

Professional Education and Teaching through Behavioral Research with Mangold Labs

The teaching of pupils or students in a classroom places high demands on the teacher: Abstract knowledge must be linked to the practice, the lessons should run in a structured way, many interactions take place suddenly and unpredictably, situations must be assessed quickly and accurately and reactions must be prompt and adequate. The theoretical learning in university education is not quite sufficient enough to prepare future teachers for these requirements. Therefore, more comprehensive approaches in training and education are necessary.

Behavioral Research in Training and Education

Behavioral analysis in education and teaching is a wide-ranging subject with various research fields, such as learning and cognitive skills, educational effectiveness, learning disabilities and evaluation of new teaching methods. An important research tool is the scientific structured behavioral observation. The observation object can be teachers (or trainers, coaches) or learners (e.g. pupils, students) – depending on issue and perspective.



“Live Observation” – the essential remains undiscovered

Live observation can only capture very simple behavior due to the well-known and well-studied limitations of human cognition, mainly the “attentional blindness.” The majority of behavior simply remains undiscovered for many reasons. Here are the most obvious reasons:

- A live observation cannot be paused or re-wound in case the observer missed an important behavior (contact between the observed participants, a short gaze, one single word that lead to frustration, aggression or relaxation of the participants etc.). It is simply impossible to observe complex interactions such as gestures, speech, facial expressions and actions, through live observation.
- A comprehensive live observation is not possible especially when complex situations or large groups (e.g. students in classrooms) should be analyzed. The complex interactions among each other simply cannot be detected with the naked eye.
- The observer needs to categorize the observations in order to make some quick notes in a short amount of time. This cate-

gorization is in fact, an interpretation and therefore a prejudgment.

- The quality of observation highly depends on the training and knowledge of the observer. An experienced teacher will certainly observe very different behaviors than a student. Also, they will both interpret and write down very different observations and draw different conclusions.
- It can also never be proven which observation and conclusion were correct, because the observation in real life can never be “re-played” for verification or clarification.

In conclusion, live observation has serious limitations and disadvantages. Numerous amounts of studies would need to be made with live observation to eventually discover the amount of insight which can be easily gained through professional video based behavioral research.

Advantages of Video Analysis in Teachers’ Training

The computer based video analysis of real interaction situations can be a valuable tool in teachers’ training. This technique can fill the gap between theory and practice and can impart the necessary knowledge for reality in teaching. Therefore, video analysis of real teaching sequences is an excellent tool for student teachers.

Capturing video during observations is essential for later analysis:

- Videos present an authentic idea of real teaching situations and show its complexity and dynamics.
- Videos split classroom activity from analysis. Therefore, the analysis is time- and location-independent.
- The reproducibility of videos enables the researcher to analyze it successively from different aspects or by different persons.

- By comparing the analysis of the student teacher with an expert analysis the observational and diagnostic skills can be trained.
- Alternative strategies and reactions can be developed due to the reflection of captured, viewed and analyzed video content.



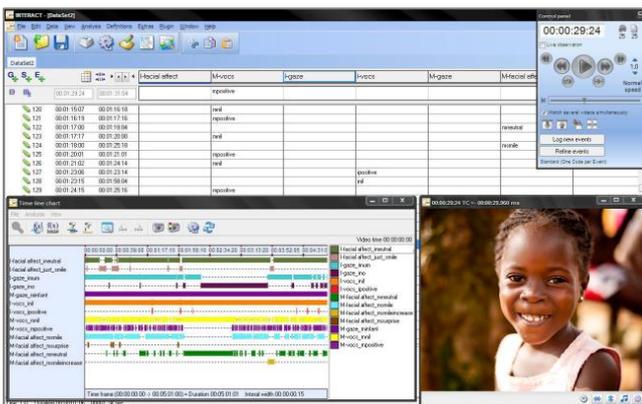
The complex challenge is the analysis and interpretation of the recorded video footage. Accomplishing this without a professional tool, such as Mangold INTERACT, is a very time consuming and error prone task.

Performing professional video analysis with Mangold INTERACT enables accelerated answers to complex research questions in reasonable time, which would be impossible to answer through live observation.

The goal is to produce a maximum of professional insights and research results with minimum effort. This can only be achieved with tools that empower a smooth workflow, starting from the audio- and video recording, to professional behavior analysis, all the way to the statistical reporting of the collected data. Developing such professional tools is what Mangold International has specialized in for more than 20 years now.

What can Mangold International do for you?

Mangold International is a world leading provider for behavioral research labs. They use the latest computer and multimedia technology and customized hardware and software products, e.g. remote control full HD cameras, eye tracking devices and physiology measurements for emotion or stress. Mangold enables researchers to conduct scientific studies efficiently without having to handle all the complex technical details. Universities and Research Institutes in more than forty countries worldwide already take advantage of these sophisticated solutions.



Mangold Labs include all services such as planning, installation of individual audio/video and scientific research equipment, on-site installation, training and long term support. This makes Mangold International your one-stop-shop for your individual research lab.

Some References:

University Münster Institute of Educational Psychology



Prof. Dr. Manfred Holodynski
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The Institute of Educational Psychology uses video analysis in teacher education very intense. For example, students analyze recorded lesson samples regarding the various facets of classroom management as a significant dimension of a successful teaching. The analysis is performed with the software Mangold INTERACT. Furthermore, the University of Münster has developed a comprehensive online platform that offers lesson videos for future teachers: "Video based lesson analysis: Early Science (ViU). The aim of this project is to train future teachers in their teaching performance and their pedagogical skills.

University Oslo Department of Teacher Education and School Research



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The „Department of Teacher Education and School Research“ is Norway’s leading academic milieu in the fields of teacher education, subject didactics, educational leadership and school relevant educational research. The research focuses mainly on interdisciplinary educational research and on pedagogical and methodological research. The devel-

opment of an innovative research method, based on video analysis in an observational lab of Mangold International, cements the excellent reputation of this institute. The research results provide important approaches to teacher training, also in an international context such as the participation in international studies (e.g. PISA).

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The primary goal of the *Center on Literacy and Deafness (CLAD)* is to address the question "What is the best way to teach deaf and hard of hearing children to read?" Currently, the center is using computer-based video analysis and the software Mangold INTERACT to describe deaf and hard-of-hearing children’s language arts instruction in 29 schools across the United States. By quantifying classroom instruction, the center will be able to relate the characteristics of the children’s classroom instruction to the amount they learn in a school year. The goal is to identify what instructional strategies appear to work with what children. More information is available on the CLAD website. <http://clad.gsu.edu/content/home>

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