

Petr MACH, Jan KROTKÝ

University of West Bohemia in Pilsen, Czech Republic

Videoteaching – a way to improve student experience

1. Project introduction

A video record of the lesson in progress enables to capture unique moments in the classroom. Video cameras set in the right positions record continuously all the communication between the teacher and the pupils as well as their behaviour. A text record of the lesson provided by a researcher on the place will not contain all the actions that happened in the observed interval. The observer taking the record is influenced by several factors which may be the reason of either failure or limiting his observational abilities. In some situations, e.g. when the organisation of the lesson is changed, the present observer records only a part of an important communication while other interactions may be left behind. On the other hand, during the lesson the observer might appear in the situation when his attention is split to watch several parallel activities. Pupils working in some groups are used as a characteristic example. These situations are hardly noticed by the teacher, let alone the observer making notes from the lesson [Svatoš 1981].

Every observer is experienced on a different level and any spectator can always see the same event from different angle. Therefore the observation minutes may be subjectively influenced by the person [Najvar, Janík 2008]. For further analysing purposes, a video offers another significant advantage against a text record of an observer: possibility of repetitive analyses or possibility to analyse any not noticed before interaction with the delay. Repetitive analysing reveals even the things which are not evident from the first sight, e.g. other pupil activities, mistakes of the teacher etc. A repetitive analysis of videotapes within more research workers also allows suppressing the subjective perception of each observer to a certain extent. One of our project aims is to find out the way how the technically and humanities oriented students perceive the recorded situations. As long as these two groups analyse the same recordings, with the same observation manual and into the same observation minutes, would they recordings be identical? If not, to what extent?

2. Videocamera in classroom

The mere presence of a cameraman or a video camera may have a negative effect to the way of teaching style and the reactions of all the observed objects. The teacher either leans to show a model lesson or a lesson with non-conflict

and simplified topic. The contrary is another extreme. The teacher is aware of the strange and often didactically qualified person as the observer and is afraid of any criticism. These unpleasant situations are sometimes caused just due to video camera installation. Other teachers try to justify from their point of view unsuccessful moments after the recording. To protect from these influences, it is good to make the acting teacher motivated before and to ensure him that the video will not be published, will be anonymous and will be watched by limited audience of researchers only. In our project, we have chosen non-didactically qualified cameramen, specifically technically orientated students, beginning teachers of technical subjects with basic pedagogical and minimal practical experience. Therefore the teachers are not stressed by pedagogical specialist presenting, who may „give them lesson”. This choice proved to be good as our aim is focused to make a good quality video and minimally interrupt the lesson or highlight the professional personality of the observed teacher.

Apart from the influenced teacher, the strange person or cameras presence may impact the behaviour of pupils. Most of their attention is paid to the video camera directly at the beginning of the lesson. As soon as a cameraman enters the classroom with his equipment, the pupils ask what will happen, what will be recorded and some may refuse to join the recording etc. At this stage it is good to establish contact with the students and prepare them for shooting. From the technical point, it is important to be on the place of recording in time, not only to set the video cameras but also to make a contact with the class and the teacher as well. We proved two things. Pupils, especially boys, show their interest in recording technology. As soon as the camera is packed out, they ask about parameters and wish to try tripod control etc. The next thing is the official presentation of our aim at the beginning of the lesson and reminding that the video will not be published anywhere neither on the social networks nor on YouTube. Certainly, it is needed having a permission from school management and parents. It is always useful to record more lessons with the same class. From our experience, this time distribution causes that pupils lose their interest in cameraman activities.

Lesson recordings may be shot from the position of an active, passive or so called absent cameraman. An active cameraman represents an active video camera attendant. The video camera is controlled and the current object is monitored. A big disadvantage is that the monitored object is aware of the fact that the camera is focused on him therefore he may adapt his behaviour or activity. During our filming, we faced this several times and so our strategy had to be changed for filming from the passive cameraman position. A passive installs the equipment at the beginning of the lesson so it covers all the shooting area and after that, he chooses a place to sit nearby. A good position proved to be the one below the back video camera where the cameraman has possibility to adapt composition changes. The third way, when the cameras are installed and the

cameraman leaves the room, was found poor for eliminating the possibility that the cameraman would change the composition if needed according to the situation and events in the classroom.

3. Cameraman activity specifics

Working with the video camera in the classroom is fundamentally different from working with the video camera in a studio. A cameraman in a classroom has to solve many problems regarding lesson organising or specific school conditions. The possibilities of the cameraman are very limited especially in four areas:

Moving or changing furniture or other classroom equipment. A cameraman must respect the conditions and eliminate any fundamental changes. A cameraman knows the place of filming or must arrive before the recording to be able to react to any situation.

