previous utterances and what is accomplished by it (Wetherell & Potter, 1988). Language is considered not primarily as referential but as *constitutive*, i.e. the focus is on the action that is performed through talk-in-interaction.

Such a practice approach to the study of discourse requires methodological procedures that are able to investigate how the co-construction of social reality in interaction is accomplished (e.g., Antaki, Billig, Edwards, & Potter, 2003; Potter, 2007). Since what is being talked about only gradually develops in the course of the interaction, methodological procedures of analysis must be *reconstructive* and address the subtle features of talk on a turn-by-turn basis and hence go beyond the mere content of what has been said. Conversation Analysis and Discourse Analysis offer such procedures and as I will try to illustrate can be fruitfully combined and applied to the study of mother-infant interactions. Applying these procedures to video-analysis is particularly fruitful hence it allows to study other modalities of conversation. This is especially important when studying interactions with pre-verbal infants since at this developmental stage infants' communication consists to a larger extend of nonverbal behavior.

Methodological background

Ethnomethodology and Conversation Analysis

Ethnomethodology (Garfinkel, 1967) attempts to understand 'folk' (*ethno*) methods (*methodology*) for organizing the world. It views the social world as actively accomplished and mediated through actual ongoing conversational practices by means of

a continuous process of intersubjective adjustment. Garfinkel, the founder of ethnomethodology, drew upon Schütz's (1962) view of intersubjectivity. According to this view, people draw on their biographical, historical and hence socio-cultural experience in order to give meaning to social reality. Communication therefore does not happen accidentally without any order but follows specific formal rules that are, however, not necessarily reflectively accessible to the speaker himself. Interlocutors follow tacit cultural rules as they construct the flow of interaction.

The major methodological procedure developed in this theoretical tradition is *Conversation Analysis* (Sacks, 1992; Sacks, Schegloff, & Jefferson, 1974) (henceforth, CA). It attempts to describe people's methods for producing orderly social interaction and how participants reflect on and interpret other persons' behavior. It hereby follows three fundamental assumptions (Heritage, 1984, p. 241-4):

1. *The structural organization of talk*. Talk exhibits stable, organized patterns, demonstrably oriented to by the participants (p. 241). CA relates these patterns not to the psychological (personality) features of a person but to implicit cultural rules.
2. *Sequential organization*. A speaker's action is context-shaped in that its contribution to an on-going sequence of actions cannot adequately be understood except by reference to the context – including, especially, the immediately preceding configuration of actions – in which it participates (p. 242).
3. *The empirical grounding of analysis*. The first two properties need to be identified in precise microanalysis of detailed transcripts, including features like pauses and emphasis. The aim is to identify recurring sequential patterns of conversational practices which elucidate the organization of the social world.

CA arguments that each sequence within a conversation ties up with the previous sequence. From the way a conversation develops, one can therefore derive the interpretative framework or orientation of the participants. The intricacies of the interactions only become clear when looking analytically at how an interaction dynamically and gradually unfolds. This has certain implications for the approach to analysis of talk: analysis proceeds sequentially, asking what is accomplished through talk rather than counting how often a certain word or category of word is used. The researcher tries to reconstruct the participants' orientations by turn-by-turn analysis. This implies looking for particular outcomes in the talk and working backwards to trace the trajectory through which a particular outcome was produced. Analysis is concerned with fundamental mechanisms of conversation such as *turn-taking*, *repair*, and the use of *adjacency pairs* (e.g., Silverman, 2001):

Turn-taking. The focus is on how a turn relates to a previous and succeeding turn and what it accomplishes (e.g., an invitation, a question, an answer). Where turn-taking errors and violations occur, '*repair mechanisms*' will be used, e.g. by re-

peating a question if the other person fails to answer. Length of pauses, as well as glances or gestures are treated as indicators that people pass the floor onto another person.

Adjacency pairs. adjacency pairs are utterances that consist of a first pair part that makes the production of the second pair part relevant and expectable, e.g., the exchange of a greeting, question-answer, invitation-acceptance/refusal, request-granting/declining. The first pair part indicates that it is the other person's turn. "When speakers produce the first pair part of an adjacency pair, they create an interpretative frame within which what happens next is bound to be not only an 'answer' or 'second move' but also a display of how the recipient has interpreted the first pair part. Adjacency pairs are thus important mechanisms for establishing intersubjectivity, that is, mutual understanding and coordination around a common activity" (Duranti, 1997, p. 255).

CA also draws on other general features of talk such as speech acts, back-channelling, tag-questions, and footing (cf. Nofsinger, 1991 for an overview), as well as nonverbal communication. By analyzing these discursive features, CA aims at inferring how speakers take on certain roles or identities through their talk and hence produce social order.

Some restrictions of classic CA call into question its applicability to psychological research. These concerns do, however, dissolve if we consider the following points.

1. Data is restricted to everyday interactions while in psychology experimental designs are most common. While this certainly applies to mainstream psychology, cultural developmental psychology explicitly aims at studying child development in natural every day interactions as outlined above.
2. CA is concerned with social interaction, not with inner-psychic processes. From a cultural psychology perspective, the psychological functioning can not be separated from social interactions as I have outlined above. Child development occurs at the interface between the individual and the socio-cultural environment. Such a dialogical understanding of the self implies that we need to study social interaction to make valid claims about psychological functioning.
3. Classic CA considers context only insofar as it is produced within the interaction. There is, however, a growing consensus amongst CA researchers that the larger cultural context needs to be considered for appropriately interpreting conversational data (e.g., Moerman, 1988). Linguistic anthropologists have for instance cautioned against applying the rules of the turn-taking system unreflectively to other cultural contexts: for example, appropriate length of silence between turn transitions varies across cultures (Keating & Egbert, 2004), and age and status diffe-

rences can affect the rights to take turns in a conversation in some societies. These are important insights into the broader cultural context that need to be considered when conducting CA studies in non-Western cultural groups.

Discursive psychology and discourse analysis

The discursive psychology (Edwards & Potter, 1992; Potter, 2003, 2007; Potter & Wetherell, 1987) approach has been developed in British social psychology starting with the methodological devices of conversation analysis and based on the epistemological premises of post-structural social constructionism (e.g., Gergen, 1985). It treats talk as much more than the expression of views, thoughts and opinions and focuses on the action orientation and constitutive function of language. Analysis of language, then, is analysis of what people *do*. It explores how a certain version of social reality is constructed through the use of specific rhetoric features. It investigates how people use the available discourses in a society in creating and negotiating representations of the world and how identities are constructed in discourse, for instance, how issues of stake and accountability, blame and responsibility are socially constructed through discourse. Individuals are considered to be both producers and products of discourse in specific contexts of interaction.

The methodological approach derived from these premises is *discourse analysis* (henceforth, DA). It tries to identify the functions or activities of talk and to explore how they are performed. The notion of discourse is conceived not only as verbal action but also encompasses different symbolic actions such as gesture, mimic, ways of moving. Like in CA, this requires a very detailed transcript that goes beyond the mere content of what was being said. DA examines how speakers are using shared patterns of understanding or interpretation, i.e. discursive resources that speakers may share. Potter and Wetherell (1987; Potter, 1996) refer to this as shared '*interpretative repertoires*': "Interpretative repertoires are systematically related sets of terms that are often used with stylistic and grammatical coherence and often organized around one or more central metaphors" (Potter, 1996 p. 131). The aim of the analysis then is to collect "a corpus of examples of when and how people use certain expressions and examine what kinds of work such expressions perform, what kind of contingencies they handle, what kinds of contrasts they occur in, and so on" (Antaki et al., 2003).

Doing DA has often been compared to a 'craft skill' that needs to be learned by doing and as requiring the development of an 'analytic mentality'. This makes it hard to formally describe the analytic procedure. In order to carry out discourse analysis, a basic practical understanding of conversation analysis is, however, a prerequisite for producing high class DA work. Analog to the process that anthropologists often describe as 'rendering the familiar strange', Gill (1996) suggests as a starting point the "suspension of belief in what is normally taken for granted in language use" (p. 144; see also Potter & Wetherell, 1987). The focus of analysis lies on the ways in which accounts are constructed and on the functions that they

perform. The way the analysis of discourse is approached depends, of course also upon the concrete research question. Some authors have, however, suggested the following broad guidelines (Coyle, 2000; Gill, 1996; Potter, 2007; Potter & Wetherell, 1987) for systematic analysis:

1. Starting by *reading and re-reading* the transcripts in order to get familiar with and immerse oneself in the data. This stage of the work often starts during transcription.
2. *Coding* should be done as inclusively as possible. The understanding what should be coded, i.e. which aspects are relevant to the research question, might change/develop as the analysis proceeds.
3. Rather than reading for gist and producing a summary, the analysis is concerned with looking for *details* such as nuances, contradictions and areas of vagueness. In the fist phase, the search is for *recurrent discursive patterns* in the data, in the second phase, the focus of the analysis lies on the *functions* of particular features of the discourse, formulating tentative hypotheses and checking these against the data. Analysis also examines what subject positions are afforded by using specific rhetoric devices. During the formulation of interpretations, the researcher is encouraged to stay open to alternative readings of the text and to also be sensitive to what is *not* said.
4. Making *analytic notes* and formulating tentative hypotheses about emerging patterns that need to be tested against the data.

Procedure

Participants

20 mother-infant pairs from a middle class community in Münster, and 20 mother-infant pairs from Nso' farmer communities in Kikaikelaki, Cameroon participated in this study. Table 2 shows the sociodemographic profile of the two groups. Since in both cultural contexts, the main caregiver for the child during early infancy can be considered to be the mother, the focus of this study was on mothers' interactions with their infants. Since this study follows an eco-cultural approach, the study follows a 'case-based' rather than a 'variable-based' design and logic (Ragin, 1987 quoted in De Vaus, 2008), i.e. it seeks to understand each group's cultural model as a coherent whole rather than to study specific variables across the two groups. The aim was not to build parallel (matching) samples but to compare two groups of distinct cultural contexts. Therefore the two groups also vary greatly, for example, with regard to their level of education.

Table 1: *Socio-demographic features of the participants*

	Münster (N =20)		*Nso* (N = 20)	
Infants				
Girls	45%		55%	
Firstborn	100%		30%	
Mothers	M	(SD)	M	(SD)
Age at birth of child	30.7	(3.7)	27.8[a]	(7.7)
Years of schooling	14.4	(3.2)	8.5[b]	(2.2)
Married/living with partner	100%		75%	
single	0%		25%	
Religious affiliation				
Christian	(unknown)		70%	
Moslem			30%	

[a] N=18, [b] N=19

Data collection

The data corpus is part of a larger video-archive collected from September 2002 to August 2003 in Kikaikelaki, and from May 1995 to June 1996 in Münster within a project on interactional regulations. The present account draws on a re-analysis of video-recoreded mother-infant interactions when infants were 3 months of age.

In Münster, mothers were recruited through birth preparation classes during the last trimester of pregnancy. Mothers were informed about the procedures and asked to sign a consent form. In the rural Nso' community, mothers were recruited by a native field researcher through prenatal clinics after contacting the local chief (the "fon") who held official positions with respect to community life. Before interested women could register, their addresses were recorded in order to contact the family head (husband, grandparent, or lineage head) who had to consent first.

Mothers were visited at home by trained native female research assistants. The procedure and aim of the study was explained to the mothers (Münster group) and families (Nso group), respectively. In order to ensure comparability as well as sufficient attentiveness by the child, the interactions were filmed when the child was awake and fed. Mothers in both samples were instructed to play with their infants and behave as they would normally do in similar every day situations. The interactions were filmed with a video camera for about 10 minutes.

In order to enhance comparability, similar settings were chosen in each group while trying to maintain a natural setting as much as possible. While it is possible that the filming situation might have provoked some 'visitor behavior' making the

mothers perform in a way that might not entirely correspond to 'natural' every day behavior, it is also true that it is not possible to lay aside one's habitus that has been acquired in the course of a life time. No person has conscious mastery of the modus operandi that integrates symbolic schemes and practices. Rather, the unfolding of one's actions "always outruns his conscious intentions" (Bourdieu, 1977, p. 79; cf. Csordas, 1993). It can further be assumed that mothers act in accordance with their intuitive parenting system (Papoušek & Papoušek, 1987) independently of situational factors. Even more, it can be assumed that the mothers will have tried to perform as what they consider to be a 'good mother'. Hence, it may also be assumed that mothers will produce speech and comportment that they associate with good mothering according to the prevalent cultural model.

Videotapes were digitized and stored electronically. The transcription procedure followed closely the conventions now common in much conversation and discourse analysis, developed by Jefferson (1984). Some additional notations were added to include specific features of infant communication and to mark code-switching to another language (see appendix for a detailed illustration). The Nso' interactions were directly translated from Lamnso into English by a native Lamnso speaker who was fluent in English and had some knowledge of socio-linguistics as well as an intimate knowledge of the Nso culture. Since gaze, facial expressions, gesture, posture, body movement, and spatial distance as well as the arrangement of participants and objects in space are important semiotic codes in conversation and influence how participants organize and make sense of their activities (e.g., Keating & Egbert, 2004), nonverbal aspects were also included in the analysis.

Data analysis

The data corpus consisted of a total of 40 (20 Münster, 20 Nso) video recordings of approx. 10-minute mother-infant play interactions and the respective transcripts. The analytical focus lies on instances where the content and the action of the talk highlights or points towards cultural discourse genres, metaphors, models and associated ideas about the child, and on reconstructing how social reality is constructed through discourse. Each transcript was analyzed for the following broad research questions:

1. How are the dimensions autonomy and interpersonal distance negotiated in the interactions?
2. What subject positions are given or 'afforded' (Harré & van Langenhove, 1999) to the child in relation to the mother and to the larger community?

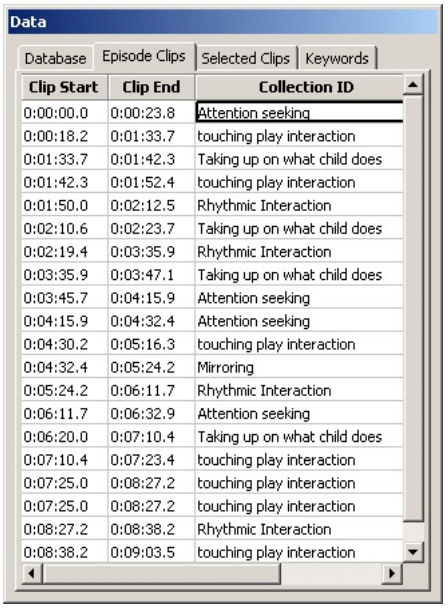
Analysis started out with a single case, and successively added further cases thus steadily expanding the data corpus. An initial step consisted of reading and re-reading the transcript and watching the respective video recording in parallel focusing on how the interaction develops on a turn-by-turn basis.

Analysis was conducted with the help of the software program Transana[1] (version 2.21). This program has been designed specifically for on-line video analysis. This system has proven useful for discourse analysis in a number of research projects. It allows to work concurrently with transcript and video. While the program does not allow for transcripts in form of a table with both verbal and nonverbal behavior in different columns next to each other, this was also not necessary since analysis can be done by a parallel presentation of the video next to the transcription and coding scheme (see illustration below). This has also the advantage that the visual and auditory information (i.e. prosody, volume etc) next to the written transcription provides a more precise picture of the communication.

Figure 1: Transcript with parallel video presentation and coding scheme for analysis in Transana

The coding functions offered by the software program serves to identify text passages ('episodes') according to topics that will then be analyzed more closely. Episodes of the same topic were grouped to 'collections' which were then systematically compared. A segmentation of a transcript into topics is illustrated in figure 2.

[1] Software designed by Chris Fassnacht and David Woods at the Wisconsin Center for Education Research, Madison, USA, available at http://www.transana.org



Clip Start	Clip End	Collection ID
0:00:00.0	0:00:23.8	Attention seeking
0:00:18.2	0:01:33.7	touching play interaction
0:01:33.7	0:01:42.3	Taking up on what child does
0:01:42.3	0:01:52.4	touching play interaction
0:01:50.0	0:02:12.5	Rhythmic Interaction
0:02:10.6	0:02:23.7	Taking up on what child does
0:02:19.4	0:03:35.9	Rhythmic Interaction
0:03:35.9	0:03:47.1	Taking up on what child does
0:03:45.7	0:04:15.9	Attention seeking
0:04:15.9	0:04:32.4	Attention seeking
0:04:30.2	0:05:16.3	touching play interaction
0:04:32.4	0:05:24.2	Mirroring
0:05:24.2	0:06:11.7	Rhythmic Interaction
0:06:11.7	0:06:32.9	Attention seeking
0:06:20.0	0:07:10.4	Taking up on what child does
0:07:10.4	0:07:23.4	touching play interaction
0:07:25.0	0:08:27.2	touching play interaction
0:07:25.0	0:08:27.2	touching play interaction
0:08:27.2	0:08:38.2	Rhythmic Interaction
0:08:38.2	0:09:03.5	touching play interaction

Figure 2: Initial broad coding of interactions

Sequences with a specific combination of codes and sub-codes were grouped again to a new collection. The following collections were derived from the data. While the code-and-retrieve function of the software supports the analysis it obviously does not substitute for fine-grained analysis and in-depth consideration of the meaning of particular utterance. It is still the researchers task to pay close attention for instance to a person's use of linguistic and rhetoric devices (Silverman, 2005, p. 197). The actual analysis consisted of finding reoccurring patterns by reconstructing the logic of an interaction in the sense of '*verstehen*'. This can obviously not be done by a software program. The software allows, however, for systematic sorting, retrieving and comparing.

All sequences that belong to one specific topic were then played one after the other along with the written transcripts. The respective transcript excerpts and keywords of a collection were grouped in a 'collection report' which allowed for further systematic comparison and analysis of reoccurring patterns:

Comparative analysis and development of a typology

Comparative analysis aimed at identifying commonalities and differences in the way a certain topic was treated in order to ultimately develop a typology (e.g., Kelle &

Kluge, 1999). It also included the method of minimum and maximum comparison (e.g., Strauss & Corbin, 1990). To compare sequences, an external point of reference was first identified that may serve as '*tertium comparationis*' (Bohnsack, 2001). That is, rather than comparing two cases directly to each other, the researcher asks what is the topic that both cases have in common and that might be treated either in a similar or different way. This procedures aims at minimizing the bias to take one case or one pattern as normative (most likely the one the researcher is familiar with) and the other as 'deviant'. For example, a *minimum* comparison consisted of comparing sequences in which both, Nso and Münster mothers showed similarities, e.g. in imitating their infant, in taking up what the child was doing, in using vocalization, and to look for differences in these similarities. Another minimum comparison consisted in comparing sequences in which both Nso and Münster mothers actively structured the interaction and to examine where there were differences. A *maximum* comparison consisted for example in comparing sequences that seemed extremely differently structured, i.e. Nso mothers seemed to rhythmically and synchronously structure the interactions, while the Münster mothers seemed to dyadically structure the interaction. Maximum comparison consisted in looking for possible similarities within these differences.

Results

A first topic that was found across several interactions was how mothers dealt with the child's fussiness. Instances in which a topic was treated were compared within as well as across interactions and analyzed for similarities and differences. The following example serves as an illustration of this analytical step. While working with a software program that allowed for parallel display of video material and transcript this is obviously not possibly when presenting excerpts on paper. The findings are therefore presented in a format suggested by Ochs (1979):

Excerpt 1: Nso09_t12 (127-139)

127	> M	((CRY))		(())
128		((CRY))		Terrible!
129		((CRY))	> B, moves leaf	Take! Take! Eat! Eat!
130		((CRY))	gives B a stern look, shakes head	No! No! No! Don't cry again! We don't cry in M&Ch.
131		((CRY))		Terrible:::! Why don't cry in M&Ch!
132		((CRY))	waves with hand	((angrily)) Stop-Eat!
133			shakes B	Who has told you that they cry here?
134		((.))	smiles at B	
135				They don't cry here.
136		((.))	smiles at B	
137				They only laugh.
138		((.))		
139				They don't cry here.

