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for the admission test to access the degree in Education, University of Foggia Sannicandro Katia, Cirulli Federica, De Santis Annamaria

Videoresearch and teacher education: giving practice a voice¹

Loredana Perla University of Bari "Aldo Moro" loredana.perla@uniba.it

Nunzia Schiavone University of Bari "Aldo Moro" schiavonefp@virgilio.it

Ilenia Amati University of Bari "Aldo Moro" ilenia.amati@uniba.it

Abstract

What and how can teachers learn from their daily class activities? This study tries to provide a partial answer to this question. The research project has involved 22 classes of different education levels (pre-school, primary and secondary school) from Bari and its district; Video documentation was used as a professional educational practice for teachers' training. The spread of new digital audio-visual technologies allowed easier educational documentation experiences, in which the "making of" of the whole process has the same importance of the final product. Video contents may be also used to analyse and meditate on some specific contexts: video footage, if analysed together with researchers may represent a valuable starting point to favour both explicit and auto-assessment processes. This research also provides a self-assessment sheet used as a device for an educational model based on the use of video footage addressed to teachers' learning.

Keywords

Educational Documentation, Teachers' Education, Videos of Teaching, Video-Research

1. Theoretical framework

Video-research for initial teachers' training has been analysed for a long time. The early attempts of this methodology, called *microteaching*, had place at Stanford University (Allen, 1966); then, video contents were used to enhance *teacher effectiveness* (Orme, 1966) and lately they have been used for teachers' initial and ongoing training (Blomberg, Stürmer & Seidel, 2011; Santagata & Guarino, 2011). The diffusion of digital technologies has increased the number of research on this important methodology, overcoming the operational critical points of first generation technologies. The latter showed problems in video storage thus preventing from spreading this technology in the teachers' initial and ongoing training.

Video-research for teachers' training is a common protocol in the United States and France: here, video contents play a critical-reflective training role used in order to train young teach-

¹ This article has been developed jointly by the three authors. Loredana Perla wrote paragraph 1; Nunzia Schiavone wrote paragraph 2; Ilenia Amati wrote paragraph 3.

ers so that they could consider education from different perspectives (Lin, 2005). Santagata and collegues (2007) demonstrated that teachers in the making enhance their expertise by using video-analysis and sticking to appropriate training protocols. The management of transferring this expertise from theoretical/simulation to practical contexts has not been analysed yet; surely, there is a proven and excellent feedback about practical experience of pre-service teachers' skills. In this sense, Santagata (2011) provides two examples of protocols which can be used to develop these skills: "Lesson Study" and "Video Clubs". Lesson Study is a Japanese training framework that considers teachers' meetings focused on class planning; here, one teacher delivers a lesson while the others observe him/her. The session is often videorecorded. Teachers then meet in order to analyse the involvement of students. Video Clubs are made up of teachers' groups that meet in order to analyse short video contents recorded by the teachers involved in the project, with particular emphasis on the analysis of students' reasoning and learning. In both cases, recent studies demonstrated that video contents facilitate teachers' learning allowing them to analyse in depth the students' reasoning processes, as during the traditional interaction teacher-student they may not be taken into consideration. Video techniques are versatile methodologies and they may be used in several training and research studies with different aims:

a) learning practices;

b) the enhancement of teachers' disciplinary knowledge, observation, peer comparison, documentation of results and educational processes.

Video contents may be also used to analyse and meditate on some specific contexts and actions: video footage, if analysed together with researchers may represent a valuable starting point to favour both explicit and auto-assessment processes². In this sense, it has to be underlined that video-analysis as a multi-methodology practice and an interdisciplinary field of study (Goldman, Pea, Barron & Derry, 2007) is useful to provide an answer to complex educational phenomena, as well as it provides tools and technologies with an high potential of description and understanding of different phenomena. Both researchers and teachers may benefit from this methodology. Using video contents increases the possibilities to learn, understand and interpret phenomena; it stimulates intuitions on both implicit and explicit variables of educational practices; it represents educational processes, in particular inclusive ones (Perla, 2013), stimulating metacognitive and reflection-based aspects towards educational practices.