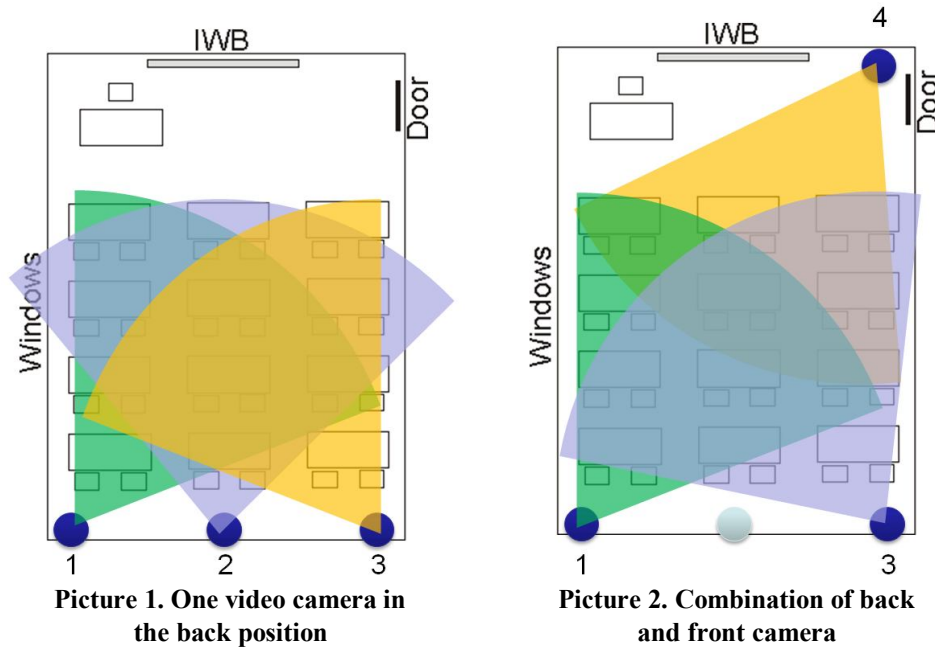
Modify light conditions. Especially one rule needs to be followed, keep the characteristic conditions and minimally interrupt the lesson. For example, a teacher is working with a projector or with an interactive board and the light is quite low, that could cause a low quality video results.

Organising pupils and activities of teacher. Interrupting the lesson. A cameraman with a camera represents a passive observer in a classroom. Teaching and learning are contrary live processes when many situations occur as non-desired for the continuity of the shooting. It is not acceptable to let cameraman organize the lesson and treat the teacher or pupils like actors. In reality is good to be informed by the teacher what will the lesson look like and where he and the pupils will move. The technology must be always completely ready and in the case of the camera drop off the cameraman may operatively adapt, unless he stops the lesson flow, certainly.

4. Videocamera position and equipment

During the project, we tried several spots to place a video camera or cameras. In the picture one, you can see available locations in the case of one camera used. The video camera is equipped with wide angle conversion lens and there is a wireless microphone fixed at the teacher. The sound recording is transferred directly from the microphone to the camcorder. This arrangement allows you to monitor the teacher and limited amount of pupils in one shot. An advantage is in simple video processing (cutting) from one camcorder. The researcher watching this processed video gets a less predictive value video just because of the limited angle to the pupils. The observer can see the pupils from back only so that some details are lost, especially their activities. The pupils then speak forward to the teacher, that means the opposite directions than the microphones and camcorders

are placed. This fact may have a negative effect to the auto track quality hence the ability to understand the pupil communication.



In the second picture, you can see the use of two video cameras. This recording style was used in our case. The combination of camcorders is 1–4 and 1–3. The back camera captures all the class with the teacher from a wide angle. It can be equipped even with the wide angle conversion lens. The class is filmed from the front and the teacher, when he appears, is recorded from his back. As the camera is equipped with the wide angle conversion lens, the filming covers everything including the first line seats. In real, there is more lack of space between the front rows and the wall than between the back rows and the other wall. Mostly, the typical classrooms offer wider space behind so you have better opportunity to locate the recorder there. The video camera on the position 4 includes a microphone personal receiver of the teacher. The sound of the video camera is formed as a combination of the microphone of the teacher and the video camera microphone record of the class sound. The two video tapes need to be processed to get a single final picture.

5. Theoretical project conclusion – case study

Case studies as a teaching method were first used in the USA in the middle of the last century. Students were supposed to solve reconstructions of closed

trials. Later on, this method was transferred into the manager, businessmen, politician, doctor etc training field. Case studies looked like a description or problematic document. The content consisted of a multidimensional analysis of connections, elements and reality of the situation. The emphasis was put on an explicit discussion focused on details and different solution suggestions [Merseeth 1991].