In this passage, the mother reacts to B's crying with shaming messages (line 128, line 131). She tries to distract the child by presenting an object. She prompts the child to do something else (line 129) followed by a repeated negative imperative and commanding the child to stop crying (line 130). She adds a moral message, which she repeats (line 130-131) indicating that the child's behavior is not appropriate in this area. She adds another command to immediately stop crying (line 132). She is asking a rhetoric question (line 133) that indicates 'you don't have any reason to cry, so don't.' She also shakes him physically. The interaction documents an orientation of the mother towards obedience and compliance. After the baby stops crying (line 134), the mother smiles at B and the tone of her voice becomes softer as she repeats the moral message that crying is not common in this area (line 135-139). By this she takes back some of the initial severity of her reaction and re-establishes social harmony in her interaction with the child.

Excerpt 2: Nso10_t12 (1-11)
B is sitting on mother's lap, the mother has just started to sing to the child as B starts crying:

	BABY NONVERBAL	BABY VOCAL	MOTHER NONVERBAL	MOTHER VERBAL
1			> B	Mama Happiness?
2		(pants)		(2)
3			sways B from left to right	Be dancing. *March on to victory*
4		(CR)	looks briefly to camera, then to B, shakes B	a::y eme:y eme::y! (exclamation of surprise and disappointment)
5		(CR)	nodding each time with a stern look	(angrily shouting) A BAD CHILD! A BAD CHILD! A BAD CHILD! A BAD CHILD! A BAD CHILD!
6		(stops)		(3)
7				A BAD CHILD!
8		(GR)		┌He::::::, a puppy? What is it? Are you a puppy?
9		(voc)		
10				O::::::h, you are not a puppy, have you heard?
11			kisses B	You are not.

The interaction starts by the mother addressing the child as "Mama happiness" and prompting her to dance while she starts singing (line 1-2). By this the mother is actively structuring what the child is doing and indicates that happiness is a relevant topic to her. When the child starts crying, the mother reacts with looking at the camera and uttering an expression of surprise and disappointment (line 4) which may be interpreted as sign of embarrassment and a sort of hesitation over how to react to her child's behavior. Part of the uneasiness can be explained with the performative character of being filmed and the assumption that the mother wants to display what is considered to be a nice mother-infant interaction according to her cultural belief. This points to a cultural ideal of a well-behaving and obedient child that does not display negative affect. She reacts with a direct and unmitigated shaming message, stressed by quintuple repetition as well as angry voice and mimic (line 5-7) and a rhetorical question (line 8-10) implicating that the child is not a puppy (puppies cry but not infants) and therefore there is no reason for her to cry. After the child has calmed down, the voice of the mother softens and she relativizes her previous utterances (line 11) by stating "you are not" and kissing the child. By this she ratifies the child's obedient behavior.

Comparison of these two sequences reveals that the pattern of the first occurrence is found again in the second sequence. A first tentative hypothesis that was then formulated was that the cultural pattern of Nso mothers' reaction to B's fussiness is that the mother does not tolerate negative affect and expect immediate compliance. However, once the child complies, the mother re-establishes harmony. This hypothesis was then tested against further occurrences of the same topic within and across mother-infant dyads in both groups, always looking both for similarities and variations.

Example 02: Münster06_t12

The next excerpt shows a typical example from the Münster group. Here the child started whining right from the beginning of the filmed interaction:

	BABY NONVERBAL	BABY VOCAL	MOTHER NONVERBAL	MOTHER VERBAL
1	moves arms and stretches	((WN))		(Are you pooping?) No:, not yet?
2				(1)
3		((WN))		Hm?
4		((WN))	lifts B slightly up by supporting his back	
5		((stops))		Yeah! Is it better like this? (1)
6		((WN))		Hm?
7		((WN))		(1)
8		((WN, voc))		No:?
9				Awoo:h-woo:h? ((imitates B))
10		((WN))		Well, something is not quite right yet. We'll make it a bit steeper, my friend.
11			moves B further up	(1)
12		((stops))		So:. ↑H:m?
13		((WN))		Is it better like this?
14			shakes head	↑No: (.)
15		((CR))		not yet?
16		((CR))	lifts B up	Or is it (.)

17	((stops)) puts B on laps	better like this? (1)	
18		↑?H:m? (1)	
19	looks around	↑Yeah? (2)	
20		↑?That is better, I:: see!	
21		Why then? (.) H:m?	

The mother starts with an interpretation of B's intention (pooping) which she then puts into question again (line 1). The pause and following tag question (hm?) give the next turn to B which indicates that she expects some kind of feedback from B to confirm or reject her interpretation. She then goes on to change B's position, i.e. similar to the first example, she adjusts the situation to the child, and asks him whether this is now better like this (line 5). Again, the mother leaves a pause and poses a tag question. When B starts to whine again, she revises her interpretation (line 8-10). She mirrors B's vocalization back in a prosodic form of a question with a rising voice towards the end (line 9) and thus treats B's vocalization (line 8) as an intended response. Again, M adapts the situation to B by changing B's position (line 11). Note that the mother uses the cooperative expression of proposition "we" (line 10) like the mother in the first example. In lines 12-19 she tries several positions each time asking B for feedback whether she got it right until B finally stops whining. Her final statement "I see" (line 20) indicates that she has now "understood" what the child wanted.

Cross-tabulations provided a first overview and were used as heuristic means to develop a typology. In the example shown below, the topic that was compared was 'mother's reaction to B's "fussiness":

Tertium comparationis: Reaction to B's fussiness	Münster															Nso								
Participant ID	1	2	5	6	7	8	10	12	13	14	15	16	17	18	19	20	2	4	6	9	10	12	13	17	22
Cooperatively finding out what is wrong	x	x	x	x	x					x	x		x	x					x						
Time schedule orientation and self regulation		x				x				x		x													
Distracting and soothing		x					x	x	x	x				x		x									
„allowing"/teasing		x						x							x										
Requesting obedience																	x	x	x	x	x	x	x		x
Commenting to others																			x				x	x	x
Distracting																	x	x	x	x		x	x		
Asking about reason																			x						

Illustration 3: Example of cross-tabulations as tool for systematic comparison

Furthermore, throughout the analysis, any ideas on emerging saliencies and as well patterns were written down in memos and checked against the remaining data again. By progressively formulating hypotheses about emerging salient patterns and checking them against the remaining data corpus in a recursive process, gradually a typology for the two groups was developed. Space does not allow for a presentation of all findings (the reader is referred to Demuth, 2008 for a documentation of the entire study). For illustration purposes I have limited the findings to examples of mother's reactions to the infant's crying or whining. These findings are part of a larger pattern amongst the two groups that can be described in the following terms:

Co-operative vs. normative-hierarchical discourse

The Münster mothers in this study use various strategies to facilitate and guide the ultimate realization of compliance: predominantly, they enter into negotiation with the infant treating him/her as a quasi-equal partner. Moreover, they accomplish a blending of solidarity and social control via certain politeness strategies, such as indirectness (e.g. cooperative pronoun use "we") and explaining, thus managing and addressing nonimposition and positive support simultaneously (Brown & Levinson, 1987; Sirota, 2006). Reference is made to the needs and personal preferences of the mother, conveying the message that mutual interests need to be respected. Indirect control is to a lesser extend also exerted by use of mitigating devices and irony. Notably, this communication style emphasizes diplomacy, reasoning, and interpersonal maneuvering as strategies that work toward securing an alignment of relational perspectives with a minimum of direct, overt confrontation (Sirota, 2006, p. 502). To a lesser degree, they draw on overtly directive strategies. Directive strategies comprise expressing non-acceptance of the child's behavior and making clear that the decision is not negotiable. This pattern is found in conjunction with a strict orientation towards a feeding schedule. Mothers who draw on this last pattern communicate to the child that there is no reason to cry by providing a

rationale or by using rhetoric questions. Overall, the Münster mothers seemed to not see a big problem in letting B cry for a while. Moreover, the findings suggest that breastfeeding is seen by these mothers to serve primarily physical nourishment, and the infant is encouraged to emotionally regulate himself by sucking on his own or the mother's finger.

The Nso mothers, on the other hand, use very directive discursive strategies to facilitate immediate compliance, such as commands and shaming messages as well as rhetoric questions, leaving little or no autonomy to the child. They communicate to the child that there is no reason to cry by using rhetoric questions. They do not provide any further explanation after rebuking the child. Reference is made to social norms, conveying the message that crying is socially unaccepted and that social rules need to be respected without discussion. They achieve a balance between social control and emotional relatedness and warmth, however, by conveying relational closeness through signs of endearment once the child has complied or in case of health related problems. The findings also suggest that breastfeeding may not only to serve to physically nourish the child but also to sooth and emotionally regulate the child. The strong orientation towards obedience and respect also becomes evident in situations other than crying.

Conclusion

The aim of this paper was to illustrate that conversation and discourse analysis are particularly fruitful approaches to study cultural ideas of good childcare in natural interactions with children. For this purpose, it draws on a study that investigated mother-infant interactions in two distinct cultural contexts. Starting from one initial pattern that emerged in the analysis, I have tried to illustrate how conversation and discourse analytical procedures can help us explicate how cultural frames of orientation are discursively achieved in these interactions. It can be assumed that these early experiences will have a crucial impact on the developing self. I hope to have been able to show that Conversation and Discourse Analysis, although originally developed in other research fields, are particularly suitable for studies in developmental psychology.

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Appendix: Transcription Notation

The transcription symbols used in this study are an attempt to capture the sound of the talk as it was originally spoken as close as possible. The symbols mainly derive from those developed by Jefferson (1984) as well as those suggested by Ochs (1979, pp 43-72).

Symbol:	Explanation:
↑↓	vertical arrows precede marked pitch movement
Underlining	signals vocal emphasis
CAPITALS	mark speech that is obviously louder than surrounding speech
Italics	marks singing
Bold	marks utterances that were English in the original
I know	'degree' signs enclose obviously quieter speech (i.e., hearably produced-as quieter, not just someone distant).
° I know °	double degree signs signifiy very quiet whispering
(1)	pauses in seconds
(.)	a micropause, hearable but too short to measure.
she wa::nted	colons show degrees of elongation of the prior sound; the more colons, the more elongation.
hhh	aspiration (out-breaths); proportionally as for colons.
.hhh	inspiration (in-breaths); proportionally as for colons.
bu-u-	hyphens mark staccato speech
Darl// darling	marks cut off of the preceding word
>he said<	inward arrows show faster speech
<he said>	outward arrows show slower speech
>>he said<<, <<he said>>	double arrows signify very fast/very slow speech
solid=we had	'equals' signs mark the immediate 'latching' of successive talk with no interval.
heh heh	voiced laughter. Can have other symbols added, such as underlinings, pitch movement, extra aspiration, etc.
sto@p it	laughter within speech is signalled by @.
((text))	additional comments from the transcriber, e.g. context or intonation like ((cough)), ((sniff)) etc.
((CR))	cry
((WH))	whimper
((WN))	whine
((GR))	grunt
Voc	vocalization
(text)	unclear reading
>	looks into direction of
B	baby
M	mother

Qualitative analysis of a joint Master Degree e-learning implementation

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Abstract

To prepare professionals to intervene in the educational treatment of diversity, the National University of Distance Education -UNED- (in Madrid, Spain), together with the University of Latvia (in Riga, Latvia), Karla (in Prague, the Czech Republic) and Ludwigsburg Pedagogical University (in Reutlingen, Germany) have begun to offer an International "Joint Master Degree in the Educational Treatment of Diversity". The UNED started this Master Program in 2007-08. The University of Latvia began in 2008-09.

In addition to the previous assessment of the design of the Master Program carried out by the National Agency of Accreditation of all the concerned countries (in Spain the ANECA), the UNED has evaluated the performance of the course at the end of its first academic year. In all points of the questionnaire (prepared, implemented and processed by the UNED Vice-Chancellorship of Quality), this Master Course obtained marks above the arithmetic mean of all the other Master Degrees offered by the same university.

An internal evaluation carried out by the internal staff coordinating this Master Program was implemented with participation of the academic team, administrative staff and students. This internal evaluation was mainly conceived as a qualitative approach and the following techniques were used:

- Interviews with teaching staff, students and administrative staff
- Discussion groups with students (coordinated by tutors)

Face-to-face interviews with teaching staff, students and administrative staff were conducted, and student discussion groups were held using the virtual platform of the Master Program, in order to obtain information regarding the criteria that affected the performance and results of the Master Course.

Introduction

The Joint Master Degree in "Educational Treatment of Diversity" was designed with the intervention of four Universities from European countries (the Czech Re-

public, Germany, Latvia, and Spain) with the purpose of offering a Postgraduate Degree to students, educators and professionals who are working or who will work with people having any particular diversity derived from their own individual needs or from their personal circumstances in a specific situation or in a specific depriving context.

The universities involved signed the corresponding inter-institutional agreements in accordance with the Recommendation of European Ministers responsible for Higher Education, who signed the Communiqué on "The European Higher Education Area, Achieving the Goals" at the end of the meeting held in Bergen on May 19th 2005. In this document, the Ministers "invite all national authorities and other involved people to acknowledge the joint degrees issued by two or more countries of the European Higher Education Area (Communiqué of Bergen, Norway, 2005, document, II, paragraph 8). The main aims of this Master course are the following:

- In the *academic* field: to offer students the possibility of obtaining a Postgraduate University Degree
- In the *professional* arena: to prepare educators and other professionals to work on the different aspects of the educational treatment of diversity in its different manifestations and situations
- In the *research* domain: to promote theoretical and practical knowledge and competence with regard to research, in general, and applied to the educational treatment of diversity.

As the university which acted as promoter of this project, the "National University of Distance Education" (Universidad Nacional de Educación a Distancia -UNED-) is -by law- a distance university, the Course is imparted by this institution with this modality. The other institutions involved may teach the course in accordance with their own conditions and regulations: face to face, solely distance or by a combination of the two. The distance modality used by UNED involves the use of specific technology based on the Internet, virtual platforms, video conferences and audiovisual materials. These materials are used, not only as a means for teaching and learning, but also as instruments to evaluate the course design, performance and results. This article presents information about the evaluation implemented by using qualitative analysis of the Course and the use of the following strategies:

- Interviews with academic and administrative staff
- Discussion groups with students
- Students' working teams
- Students' discussion groups

Information obtained from interviews with academic and administrative staff

Interviews with academic and administrative staff were carried out in different meetings held to plan and organize the implementation of the Master course. A summary of some of the opinions expressed by them is included next.

Request for tutors

One of the pillars of the day-to-day running of the UNED is the work done by tutors. They are teaching staff who periodically receive students in locations (usually the UNED Associated or Support Centers) close to students' homes. As this Master course is implemented by this university by means of distance education, the faculty board agreed to the recommendation of academic and administrative staff that tutors should be contracted.

The present university policy is that tutors are only contemplated as a support for students in undergraduate courses. Nevertheless, as this Master program is being implemented as a distance learning course, a Tutor for Assistance in Telematic Network ("Tutor de Asistencia en Red" –TAR-) was appointed by the university. She has been in charge of helping the faculty board, staff and students to use the "ALF" virtual platform assigned by the University to the Master course.

Acknowledgment and compensation for teaching staff's dedication

The teaching staff participating in the Master course is formed by members of different Universities. During the first version of its implementation by the UNED, professors from partner universities were included as members of the teaching staff. Nevertheless, due to the fact that the course was, initially, imparted only in the Spanish language, they did not actively participate (although some of them intervened in some of the video-classes filmed for particular modules).

Teaching staff from the UNED and other Spanish universities who have actively intervened in the Master course requested acknowledgment and some compensation for the hours they spent teaching the course (particularly as this question was not initially clarified).

The answer of the UNED was that the hours the teaching staff put into the course (particularly those who were members of this university) would be considered as part of their regular teaching duties. As a consequence, the university did not contemplate the possibility of any other specific compensation. Nevertheless, UNED lecturers and those from other universities would be entitled to receive some compensation when they carried out supplementary activities (such as conferences, seminars, etc.) or to acquire necessary materials. To this end, the university assigned a small amount of money to the coordinator of the Master course as compensation for the services of the teaching staff and others or to cover expenditure on other requirements.

Resources for exchanges with partner universities

Collaboration of all four European partner universities is required for the organization and implementation of this Joint Master course. The first stage was undertaken by the Master Course Coordinator helped by some other UNED teaching staff. Subsequently, lecturers from partner universities gradually assumed responsibility for working on this project.

Due to the complexity of organizing and carrying out the project, activities of collaboration and coordination were necessary. In order to obtain the necessary funds to carry out these activities, the faculty board transmitted to the UNED authorities the need for some resources to be provided for the following purposes:

- Meetings with representatives of partner universities in different countries.
- Implementation of the "International Conference on Educational Treatment of Diversity" which has been held for seven successive years and has been used as an opportunity to define the politics and strategies of the implementation of the Master course.
- Translation of modules of the Master curriculum, which have been prepared by authors proceeding from the different universities and have been produced in Spanish (by Spanish authors), German (by German authors) and English (by authors from other countries).

The initial answer of the UNED was that there were no resources available for these needs. The only money to be allotted was – during the first year of the course – the small amount of money previously mentioned which was to be used to provide compensation for some of the staff and to buy some necessary materials.

Information obtained from discussion groups with students

Discussion groups were preceded by a number of face-to-face meetings with the students. Some of these meetings were held in the presence of teaching staff representing the partner Universities. Others were carried out in the presence of some of the UNED Master Course teachers. The atmosphere at all these meetings was totally relaxed and open to intervention from all those present. Students intervened by expressing their opinions in their own name or in the name of their fellow students.

Some of the comments, observations and proposals presented at these face-to-face meetings were subsequently discussed during the virtual discussion groups. The following is a synthesis of some of the themes presented by students:

Positive contributions of this Master course

The statements of the students (in most cases very committed and actively involved) mentioned relevant positive features of this particular Master course, among them:

- The contents of educational treatment of diversity offered by the course materials, particularly the modules, other suggested sources and audio-visual material (mainly video-classes)
- Evaluation of students' work methodology, mostly based on the students' documented and reflective contributions (sometimes individually and sometimes participating in collaborative strategies such as forums, etc.)
- Collaborative learning implemented throughout students' participation in face-to-face and distance strategies (mainly discussion groups, forums and chat sessions)
- Autonomous learning promoted by guided distance teaching and learning, with contributions of technology, documentation, teaching staff, and other students
- Students' increasing commitment to the educational treatment of diversity. By working with the contents of the Master course, participating students have been able to immerse themselves in this complex and exciting world of diversity. By reflecting on these contents and contrasting them with the practical reality of life today, and the current situation of educational institutions, the students of this Master course have increased their commitment.

Deficiencies of the virtual platform

The university set up a new virtual platform -ALF- to be used for official post-graduate courses. Apart from the problems derived from that fact that it was a new platform, students and professors (used to the one that was used previously, WEB CT) also needed to learn how to use it. Moreover, this new platform had some limitations that students commented on in their discussions. Among those mentioned were:

- It was very difficult to have *chats* with more than 10 participants. When more than this number entered into the chat room, the system became completely blocked and the virtual platform disappeared from the computer.
- Forums did not allow students to send documents of more than a certain length, which prevented them from sending some of the items of work carried out during the Master course.

Calendar of optional modules

Optional modules were offered in the second year of Master course. As we did not know, at the beginning of the second year, who and how many students had registered in each optional module, in order to facilitate professors' and students' work, the team coordinating the Master course decided to offer the modules in accordance with a sequential calendar, and to dedicate 10 days to each optional module (as opposed to the 15 days programed for each compulsory module).
But, due to the fact that students had to work on their final research project during this third term, some of them suggested the possibility of offering these optional modules in a shorter period, thus liberating time to concentrate on the research work.

Considering the students' proposals, the Master coordinating team decided to group the optional modules so that they would be completed by the fourth week of April.

Presentation and defense of the research report

According to suggestions included in the Master Course Guidelines, the research report to be completed at the end of Master Course requires that all modules and all other work (literature review, glossary of terms and practicum report) should have been passed. As a consequence, the presentation and defense of the research project was scheduled for the first week in July and in September, 2009.

Regarding these scheduled dates, some students suggested the possibility that the research work could be presented any time and without the requirement of having passed all the modules of the program.

After considering these proposals of students, and taking into account the general regulations and customary procedure of the university in similar cases (of research projects and essays at the end of courses leading to degrees), the team coordinating the Master course explained the current situation to the students and decided to maintain the requirement of having to pass all modules and other work in order to be able to present and defend the final research project.

