Logic Model:

If students pay attention(duration and location) or exhibit a certain fixation pattern when watching educational videos, they comprehend better.
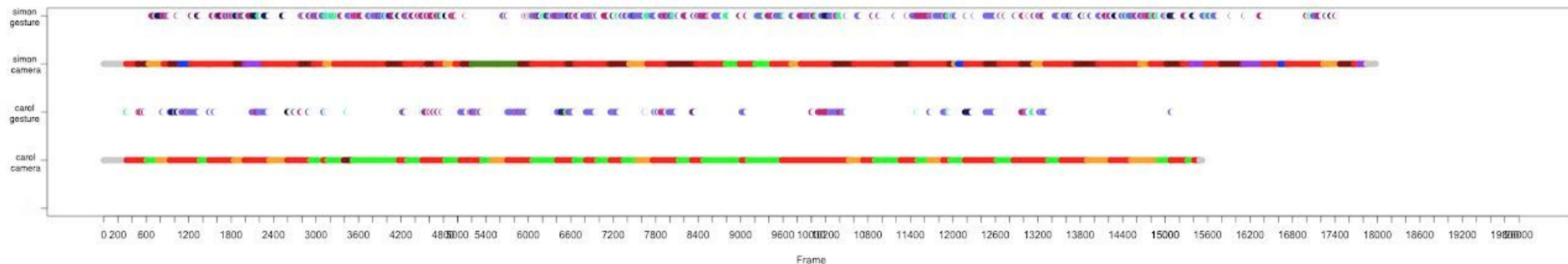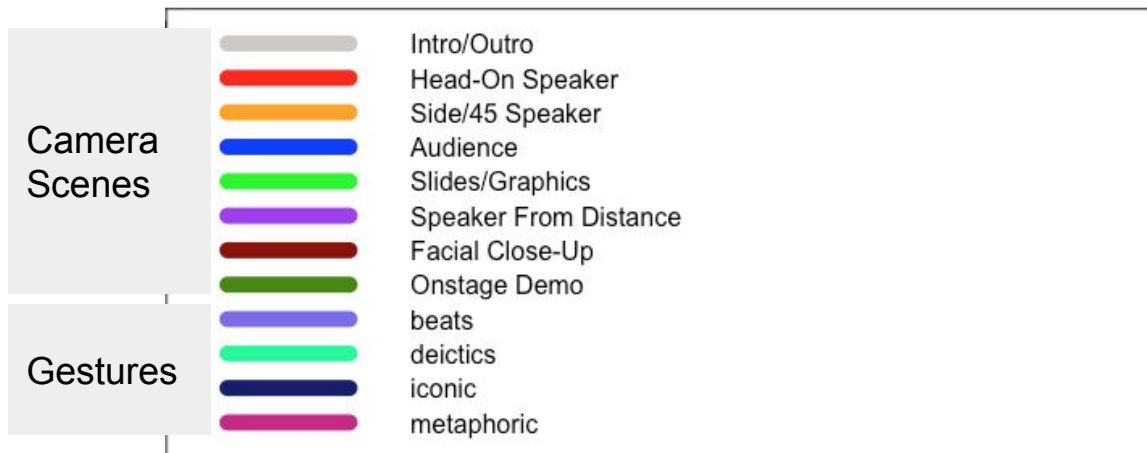
Educational Goal:

Find out shooting and instructional techniques that attract attention and thus improve video comprehension?