All studies on the use of video contents for teachers' initial and ongoing training highlighted the need of a guide to the video analysis process. This analysis aimed at guiding teachers to-wards specific characteristics of recorded school-life; otherwise, a possible risk is that only surface situations of educational situations are taken into account. During the observation of the different stages of the training protocol of video analysis, there are some variables to be considered (Perla, 2010):

- 1. *finalisation variables*, which consider educational aims (socialisation, metacognition);
- 2. *technical variables*, that is the "professional actions" and all designing, assessment, organisation features;
- 3. *communicative variables* conveyed by verbal and non-verbal codes;
- 4. contextualisation variables connected with the so called "school culture";
- 5. *relational variables*, including all educational practices: guiding, care, personalisation, listening.

² For further considerations, see Tochon (2009) and also Perla and Schiavone (2013).

There are also other students' variables which can be analysed by means of questions focused on students' learning and on questions dealing with progresses and/or regressions that can be identified during video analyses. Each of these variables can be analysed through observation protocols which can enhance teachers' educational strategies (Rossi & Rivoltella, 2011). As mentioned above, new technologies fostered new methodologies for teachers' training such as educational video documentation.

2. Examples of narration-oriented video-research.

Given the above-mentioned framework, we tested a video-research project aiming at fostering an autobiographical approach for intercultural education; the project has involved 22 classes of different education levels (pre-school, primary and secondary school) from Bari and its district. The following is a quick description of the video analysis testing stages of this research. The creation of digital audio-visual contents involved the designing and the realisation of specific operational procedures. In detail, here are the stages of the research protocol:

- Videorecording of workshop sessions. Video footage included the beginning of workshop sessions (recreational activities and sharing of the "autobiographical agreement"), writing sessions (pupils are stimulated to recollect relevant autobiographical events), reading sessions (pupils read and shared their texts with the class), return sessions (analysis of written texts carried out by teachers) and the final session (end of workshop activities).
- Video editing. The editing process allowed the creation of a product in which different communication codes are included: voice blends in words, pictures are both steady and dynamic. The criterion was to develop a "collage" of "perceptual occasions" (Anichini, 2012) that could give teachers the chance to analyse their own educational methods (videorecording) in order to identify critical and *hidden* elements.
- *Triangular* video analysis. Triangular video analysis is made up of three stages.

The first stage implies a reflective setting: here, teachers watch a video and fill in a related *video analysis sheet*, that is a self-training complement tool developed by the authors in order to make teachers independent during the different stages of phenomenological description of educational processes carried out in class.

Stage 2 implies a reflective setting that involves both researchers and teachers. Here, an interview is made *after* watching a video.

Stage 3 implies a co-explicit setting and a shared analysis process (teachers-researchers) on the multi-dimensional nature of educational practices which can be gathered from the video analysis sheet.

As for the analysis device is concerned, the *video analysis sheet* is an ex-post documentation tool that allows teachers to describe and analyse the multi-dimensional nature of educational practices together with researchers. In detail, the analysis allows teachers to assimilate all observations deriving from videorecorded contents focusing his/her attention on some relevant characteristics or on any latent content. The aim is to give teachers the chance to describe and analyse the multi-dimensional nature of educational practices (Altet, 2006). Video analysis is made together with researchers, the latter having already watched all video contents. This task allows teachers a focused analysis of contents and it is a suitable technique to examine and discuss specific, education-related topics. During this stage, contents are carefully chosen. These operations allow the development of *implicit* contents (e.g., non-verbal behaviour), making them information snippets which can be used for broader considerations (Perla,

2010). This is an effective device for self-clarification of educational practices. A first selection deals with the elements to be highlighted by means of the observation of different stages such as some workshop situations (beginning, writing stage, the role of teachers, class interaction, inclusive dynamics). The last stage is carried out by teachers who arranges all observations he/she has gathered.