Evaluation of modules

The students were evaluated for each module as soon as it was completed. As the Master course offered by the UNED is carried out by distance, the evaluation has to be carried out in the same way. Although the tutor responsible for each module had academic freedom regarding the chosen method of evaluation, most of them asked students to do some essays relating to the module contents and also used tests or other evaluation techniques. For those students who were not able to pass some of the modules in the normal time scale, a final examination was contemplated (together with relevant essays if requested by the tutor) to be held at the end of September.

Although most of the Master students were satisfied with the approach that every module should be evaluated on completion (and in many cases by means of specific work carried out in relation to the module content) instead of sitting examinations every semester (as has traditionally been the UNED procedure for undergraduate studies), some students suggested the possibility of the modules being evaluated in three periods, following the university's examinations for undergraduate studies (ordinary examinations in February and June; extraordinary ones in September).

Judging that the proposal of these students to examine the modules in the ordinary UNED periods did not have widespread support among the Master students, the coordinating team decided to continue with evaluations at the end of each module, with an extraordinary evaluation in the second week of September.

Practicum

One of the tasks of the students on this Master course is to complete a Practicum Report. This should be a description of practical activities carried out by them to test, in real situations, the contents covered in the Master course. The activities should refer to a particular aspect of educational treatment of diversity in a specific manifestation and context. These practical activities should be carried out for at least 100 hours. The Practicum Report should be accompanied by a certification provided by the professional in charge of the institution or initiative where the practical activities have been carried out.

A number of Master students are teachers, or work in contexts where it is possible to participate in practical activities related to the educational treatment of diversity. But others do not have this opportunity, and therefore asked for help in finding an institution, agency or initiative where they could carry out the necessary 100 hours of practical intervention.

As practical activities and the corresponding Practicum Report are not regarded in the Master course as a specific subject, the course coordinating team suggested that students should look for a personal solution for their needs; however, at the same time, they promised to help them if they were unable to find an appropriate placement, and this was done. When this was not possible, the coordinating team asked for the university's help to identify institutions that had signed a special agreement with the university to offer placements to students to gain practical experience of different types.

Information obtained from student working teams

Students who were following the module on "Research Methodology" were organized into three different teams. Each team was made up of nine students, chosen by the module tutors from the students' list, which was arranged in alphabetical

order. Each team was coordinated by one of the team members, also chosen by the module tutors, who also chose a spokesperson for each team.

The module tutors decided to organize the students into teams and choose a coordinator and a spokesperson in order to guarantee team coherence and to achieve results in a short time. As students were following this Master by distance, using e-learning, and lived in different places, the organization of the teams would have been more difficult and more time consuming if they had done it themselves. The team work was carried out by using the virtual platform of the Master course. To this end, a specific forum was opened for each team. Furthermore, team members could communicate with each other by using the electronic mail within the platform or their personal email. Each team coordinator was in charge of explaining to team members the theme to be studied and worked on, explaining the strategy to be used for collaborative working, organizing interventions in the forum, moderating debates and helping to structure members' contributions systematically.

The team's spokesperson had to work with the coordinator in order to help participants express their contributions clearly and organize their ideas. He/she also tried to structure team contributions to prepare the synthesis of the working team's opinions and the graphic representation, both of which would be presented by the team's spokesperson on behalf of the corresponding team. To this end, each team spokesperson had to participate in a virtual chat session, with the intervention of the module tutors. The time and day of the chat session was established in advance by the module tutors. The chat was held by using the virtual platform. During the chat session, which lasted for one hour, each spokesperson presented and explained his/her team's contributions and conclusions, and also commented on the data and graphic representation compiled by the team as a synthesis of its work.

The spokesperson of each team, with the team coordinator's help and support, was also in charge of giving the final shape to the contributions and of sending the tutors a written description of the team work, a synthesis of the contributions of the team members, the conclusions reached, and the graphic representation of a Pareto Analysis.

Each work team had an assigned theme to work on. Themes assigned to the work teams were the following:

- Team 1: strengths or positive aspects of the implementation of the Master course.
- Team 2: weaknesses or negative aspects of the implementation of the Master course.
- Team 3: proposals to improve the implementation of the Master course.

Forums were organized with the purpose to facilitate each team member's interaction and contribution to the assigned theme. But, as these themes were of common interest to all the students on the course, contributions were also made by other Master students who were not members of the specific team.

Each team was given two weeks to debate the assigned theme, to offer contributions, to discuss them, to compile the appropriate synthesis and to produce the graphic representation. At the end of this period, the team moderator, helped by the team spokesperson, had to propose an evaluation for each team member. They had the option of including their own evaluation. These evaluation proposals had to take into account each member's dedication, participation and contribution, and had to be sent to module tutors.

Since most of the team members were highly committed and worked enthusiastically on the assigned theme, the evaluation put forward by each moderator of his/her team members was, in general, very high. Team moderators and spokespersons also considered the self evaluation made by the other members. The module tutors, for their part, evaluated each moderator and spokesperson and weighed up the assessment of the team members proposed by both moderator and spokesperson.

Information obtained from student discussion groups

A discussion group of eight participating students, taken from the list of Master students, which was organized in alphabetical order, was designated by the module tutors, who also put forward the theme to be discussed, and designated a member of the group to act as the group spokesperson. The roles assumed both by the group moderator (or coordinator) and spokesperson were similar to the roles assumed by those designated in the working teams.

The work of the discussion group was structured rather differently from that of the work teams. For the first phase, the group was divided into four pairs. Each pair had to debate a different aspect regarding the students' self evaluation of their involvement in the Master course. The specific aspects assigned to each pair by the module tutors were the following:

For the first pair:

- Effort made throughout the Master course
- Dedication to systematic study
- Researching authoritative sources for the contents of the Master program.

For the second pair:

- A critical appraisal of the contents of the Master program
- Assistance given to fellow students
- Promotion of the interpersonal relationship between the students and teaching staff of the Master program

For the third pair:

- Practical research into the Master course contents

- Proposals for alternative contents
- Proposals for the methodological implementation of the Master course

For the fourth pair:

- Proposals for resources to be used on the Master course
- Development of the students' own positive attitude towards learning through the Master course contents
- Development of the students' own positive attitude towards academic success through the implementation of the Master course.

Each pair had to choose a representative to take part in a chat session, and present a summary of the pair's discussion, explain the conclusions reached, and participate in a debate with the other students taking part in the chat session.

Throughout one week, the four pairs had to debate the suggested points regarding students' self evaluation. For another week, the whole group had to discuss each pair's contributions regarding all the suggested aspects.

During the first week, the students forming the discussion group on "students' self evaluation" had to discuss the suggested categories of self evaluation with the assigned pair. They presented their suggestions and discussed those presented by other pair members by intervening in the forum opened for this purpose. The following week was dedicated to whole group discussion: throughout this week all eight group members discussed and debated all the suggested aspects of students' self evaluation; other self evaluation categories could also be proposed by any member of the discussion group.

At the end of these two weeks, a chat session was held through the virtual platform, the day and the time having been previously established. During this one hour session each pair, together with the moderator and spokesperson for the whole discussion group, and the module tutors, presented and debated the procedure they had followed and the results of their work. Following the chat session, the discussion group spokesperson, with the moderator's help, had to write a report of the discussion with the conclusions reached, which was subsequently sent by the spokesperson to the module tutors.

In accordance with the suggestion of the working team members, the definitive evaluation of the discussion group members was made by the module tutors. To do this, they took into consideration the evaluation proposal sent by the group moderator and spokesperson, who had the option of including their own self evaluation in the corresponding evaluation list of the group members.

As with the working teams, both the discussion group moderator and spokesperson considered that most of the members had participated with enthusiasm and intensity, and they also declared that the collaborative interventions had made all members reflect, and had given rise to productive ideas.

Strengths or positive features of the implementation of the Master course

Except one of the team members, everyone participated enthusiastically to suggest ideas regarding the strengths or positive aspects of the implementation of the Master course. In order to prepare the graphic representation of the Pareto Analysis of these strengths, the team adopted the following procedures:

Brainstorming. The aim of this participatory technique was for the team members to obtain spontaneous and unrestricted ideas from every one of the members.

Clear definition of categories. During this phase, the students stated what they considered to be the specific strengths of the Master course, once all ideas had been expressed and listed. With the team moderator and spokesperson, the team worked on formulating each category clearly and on putting together a systematic account of all the strengths put forward. The strengths were summarized and structured into thirty categories.

Choice of categories. All the thirty categories were submitted to team members, for them to vote for those which they considered to be the most relevant. As the team was formed by a small number of members, in order to increase the number of votes made each member was given the opportunity of voting for up to ten categories. The most voted categories would be the ones considered as the most relevant. In fact, of the thirty categories offered in the list, only twenty five received votes.

Statistical account. In accordance with suggestions made by the module tutors, and by considering the specifications included in the corresponding Research module, members of this team organized the chosen categories in a descending order table: the category with most votes at the top of the vertical list, and the one with fewest votes at the bottom. The statistical table included a first column with the number of the category; a second column referred to the verbal description of the category; the third included the frequency or number of votes (F); the fourth gave the simple percentage (%) in relation to the total number of votes, which were 80 in all, and the fifth column showed the accumulated percentage for each category (Acc %).

Graphical representation. The graphical representation of the Pareto Analysis showing the strengths of the Master course was made up by using the frequency of votes for the vertical axis on the left side of the chart, and the accumulated percentage of the votes on the vertical axis of the right side of the frequency polygon. All the categories voted for were distributed on the horizontal axis.

The report produced by the representatives of this team said that they would like the listed categories of strengths to be submitted to all the Master students for them to vote on, but this was not possible due to lack of time.

The statistical data of the Master course strengths, put forward and then selected by members of this team, are included in the corresponding table (table 1).

Table 1: *Strengths of the Master course, suggested by students*

N°	Strengths	F	%	Acc %
1	Timetable flexibility	8	10.00	10.00
2	Curriculum structure design	7	8.75	18.75
3	Quality of teaching staff	7	8.75	27.50
4	Quality of virtual platform	5	6.25	33.75
5	Variety and flexibility of evaluation proposals	5	6.25	40.00
6	Validity of the Joint Master's Degree	5	6.25	46.25
7	Constructive and significant methodology	4	5.00	51.25
8	Interactive learning activities	4	5.00	56.25
9	Tutoring	4	5.00	61.25
10	Suitability of contents for today's needs	4	5.00	66.25
11	Cooperative methodology	3	3.75	70.00
12	Cost of the course	3	3.75	73.75
13	Didactic contents of today's reality	2	2.50	76.25
14	Quality of didactic material	2	2.50	78.75
15	Opportunity of professional promotion	2	2.50	81.25
16	Virtual tutoring	2	2.50	83.75
17	Reasonable academic requirements to be fulfilled	2	2.50	86.25
18	Promotion of critical and autonomous awareness	2	2.50	88.75
19	Prestige of partner Universities	2	2.50	91.25
20	Promotion of action research	2	2.50	93.75
21	Variety of didactic material	1	1.25	95.00
22	Scientific validity of didactic materials	1	1.25	96.25
23	Autonomy of the research project	1	1.25	97.50
24	Opportunity for academic promotion	1	1.25	98.75
25	Opportunity for professional specialization	1	1.25	100.00

With data from table 1, the team moderator and coordinator, helped by other members of the team, compiled the graphic representation of the Pareto Analysis of the Master course strengths, which is included next as *figure 1*.

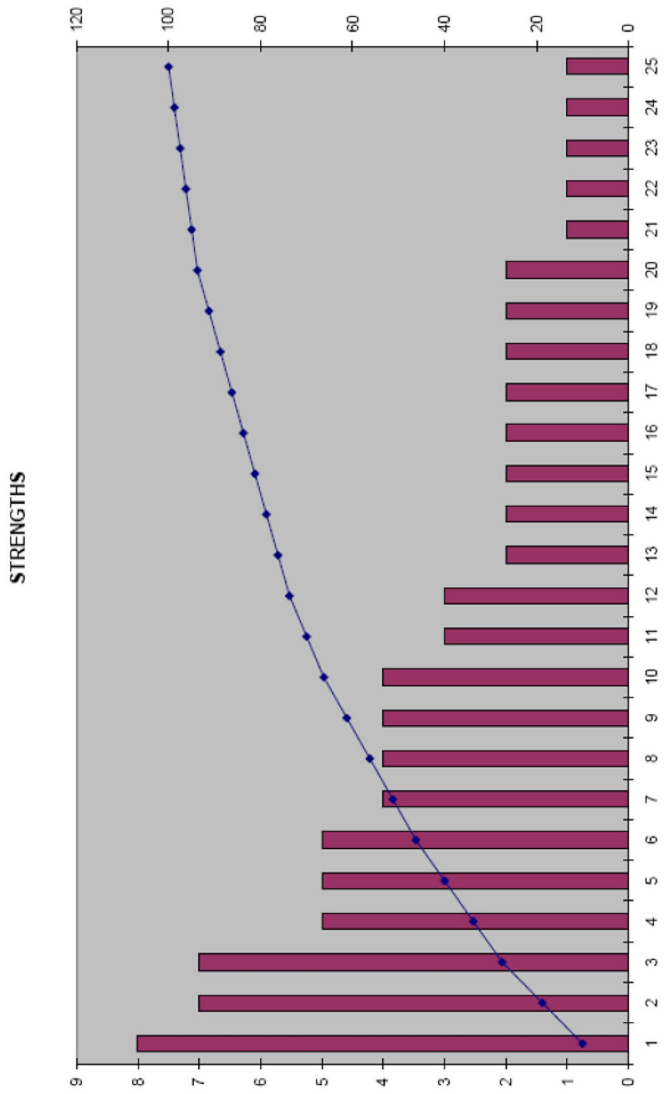

Figure 1: Pareto Analysis representation of the Master course strengths, suggested by students

Apart from the statistical table of strengths, listed according to the number of votes, and the Pareto Analysis graphic representation, the report sent by this team included some comments regarding the strengths of the Master course, the most relevant of which are as follows:

Variety and flexibility of evaluation proposals. This strength, regarding the proposals for module evaluation made by most of the Master course teachers, means that the teaching team's main focus was on the students' active intervention in terms of: thinking and reflecting on academic contents; working collaboratively with their fellow students; looking for practical repercussions of theoretical doctrine; producing knowledge related to the content of the Master course; and discussing or debating contents suggested not only by tutors and module authors, but also by other authoritative authors and even by their own fellow students.

The relatively high percentage of votes (6.25 %) for this strength, together with strengths attributed to the *ALF virtual platform quality* (6.25 %) could be interpreted as a suitable use of ICT (information and communication technology) made by teaching staff who, moreover, have demonstrated their adaptation to the approach of the new European Framework of Higher Education, which focuses on students" work more than on the work of the teaching staff.

Validity of the Joint Master Degree. This category was also considered by students of this team as one of the most relevant strengths of the Master course. The opportunity of having an "official" degree (the Master Degree was not, until recently, an official degree in Spain) within the European Framework, and the added value of the academic coverage of four European Universities, was a suggested strength that also received a reasonably high number of votes (6.25 %).

Students also stressed the relevance of what they interpreted as the "*methodological profile of the Master course*". Within this profile, which in its different categories received 23.75 % of all the votes, the following strengths were included:

- Constructive and significant methodology: ..... 5.00 %
- Interactive team activities: ..... 5.00 %
- Tutoring: ..... 5.00 %
- Content suitability to today's needs: ..... 5.00 %
- Cooperative methodology:..... 3.75 %

As a summary of the choices made by this team, the reporters (moderator and spokesperson) stressed the following as strengths that were mostly selected by the eight members:

1. Timetable flexibility: ..... chosen by 8 members
2. Curriculum structure design: ..... chosen by 7 members
3. Quality of tutors: ..... chosen by 7 members
4. Quality of ALF virtual platform: ..... chosen by 5 members
5. Variety and flexibility of evaluation: ..... chosen by 5 members

6. Validity of the official Joint Degree: ..... chosen by 5 members
7. Constructive and significant methodology: ..... chosen by 4 members
8. Interactive learning activities: ..... chosen by 4 members
9. Tutoring: ..... chosen by 4 members
10. Suitability of contents to today's needs: ..... chosen by 4 members

Students of this team stressed that the most relevant strength of the course was '*timetable flexibility*'. Comments on this particular category pointed out that a good number of the Master students were professionals with a fixed work timetable: consequently, the flexibility of the Master course timetable was very well suited to their available time, allowing them to study and to work on the tasks of the Master Course. In fact, this strength was chosen by 100% of the team members.

Curriculum structure and *quality of the tutors* were also considered very important strengths: seven of the team members, that is 87.5%, chose both categories.

Weaknesses or negative features of the implementation of the Master course

Seven of the nine members initially assigned to this team participated in the presentation of ideas, debate, discussion and graphic representation. The non-participation of two of the members was due to various personal reasons, mostly to do with the time they had to dedicate to their jobs.

Team 2 followed a similar procedural strategy as team 1, consisting of the following steps:

Brainstorming. By using this participatory technique, members of this team were invited by the moderator and spokesperson to put forward as many ideas as possible regarding the weaknesses of the Master course. The team members were given the following guidelines for their contributions:

- They should express their ideas spontaneously, as the ideas came into their mind.
- They should try to be creative.
- They should not explain their ideas, but, at this stage, just state them. They should not be worried if another team member put forward similar ideas.
- They could present some ideas in association with others just mentioned.

Seven of the nine members of the team offered their ideas: in total 70 weaknesses were mentioned during this first stage.

Category classification. By intervening in the corresponding forum opened for this team, the members discussed the suggested ideas and differentiated the meaning of the presented proposals. This helped the team to clarify, analyze and classify the weaknesses of which they complained. They also tried to associate similar ideas and

link them with others of a more general nature, to synthesize repeated ideas, to provoke new ideas and to discuss them. As a result of this process, the proposed ideas were organized, compiled into categories and structured in a systematic way. Categories that emerged at the end of this stage referred to the following aspects:

- General planning:
  - Calendar
  - Timetable for activities
- Virtual platform and technological support
- Modules as didactic materials
  - Content: quality, depth
  - Pedagogical presentation
- Students' evaluation
- Activities: forums, team work, etc.
- Teachers
- Students

As a result of this stage, the team put forward 42 ideas as weaknesses of the implementation of the Master course.

Choice of proposals. Only seven of the nine team members contributed proposals and voted for the most relevant among all the proposed weaknesses. Each participant was given the opportunity to select a maximum of 10 categories of the total of forty two that were finally put forward by the whole team. The number of selections that could be made was decided in order to ensure that the frequency count was sufficient to compile the graphic representation of the Pareto analysis. Finally, only six of the team members made a selection from the listed proposals, and only thirty were selected out of the forty two initially proposed. As a consequence, only these thirty chosen weaknesses were included in the statistical table and were used for the graphic representation of the Pareto analysis.

Table of frequencies. By following guidelines included in the Master module on "Research Methodology" and by considering suggestions expressed by the module tutors, this team made the statistical analysis that is reflected in the corresponding table (*table 2a and table 2b*): this table included the ten choices made by every one of the six members who participated in this task. The total number of selections made from the aforementioned forty two weaknesses amounted to sixty. Due to the fact that the percentage (on the total 60 selections) is not exact, the accumulated percentage of the last item is not 100%, but an approximate percentage of 99.83 %.

Graphic representation. The members of this team put the results in a statistical table of frequencies and percentages and compiled with the special intervention of its moderator and spokesperson the graphic representation of a Pareto Analysis. This representation is included as *figure 2*.