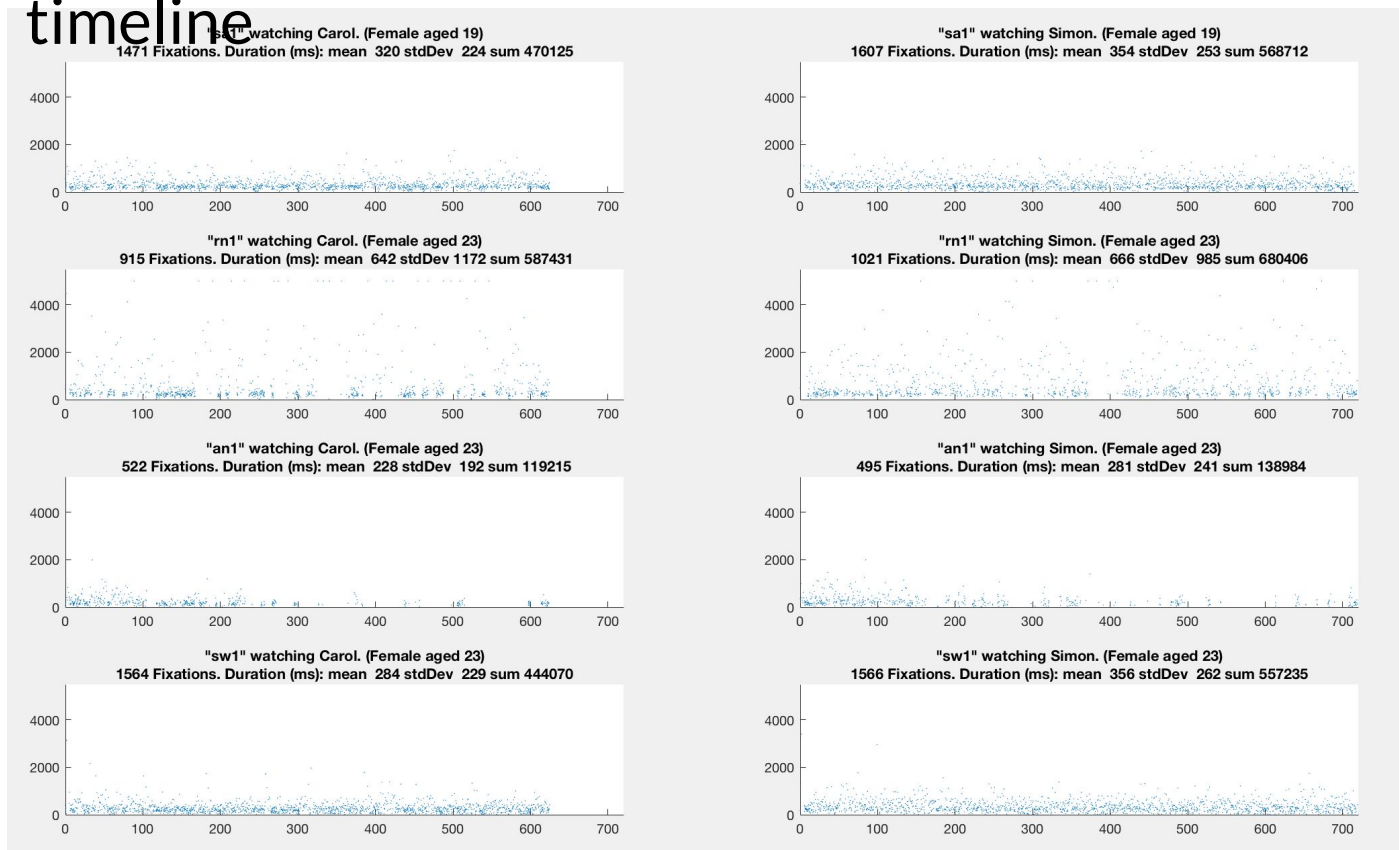## Data Description(time-series):

1. Fixation reports for each subject containing start and end/duration for each fixation over the video timeline.

2. Camera types and gesture types over the video timeline.

3. Comprehension survey items containing the correctness for each item, start and end time over the video timeline.

4. Eye location/movement over the video timeline(hand-coding in process).

Visualization in R showing scene types and gesture types over the video timeline

*Very different in scene and gesture types. Might consider standardization for each video before aggregating into the overall model.

Camera Scenes		
	▬	Intro/Outro
	▬	Head-On Speaker
	▬	Side/45 Speaker
	▬	Audience
	▬	Slides/Graphics
	▬	Speaker From Distance
	▬	Facial Close-Up
	▬	Onstage Demo
Gestures		
	▬	beats
	▬	deictics
	▬	iconic
	▬	metaphoric

Fixation(duration) for individual subjects over the video timeline

"sa1" watching Carol. (Female aged 19)
1471 Fixations. Duration (ms): mean 320 stdDev 224 sum 470125

"sa1" watching Simon. (Female aged 19)
1607 Fixations. Duration (ms): mean 354 stdDev 253 sum 568712

"rn1" watching Carol. (Female aged 23)
915 Fixations. Duration (ms): mean 642 stdDev 1172 sum 587431

"rn1" watching Simon. (Female aged 23)
1021 Fixations. Duration (ms): mean 666 stdDev 985 sum 680406