| SECTION I | In this section, teachers fill in the following in- |
|--|--|
| Personal details | formation: class average level, teacher's educa- |
| | tional field, module subject, workshop duration |
| Class | , , , , , |
| Educational topic | |
| Module subject | |
| Workshop duration | |
| SECTION II | Questions to be answered: how are the workshop |
| Class description | sessions organised? What kind of educational de- |
| - | vices have you used? What kind of learning |
| Index 1 - Managing | methodologies educational devices refer to? What |
| workshop sessions | kind of communication teachers and students have |
| Index 2 - Class setting | established? Is the class setting organised so that |
| Index 3 - Communication | it is functional to the proposed educational activi- |
| | ties? During workshop sessions, what is the pre- |
| | vailing communicative style? In the communica- |
| | tive process there is a preponderance of non- |
| | verbal communication codes (body language, ges- |
| | tures). What are the most recurrent interaction |
| | schemes? |
| SECTION III | In this section, teachers indicate time intervals in |
| Intervals in which | which the narrative process was favoured. All in- |
| learning activities are favoured | dicated indexes would guide teachers in the selec- |
| | tion of time intervals in the sheet. |
| Index 1 - Explanations | |
| Index 2 - Solicitations | |
| Index 3 - Educational strategies | |
| SECTION IV | In this section, teachers explain all educational |
| Choices made by teachers | choices they think are relevant in order to under- |
| considered relevant in order | stand their educational attitude. For this purpose, |
| to understand | teachers together with researchers will reflect on |
| teachers' educational attitude | three aspects: implicit beliefs in educational prac- |
| | tices; beliefs in teaching, learning, discipline. |
| Index 1 - Beliefs in teaching | |
| Index 2 - Beliefs in learning | |
| Index 3 - Beliefs in discipline | |
| Section V | In this section, teachers will explain any criticality |
| Explication of problematic issues | arisen during workshop sessions, both from an |
| | educational and disciplinary point of view as well |
| Knowledge planning stage | as all inclusion-related dynamics which can be or- |
| Teaching activities | iginated by means of all proposed activities. |

TABLE 1. Sections taken from the "Video analysis sheet".

The device has two sections: documentation/personal information and analysis/explanation. In the first section, teachers fill in class-related information, educational topic, subject matter and duration. In the second section teachers, together with researchers, develop a reflective narration arising from a series of analysis domains that correspond to some indexes. Indexes are used to support the explanation of *hidden* features of educational practices carried out in class. The writing process carried out by means of this device is used to re-build, analyse, organise the educational experience in order to enhance the understanding of one's own educational practice and learning & teaching processes performed during a class. For its documentation value, video analysis sheets make all audio-video contents a valuable starting point to favour both explicit and self-assessment processes (Table 1).

3. Preliminary results

Being an ongoing research project, only preliminary results can be drawn. A certain trend indicates that video-recorded contents allow teachers to learn a permanent reflective and selfassessment *habitus* that can be applied to their daily school activities. In this sense, watching their own practices creates a "vicious circle" in progress. The content they watch depends on what they actually do; the more class-related variables are questioned while watching videos, the more structured and deep is their competence in interpreting one's own daily practice. Another relevant element is the "unveiling of beliefs" in teaching by means of self-assessment sheets. As attested by a research on "teachers' thoughts" (Clark & Peterson, 1986; Nespor, 1987), *beliefs* are an important, implicit cognitive domain which can exert an influence on learning practices. Nevertheless, even considering the difficulty to make these statements objective, the Italian teaching-related research has been investigating it only in recent times and focusing its attention on some disciplinary fields (such as mathematics – Zan, 1998), ethical beliefs (Damiano, 2007), identity-related and professional beliefs (Perla, 2008).

The Anglo-Saxon scenario, considering a considerable literature on this field, aims at analysing the predictive role that these system-based statements have on the ways a teacher in the making will perform practices but also on the ways they will assess all the different aspects of education. Being influenced by emotional aspects and highly subjective, systems of beliefs are less likely to be deconstructed. This is why training protocols have to be developed, so that beliefs may be explained more easily, as "to enhance teachers' actions, we have to face teachers' subjective beliefs". Video-training methodologies are quite useful because unlike observation in person or one's own reflection with no video support, educational actions can be watched more than once, focusing on some details.

The last element to be considered deals with the co-constructive dimension of practical knowledge, the latter arising from video analysis procedures. All that teachers perceive as missing or being present in a video does not relate on audio-video content itself. When watching or listening, we "develop" senses (Erickson, 2009, p. 209), that is why videos become a source of important data in order to build a practical action which plays an important role in teachers' professional competence (Perla, 2011).

