



# **DIVER: A Platform for Supporting Collaborative Video-Based Discourse**

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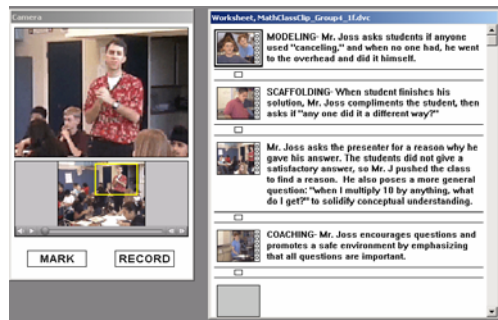
**SURA/ViDe Digital Video Conference**

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# Project Goal

To invent, develop and explore *new ways of interacting & collaborating with digital video that enhance learning*



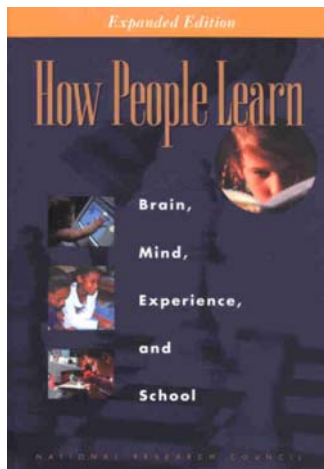


# Digital Video in Research

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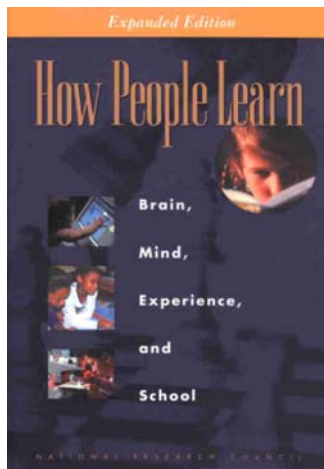
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Collaboration in the analysis of this video is essential!

# The Design Need

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But none of these tools are well-suited for supporting fluid conversation around a video record.

- How to *point to video* and share interpretations of what *you see* with others through the web?
- How could video become *a more natural medium* for supporting collaborative activity?
- How to make video as expressive of a *two-way* medium as text?

# Computer Supported Collaborative Video Analysis (CSCVA)

Though vital, video data circulates sluggishly within scientific and educational communities.

We need to make CSCVA a commonplace practice.

We identify 7 challenges:

1. Reference
2. Attentional alignment
3. Creating video immutable mobiles
4. Effective search and retrieval of collaborative video work
5. Permissions
6. Productive workflow for collaborative activity
7. Establishing coherent multi-party video anchored discourse

# 1. The Problem of Reference

How does one create a lasting reference to a point in space and time in a video record?



(and this is not just a collaborative problem!)

## 2. The Problem of Attentional Alignment

How do I know that what I'm referring to in a video record is understood by others?



**Deixis:** The process of communicating one's perspective through pointing or specifying—requires a *shared context*

### 3. The Problem of Immutable Mobiles



In his work on inscriptions, Latour (1986) describes written texts as having the quality of *immutable mobiles* — 2-D, rescaleable, superimposable, moveable units that can be flexibly recombined, shuffled, and spread around easily.

How can video be transformed into a flexible inscription system?



## 4. The Problem of Search

Assuming that we have solved the problems of reference, attentional alignment, and immutable mobiles, how can we enable search over a collection of insights made about various points and time in a video record?

How should the results of this search be represented to the video analysts?



## 5. The Problem of Permissions

How do you make the sharing and spreading of video and its associated interpretations more available, while still maintaining control over sensitive data that may have human subjects protection?



## 6. The Problem of Establishing Productive Workflow

How do we harvest the collective intelligence of a group of collaborators in a way that isn't hierarchical?



And yet, we still desire coherency in our analysis!

## 7. The Problem of Establishing Coherent Multi-Party Video-Anchored Discourse

We have considerable understanding of discourse in face-to-face interaction (e.g., Goodwin & Heritage, 1990).

We have less of an understanding of the rules at play for distributed conversation around a shared video object.



How is turn-taking sustained in CSCVA?



# Some of our Users and Applications

## **Media Literacy (e.g. film-making and film criticism):**

- Missouri University
- University of Tubingen, Germany

## **Doctor/ Patient Training:**

- Tufts University Medical School

## **Teacher Education:**

- University of Pittsburgh
- University of Maryland
- University of Michigan
- Christopher Newport University
- NIE Primary Science, Taiwan
- University of Florence, Italy

## **Second Language Instruction**

- Foreign Language Resource Center, Viterbo, Italy

## **Learning Sciences Research**

- Family Math Project, Stanford, University



**We hope you start using DIVER!**

Visit <http://diver.stanford.edu> for more information

Go to <http://diver-101.stanford.edu> to register and get started

Email [joro@stanford.edu](mailto:joro@stanford.edu) or [robblind@stanford.edu](mailto:robblind@stanford.edu) to discuss in more detail about getting your video into DIVER.