Tables 2a/b.- *Weaknesses of the Master course, suggested by students*

Nº	Weaknesses	F	%	Acc %
1	In some modules evaluation was specified late	5	8.33	8.33
2	In some modules the demand of evaluation activities was excessive	5	8.33	16.66
3	Some module contents were not of high quality	5	8.33	24.99
4	General coordination among modules, practicum, research and other activities was low	4	6.66	31.65
5	There was too much transversal work (Practicum, Research) in the second academic period	4	6.66	38.31
6	The timescale for the work involved was quite short for some modules	4	6.66	44.97
7	Evaluation of students did not always contribute to learning of the modules	4	6.66	51.63
8	In some modules, the study material was not always available on time	3	5.00	56.63
9	In some modules, the study material did not relate to the evaluation of students	3	5.00	61.63
10	Team work was not always effective and required too much time and effort	2	3.33	64.96
11	Some modules needed extra information to carry out the required activities	2	3.33	68.29
12	The required activities for some modules were known late	1	1.66	69.95
13	There was lack of early initial information about the details of the Master's course (mainly chronology, required work)	1	1.66	71.61
14	There were no agreements with institutions for the Practicum	1	1.66	73.27
15	Some module units required previous knowledge	1	1.66	74.93

Nº	Weaknesses	F	%	Acc %
16	The time allotted for some modules was too short	1	1.66	76.59
17	The time allotted to complete some compulsory activities was too short	1	1.66	78.25
18	Team work was sometimes ineffective and of little value	1	1.66	79.91
19	Some module content was quite superficial	1	1.66	81.57
20	The translation of some modules into Spanish was not good	1	1.66	83.23
21	Some modules had no visual aids	1	1.66	84.89
22	Support for consulting supplementary sources was low	1	1.66	86.55
23	In some modules, the evaluation criteria put forward by professors were quite different	1	1.66	88.21
24	There was no preliminary evaluation of students' previous knowledge	1	1.66	89.87
25	Feedback of evaluation activities was scant	1	1.66	91.53
26	The virtual ALF platform did not work perfectly (mainly chats)	1	1.66	93.19
27	In some modules, evaluation criteria of activities was not totally clear	1	1.66	94.85
28	Some module tutors were not very committed	1	1.66	96.51
29	Previous knowledge of diversity was needed to start some modules	1	1.66	98.17
30	Previous knowledge of education was needed to begin some modules	1	1.66	99.83

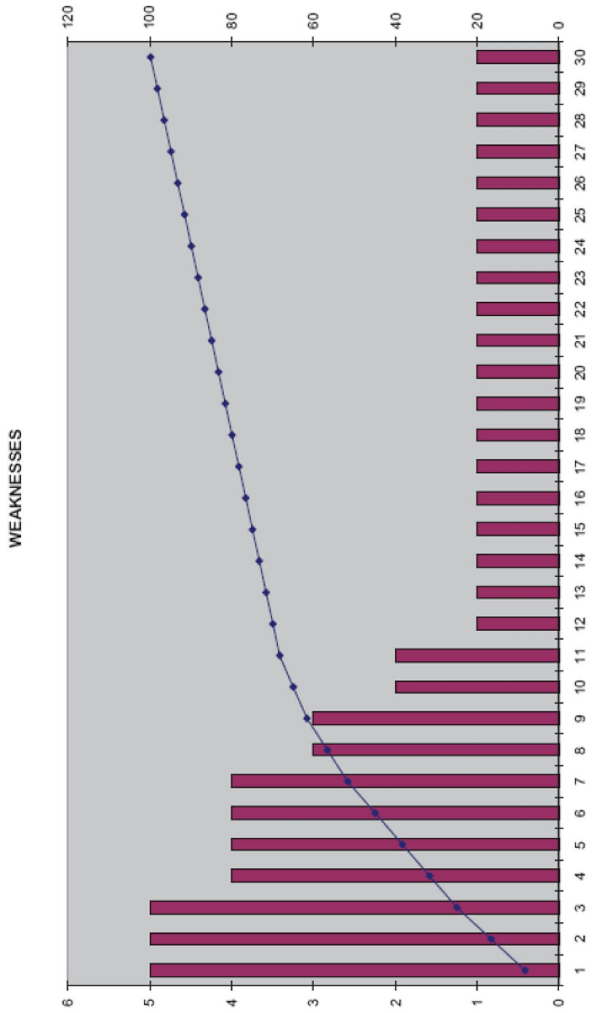

Figure 2: Pareto Analysis of the weaknesses of the Master course, suggested by students

Both this second team moderator and spokesperson compiled with the help of the other members not only the statistical table and the graphic representation of the Pareto Analysis, but they also included in their final report some comments on the procedures they applied, on the obtained data and on the aforementioned graphic representation. The following are some of their comments:

> The team members considered that, due to the small number of participants, their conclusions would not be very representative of all the Master students. They also admitted that they had put forward a rather large number of weaknesses and this meant that most of them had made a very low number of selections. They thought it was possible that the internal diversity of this team had determined the wide variety of proposals and the lack of concentration on selections.
>
> This team acknowledged that some of the ideas they put forward as weaknesses might have been considered as strengths by members of team 1. The report also commented that, due to the students' stress and the excessive time they were required to dedicate to the Master course, some proposals might have been affected by the mood of some of the members. It was suggested that a more effective evaluation might have been carried out after completion of the Master course, which would have given them a wider view. The results obtained from this evaluation show that the weaknesses most frequently attributed to the course were:
>
> • In some modules evaluation was specified late: 8.33%
> • In some modules, the workload required for evaluation was excessive: 8.33%
> • Some module contents were not of high quality: 8.33%

These three proposals together obtained 24.99% of the votes of the chosen weaknesses. Consequently, although it would be worth checking them in other similar circumstances and with a higher representation, they could be considered as points to be considered with priority by the Master Program team and coordinating team.

Proposals that obtained a percentage of votes which could be considered as second priority were the following:

> • General coordination among modules, practicum, research and other activities was low: ..... 6.66 %
> • There was too much transversal work (practicum, research) in the second academic period: ..... 6.66 %
> • The time allotted to work with some modules was quite short: ..... 6.66 %
> • Evaluation of students did not always help them to learn the modules ..... 6. 66 %

These four ideas together represented 26.64% of all the weaknesses. And together with the three previously mentioned ones, they represented 51.63 % of all weaknesses.

As a third block of priorities, in descending order of importance, two other weaknesses mentioned in the report are:

- The study material for some modules was not always ready in time: ... 5%
- Some study materials were not related to the evaluation 5%

The recurrent mention of these points demonstrates how important study materials are for the students and, therefore, the importance of preparing them carefully in accordance with didactic principles. However, despite accepting the validity of these charges, the wide range of contents that were produced by a diverse team of authors (most of them prestigious professionals at the universities) made it difficult to produce carefully written materials with an appropriate didactic approach.

Apparently, although the other suggested weaknesses could be considered as an important contribution for future studies and comparisons, they did not receive a statistically significant number of votes from the members of this team.

Although with a small number of votes (only 1.66 %), this team report stressed the weakness implied by the fact that "There were no institutional agreements with institutions for practicum". This weakness has frequently been mentioned by the tutors and coordinating team of the Master course, who have, on a number of occasions, brought the matter up with the university's academic authorities, urging them to solve the problem by signing agreements with institutions where students could carry out the activities required by the compulsory practicum.

Proposals to improve the implementation of the Master course

This student team acted in a similar way as the other teams, whose contribution has been described before. By using the forum specially opened for the purpose, the team members took part in a "*brainstorming*" session, where all members could openly express their ideas on how to improve the Master course.

In a second phase, the team discussed the proposed improvements in order to clarify and define them: during this discussion, some repeated proposals were eliminated and some that were similar were integrated with others. By following this method, a list of thirty clearly defined proposals was drawn up.

In the following phase, the selected proposals were submitted to the *team members for selection*. For different reasons, only three members of this team participated in this task. In order to obtain a reasonable number of selected proposals for improvement, each participant was given the opportunity of choosing a maximum

of 15 proposals from the list. As each one of the remaining members chose the maximum number of proposals, the total number of selections was 45.

Once the selections were collected, the team moderator and spokesperson drew up the *statistical table* of frequencies, percentages and accumulated percentage for each selected proposal. Results can be seen in *table 3*. As the percentages of each selected proposal in relation to the total number of 45 are not an exact quotient, the accumulated percentage of the last proposal is not exactly 100, but 99.90; this small difference is due to the approximate mathematical estimate.

With the results of the corresponding statistical table, these team members, with the help of their moderator and spokesperson, tried to compile the graphic representation of the Pareto analysis. To accomplish this task, they had to draw a diagram with the proposals on the horizontal axis. On the left vertical axis, the frequencies (number of votes) obtained by each proposal should have been reflected at the top of the bar. On the right vertical axis, the accumulated percentage of votes for each proposal should have figured at the corresponding intersection points of the lines forming the frequency polygon. However, although previous guidelines had been given in time to all the teams, this team did not properly understand how to produce the graphic representation. Consequently, the diagram inserted as *figure 3* is not the one that was made by this team, but one made by using the statistical data of the table 3.

Tables 3a/b: *Proposals to improve the Master course, suggested by students*

N°	Proposals for improvement	F	%	Acc %
1	To bring the modules to up to date	3	6.66	6.66
2	To give students evaluation criteria at the start of each module	3	6.66	13.32
3	To establish a procedure whereby tutors give students feedback on the strengths and weaknesses of their work	3	6.66	19.98
4	To improve information provided to students regarding their evaluation	3	6.66	26.64
5	To programme research and practicum at the start of the Master's course	3	6.6	33.30
6	To establish a system whereby the University offers students possible institutions where they may carry out their Practicum	3	6.66	39.96
7	To offer didactic material with more graphic explanations	2	4.44	44.40
8	To offer videoconferences as an introduction to modules	2	4.44	48.84
9	To provide students with suggestions regarding activities directed towards action-research	2	4.44	53.28
10	To offer students visits to institutions working on diversity	2	4.44	57.72
11	To design students' activities with acknowledgement of credits	2	4.44	62.16
12	To plan a term exclusively dedicated to Practicum and Research	2	4.44	66.60
13	To give students all the modules at the start of the Master's course	2	4.44	71.04
14	To use the space of 'activities' on the ALF virtual platform	2	4.44	75.48
15	To compile modules with schemes and conceptual maps	1	2.22	77.70

N°	Proposals for improvement	F	%	Acc %
16	To use videos as didactic material	1	2.22	79.920
17	To allow students to participate in video conferences on specific themes	1	2.22	82.14
18	To allow the election of more than two optional modules	1	2.22	84.36
19	To film face-to-face-sessions with students and to insert them in the virtual platform	1	2.22	86.58
20	To allow students to participate in face-to-face sessions conducted by video conferences	1	2.22	88.80
21	To provide students with their own student's card once they have registered	1	2.22	91.02
22	To open a space on the virtual platform for news related to diversity	1	2.22	93.24
23	To open a space on the virtual platform for communication with the other partner Universities	1	2.22	95.46
24	To hold, at the start of the course, an obligatory virtual or face-to-face welcome session	1	2.22	97.68
25	To facilitate contacts among students living in the same Autonomous Community	1	2.22	99.90

By considering the results reflected on table 3 and, particularly, the proposals that obtained the highest percentage of votes, the students of this team stressed the importance of the coordinating team considering the need to give priority to the following proposals (each of which received 6. 66% of the votes, and jointly 39.96 %):

- To bring the modules up to date or to add appendices with current information
- To give students evaluation criteria at the start of each module
- To establish a procedure whereby tutors give feedback to students on the strengths and weaknesses of their work
- To give students information on their module evaluation. For this purpose, the virtual platform or the virtual secretary could be used. Students suggested that this information should be given to them in a maximum period of fifteen days
- To program the research and the practicum at the start of the Master course. Students considered that the implementation of the Research and the writing of the report needed a long period of reflection and time. They also indicated that the practicum might be a valuable opportunity to intervene in real situations, but that it also required a suitable period of time to carry it out successfully. Members of this team considered that a two year period would be adequate to successfully carry out both the Practicum and Research Reports.
- To establish a system whereby the university offers students possible institutions where they may carry out their practicum. Available entities, with agreements signed with the University and that would offer students the opportunity of attending in the role of work-experience students, "would be a tremendous help to these students who sometimes have to

invest valuable time to find appropriate institutions and to be accepted by these institutions".

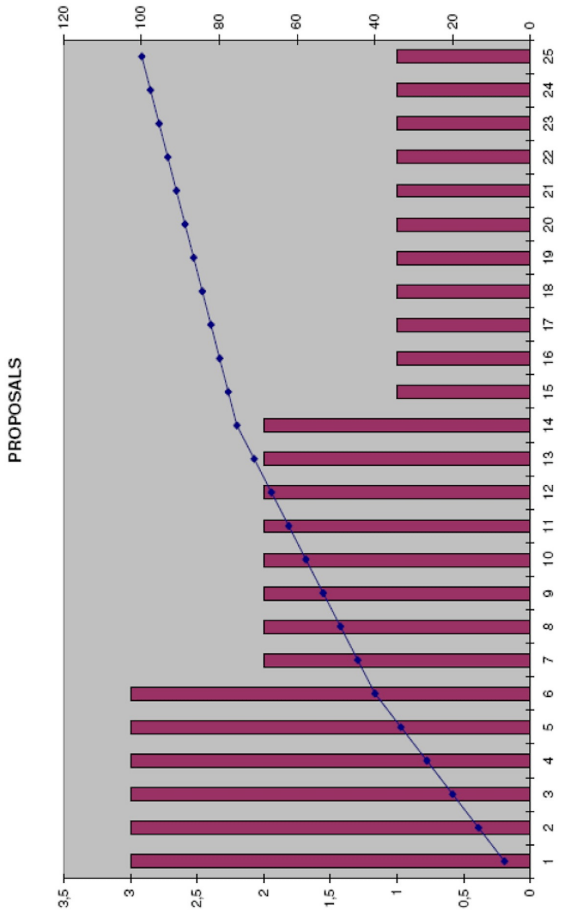

Figure 3: Pareto analysis of the proposals to improve the Master course, suggested by students

Master students' self evaluation

At the suggestion of the module tutors, students forming this discussion group worked, first in pairs to make proposals in relation to the assigned criteria of

students' self evaluation. Secondly, all eight members of this group contributed ideas regarding all the suggested criteria. During the general discussion of this whole group, a new criterion of self evaluation was added as "striving for empathy and understanding of diversity." During this second stage, the group used the following sources to obtain information regarding evaluation criteria:

- Work done by all Master students
- The ideas, attitudes, expectations and proposals expressed by all Master students on forums held during the course
- Students' answers to a questionnaire compiled to collect data and opinions regarding self evaluation criteria
- Contents of the forum opened for this group, with interventions of pairs formed to discuss the assigned self evaluation criteria
- Contents of this group' s opinions regarding the evaluation criteria

This group moderator tried to encourage her fellow students to participate particularly in the group general discussion, by asking some questions related to the evaluation criteria. Finally, the group moderator, with the help of the group spokesperson, wrote the report that was sent to the module tutors. Within this report it was stressed that opinions expressed by the group members showed more coincidences than discrepancies.

As a summary of the students' opinions, self evaluation criteria were classified according to the degree of students' satisfaction. This classification is included here:

Criteria considered excellent or highly satisfactory:

- Assistance given to fellow Master students mates
- Striving for empathy and understanding of diversity
- Students' positive attitude towards learning
- Students' positive attitude towards academic success
- Effort made throughout the Master course

Criteria considered fairly satisfactory:

- Systematic study procedure – researching of authoritative sources for the contents of the Master course (although different sources were used, the most frequently consulted was the Internet)
- Promotion of interrelationship with tutors (forums and e-mail were the channels preferably used. Face-to-face meetings were very well esteemed by attendees)
- Proposals for the methodological implementation of the Master course (as students were, in general, satisfied with the methodology of the Master course, there were not many proposals)

- Research of practical uses of the contents of the Master course (practical repercussion was very useful for professional dedication and was given full consideration in works produced by students as evaluation requirements)
- Critical appraisal of the contents of the Master course (critical thought appeared in forums, students' work, discussions and debates)
- Proposals for resources used in the Master course (although there were no student proposals for alternative resources, some suggestions were made to promote the practical use of contents)

Criteria considered unsatisfactory

- Proposals of alternatives to contents (although some students expressed critical comments on some module content, there were no proposals to modify the Master program or the general content of the modules)

Final conclusion

As a synthesis of students' opinions regarding their experience of the Master course, the students' report on their discussion group with the following conclusion, which constitutes a summary of their general assessment and a summary of the performance of the Master course so far:

"The methodology of the Master course facilitated collaborative learning, with which most students felt very satisfied. Apart from the academic, research and professional aspects, the course has also helped to strengthen other human values and to intensify emotional ties among all the participants."

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Humor in early childhood: Video-based analysis of forms and functions

Johanna Drews and Günter L. Huber

Abstract

There is meanwhile abundant research on the "sense of humor" usually operationalized as understanding of cartoons, but forms of humorous actions and their functions in everyday life are rarely analyzed. Particularly humor in early childhood, its role in child development and its social functions are missing in psychological and pedagogical textbooks.

A main reason for this state of affairs – besides the general neglect of "positive psychology" – may be found in methodological obstacles. Firstly, humor beyond individual understanding of cartoons and verbal jokes has to be studied in interpersonal situations. Secondly, the functions of interpersonal humor cannot be designed experimentally, but have to be observed in naturally occurring events in the social field. Thirdly, within the flow of everyday activities humor is a relatively rare event. Fourthly, if there is no knowledge base on humor in early childhood available, it is impossible to run systematic observations.

Long-term video-taping of everyday interactions between children offer a solution for these problems. By repeated analysis of critical events in particular situations between specific individuals a category system of humorous events can be developed and the functions of specific forms of humor in these situations can be analyzed.

The presentation will describe the arrangements for video observation of humor in a regular kindergarten and show some typical humor episodes. Based on the empirical data of many hours of video recording and a few suggestions of humor categories in the literature, a category system is developed and applied in subsequent analyses. Among other questions these analyses try to clarify the roles of humor for children and educators as well as to discuss the possibility of pedagogically initiated humor.

Introduction

As regards humor, there are numerous studies on the "sense of humor," which is usually determined by the results of "cartoon tests," that is of tests showing which cartoons people prefer and how they understand them (McGee & Goldstein, 1983; Ruch, 1998). Humorous social interactions, however, in their various forms and

their functions in everyday life are rarely analyzed. Particularly humor in early childhood, its role in child development and its social functions are missing in psychological and pedagogical textbooks.

Main-stream humor research usually asks one of the following two questions: (1) How do people react to humorous events? Or (2) which events do people understand as humorous? Based on the first type of research question many empirical studies have concentrated on the behavioral level of humorous events and asked people to fill in rating scales which allow to identify their specific *sense of humor* (Ruch, 1998). The second type of research question led to studies on the linguistic level revealing that jokes confronting with particular sexual contents, incongruity, and sheer nonsense are understood as humorous (Popp, 1994; Schmidt-Hidding, 1963).

Correspondingly, humor theories (McGee, 1979; Goldstein & McGee, 1972) explain the effects of jokes and everyday events, to which people react humorously by mechanisms of

- superiority and discrimination; in this sense humor may function or is used as a social tool, if not a weapon - as in the case of misogynistic cartoons or jokes.
- tension and release; mostly tension is created by incongruity in the situation, joke, etc.; the resolution then is accompanied by laughter.
- nonsense, which is accepted as funny because it releases the rules of common logic.

Krichtafovitch (2009) suggested a more complex "formula of humor":

$$HE = PI \times C/T + BM$$

in which the "humor effectiveness" (HE) of jokes depends on the product of personal involvement (PI) by the quotient of the complexity (C) of the joke divided by the time spent by a person solving this joke (T). The background mood (BM) of a joke's recipient functions as an additive component.

Here again, "humor" is reduced to the understanding of jokes. Humorous social interactions, however, in their various forms and their functions in everyday life are rarely analyzed. Particularly humor in early childhood, its role in child development and its social functions are missing in psychological and pedagogical textbooks.

Besides the general neglect of "positive psychology" the main reasons for this state of affairs may be found in methodological obstacles to study humourous interactions in general and between young children particularly:

(1) Humor beyond individual understanding of cartoons and verbal jokes has to be studied in inter-personal situations.

(2) The functions of interpersonal humor cannot be designed experimentally, but have to be observed in naturally occurring events in the social field.
(3) Within the flow of everyday activities humor is a relatively rare event.
(4) If there is no knowledge base on humor in early childhood available, it is impossible to prepare in advance any scheme for systematic observations.