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Learning how to "incorporate" technologies in ordinary classroom teaching. The ongoing multidisciplinary experiences carried out by the DidaSco research project group⁷

Loredana Perla University of Bari "Aldo Moro" loredana.perla@uniba.it

Viviana Vinci University of Bari "Aldo Moro" vivianavinci@yahoo.it

Abstract

This contribution shows some possible reifications provided by technologies in classroom teaching on the basis of the TPCK framework (Koehler & Mishra, 2005), which in turn derives from L. Shulman's PCK framework (1986); this model analyses any possible interconnection between interdisciplinary content, pedagogic management of contents and technology. This work aimed at creating an ICT expertise-based network in some schools of Apulia starting from some systemic modifications introduced in the didactic programming. The preliminary results of this study & research project are here showed: the first one deals with hypermedia co-planning which can set up interdisciplinary learning towards competence-based teaching methodologies; the second one introduces "Flip-Book - Don Chisciotte" (Don Quixote), an e-book with a LMS system with remote interaction modes which can allow synergic planning or autobiographical writing; the last one deals with an author-based framework of self-production contents in language teaching.

Keywords Educational Technologies, Teacher Training, Didactics of Writing, ICT, Digital Skills

1. Theoretical Framework

The introduction of technologies in classroom teaching is one of the most challenging issues in educational research (Messina, 2012; Falcinelli, 1995, 2005; Rossi, 2009, 2011; Rivoltella, 2005; Limone, 2012; Baldassarre, 2013), the latter aiming at investigating the *autopoietic* potential of technologies which, in this perspective, are examined not only as simple tools used in specific training courses both for students and teachers, but as integrated knowledge of the so called "pragmatic knowledge" (Perla, 2010) created by teachers by virtue of their epistemic role (Tochon, 2000). This knowledge has to be framed and should work depending on the specific learning aims, that is the focal point of classroom teaching. These new digital skills acquired by students – or the future "active citizens" – implied a proper "step up" in incorporating technologies in ordinary classroom activities. H. Jenkins (2010) affirms that the inte-

¹ This article has been developed jointly by the three authors. Loredana Perla wrote the paragraphs 1, 2; Viviana Vinci wrote the paragraphs 3, 4.

gration of classroom teaching by means of technological mediators is not the only solution: access, understanding technology and creating new communication forms and contents should be deeply fostered, thus mastering the endless and expressive potential offered by technologies in classroom. In this sense, one of the most innovative frameworks is represented by TPCK (Koehler & Mishra, 2005), which in turn derives from L. Shulman's PCK framework (1986); this model analyses any possible interconnection between interdisciplinary content, pedagogic management of contents and technology.



FIGURE 1. Technological Pedagogical Content Knowledge (TPACK): *reproduced by permission of the publisher*, © 2012 by tpack.org

This framework represented the basis of the project that is being carried out for two years, DidaSco (*Didattiche Scolastiche*), that aims at creating combinational tools in classroom procedures, with particular emphasis on the emotional-social dimension triggered by practice (unlike the TPCK framework suggests) and focused on specific, cognitive features which are typical of new technologies (Messina, 2012).

2. Goals

The aims of this research are the following:

- creating an ICT expertise-based network in Apulian Schools starting from some systemic modifications introduced in the didactic programming;
- creating interactive, cooperative and open learning environments that foster interaction among teachers (in the planning stage) and between teachers and students (in classrooms);

- using some technological tools to overcome disciplinary barriers, thus concentrating on an interdisciplinary interaction among different knowledge systems;
- valuing the resulting experiences which are shared in different research & training experimental projects between DidaSco and Apulian teachers.

3. Experiences

There are three practical achievements² within this research framework.

a) The co-planning of an hypermedia called "Moby Dick Prezi", created at the end of the research & training project *I Nuovi Licei. Una guida a partire dalle pratiche* and meant as a tool that can generate interdisciplinary learning for a competence-based teaching methodology (Damiano, 2004, 2007; Maccario, 2006; Perla, 2013), thus intertwining all the involved disciplines. MoBy Dick Prezi is an interactive e-book that allows the creation of multidisciplinary learning units on the basis of Melville's tale; it is made up of both macro-subjects and microunits which can be chosen from a menu/map.

Moby Dick Prezi has been planned in cooperation by 6 teachers with the supervision of DidaSco research group; even though it is based on Melville's novel, it is a product that can be reproduced on any learning content; it can be designed by multiple authors and it may represent a valid classroom teaching tool as some blank zones (visually represented by notepapers) may be filled in by students and teachers with information, texts and multimedia content.



FIGURE 2. Moby Dick Prezi's structure: map of universal themes.