The main rules of right case study were created. They are possible to be used in other areas, e.g. education:

- a) the participant involvement – activity of all the participating members;
- b) support – finding and eliminating the barriers in the cooperation;
- c) planning – collecting resources, information, schedule creating...;
- d) appropriate methodology – wide range of methods use;
- e) information transfer – optimal info sharing among the members;
- f) cooperation – effective cooperation and collaboration among the;
- g) use – skills, knowledge and self-confidence developing of all the members;
- h) feedback – evaluating the results and cooperation of the involved members;
- i) monitoring and evaluation – check and evaluation of outputs regarding the requests, standards and so on [Herried 2010].

The concept of case studies, which is used during teaching the didactics at different fields, may be seen from wider and more complex point of view. It is considered as a larger participating methodology. During a case study, there is a positive cooperation of all the case study members required. From the psychology of learning view, case studies are a specific tool of interactive and situational teaching. Students learn to solve complicated interactions, especially in realising stage of case studies. Interactive learning is widely used in the analytical stage, during school mates reactions.

6. Pedagogical research

In our case, video studies had character of video recordings of altogether ten lessons from various subjects at grammar schools. There were provided recordings of experienced teacher as well as teacher beginners. The pedagogical analysis of the videos is mainly focused on the interaction between the members of the educational process in a constructive learning character. We must highline especially a qualitative analyses of content and formal side of the communication and then about a psycho-didactical aspects of communication. The research team consists of, except the academic employees of the psychology and technical department, mostly the students of master study programs of teaching the technical education and psychology areas. The research is implemented as a grant competition student project No. SGS-2012-074 at the Faculty of Education, University of West Bohemia in Pilsen. The project name Ways of communication during lesson and their psycho-didactical aspects.

Essential research aims are:

- capture of main ways of the participant communication;
- how this communication way specifically influences all the concept of learning;
- whether the teacher uses during lesson effective, empathetic communication and what the results are;
- what is the influence of the style of communications for the changes of the approach of the pupils to the learning and its understanding;
- how the teacher creates space for using own experience and knowledge of pupils;
- how far the teacher support creativity at pupils.

The basic method of research is qualitative analyses of the recorded videos (case studies) and feedback by the participants in the study. The assisting methodology is quantitative analyses of formal side of case studies, for example capturing time dimension, frequency, communication tools etc.

Both of the methods create so called microanalyses of learning interaction up to the level of working communicative units.

7. Stages of research

Recently, the project is finishing the first stage. By a random choice, there were selected schools, subjects and teacher to become a part of the research. The emphasis was placed on the subject variety, length of teachers experience and their different styles of teaching. Next, partial project teams were created to provide the videos. This way the first stage of the research was closed.

The second stage is just in the beginning. The first task is to organize a suitable observation minutes to enable either qualitative or quantitative part of the research. This protocol must be relatively simple and brief hence it will be designed exclusively for students who will be making a macro analysis. While putting together this protocol, we used the one which was used at the research of the pedagogical communication at Gavora grammar school [Gavora 2000]. This protocol will be adapted to the needs of the research.

After the macro analysis, all the implementation team (including academic workers) will conclude the results of the micro analysis. Based on that, conclusions of the project will be made. The main output will draft recommendations for alterations for student preparation of teaching study programs at pedagogical faculty of West Bohemia University in Pilsen.

Conclusion

Topic of the paper is dedicated to modern methodology, which can be used to prepare future teachers at faculties of pedagogy. However, it also shows a new approach in educational research. Constructive education was not able to assert in our school systems yet. It is necessary, based on the applied research, to reveal its positives and problematic sides too.

Literature

- Gavora P. (2000), *Úvod do pedagogického výzkumu*, Brno. ISBN 80-85931-79-6.
- Herried C.F. (2010), *What Makes a Good Case?* [online]. Dostupné na <http://ublib.buffalo.edu/libraries/projects/cases/teaching/good-case.html>
- Merseth K.K. (1991), *The early history of case-based instruction: Insights for teacher education today*, „Journal of Teacher Education”, Vol. 42(4), p. 243–249. EJ 438 532.
- Najvar P., Janík T. (2008), *Videostudie ve výzkumu vyučování a učení*, „Orbis scholae”, Vol. 2, No. 1, s. 7–28. ISSN 1802-4637.
- Svatoš T. (1981), *Sledování a hodnocení vnějších žákovských činností ve vyučování* [in:] *Interakce učitel–žáci a učitel–studenti*, ed. J. Mareš, Hradec Králové.

Abstract

The proposed research is focused on and maps the various methods of communication of students who study master teaching courses at Faculty of Education (or existing elementary and secondary teachers) in the pedagogical practice. The experience with the project will lead to improve the preparation of future teachers (student) and improve approach of the preparing teachers. Present educational system imposes high requirements on teachers of all levels. Personality development is marginalized in teacher training, mainly the development of creative abilities and skills to solve conceptual matters and dynamic changes in the educational process. One of the ways of improvement the personality and professional development is to include the case study method. Case study method of didactic situations is a modern procedure of effective development of professional abilities in future teachers.

Key words: case study method, didactic situation, professional abilities, didactic competences, creativity.