Theoretical background

Based on the analysis of the rare literature on humor in children (Berger, 1998; Bönsch-Kauke, 2003; Helmers, 1965; Neuß, 2003; Schreiner, 2003) and her own observation study in a kindergarten, Drews (2006, 2008) defined humor of children in a way that reflects both the multi-dimensionality of the construct and the functions of humor in children's everyday life:

> Children's humor is defined as a category of interpersonal behavior and experience, which is expressed on cognitive, linguistic, motivational and interactional dimensions and serves to cope in playful and amusing ways with the challenges of the environment and one's own individual state of development.

The majority of existing humor studies did not contribute much to explain how particular behaviors of children had functional or dysfunctional effects in their everyday interactions. Clearly, there are general deficiencies in theoretical approaches to explain humor, above all humor of children in kindergarten age (Wicki, 2000). What is missing is (1) the social dimension of children's behavior and experience, and (2) the developmental dimension.

As to missing social aspects, most studies are done with verbal and graphic materials, i.e. jokes and cartoons, not within real life interactions. Additionally, these studies are concentrated on individual reception of or reaction to humorous stimuli, not on the effects on group dynamics. So we are confronted with an open question: What is the role of humor in communication and social interaction? Napier and Gershenfeld (1988) started to develop some answers in their introductory text to Social Psychology. They stated that different mood states of group members and differing contributions to the group process are opportunities for humorous interventions based on

- paradoxy within the group,
- experience of discrepancy,
- surprising reactions,
- experience of general "truths,"
- absurdity, and
- common experience.

Referring to the missing developmental perspective in most humor studies, we have to see that most studies are realized with adult or school aged subjects. Besides, they are focused on only one facet of humor (McGee, 1979) and ignore the multi-dimensionality of humor.

McGhee (1979, p.103), however, also suggested a developmental sequence of humor assuming that "humor is the logical result of a playful form of behavior to the more abstract intellectual sphere of ideas." From the second to the seventh year and beyond, McGhee distinguishes four stages of children's humor development, which are characterized by humorous playing with incongruencies and multiple meanings: (1) incongruent actions with objects or in specific situations, (2) incongruent labeling of objects and events, (3) conceptual incongruency, and (4) multiple meanings of words.

A multi-dimensional model of humor development

Because of the multi-dimensionality of humor (Lersch, 1969), children need various skills to act and react humorously in their social environment. Particularly they need

- cognitive skills,
- linguistic skills,
- social skills, and
- emotional skills.

There are also components of motivation and behavior involved. On the other hand, these basic skills are differentiated and promoted by humor, that is whenever children act and react humorously. Humor can be observed early in children's development. While there are changes in methods and forms of humor production, the function of humorous acts and motivation to behave humorously are stable. Children adapt forms and methods to their skills, based on their development status. According to the development status, certain methods and themes are cumulative in certain phases. Over the years, the following themes are predominant, however, there is no strict border established between these phases:

Humor in the first year

Notice and play with early forms of incongruities *(„Gugugs da da")*
Throwing things to the floor and testing the response etc.

Humor at the age of one and two

Forms like *kidding around* or making faces

Create incongruities first with actual / later with absent objects, persons or animals
Humorous sequences in symbol play
Aware speech-playing

Humor at the age of three to five

Forms like kidding around - but humorous speech is getting more important
Playing with words (switch morphenes and phonemes)
Breaking semantic rules
Tongue twisters
Funny stories and songs
Stage of "theory of mind", which allows now *to fool other people.*
First *forms of jokes*
Conclusion: At the age of four a child is skilled in nearly all possibilities to express humor.

Humor at the age of six and seven

Improving jokes
Irony as a specific form of humor
Recognizing *double / different meanings of words*

Figure 1 summarizes intra-mental dispositions and inter-mental skills, which determine humor development from early childhood on:

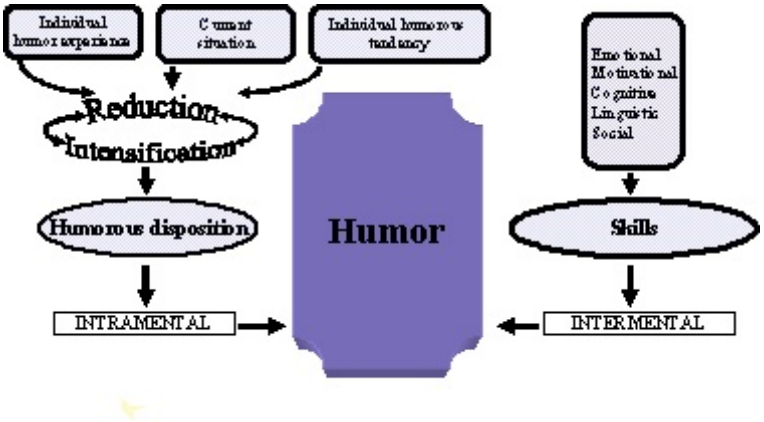

Figure 1: Intra-mental and inter-mental components of humor development

Methodological approaches to humor research

As mentioned in the beginning, the lack of empirical information about humor in young children and humor development may be due to a series methodological obstacles to study humourous social interactions directly. Humor beyond individual understanding of cartoons and verbal jokes has to be studied in inter-personal situations. However, the functions of interpersonal humor cannot be determined experimentally, but have to be observed in naturally occurring events in the social field, that is through time consuming processes of observation.

The problem in observational approaches to humor within the flow of every-day activities is that humor is a relatively rare event. This means, any observational approach has to be based on a long-term design. In addition, since there is up to now no knowledge base on humor in early childhood available, a scheme for systematic observation cannot be prepared in advance. The conclusion is to collect a large sample of critical situations by video-taping them as data base for humor analysis.

Figure 2 shows a screens hot from the analysis of a video using the software tool AQUAD 6. On the right upper side is a player window, here showing a little boy starting to interact with a rabbit in a cage in front of him by trying/avoiding again and again to touch it through the grating.

Below are the buttons to determine beginning and end of critical sequences, which the researcher wants to interpret as humor events and attach meaningful codes to them. Entering a code is started by pushing the "Coding" button below.

Finally, there is a series of well-known player buttons to start and stop the video, to create breaks, etc. On the left hand is the list of codings attached p to this point to this video. More details and examples can be found on the web-page www.aquad.de.

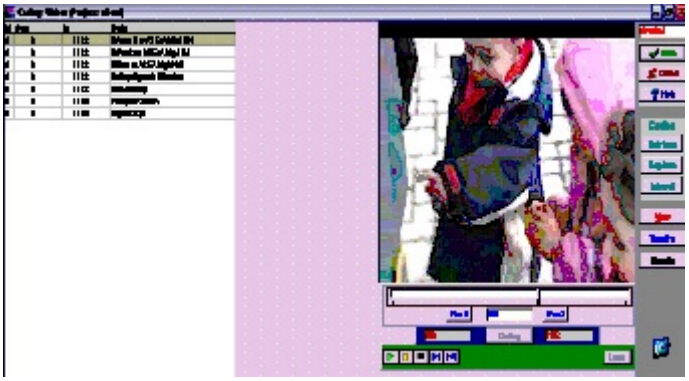

Figure 2: Screen shot of a video analysis with AQUAD 6

As a result of her analyses, Drews (2006) developed a series of generally adaptive versus maladaptive roles of humor in children's social interactions. Adaptive or functional contributions to the process of interaction can be observed in cases of

- use of humor as central form of expression
- coping strategy
- advancing interaction and communication
- examination of rules and norms
- avoidance and transformation of conflicts and aggression
- regulation and creation of connections
- adaption and help with current theme
- cognitive and emotional dissociation
- positive emotions of happiness and fun
- training and improving skills

On the other hand, maladaptive or dysfunctional humor events are probable

- as a strategy of avoidance and defence
- to depress emotions and problems
- as an instrument to demonstrate power
- to hurt or decry somebody or oneself (e.g. making a fool of oneself or making someone look foolish)
- as a form of aggression (to provoke an argument, e.g. making funny rhymes with names "Beate - Tomate")
- as an indicator of absence of seriousness.

The analysis of these roles led finally to the development of a category system for the analysis of children's humorous interactions:

- Arousing attention
- Making contact
- Strategy of avoidance
- Topic of development
- Topic of education
- Need of physical stimulation / care
- Avoidance of conflict
- Resolving a conflict
- Clarifying social status
- Testing the limits
- Establishing limits
- Imposing measures
- Incongruity

- Suggestion / stimulation
- Transforming aggression
- Covering embarrassment / shame

The following social constellations in humor interactions were included as complementary categories:

- KK (interaction between children, for instance: clarifying status)
- KE (children's action directed toward the educator, for instance: transforming aggression)
- EK (educator's action directed towards children, for instance: establishing limits)
- E (initiative of the educator, for instance: suggestion / stimulation)

As a final phase of data collection, interactions between children as well as educators in Kindergarten were video-taped in various situations. These videotapes were then analyzed supported by the software package AQUAD 6 (Huber & Gürtler, 2003).

In the original presentation, typical video examples of events attributed to selected humor categories were shown, for instance "arousing attention" or "incongruity."

Conclusion

The available results demonstrate that humor is already for young children an important form of expression and both personal and mental resource. Humor is expressed on cognitive, linguistic, motivational, social and emotional dimensions and covers nearly all fields in a child's process of accumulation of experience and education. Humorous behaviour demands many skills but concurrently these basic skills are differentiated and advanced by humor.

For all persons involved in a child's process of education, the child's humor is a possibility to better understand and promote the child (Kassner, 2002; März, 1967; Nevo, Aharonen & Klingman, 1998). Children's humor contributes to arrange positive relations in a kindergarten.

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Content analysis of elicitation study questionnaires: A missing link in studies on extracurricular activities within the theory of planned behavior[1]

Karin Schweizer and Stephan Kröner

Abstract

Attitudes, subjective norms, and perceived behavioral control have proven to be valid predictors of intentions and behaviors, and elicitation studies are important tools for developing questionnaires to assess these constructs (Ajzen, 2005; Downs & Hausenblas, 2005). However, elicitation studies have received little research attention (Sutton et al., 2003), they are sometimes dropped from the research process for economic reasons (Romano & Netland, 2008), and the methods used in published studies are often poorly documented. One reason for these shortcomings may be that the existing research manuals do not provide detailed instructions on the content analysis of elicitation study data (Ajzen, 2006; Francis et al., 2004). Methods designed for the analysis of long texts and interviews (e.g., Mayring, 2008) have to be adapted for application to the short, self-contained answers generated by elicitation study questionnaires. This chapter gives an example of the application of these methods to a prototypical elicitation study on student participation in extracurricular musical activities. Elicitation questionnaires with open-ended questions were administered to $N = 44$ high school students aged 17 to 20 years (18 musically active, 26 musically inactive). Qualitative content analysis was applied to their answers, following the suggestions of Mayring (2008). The results show that musically active respondents generated more statements related to attitudes ($U = 141.5$, $p = .03$) and to subjective norms ($U = 130.0$, $p = .01$) than did musically inactive respondents. Furthermore, musically active respondents produced more positive statements than did musically inactive respondents ($U = 141.5$, $p = .03$). The two groups did not differ significantly in terms of the number of statements related to perceived behavioral control.

Taken together, the content analysis procedure applied in this chapter provides a useful guideline for analyzing data from future elicitation studies in the context of the theory of planned behavior. The potential benefits of video recording interviewees and analyzing their nonverbal behaviors to further elucidate the differences between musically active and musically inactive persons are discussed.

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[1] We are grateful to Sabrina Hee for providing us with the raw data for this thorough reanalysis (see Hee, 2008).

Introduction: The role of extracurricular activities in different countries

Extracurricular activities play an increasingly important role in school life and are important tools in the process of school development (Kempfert & Rolff, 1999; Rolff, Buhren, Lindau-Bank, & Müller, 2000). Moreover, by offering different options for different groups of students, they provide a useful means of dealing with increasing student heterogeneity (Arbeitsgruppe internationale Vergleichsstudien, 2007). A study comparing the educational systems of selected PISA countries found that extracurricular activities play an important role in most countries, especially the English-speaking countries (Scheerens & Witziers, 2004). In Canadian schools, for example, where full-day schooling is the norm, various extracurricular activities are offered in addition to the daily program of study. Courses in arts and languages play an important role here, including language courses offered in the mother tongue of immigrant children (Fuchs, 2005). Furthermore, extracurricular activities are offered in the fields of politics and information technology, as well as in business and administration and debating. The same applies to the UK, France, and Sweden, where full-day schooling is also the norm. Schools in the UK offer numerous extracurricular programs to enrich their regular courses, with "extended schools" emphasizing activities that foster the development of socially disadvantaged children. France places a particular focus on fostering cultural participation in early childhood at the so-called "école maternelle," and extracurricular activities are part of national programs in French schools. However, research evidence on extracurricular activities in adolescence is scarce (Bachelet & Mozère, 2009; Fuchs, 2005). In Germany, where full-day schooling is not standard, the establishment of extracurricular activities is still in its infancy. However, extracurricular activities are an important issue in the debate on full-day schooling. Taken together, identifying the determinants of participation in extracurricular activities remains an unresolved issue, not only in Germany. One domain of particular interest is that of arts and music (see Kröner & Dickhäuser, 2009).

The role of music in the lives of children and adolescents

A study conducted by researchers of the German society for social science research in medicine, GESOMED, investigated people's relationships to music in order to develop interventions for addiction prevention (Riemann, 1995). The idea was that music might play an important role in addiction prevention as music-related activities have some characteristics that are comparable to the feelings experienced when consuming drugs (e.g., relaxing, feeling high) and might therefore replace the consumption of psychoactive substances (Riemann, 1995). The survey investigated 803 adults, adolescents, and children. The results showed that music serves various important psychological functions, including that of relaxation. For young people, even passively listening to music was found to reduce the stress of everyday life.

However, there were some gender- and age-related differences. Whereas women were more likely to emphasize the emotional aspect of dancing, men were more likely to emphasize the loudness of music. Extroverted types of behavior with music were more important for adolescents than for adults. Music was also more important to adolescents than to adults or children. In summary, the results of this study showed that music-related activities play a key role in the lives of young people.

Despite the postulated beneficial effects of musical activities, many young people are likely to experience barriers to musical activities such as playing a musical instrument in their leisure time. Although there is little research on this topic, young people from families where such activities are not common can be expected to experience particular difficulties. This is where extracurricular activities in schools come into play. They provide opportunities for students to learn a musical instrument, to play in a band, or to sing in a choir, independent of their social background.

Measuring extracurricular activities using the theory of planned behavior

Although extracurricular activities have already been widely studied, research has tended to focus on their consequences, rather than their predictors (Eccles, Barber, Stone & Hunt, 2003). Research on the determinants of participation in extracurricular activities is therefore warranted. The constructs summarized in the theory of planned behavior are candidates for explanatory variables (Ajzen, 1991). In short, the theory assumes that human behavior is guided by three core predictors that are in turn determined by three kinds of beliefs (see also Fig. 1):

(1) attitudes, determined by behavioral beliefs about likely consequences or other attributes of the behavior (e.g., it is fun to sing in a choir),

(2) subjective norms, determined by normative beliefs about the expectations of others (others approve of the behavior; e.g., my parents expect me to sing in a choir), and

(3) perceived behavioral control, determined by control beliefs about the presence of factors that may promote or hinder performance of the behavior (e.g., I am able to read from the score; Ajzen, 2002).

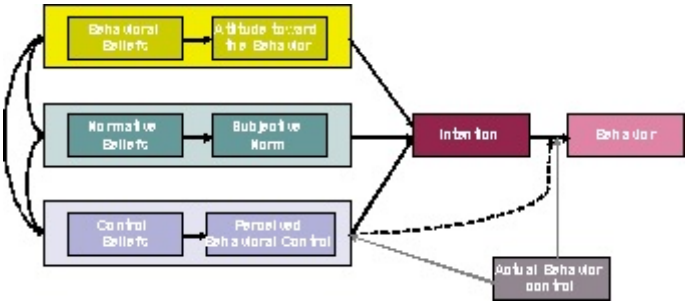

Figure 1: Model of the factors determining behavior according to the theory of planned behavior (Ajzen, 2005)

As illustrated in Figure 1, the theory assumes that attitudes, subjective norms, and perceived behavioral control mediated by behavioral intentions are the core predictors of overt behavior. As mentioned above, these three components form a person's intention. Intentions are assumed to capture the motivational factors that influence behavior; they are indications of how hard people are willing to try, or how much of an effort they plan to exert, in order to perform the behavior (Ajzen, 1991, p. 181). Intention is assumed to be the immediate antecedent of behavior (Ajzen, 2002). According to the theory of planned behavior, a certain degree of actual behavioral control is necessary for an intention to be carried out. Thus, especially if it is difficult to observe the behavior in question, it may be an option to measure only intentions and perceived behavioral control along with its predictors (e.g., control beliefs and the other beliefs illustrated in Figure 1).

Before the predictors of behavioral intentions can be assessed by appropriate questionnaire measures, important preparatory work needs to be conducted in "elicitation studies." An elicitation study is a qualitative survey in which respondents' behavioral, normative, and control beliefs regarding a particular behavior are obtained. It is recommended that elicitation studies be conducted prior to any study using the theory of planned behavior (TPB), in order to establish the cognitive foundation of a population's salient beliefs (Francis et al., 2004).

Despite their importance for the construction of TPB questionnaires, elicitation studies have received little attention in most of the related research to date: Sometimes, the elicitation study phase is skipped altogether for economic reasons. When elicitation studies are performed, the methods used are often poorly documented. For example, it is not always reported whether the interviewees comprised both people who showed the behavior in question and people who did not (see Sutton et al., 2003). Likewise, the approach chosen for the content analysis of elicitation study data is often poorly documented – potentially because the existing TPB research manuals do not provide detailed instructions on this issue (Ajzen, 2006; Francis et al., 2004). In addition, methods designed for the analysis of longer texts

and interviews (e.g., Mayring, 2008) have to be adapted for application to elicitation study questionnaires and interviews. Therefore, a key aim of the present study was to provide an example of how the methods of content analysis described by Mayring (2008) can be applied in the context of an elicitation study on the behavioral, normative, and control beliefs that musically active versus inactive students hold about extracurricular activities in the domain of music and culture.

Method

Developing a questionnaire for an elicitation study

As a first step in examining reasons for and against participation in extracurricular activities in the domain of music and culture, we conducted a pilot study with five students, following the suggestions of Francis et al. (2004). The students answered nine questions in open-ended format. After some rewording of questions to address comprehension difficulties that had emerged in the pilot study, the questionnaire presented in Table 1 resulted. In addition, we added a further question concerning reactance ("Does it ever happen that you refrain from attending … precisely because someone expects you to attend?"). As reactance proved not to be an issue for the participants in the main study, however, this question is not included in the Results section.

Table 1: *Overview of the questions used in the elicitation study (adapted from Francis et al., 2004)*

Behavioral Beliefs/ Attitudes	1. What do you believe are the advantages of extracurricular activities in the domain of culture/music?
	2. What do you believe are the disadvantages of extracurricular activities in the domain of culture/music?
	3. Is there anything else you associate with the participation in extracurricular activities in the domain of culture/music?
Normative Beliefs/ Subjective Norms	4. Who would approve of your participation in extracurricular activities in the domain of culture/music?
	5. Who would disapprove of your participation in extracurricular activities in the domain of culture/music?
	6. Is there anything else you associate with other people's view about extracurricular activities in the domain of culture/music?
Control Beliefs/ Perceived Behavioral Control	7. What is your opinion about participating in extracurricular activities in the domain of culture/music?
	8. What is your opinion about not participating in extracurricular activities in the domain of culture/music?
	9. Are there any other issues that come to mind when you think about participating in extracurricular activities in the domain of culture/music?

The final questionnaire focused on extracurricular activities in the domain of music. It was administered during summer 2008 to $N = 44$ high school students aged 17 to 20 years participated in the elicitation study on participation in extracurricular musical activities ($n = 18$ musically active, $n = 26$ musically inactive).

Analyzing responses to the elicitation questionnaire

The elicitation questionnaire consisted of 10 open-ended questions (see above) tapping attitudes, subjective norms, and perceived behavioral control with respect to extracurricular musical activities. We analyzed the respondents' answers using the approach proposed by Mayring (2008). To this end, we summarized the responses we received, using the steps of paraphrasing, generalizing, and reduction, thus generating a total of 440 paraphrased statements. Using the structuring approach, we then inductively classified the paraphrases into a set of subcategories. In cases of doubt, we referred back to the context of the specific paraphrase for any elaborating information. As a result of this process, the set of subcategories displayed in Table 2 emerged. While categorizing the responses, we referred to examples that served as anchors for each subcategory.