Moby Dick Prezi is like a map, in which the key concepts are represented by universal themes found in the novel; they are very conceptual, therefore they can be adopted by any teacher of any specific discipline. For instance, the first theme encountered in this map is the beginning of Melville's tale, that is the concept of travel as a knowledge experience; starting from this universal theme, teachers have created their personal module-based project for their disciplines. All disciplinary analyses are mutually intertwined within the map; teachers can view

² We would like to give special thanks to Luigi Masiello, professor in "Liceo Linguistico Federico II", Altamura (Bari); luigi@altramurgia.it.

and edit any content (in the designing stage); the same functions are enabled for students, thus creating knowledge together with teachers.

Moby Dick Prezi, created at the end of the first year of a research & training project, will be practically tested in the network of the teachers who are part of the research group at the beginning of the second year of the project.



FIGURE 3. Moby Dick Prezi: module-based disciplinary in-depth analyses.

b) FlipBook - Don Chisciotte (Don Quixote), created during the planning stage of a Master called *La scrittura: insegnare le pratiche*. It is an electronic book (e-book) with a LMS system (a forum in which a continuous interaction and debate between text & contents and users can be carried out) used for remote interaction among participants and to allow collaborative functions or autobiographical writing sessions. FlipBook - Don Chisciotte, like Moby Dick Prezi, includes some indexed macro-subjects; in this way, a great number of disciplines may be involved in the creation of contents, ranging from European Literatures to History of Art, but also Philosophy, History, Religion, Cinema. Both tools include forums in which teachers and students may cooperate, add tasks, in-depth analyses, personal and group writings on a given domain thus intersecting different disciplines and fostering new competences.



FIGURE 4. FlipBook - Don Chisciotte: start screen.

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FIGURE 5. Moodle Forum linked to FlipBook - Don Chisciotte.



FIGURE 6. FlipBook - Don Chisciotte's structure: indexed macro-themes.

FlipBook - Don Chisciotte has already been implemented in classroom teaching: it has been used in a 5th grade class, Spanish course, *Liceo Linguistico "Federico II", Altamura (Bari).* The prologue of Cervantes' novel, in which the creation of a work is discussed, has represented a valuable starting point for the project's activities, as it retraces the same problem students have when facing a task to be carried out. The first classroom activity was represented by a composition in Spanish about FlipBook - Don Chisciotte's macro themes which have been examined in depth by using further interdisciplinary texts and multimedia contents. Students could deliver their assignments using the LMS platform which in turn was linked to FlipBook; an electronic log allowed teachers to assess students' works by using numerical marks. FlipBook - Don Chisciotte can be used as a daily teaching tool: being connected to the

platform *Moodle*, it has two modules, that is a forum used to plan and design contents among teachers and the electronic log, which allows students to be assessed.



Figure 7. A sample of *FlipBook - Don Chisciotte's* text interface.



FIGURE 8. A sample of *FlipBook* - Don Chisciotte's video interface.

c) the creation of an author-based framework of self-production contents in language teaching, commissioned by INDIRE: The "new" European teacher of languages: a profile. The reference theme was *Competencias según el MCER*. The proposed assignments deal with reading and writing skills in Spanish, and aim at enhancing the global understanding as well as writing and multimedia skills of the texts introduced in the project. Google+ was the blog used by the class to share information and to solve any doubt among students and between students and their teacher; Google Docs forms with the integration of Flubaroo, a script that records all activities performed by students, thus assessing their actions, allows teachers to keep track of students' tests, thus making Google Docs a sort of LMS platform. An open source tool like Google+ was used to design forms and structured assignments, but also to share information and to keep track of students' activities. Exercises of text production and comprehension were created on the basis of the OCSE PISA international indexes, in

compliance with the framework indicated in the *Programa para la Evaluación Internacional de los Alumnos OCSE*.



FIGURE 9. Start screen.



FIGURE 10. A sample of language texts/exercises.

4. Main conclusion

In conclusion, what kind of advantages does the incorporation of technologies in classroom activities bring?

First of all, there is the possibility to involve several disciplines when macro-themes are triggered (European literatures, History of Art, Philosophy, History, Religion etc.); each environment has its own forum in which both students and teacher co-operate, write assignments, in-depth analyses, personal and group writings on a given domain thus intersecting different disciplines and fostering new competences.

Secondly, these tools can be connected to Moodle, therefore some useful features – such as forums for co-operated planning among teachers and the electronic log used to keep track and to assess students – can be used.

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