We explain a new method of integrating three apparently different activities, namely teaching in class, telepresentation, and production of instructional material for offline use into one single task. We call this method Authoring on the Fly and distinguish the three different phases of preprocessing, online delivery, and postprocessing. In the preprocessing phase the lecturer prepares slides as colored postscript files using one of his favorite tools, collects pictures and audio- or video-clips in one of the standard formats, prepares animations and simulations, and installs all this course-related material on his computer. In the online delivery phase, the material is presented and orally explained by the lecturer using an electronic whiteboard. The audio and video streams, the whiteboard actions stream, the animations and simulations, that is, all data streams generated during the lecture are then converted into a multimedia document, which can be linked together with other material and thus integrated into an open teaching and learning environment.

In this demo we demonstrate the method and explain all the various tools needed to successfully apply it. It will be shown how electronic whiteboards, the Mbone whiteboard wb and a more advanced whiteboard AOFwb, are used as presentational tools for teaching which allow the loading of slides, pictures, and the start and stop of animations and simulations. Using the multicast facility of wb, a lecture can be transmitted to remote locations via the internet. The two environments aofShell and AOFwb integrate the recording of the audio stream and all whiteboard actions, the seamless conversion into so called AOF documents, and the immediate replay of these AOF documents with the built-in viewer from the personal workstation's desktop.

By using examples from different areas like Computer Science, History, and Chemistry we explain
— how to prepare a lecture for telepresentation,
— the features of the integrated electronic whiteboards,
— the creation and handling of AOF documents,
— how to integrate AOF documents into teaching and learning environments such that they become accessible via standard internet browsers (both on Unix and WindowsNT platforms).

Demos as download packages are available under: http://ad.informatik.uni-freiburg.de/mmgroup.demos. Further information on Authoring on the Fly: http://ad.informatik.uni-freiburg.de/mmgroup.publications.