Table 2: *Categories derived for the classification of student responses*

Subcategories of the main category "attitudes"	+/-
Intrinsic value/fun	pos. /neg.
Intrinsic value/community	pos. /neg.
Utility/personal growth in the domain of music	pos.
Utility/personal growth not related to music (self-esteem)	pos.
Utility/personal growth not related to music (other)	pos.
Utility/economic and social distinction	pos. /neg.
Instructional quality/forms of instruction	pos.
Instructional quality/motivation	pos.
Instructional quality/general	pos. /neg.
Nothing	pos. /neg.
Subcategories of the main category "subjective norms"	
Parents	pos. /neg.
Family (not parents)	pos. /neg.
Partner, friends, peers are musical	pos.
Partner, friends, peers, no explicit categorization	pos. / neg
Partner, friends, peers are not musical	neg.
Teacher	pos. / neg
Other adults	pos. / neg
All positive, none negative	pos.
Subcategories of the main category "perceived behavioral control"	
Talent	pos. /neg.
Knowledge	pos. /neg.
Discipline	pos. /neg.
Costs	pos. /neg.
Time	pos. /neg.
Accessibility	pos. /neg.
Academic stress	neg.
Personal stress	neg.
Rehearsal opportunities	pos. /neg.
Instrument	pos. /neg.

Note. Whereas only positive (pos., i.e. reasons *for* participation in extracurricular activities) or negative (neg., i.e., reasons *against* participation in extracurricular activities) statements could be generated for some subcategories, both types of statement could be generated for others.

Finally, responses were independently categorized by a second rater who was not involved in the development of the set of subcategories. Interrater reliability was good (= .86). According to Francis et al. (2004), the set of subcategories that contains 75% of all paraphrases can be regarded as covering the population's salient beliefs. We therefore computed the percentage of paraphrases in each subcategory in order to identify the salient subcategories. Our findings are presented in Tables 3 to 5.

Table 3: *Salient subcategories within the main category "attitudes"*

Categories	Frequencies	Percentages	Cumulative Percentages
Positive intrinsic value/fun	39	21.9	21.9
Positive intrinsic value/community	31	17.4	39.3
Positive utility/personal growth in the domain of music	23	12.9	52.2
Positive utility/personal growth not related to music/other	20	11.2	63.5
Positive utility/economic and social distinction)	12	6.7	70.2
Negative intrinsic value/fun	10	5.6	75.8

Table 4: *Salient subcategories within the main category "subjective norms"*

Categories	Frequencies	Percentages	Cumulative Percentages
All positive, none negative	35	26.7	26.7
Positive parents	23	17.6	44.3
Positive family (not parents)	17	13.0	57.3
Positive teacher	17	13.0	70.2
Positive partner, friends, peers are not musical or no explicit categorization	15	11.5	81.7

Table 5: *Salient subcategories within the main category "perceived behavioral control"*

Categories	Frequen-cies	%	Valid %	Cumulative %
Negative time	49	33.6	33.8	33.8
Negative academic stress	16	11.0	11.0	44.8
Negative talent	10	6.8	6.9	51.7
Positive costs	10	6.8	6.9	58.6
Positive time	10	6.8	6.9	65.5
Negative personal stress	9	6.2	6.2	71.7
Negative discipline	8	5.5	5.5	77.2

Comparing musically active and inactive respondents

We first compared the number of statements generated by musically active versus inactive respondents by computing a chi-square test for all statements, regardless of category. There was no statistically significant difference between the two groups, indicating that musically inactive respondents produced as many statements as did musically active respondents. Subsequently, we compared the mean number of paraphrases per respondent in each main category (i.e., attitudes, subjective norms,

and perceived behavioral control) for musically active versus inactive respondents. As illustrated in Figure 2, we found statistically significant differences in attitudes and subjective norms: Musically active respondents generated more statements concerning attitudes (U = 143.0, p = .04) and subjective norms (U = 130.0, p = .01) than did musically inactive respondents. The two groups of respondents did not differ significantly in terms of the number of statements related to perceived behavioral control. Finally, we compared whether musically active respondents produced more positive statements than did musically inactive respondents. Aggregated across the three categories, musically active respondents expressed more positive statements than did musically inactive respondents (U = 141.5, p = .03).

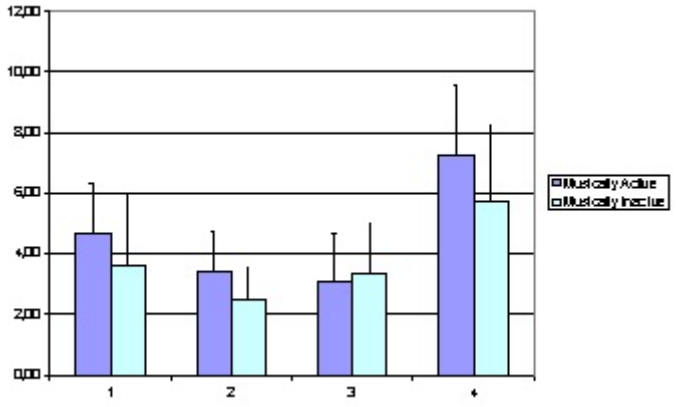

Figure 2: Mean numbers of statements classified to the different categories (1: attitudes, 2: subjective norms, 3: perceived behavioral control). Category 4 shows the overall number of positive statements generated.

Discussion

The content analysis procedure documented in this study provides a useful guideline for future elicitation studies based on the theory of planned behavior: It resulted in a reliable coding of paraphrases to the set of subcategories identified. For each TPB construct explaining intention (attitudes, subjective norms, and perceived behavioral control), we identified six subcategories that together contained 75% of all paraphrases. Thus, the procedure of inductive category formation proposed by Mayring (2008) seems to be an appropriate approach in the context of elicitation studies.

Beyond this demonstration of the method, the substance of our findings on the domain of extracurricular musical activities is also interesting: Musically active and musically inactive respondents did not differ in terms of the total number of

beliefs elicited. However, musically active respondents reported more beliefs related to attitudes and subjective norms than did musically inactive respondents. Furthermore, aggregated across the three categories, musically active respondents generated more positive statements than did musically inactive respondents.

The set of subcategories derived in the present study can be used as a starting point for future studies involving the quantitative analysis of extracurricular activities in high school and their determinants. However, it may also be interesting to replicate the present study with more refined, combined methods of qualitative and quantitative analysis (i.e., methods triangulation). Analysis of video recordings may provide additional insights here. For example, video recordings of interviewees could be analyzed for nonverbal expressions of positive or negative emotions. This approach might provide an interesting means of analyzing differences between musically active persons and musically inactive persons on a behavioral level. Nevertheless, in the present study, combining methods of content analysis adapted form Mayring (2008) with the established elicitation study approach proved to be a viable strategy for identifying salient beliefs in the context of research on planned behavior, such as participation in extracurricular musical activities.

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The software for the content analysis: wrong, technical and artistic uses

Tiberio Feliz Murias, María Carmen Ricoy Lorenzo and Sálvora Feliz Ricoy

Abstract

The Computer Assisted Qualitative Data Analysis (CAQDAS) software represents an important tool in the instruments for qualitative research. We have reviewed its definition and the possibilities of some of them. We describe their usual functions and tools. Starting from the research methodology, we delimit the different kinds of uses: bad, technical, and artistic ones. Several examples of uses are described with the development of a specific case: the unusual use of tables. Finally, starting from our experience, we give some guidelines for research teaching.

Introduction

CAQDAS means Computer Assisted Qualitative Data Analysis. Nowadays, all types of research are supported on technological tools. One of the problems of the qualitative research was traditionally the hard work of content analysis. The software could help us in this task. However, it does not assure the quality. There are different kinds of software uses: bad, technical, and artistic ones. Sometimes, the procedure is not adequate or appropriate; there are inefficient or non-technical uses; the users do not prepare or do not orient correctly the analysis; or they speculate instead investigating. Using software is not only to do a technical use, however the user could have an artistic use. As for the writer, using a pencil is different from writing a poem. With several examples, we try to describe what an artistic use is and we develop a specific case with unusual uses of tables. At the end, starting from our experience with doctoral students, peer review of articles, and post-degree dissertations, we give some guidelines for research teaching.

CAQDAS

A definition

We use CAQDAS to refer to Computer Assisted Qualitative Data Analysis. That means we use software to improve the traditional handmade tasks for a specific purpose: to analyze qualitative data. This kind of analysis starts from qualitative data but can have very diverse developments. Really, we could analyze qualitative data

on our computer with software of general purpose as a spreadsheet or a word processor. For instance, we could analyze the content of a diary in a word processor putting the segments in brackets, underlining them, or changing their colours. This methodology is already quite handmade. A CAQDAS has to offer specific tools to make easier our work and to provide specific outputs.

Traditionally, the qualitative data were mainly texts and sometimes fixed images as photos, sketches, pictures, posters, and drawings. Nowadays we also collect data with video recorders. The texts can be original ones, written by the authors (as a diary, an autobiography or fieldwork notes) or can be transcriptions of audio recordings or video recordings. When we have to transcript the original document, we have to consider the rules and guides for it. The original textual data were used traditionally. Really, these documents allow several kinds of analysis. The CAQDAS are oriented to develop the qualitative analysis.

The qualitative analysis

The qualitative analysis is an open approach that starts from open data, from non-structured or less-structured data. The diary, the autobiography or the fieldwork notes are examples of less-structured data, even if we give rules or indications to write them. The non-structured data are usually natural documents or writings for other purposes. For instance, the diary could be asked by the researcher or could be the personal diary of people.

Talking about the qualitative analysis is very difficult because there are a lot of approaches and methods to develop a qualitative analysis. Russell Bernard (2000, p. 417) distinguishes four situations:

- Qualitative analysis of qualitative data
- Qualitative analysis of quantitative data
- Quantitative analysis of qualitative data
- Quantitative analysis of quantitative data

This author defines the analysis as

> (…) the search for patterns in data and for ideas that help to explain why those patterns are there in the first place. The way I see it, analysis is ultimately all qualitative. It starts before you collect data – you have to have some ideas about what you're going to study – and it continues throughout the research effort. (Russell Bernard, 2000, p. 419)

That means that he considers the qualitative analysis as the foundation of any kind of analysis. Consequently, the qualitative analysis could be considered as a step in a complex process or as a process with final goals *per se*. The qualitative analysis allows several possibilities whatever your position and research strategy:

- The relevant or significant data to answer to the research questions or to prove a hypothesis (Patton, 2002).
- The theoretical categories that represent a set of data or segments (Lazarsfeld, 1972).
- The reduction of texts (Strauss & Corbin, 1990).
- The situation or the evolution of some specific data in a timeline, a text, or any kind of document (Medina et al., 2001).
- The fundamental structure (Colaizi, 1978).
- The patterns and themes (Patton, 1980).
- The comparisons and relationships among several data (Ragin, 1987).
- The regularities of the discourse analysis (Tesch, 1990).
- The attribution of opinions or states (Huber, 1997).
- The interpretation and alternative understandings (Marshall & Rossman, 2006).
- The graphical representation (Feliz & Ricoy, 2007).
- The construction of a theory (Glaser & Strauss, 1967).

Examples of CAQDAS

We review some of the best-known CAQDAS. All of them allow the analysis of texts, videos, pictures, and audios.

Aquad http://www.aquad.de/	Atlas.ti http://www.atlasti.com/
NVivo 8 http://www.qsrinternational.com/products_nvivo.aspx	MAXqda http://www.maxqda.com/

Computer based tools for qualitative analysis

Main functions of CAQDAS

The offer of CAQDAS is very diverse and each software has its own tools. Even so, reviewing the most important ones, we can extract the most common functionalities as:

- *Storing data*: According to it, the research team has to collect the data and to prepare them to load them inside the software. Some CAQDAS allow

the analysis of external data. In these cases, the CAQDAS registers the analysis information as codes or notes about external documents as diaries or photos.

- *Project management*: A CAQDAS facilitates the organization of the research strategy as a project. The organization includes aspects as the naming and ordering of data, the organization of steps, and the distribution of the tasks among several members of the team.
- *Access to data*: As a warehouse, the CAQDAS facilitates the easy access to the data according to criteria as the name, the date, the content (as words), or over data that could be inserted in the name (the name could include the author's name, the source, the creation process, and so on). With a single click, the researcher can access to any document in the CAQDAS.
- *Exploring the data*: The CAQDAS make easy the exploration of the documents. The researchers can read them, observe them, or scrutinize them (according to the nature of the document, reading can be substitute by watching or listening).
- *Coding*: One of the most common functionalities of the CAQDAS is the coding. There are several ways to code, as in the methodology, as in the interface presentation, however the process allows even the identification of a fragment of the documents (a segment of the text or the recording) and the association of a code. The code is the CAQDAS name accepted to designate the category concept in the traditional content analysis, but it allows a larger concept of analysis.
- *Retrieving*: The CAQDAS allows retrieving the selected segments. The researcher could retrieve all the segments of a code or set of codes. Sometimes he/she can search according to some criteria related to the codes, their names or their features.
- *Data organization*: The CAQDAS organize the data with the database functions. The researcher can search, sort, and relate the codes and know their situations and their occurrence.
- *Writing tools*: Usually, there is a writing tool to keep inside the CAQDAS notes, comments or observations. These writings can be usually related to the texts, segments or codes.
- *Output*: The CAQDAS generate documents with results as tables retrieving codes or relating them, original documents with added information as codes, or lists of codes and their situations.

Other useful tools

Some other tools are useful for the qualitative analysis. We give some examples:

- *Word processor*: To prepare texts and transcriptions and to prepare outputs and text segments for the report.

- *Notepad*: to clean texts and to get them without formats.
- *Digital recorders and cameras*: to collect original records.
- *Spread sheet*: to manage occurrence data and tables.
- *Database*: to manage codes and text segments.
- *Renamer*: to prepare the names of the digital files in case there is a large number of files.
- *OCR software*: to get text files from image files, for instance, scanned documents or document photos.
- *Automatic transcription software*: to get text files from audio files.

The use of CAQDAS

Methodology

In this CAQDAS review, some methodological questions could be interesting. A general framework could collect the context description, the state of the art, the research questions, the goals, the research strategy, the research situation (designing it or focusing it), data collecting, previewed analysis, and conclusions. In this framework, the CAQDAS are tools. If the CAQDAS are not useful to develop the research strategy, the research team has to select other means and tools.

- Goals

The human action has usually goals, we act to reach some goal. Research is an example of human task oriented to a goal. We need clear goals to manage adequately the CAQDAS tools and to insert them in the whole process. They are chosen in a social, cultural, scientific context and are linked to it. The goals determine the strategy. For instance, as Strauss & Corbin (1990) stated, the degree of integration the set of findings is related to the ultimate research goal (findings or theory development). Instead of goals, the researchers often prefer questions. Sometimes, hypothesis could be used.

- Research strategy

The research strategy could be described as successive steps and mechanisms that the researchers are developing to achieve their goals. The goals are the finishing line and the strategy is the path. The CAQDAS are means that offer opportunities to get better analysis and make easier it. They contribute more rigor and easiness to the strategy, supporting it. For the same goal, we could usually design several different strategies. Unlike Bernard S. Phillips (1971, p. 285) who stated "Is it not true that all research strategy attempts to accomplish the same end?", we think that not all the strategies have the same end but the same end could have several appropriate strategies.

- Analysis technique

The analysis technique is the way the researchers are developing the analysis. The analysis is a main concern for the social researchers. For instance, the Harvey Russell Bernard's book (2000) has six chapters about the data analysis. The analysis technique requires some decisions that are mediated by the goals but also by the kind of data. Generally, the open data require combining finding and organizing procedures. According to the goals, you have to decide what you are finding (for instance, the analysis unit) although how you are organizing them (for instance, categories, codes or memos).

- Collecting data / recording / transcription

The data collection is an important moment in the design that is determined by previous decisions. However, it mediates the possibilities of analysis. For instance, the field notes do not allow the quotes as well as the recording with an audio or video recorder. However they allow other observations that could lose a video camera that focuses only one perspective of the scene. When needed, transcription would be added. The researcher has to consider several dimensions as Marshal & Rossman referred (2006, p. 136): "The researcher should determine the most practical, efficient, feasible, and ethical methods for collecting as the research progresses."

- Preparing texts / files

As we described about the coding, inquiring, and analysis of data, the texts could be prepared according to the data, the research strategy and the CADQAS possibilities. Some features could be prepared when transcribing; other ones could be added. Some possible decisions in the text preparation are length of lines, the text format (font, size, colour, etc.), identification of speakers, use of abbreviations, identification of places or people (for instance, using roles, positions, or initials), correction of spelling mistakes, or translations of foreign passages.

- Designing the project [inside CAQDAS]

The CAQDAS project derives from the research strategy and could consider for instance the number of researchers, the texts, and the coding strategy. Some times, the upload of the text units has to be discussed. For instance, the messages of a virtual forum could be uploaded as units but also as conversations (threads) or as contexts (folders) according to the goals or questions of the research (Feliz, 2007). The upload unit allows usually comparisons among them in the CAQDAS. The researcher has to decide which level is meaningful in his/her strategy.

- Coding strategy

Starting from the research question or the goals, the researcher has to define the coding questions. Which is the difference between the research question and the coding one? The research question is a more general one and determines the coding questions that only orient the coding process. When coding, the coder has to know what he/she is searching. Usually, the coding questions have to delimit the content

(what), the analysis unit (how much), and the number of codes (how many). In the other side, we could adopt the Strauss and Corbin's strategy that they named open coding (1990). The coding strategy must also consider the procedure organization: a first reading and a slower coding; a general coding and successive, deeper ones; an episodic coding and larger, systematic ones, etc.

- Testing process

The CAQDAS offer tools to test the coding process. Periodically, the coder has to review his/her work. Some elements to focus are: nesting, overlapping, multiplicity, or non-using (Huber, 1997). That does not mean that there are mistakes, nevertheless they could be analyzed. Usually, they could be also tested retrieving the codes and the segments. Tables are also good tools, for instance, when each speaker is waited to provide a piece of data (job, age, etc.): design a double entry table with speakers in columns and data in rows. The empty cells evidence the absence of data (Feliz, 2007).

Kinds of use

Wrong / good use is a quite simple dichotomy. Allow us to consider some dichotomies in the use of CAQDAS as:

- *Inadequate* / *adequate*: The adequateness is the general quality of correctness of the procedure. A procedure is adequate when it is well done.
- *Non-appropriate* / *appropriate*: The appropriateness is the quality of the means according to the goals. The use is appropriate when the strategy is consistent with the research questions or the goals.
- *Non-technical* / *technical*: The technical use follows the software guide. A technical use is a mechanical perspective and does not assure the adequateness and the appropriateness.
- *Inefficient* / *efficient*: The efficiency avoids unnecessary time and effort. The CAQDAS allow a more efficient analysis but this efficiency has to be related to the adequateness and appropriateness.
- *Unprepared* / *prepared*: The preparation is an important step. A prepared analysis is not even a good analysis but it increases the probability and the evaluation of the process.
- *Non-procedural* / *procedural*: The procedure is an important component of the strategy. An open procedure requires much more researchers' competences and a more systematic one increases the appropriateness. However, it does not assure it.
- *Non-empirical* / *empirical*: The evidences increase the evaluation of the results and conclusions. Also if the data come from discussions, reflections, opinions, or suggestions, the codes have to be linked to specific data. The retrieving tool allows to check and to confirm the real basis of the categories.

- *Disoriented / oriented*: The orientation is given by the goals / questions and the strategy / procedure. The first one indicates the directions; the second one shows the way. Direction and way give us the support to orient our action.
- *Unchecked / checked*: We use "checking" to specify a continuous evaluation process. Frequently, the analysis process lasts several days or weeks and could go off course. The frequent checking allows us to confirm the congruence of the procedure and the goals or the changes in the initial strategy.
- *Speculative / investigating*: Speculation is an important step in the beginning and in course of the research. We could be permanently reviewing our feelings and believes. However, the process has to be consistent and coherent: we can't apply different procedures to different parts or change the goals in diverse sections. The analysis is not an arbitrary procedure.

Causes of wrong use

Starting from our observations about doctoral students, peer review of articles, and post-degree dissertations, we could indicate some mistakes in the use of CAQDAS:

- *Short or no training*: Software attracts researchers. It seems a powerful tool, and it is, but it needs a minimum of training. Self-training could be sufficient. Software has useful helps and guides, but it is necessary to read them and do essays before using it. Frequently, the students avoid it and trust their general competence in computer use to solve this learning. In spite of believes, the weakest zone is not the tool use but the procedure of the content analysis. The qualitative approach is charming – we agree –, but it needs training as much as other ones.
- *Self believes*: The novel researcher (and not so novel ones) could be influenced by his/her previous expectations and hopes. The novel are more frail but everybody has self believes and they really influence our behaviour. Try to limit its effects either reviewing the decisions later or contrasting them with another people.
- *Lack of competence in foreign languages* (especially English): Some software is used in English and users do not always have a good level.
- *Little or no experience*: Even knowing the software, experience increases the possibilities to use it well. Sometimes, the users realize one unique use, for instance, for a specific work or for the dissertation. It is difficult to do it well.
- *Justifying an official research*: the software gives seriousness, consistency, foundation, and guarantee for committees, commissions, and boards. Sometimes, its use in reports is just a justification, not a need, and it is a mere adding.

- *Excessively ambitious sampling*: the sample is a condition for reliability and an important question in quantitative research. Lincoln and Guba (1985) recommended sample selection to the point of redundancy. Patton (2002, p. 246) recommended a "minimum sample based on expected reasonable coverage of the phenomenon given the purpose of the study and stakeholder interests." We could add the time and availability of the researcher. A smaller sample is better if the process is well done; a larger one is worse if the process is not well done.
- *Time contraints*: As Kant said, the time is an a priori condition. No time means no research. In this case, a manual procedure is recommended. The reserachers should save the time to learn the software management and invest it in the learning of the qualitative procedures.
- *Errors*: Sometimes the users make mistakes of interpretation or wrong application of procedures. For instance, counting codes is not meaningful per se, but depends on the participants and their specific values. One speaker could talk very much about a topic, while no one of the other speakers mentions this topic. A high frequency of particular codes does not mean that they refer to a frequent topic among all speakers.

Artistic use

We talk about artistic use, if the software is not used as described in the software manual, but provides nevertheless interesting results. This is an appropriate, adequate use, but it was not previewed in the software tools. It is much more than the technical use – like, for instance, applying a word processor to write a poem. Some possibilities of artistic use are:

- Unusual methods
- Creative management
- Extra-uses
- New possibilities
- Not foreseen applications
- Divergent solutions
- On purpose answers

Some examples

The best way to explain these possibilities is with examples. Let's see some of them:

- *Time codes*: Any research process with any instrument is a process in the course of a timeline. Think on a discussion group about the problems in the relationships for 45 minutes. Thinking on the absence of confidence, you could ask for differences among the participation at specific points in times. When transcribing, you could insert marks in the text every ten

minutes. With them, you could code specific moments every ten minutes or periods of ten minutes, and you could observe or analyze the possible differences or variations according to the time.

- *Using audio codes for transcription*: When the data are audio recorded and you need to transcribe them, you could use the CAQDAS if it admits the audio format. Insert a position mark regularly, for instance, every 10 or 15 seconds and use the tool to listen to the snippet again to transcribe it. After this transcription, pass to the following one. These marks could also be converted into codes that could allow a time line analysis as described in the previous point.

- *Lateral codes*: Lateral codes are not related to the content but to the profile, production, or expression. The profile codes refer to data of participants or speakers like gender, nationality, age, job, experience, etc.; the production codes refer to contextual or circumstantial data as noises, simultaneous talking, or gesture information; the expression codes refer to non-verbal data that go with speech as tone, speed, security, etc. Lateral codes are recommended according to the research questions or goals.

- *Text as content / text as code:* One of the problems of coding is the level of abstraction for their redaction. Blumer (1954) talked about "sensitive concepts" to refer to the basic codes close to the text and "definitive concepts" to refer to most elaborated ones (Quoted by Hammersley & Atkinson, 1983, p. 212). For a first step, we could recommend sensitive coding and the codes could be combinations of words such as keywords extracted from the text. For instance, we could use children-room-order or wife-hobbies-decision to refer to some kinds of problems. In a second phase, we could rename, divide or gather them in order to get definitive codes.

- *Coding codes:* Usually the researcher codes fragments of texts, audios, photos, or videos. We cold consider a second level of coding: coding codes. Save the list of codes for each document (text, audio, photo, or video). Analyze the possible links, regularities, singularities, structures, or relationships, and code those. On this second level of coding, the codes refer to superstructures that are difficult to detect inside the primary documents. Observing the lists of codes, you gain new opportunities to detect them.

- *External links*: The codes could refer to external links as authors, books, other researches, dates, other data, other instruments, websites, etc. These links allow us to establish relationships with other ideas, topics, or

concepts. This kind of coding relates to external elements that contextualize the content and provides windows to new horizons that could be analyzed afterwards.

- *Extra testing*: The CAQDAS have specific tools to test the coding. Some other suggestions could be given. For instance, the profile data are unique for each speaker. A list of codes for each interview ought to have only one code for each speaker and feature (age, gender, etc.). If we want a more automatic test, we could create a frequency table with speakers in the columns and features in the rows. If any cell has more than one, there is a mistake. Some features to test are the personal ones, the places, the times, and others whose number is known previously.

- *Designing codes*: The codes are usually composed of letters. Explore new possibilities using non-verbal signs (- > + *) and numbers. The catalogs or lists of codes are usually put in alphabetical order. The non-verbal signs move ahead or postpone the codes in the order. Suppose you are coding profile codes. If the asterisk moves ahead the codes in your software, you could insert it and code all the profile features in a first phase. Afterwards, you could supply it with another sign that postpones the codes in the list. You could also use letters, for instance, *a-father, a-mother, a-sister*, etc.; they would be at the top of your list and *z-father, z-mother, z-sister*, etc. would be at the end. Numbers allow a classification of codes according to several dimensions and levels. Starting from the research questions, you could wait for several dimensions and levels of codes. With scientific numbering, we could identify the dimensions and levels of codes (1.1 code a, 1.2 code b, 2.1 code c, 2.2 code d, etc.). In the examples, "1.1 code a" means that code a is a second level in the first dimension: "1." refers to the first level of the first dimension: ".1" (the second "1") refers to the first code of the second level, which follows ("code a"). The numbers allow to determine the position of the codes in the general coding structure (Medina et al., 2001).

- *Unusual use of tables*: As we have seen, tables could be used as tools for systematic analysis. Miles and Huberman (1994) described the possibilities of the matrices for qualitative analysis. You could combine several kinds of dimensions: time, places, persons, activities, events, resources, instruments, etc. You could also analyze the relationships between the codes within the same dimension (same codes in the rows and columns). Miles and Huberman (1994, p. 240) propose two lists of possible categories to combine: one list refers to "individuals, roles, relationships, groups, settings (places or locales with sites), and sites as wholes;" the other list refers to "specific acts, events, activities, strategies, meanings, perspectives, states, processes." In each case, you could check your own

suggestions. Try them: you will lose nothing. That is an opportunity offered by the computer. As it seems the most meaningful way, we are going into the tables in depth.

Development of a specific case: Unusual use of tables

We are extending the possibilities of the singular application of tables with four examples using featuring, localizations, evolution, and associations. We are supporting the examples with some graphical information:

Profiles:

If you create a table with persons in the columns and features in the rows, you obtain their profiles. In figure 1, you could compare different persons. Each column describes a person's profile. Like for persons, we could have columns with types of persons, groups of persons, or discussion groups (Miles & Huberman, 1994).

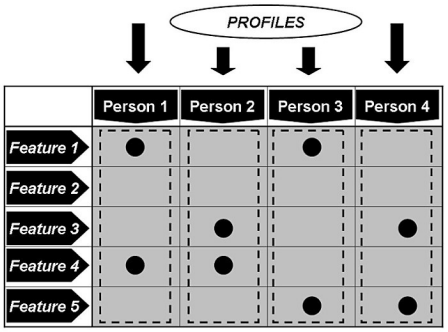

Figure 1: Profiles of persons

Regularities or singularities:

If you create a table with events in the columns and other codes in the rows, you could detect regularities or singularities. Regularities imply a repetition of a scheme, a sequence, or a combination of codes; singularities are single codes in specific situations or contexts. Regularities could generate norms, rules, patterns, or guidelines; singularities could originate exceptions, strange cases, or original answers (Miles & Huberman, 1994). By this way, you could also establish typologies. There are several kinds of typologies that were used by diverse authors (Hammersley & Atkinson, 1983). Another application is "sampling of typical cases", described by Patton (2002, p. 236).

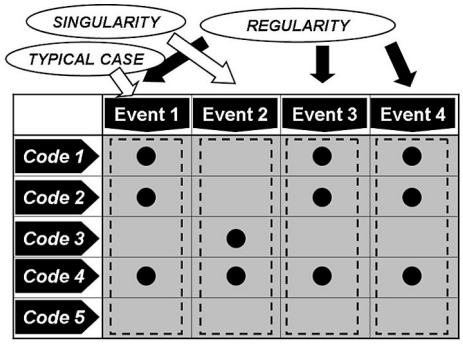

Figure 2: Regularities and singularities

Localization and maps:

If you create a table with events in the columns and places or features in the rows, you could study the localization of places in the events or a description of the presence of a feature in the events. If we wanted, we could insert the specific codes of one feature in the rows. In figure 3, we could compare different events. Every column describes an event. You could also obtain a map of this feature among the different persons (figure 3). The maps are means to build causal networks (Miles & Huberman, 1994).

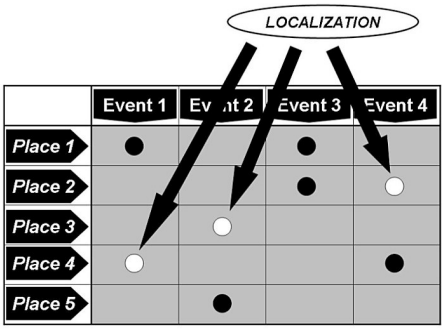

Figure 3: Localization of features

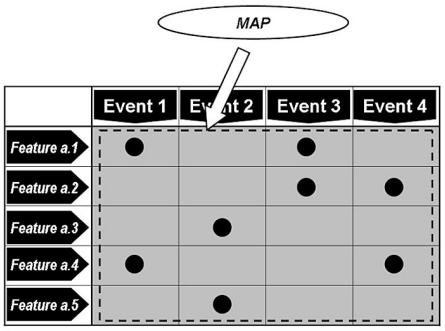

Figure 4: Map of one feature

Studying the time

If you create a table with time unit in the columns and other codes in the rows as features, opinions, persons, or events, you could analyze the time as the evolution, the sequence, or the speed (Medina et al., 2001). If we code different phases in a discussion group (columns), we could analyze the occurrence of other codes as opinions or topics in the course of the sessions. We could also study the sequence, the intensity, or the speed. The sequence indicates the order that could be sometimes an important question. The intensity shows the points of higher or lower occurrence (see figure 6). The speed is the occurrence per unit of time and points to the production changes in the course of an event or session.

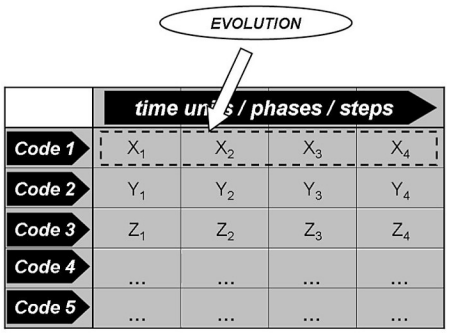

Figure 5: Evolution of an event

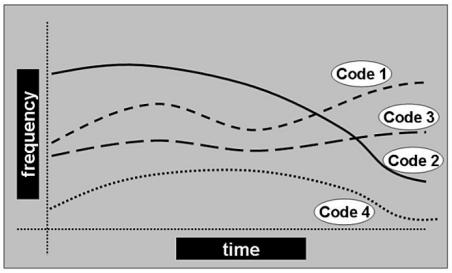

Figure 6: Graphical representation of the evolution of codes in the course of an event

Interactions / associations / fluency / connections

Sometimes you want to investigate the interaction among the categories. In a table with the same categories in rows and columns, the crossroads indicate the interactions (figure 7). Usually, the diagonal should have the higher frequencies. However, sometimes we could find other interactions, crossroads with significant occurrences between different codes. That means some segments have different codes. It could be normal if we are coding on several dimensions, but it could have other meanings if they are codes of the same dimension. For instance, Medina et al. (2001) found that the participants in discussion groups about a practical training introduced different categories to the asked ones. They concluded that the asked ones derived into other significant ones because of their functional connections and they designed a *map of fluency* to represent graphically these relationships (figure 8).

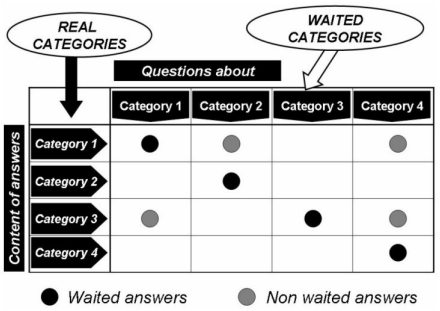

Figure 7: Analysis of interactions

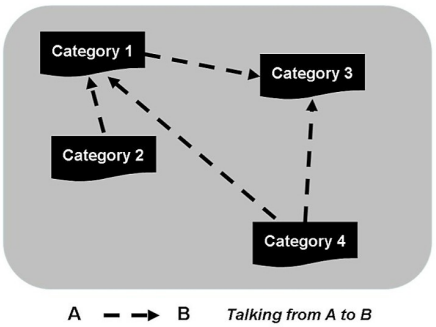

Figure 8: Map of fluency

Guidelines for teaching how to do research

Starting from our experience, we could give some guidelines for teaching how to do research:

- *Training to ask*: the main determinant of a research is the initial question; bad questions cannot provide good researches.
- *Searching relationships and analogies*: give opportunities to speculate about the interactions among the data; ask for observations, comparisons, and contrasts.
- *Inquiring and investigating*: researching is also investigating; get the students used to write a diary with their reflections and remarks.
- *Transfer of techniques and solutions*: do exercises transferring strategies from one situation to another; transfer questions, instruments, techniques, etc.
- *Constructing frameworks and functional schemes*: try that they construct specific frameworks or schemes; they could name and apply them to diverse contexts and problems.
- *Triangulation of methods and sources*: suggest other ways for the same purposes; ask the students for other means, other strategies, or other instruments.
- *Designing and planning strategies*: discuss on written proposals; get your students accustomed to write their research designs.
- *Contrasting with others*: work in groups and teams; use groups for discussions and making decisions; organize teams to develop specific studies: nowadays, individual studies are anachronistic strategies.
- *Self-reflection*: promote reflection. Ask for specific tasks of reflection about their own work or the work of others. Teach principles like coherence, cohesion, and sense.
- *Self-reviewing*: increase the reviewing asking for partial reports about specific moments of the development of the research. Emphasize the improvements

and changes in the reports and their consequences in the previous steps, guaranteeing internal coherence.

- *Re-using data*: ask for the original data and store them. Collaborate with libraries to develop data set or store the research data to reuse them. The second analysis is an interesting approach in qualitative research (Corti & Thompson, 2003).
- *New contextualization* (cultural, time, space, science): repeat classical or published researches changing any variable as the cultural context, the time, the space, or the science.
- *Interdisciplinarity*: organize interdisciplinary meetings and interdisciplinary teams. The interaction and integration of several disciplines is an actual, necessary approach (Moran, 2002).
- *Heuristic, creative techniques*: be creative, encourage creativity; teach heuristics in the diverse phases of a research: to ask questions, to explore hypothesis, transform previous researches, etc.

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Didactic usefulness of video games

Antonio Medina, María-C. Domínguez and Samuel Gento

Summary

Technology expansion is a typical phenomenon in today's societies. Beneficial effects of this phenomenon are generally evident in many contexts and areas of human activity. And, although the field of education tends to be conservative, the use of technology is progressively being incorporated in didactic and educational processes.

As with many inventions produced by humans, the use of new technological tools has not always caused profitable effects. Concern on positive and negative effects of technology is observed in many areas of human activity. It is particularly important and relevant in education, in particular, in reference to the development of children and adolescents. One of the technological products that recently spread widely among children and, particularly, adolescents are video games. However, educators, academics and authors have been studying possible disadvantages of inappropriate use of video games. More recently, some researchers are trying to find out whether suitable use of video games could be considered as a helpful and beneficial didactic and educational means to promote learning and personal development in students.

The basic question is: Can technology in general and video games in particular be useful didactic means to increase and accelerate knowledge and personal development in children and adolescents? This question caused the research project presented here.

Empirical studies in the literature and data collected in this study show that inappropriate use of violent video games by children and – extremely relevant – by adolescents can cause disastrous effects such as aggression or violence. However, a controlled and balanced use of appropriate games may be beneficial for users and increase knowledge acquisition and educational development. Empirical data also show that a number of teachers have scarce knowledge of video games and do not know which video games are used by their students. However, other teachers have incorporated video games into their didactic and educational activities and are discovering that these technological products determine advantageous results. Students using those games benefit both in knowledge acquisition and integral educational development. Moreover, apart from the possibility of using these means to promote intellectual competencies, they could also be profitable materials to promote the development of social, moral, artistic values.

Introduction

Is the use of video games useful for improving learning and educational training processes? Which types of video games are more effective for improving teaching and learning processes? Which interventions or actions should be implemented to facilitate that teachers incorporate video games in their didactic and educational activities? How can teachers be involved in a collaborative and integrated planning and use of video games?

These questions are guiding the case studies we are considering and also the analysis of other research efforts like those of Gross (2000), Estallo (1995), Calvo (1998) and Segovia (2010), among others, who took the educational video game approach into consideration and presented evidence for its positive effects.

The case studies we are carrying out with teachers of several secondary school centers are aiming at:

- The identification of video games that are profitable for educational use;
- The discovery of the potential of video games in involving teachers in collaborative tasks among themselves and between them and students;
- The assessment of whether the use of some video games can affect the manifestation of disruptive or violent behavior.

The research problem

The use of video games in the knowledge society is particularly linked to the leisure time. The new ways of using ones free time are important since they generate opportunities for job creation, initiate new forms of behavior and cause the uncontrolled behavior and its unpredictable effects.

Our intention is to present evidence based on data about classroom processes allowing us to see whether video games can be used as an educational resource that stimulates students' learning processes, gives impetus to better educational performance and facilitates teachers' didactic dedication focused on a new individual and collaborative role as professional educators. Another aim of this research is to discover the impact of video games on interest and motivation for formative processes as well as their progress. This implies a selection of those technological means useful for implementation in educational activities. The potential of cybernetics and digitalisation offers new tasks, objects and environments to promote students' relevant and most effective learning, stimulation of collaborative work among students and among teachers, facilitation of students' autonomous learning, development of their abilities (mainly the communicative, technological and social ones), anticipation of new jobs opening attractive opportunities in informatics and other new professions typical of new labour contexts emerging in productive societies.

The debate about the negative influence of many ego shooter games on the one hand and the educational and didactic usefulness of these and other video games is becoming more pronounced. The core question is whether they contribute to improve teaching/learning processes and outcomes.

The use of video games to improve learning and teaching processes may be considered as a nuclear factor of student's motivation since an increasing number of students use them as entertainment. Some authors consider that the use of video games could be beneficial to master new societal challenges, particularly for students on the lower educational levels or during early adolescence (12-14 years). A rational use of video games could help those pupils or students to face innovative tasks, to increase their knowledge in interactive ways and to develop processes of active learning (Huber, 2008).

A proportionate and balanced use of video games could, then, have a positive effect on the educational promotion of the activity principle, already assumed by Dewey ("learning by doing"). Other authors affirm this activity as essential to promote relevant learning and to deep commitment of learners with their own life projects. Since the inappropriate use of video games could prevent that students participate in required activities, it is necessary to clarify the limits of their use in education.

Flexibility, availability and adaptation of multiple forms of "online, virtual and digital scenes" potentially open up new opportunities of collaboration and participatory research for students and teachers. One example of such an opportunity is the spread of 3-D films and video games. In addition to the increase of attraction of strong playful principles offering new possibilities of enjoyment, they offer also opportunities for exploration in creative educational spaces and cybernetic contexts. Obviously there are new challenges for teachers to integrate these means into their educational and didactic designs in order to make best use of the potential offered by video games.

The sensible, intelligent, and inter-culturally organized use of video games could provide exciting opportunities for educational integration and inclusion of students of diverse cultures (Segovia, 2010), because they can highlight the great importance of knowledge of different cultures' own games and promote the students' socialization. This is a good example how playful and enjoyable materials could be of extremely useful to promote learning, if applied with appropriate didactic approaches and respectful attitudes.

One example of video games that could be used according to this approach and for such purposes is the game "Put yourself into his/her shoes" ("Métete en su piel"). It has been used in some schools of Jerez de la Frontera (Province of Cadiz, Southern Spain) to generate social abilities and assertive attitudes among students with the goal to encourage them to open-up and to understand different cultures (Moroccan, Polish, Saharan, or Colombian).

The experience confirms that this video game has contributed to improve positive values and friendly attitudes towards immigrant people, to facilitate observing and listening to individuals from other cultures and to promote an in-

tense dialogical interaction and mutual knowledge of diverse cultures. Intercultural relationships and social abilities have been investigated in scenes where life is taking place in different cultures and contexts (such as airports, school centers, supermarkets, playgrounds, homes, etc.) and in other social institutions (like city or town councils).

Summarizing, appropriate electronic games should represent the following didactic characteristics:

- Students are motivated to use for their own personal development playful processes, to voluntarily accept game regulations, and to enjoy playing these games;
- Appropriate games are connected with students' interests, they stimulate communicative and inter-cultural social relationships, thus facilitating the knowledge of geographical and environmental different contexts, historical evolution, technological development, artistic manifestations and scientific contribution;
- Correctly applied new technological resources or means, new scenes, and objects set up a beneficial learning environment for students;
- The development of self-esteem, mainly of members of guest cultures, is increased, because they can experience respect and acceptance of their own original culture: When video games and digital technology are adapted to students' needs and are used with commitment, they promote friendly relationship among human beings from diverse origins and improve self-reliance;
- Generally, a similar tendency to play games is consolidated;
- A new literacy is propelled by stimulating thinking and personal progress: wisely used, video games, in full harmony with intelligence, emotions and activity, will produce an immersion into a new culture and into the use of new codes for intelligent communication (video means watching – understanding – playing – enjoying – intelligent development – codified intercommunication).

From this synthesis we can really see that understanding and manipulating multiple cultural realities, based on digital technology and on exponential development, could bring us to an authentic understanding and reacting to new technological means and networks which, rightly used, could produce new ways of intercommunication and could generate a different, rich and developed society of knowledge.

Video games contain an intrinsic potential to facilitate new social sceneries and to offer new knowledge contents and formative elements. Their appropriate use could facilitate expertise to handle new technologies and to develop most creative styles of harmonising image, sound, and text. Furthermore, using video games in multicultural contexts in interaction with various individuals could contribute to consolidate crucial benefits such as playful beneficial enjoyment and

control of some basic, intuitive and reflective rules useful to play and consume video games in diversified sceneries.

Educational and didactic meaning of video games

Intentional and selective use or incorporation of video games into educational activities demands from teachers and students to use these means in investigative and trans-formative ways that should involve them in discovering the formative potential of video games. This will require that teachers and students evolve from an idle or inactive attitude to an intelligent and active application of the new digital technology, from a conservative and rigid system of actual educational processes to integrated methods of interactive and multicultural learning and teaching. Obviously, this will request that teachers are conscious of these new potentials and their limits, select intelligently the didactically suitable materials, suggest their students the most appropriate ones, and apply these materials pedagogically and harmonically. This should not imply that teachers give up other traditional didactic means; on the contrary, the use of these new technological means should be considered as an opportunity to harmonically develop students' ability to treat knowledge intelligently, to extract socially profitable consequences and to participate in collaborative interactions with classmates with different profiles and proceeding from diverse cultures.

The didactic meaning of video games use is based on their symbolic value, on their capacity to globalize messages, and on their great potential to offer contents initially attractive to those who play with them. But, in order to appropriately use them to provoke profitable learning and valuable education, it is necessary to select the most convenient ones for such didactic and educational purposes. An added value of video games is their capacity to stimulate teachers' and students' creativity and technological competences. Such competences and creativity will allow teachers to plan innovative tasks that will generate new modalities of formative practices, integrating processes that will stimulate the ability to find the authentic meaning of the content and its exploitation for participatory discussions and collaborative exploitation.

This integrating approach will provoke the development and consolidation of appropriate competences as has been shown in specific didactic units designed and implemented following such approaches (Medina & Domínguez, 2010): The production of these units was based on the identification of formative focus groups mainly composed of students from lower secondary education. Some of these units were conceived to promote a culture of peace, to simulate knowledge of artistic productions (e.g., "beautiful works of basic art"), to extend the ability of acceding and using virtual games, or to evoke processes of self-improvement with disadvantaged groups, for instance groups at risk or marginalised adolescents, for whom these didactic resources were greatly pertinent.

The methodological adaptation of video games and their transformation into didactic resources as well as their didactic exploitation were based on their potential of provoking student's attraction and on their versatility to produce diverse role models. The didactic exploitation was useful to produce the integral training of students, and opened active collaboration among students, who showed progress in their ability to synthesize. Teachers were able to control learning and teaching processes that facilitated continuous transformation, application of a variability principle and strong involvement of each student in pairs and groups within various multiple training environments.

Video games represent holistic, strong and integrating means to offer students – and people in general – profitable tools to provoke learning, to improve expertise as human beings and learners in a very enjoyable way, to facilitate participation and collaboration by playing different games, to stimulate collaborative learning with enjoyable tools.

Our experience has shown that video games can be used with an appropriate axiological approach to promote knowledge and to provoke educational training (Segovia, 2008-2009). Above all, video games can be of extreme usefulness to understand and internalize a scale of values: the intelligent use of technology and incorporation of teachers and students into the collaborative use of virtual scenes could promote intellectual, moral and social values. But, although video games and technology, in general, can be very useful tools for new forms of learning and for creative strategies to promote education, they have been frequently used by some students without any control at all, just as simple games and, in a number of cases, as vehicles to submerge in aggressive environments that, quite frequently, train students for the use of violence and aggression.

Olivero and Krumsvik (2009, p. 249) consider viego games as "Multimedia documents that integrate and synchronise video, images and texts in one non linear cohesive document." The same authors explain: "Text and video are linked through 'play' buttons that activate the part of the video that is relevant to a particular section of the text or, vice versa, bring up a page that talks about what is happening in the clip at a particular moment" (Olivero & Krumsvik, 2009, p. 250).

Referring to the potential of video games, these authors say: "Video games could provide authentic teaching situations that can lead to deeper understanding of the relationship essential for effective teaching" (Olivero & Krumsvik, 2009, p. 250). And they insist: "The video game is a multimodal, mediating artifact that provides the opportunity to combine texts, videos, pictures, sounds and animations in unified documents" (Olivero & Krumsvik, 2009, p. 251). A graphic synthesis of the elements that make up video games is included next (Kong, 2009, p. 305).

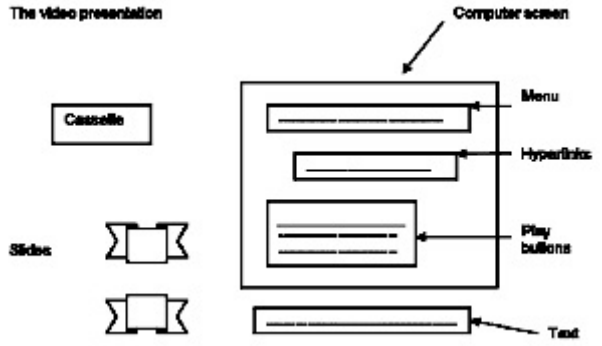

Figure 1: Graphic representation of the elements of video games (Kong, 2009)

The promotion of a school-based development of ICT in education, committed to improve digital resources for learning and teaching of different subjects, provides support for the development of a proper attitude towards using ICT for learning with inquiring approach and with the focus on promoting practical use of acquired competencies. In fact, the ICT application to learning and teaching processes tries to improve school results when such processes are inserted within the pedagogical movement "school based development performance".

A video game represents a virtual scenery where players get access to the phenomena of new technology and have to make decisions how to use it and to transform their behaviour. These are intentional acts based on the wish to make progress in this hobby. Becoming skilful in these new activities that demand personal interaction, perceptive and active processes, symbolisms, intuitive forms, images, imaginative and different dialogues with tasks, sounds, and creative processes.

However, the inadequate use of killer games has sometimes catastrophic pernicious effects. If noxious use of killer video games with aggressive scenes is not hindered or, at least, restricted, it could cause deterioration of human beings' interrelationship in conditions of harmonic, empathic and collaborative interaction (Anderson et al, 2007; Huber, 2008; Medina, Domínguez & Gento, 2009).

When students use killer games, a pernicious effect is quite frequently produced by evoking noxious images and hatred in the user's mind as well as permanent tendencies towards aggressive behavior. As a consequence, the killer game user quite frequently treats people in his/her environment aggressively and violently.

Bases for an educational use of video games

The objectives of the present study are the following ones:

- To describe teachers' and students' opinions as regards IC technology and the use of video games;
- To contribute new educational ideas on video games in order to clarify the possibilities of using such games as effective tools for the promotion of an integral education in peaceful contexts.

Some articles on studies about possible pedagogical use of video games are published. We refer next to some selected articles:

- Annetta (2008) writes about how "to provide a practical rationale for video game use and practical experiences with integrated video games into the K-20 (Kindergarten through graduate school)";
- Craft (2004) writes: "The video-games have a potential of non self-referential disciplines, particularly science, that give evidence of possibility to use them for intercultural and integrated knowledge".

There are a number of video games adapted for the demands of educational application. Some examples are the following ones:

- "Discover Babylon" (www.discoverbabylon.org);
- "Immune attack" (www.las.org/immuneattack);
- "Quest Atlantis" (http://atlantis.crlt.indiana.edu/start/index.html) by NSF (National Science Foundation).

Applying game theory to learning is promising. Playing games offers a synthesized environment of self discipline rules, satisfaction and tension that players must take into account. Vygotsky (1967) considers that playing games is a task that improves abilities and helps children acquire competencies. Annetta (2008) develops a new meta-language that is interesting to understand, analyse and – if possible – expand. Some of the video game concepts shown by this author are the following ones:

- play, performance, simulation;
- capacity, ability;
- appropriation, multiple questioning, distributed cognition;
- collective intelligent, judgment, networking, navigation, knowledge society;

Annetta (2008) concludes: "There is much to be done in this area and what follows is an outline of potential future research on the technology of video games as it pertains to education."

Charsky and Mims (2008, p. 38) think the following way about the integration of video games in the school curriculum: "Teachers should play the game in a variety of ways and trying different strategies, goals and win conditions". One of their surprising sentences is: "We suggest that using the COTS game for six weeks is good, many months may be better, the whole year might be best" (Charsky & Mims, 2008, p. 43).

The technology model provides for learners both a promising context and problematic situations: both can be very important to motivate and develop social intelligence. Clarsky and Mims (2008, p. 43) suggest to use video games to support science knowledge and to provide a powerful new form of curriculum for teaching and learning science contents. These authors consider that a transformational game "should include opportunities to examine one's participation in terms of the impact it has on the ... context."

Objectives of research and case studies

The study was planned to achieve the following objectives:

- To discover the value teachers attribute to the educative use of video games;
- To identify the meaning of the use of "video games for a change in education;"
- To continue evaluating the main findings of Anderson and his colleagues;
- To develop the opinions of Hopf, Huber and Weiß (2008) in order to reveal a possible relation between the use of killer video games and adolescents' unbalanced, disruptive and even aggressive behavior;
- To incorporate video games into processes of learning in different disciplines;
- To evaluate the use of video games as didactic and educational tools and their incidence as a basic form of development of selected didactic units or themes;
- To analyze the didactic and educational potential of video games for global learning and education in instructive school centers where didactic units or themes are implemented;
- To evaluate the potential of video games to develop competencies: basic, communicative, social, technological, geo-holistic, mathematic, intellectual and artistic ones.

Methodology

The methodology was based on particular case studies obtained in school centers of lower secondary education with large coverage, reliability and great development of professional training programs, and has been concentrated on a system of:

- Discussion groups and meetings with teachers;
- In depth interviews (3 to 10 subjects): individually, in pairs and in micro-groups;
- Participatory observation;
- Task analysis.

We have considered the complexity of using video games. As a consequence, we have chosen case studies. Subsequently we present how we implemented an innovative and didactic process during a period of two weeks with teacher and student groups (from 12 to 14 years old) at the first and second level of lower secondary education (Compulsory Secondary Education -ESO-).

The case studies were based on the critical collaboration with teachers in intensive and creative situations of dialogues, analysis of previous experiences, design of innovative didactic units and the implementation of a complete didactic unit with video games, new creative tasks, and (intensive and collaborative) work in pairs.

The research context

The research took place in secondary education centers, where more than 800 questionnaires were distributed to students from 12 to 14 years old (preferably from 12-13 years old). Due to size, location and their attempts to facilitate social cohesion we should particularly mention among other centers those of Linares and Buitrago.

The study presented here offers two complementary aspects: the knowledge of teachers (130 teachers answered a questionnaire) and the knowledge of students. Opinions offered by teachers referred to the following contents, among other ones:

- Meaning of killer games;
- Possibilities of guiding students to a responsible and self-controlled educational use of video games;
- Teachers' knowledge and educational use of video games, knowledge of the most common video games and of the effects of video games on students' behavior and development;

- Use of video games complementary with other didactic means;
- Meaning of video games in today's virtual and technological era;
- Teachers' appropriate use of video games as didactic and educational means.

We have made up two case studies in the center with the highest number of students: more than 1.000 students from first level in lower secondary school up to students of the vocational training cycles (eighteen to twenty years old).

Those case studies implied dialogue with seven and nine teachers for the presentation, justification of innovative actions (using video games and decision making for the integration of some video games in selected didactic processes). Didactic innovative planning of video game use was made up during three weeks (in January and February). A second part of the sequence was made up in April. In both cases teachers have acted according to the following prerequisites:

- The specific period of three weeks was freely chosen;
- A didactic unit was chosen and adapted by the participating teachers;
- Video game and playful computer use was planned to work with;
- Innovating and transformative learning and teaching processes were designed;
- A video game was integrated into the didactic planning and its coherence and pertinence with the didactic unit was justified;
- The research process was planned to be implemented at the beginning of the corresponding didactic units;
- Unit design, video game selection and management of innovative tasks was supervised in a friendly atmosphere but with emphatic intention;
- Special supervision was dedicated to didactic and educational processes implemented in two particular case studies of the vocational cycles (in Linares and Buitrago);
- Virtual processes of teacher training in the didactic and educational use of video games were implemented with the purpose to pay attention to the planning of coherent tasks. Teachers were warned: "Become aware of the value and favourable attitudes to peaceful coexistence within the classroom and within the (Madrid or Jaén) province context."
- Pictorial ability development, technological design and implementation of new ways of communication were assessed with the collaboration of teachers and students.

The institutional context where both case studies took place is characterized by institutions involved in high quality processes, oriented towards permanent improvement, and with students of different cultures and very diverse profiles. In some cases, students and teachers have suffered from situations of harassment or bullying.

Schools evaluated the training processes positively, although there were remarks that the initiative was affected by the available resources and by programs the school was involved in. Anyway, all the participating teachers worked to implement the project successfully.

Process and phases of data analysis

The implemented model of innovation and research was based on the pertinence and complementariness of innovation or research activities and teaching. But this model also demands transformation of the teacher's role and of the assessment of all the actitities teachers have to perform in order to achieve a successful innovation (Medina & Domínguez, 2010).

We found that the activity with the strongest effect on innovation processes is research, if teachers are aware of the transforming effect of the research on the definition of objectives, implementation of methods and its impact. As a consequence, the necessity of research was underlined during the implementation of video games and virtual technology into teaching programs.

The use of video games was seen as a very innovative way of working in classrooms: it has raised questions on its effect on didactic innovation, on research methodology and on some guiding hypotheses associated to the implementation of research, to the multiple tasks teachers should assume, and to training modalities each teacher and student must develop.

We have to stress that teachers self-reflection on their professional practice facilitated their self-knowledge; but this self-reflection should be expanded by transforming teaching practice in a research process requiring suitable procedures and techniques that will show evidence for authentic improvements.

Teachers could ask themselves the following questions related to this research project: Who has been affected by this project? If video games are inserted in didactic units, teaching, and learning processes, how will the whole process work? What are the learning results? Are there other effects in the classroom? Are there any effects outside the classroom and school context? How do students react to this way of working in classroom?

The implementation of case studies – training activities and heuristic methods

The case studies took place in both centers of Linares and Buitrago. The following results were obtained from the implementation of innovative activities:

- Innovative activities were applied during two months. During this period three weeks of dialogue were implemented in order to discuss the didactic meaning of video games and their possible insertion into

educative planning. Teachers mainly concentrated on developing didactic units.

- Definition and preparation of didactic units, adaptation and justification of playful and virtual processes, finally training and determination of research opportunities. Emphasis was laid particularly on educational values, quality of didactic or educational processes and on the adaptation of video games adaptation to the selected didactic unit. Teachers found the following aspects particularly important:
  - Education for peaceful coexistence within the classroom, within the school and in other contexts;
  - Didactic and pedagogical design, without forgetting to plan for enjoyment in teaching and learning situations as well as for poetic and literary expression.

The use of video games was planned as a creative synthesis of the didactic unit, as a tool to master the contents of the syllabus, as a way to promote students' integral education, as an instrument to justify new didactic means, to evaluate its impact on the learning and teaching processes and their outcomes.

Methods and techniques

The innovative nature of this research offers an opportunity to reflect on the effects of a didactic and pedagogical use of video games without forgetting the pernicious effects that some of these games have had on the adolescents, as authors like Anderson, Gentile and Buckman (2007) and Hopf, Huber and Weiß (2008), among others, confirm. In the present research we tried to design together with teachers new methods of educational innovation complemented with the most appropriate techniques of qualitative and quantitative research.

According to these goals collaborative research methods like a content analysis of innovations were used as well as a Delphi technique to obtain experts' opinions about the progress reached by innovative situations of high quality.

At the same time we asked educators, directing teams, students, and families of different cultures about their role in the educational process and whether thy were aware of their involvement in this study.

We also considered whether the teachers were aware of their involvement in innovative research on their teaching activity (Medina, Domìnguez & Gento, 2009) and on their creative role and their potential to apply. In addition we tried to find out their need for in-service training.

Conclusions

The innovation which this project tried to promote will be useless if it is not embedded in a methodology focused on participatory research and action research.

In this respect the importance of discussion groups, of teachers' narratives, of participatory observation and of collaboration with teachers, students, experts, and families of diverse cultural origin has to be underlined.

A useful methodological approach must be substantially didactic, understood as a way to emphasize students' activity, positive acceptance of cultural educational contexts and integral processes of educational development. Thus, educational institutions are transformed into learning communities.

If those didactic and educational aims are irrefutably considered when new means and virtual media are inserted into new teaching practices, an important advance in pedagogical and didactic knowledge will be achieved. In educational contexts with progressively expanded global and local implications, the appropriate pedagogical use of video games and other ICTs will show significant impact on the development of new methodologies. Thus, the pedagogical value and the educational potential of video games will be demonstrated. The precondition is that these games are rightly used in educational processes, above all as an opportunity to promote educational institutions as learning communities.

This transforming integration of new methods with new technological tools and the heuristic analysis of didactic activity in authentic pedagogical ecosystems offers new challenges. Schools should be ready to know, assess and use new means in situations with increasing diversity, where complementary – not just unidirectional – methods should be considered and intelligently used. Innovative methods of teaching and learning analysis will promote human and pedagogical values within new approaches to continuous reflection and integral development.

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