"an1" watching Carol. (Female aged 23)
522 Fixations. Duration (ms): mean 228 stdDev 192 sum 119215

"an1" watching Simon. (Female aged 23)
495 Fixations. Duration (ms): mean 281 stdDev 241 sum 138984

"sw1" watching Carol. (Female aged 23)
1564 Fixations. Duration (ms): mean 284 stdDev 229 sum 444070

"sw1" watching Simon. (Female aged 23)
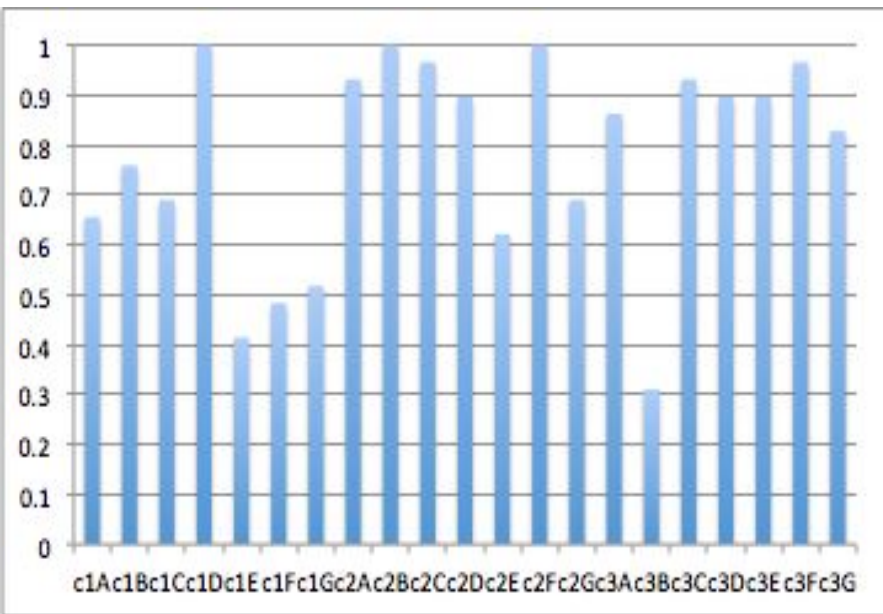1566 Fixations. Duration (ms): mean 356 stdDev 262 sum 557235

*better to map scene timeline onto the x-axis;
*cluster subjects in terms of viewing patterns?

Fixation(location) over the video timeline: External reference

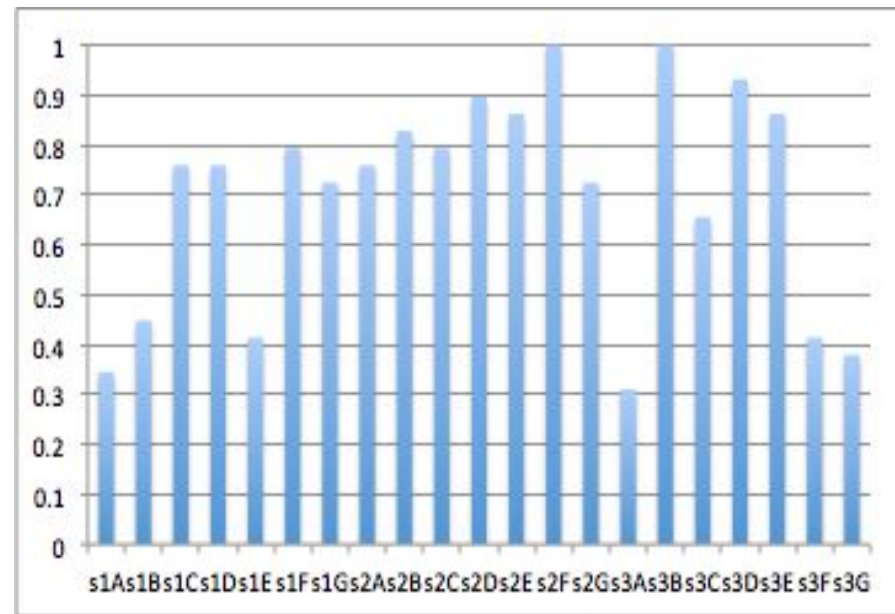http://www.visus.uni-stuttgart.de/index.php?id=1934
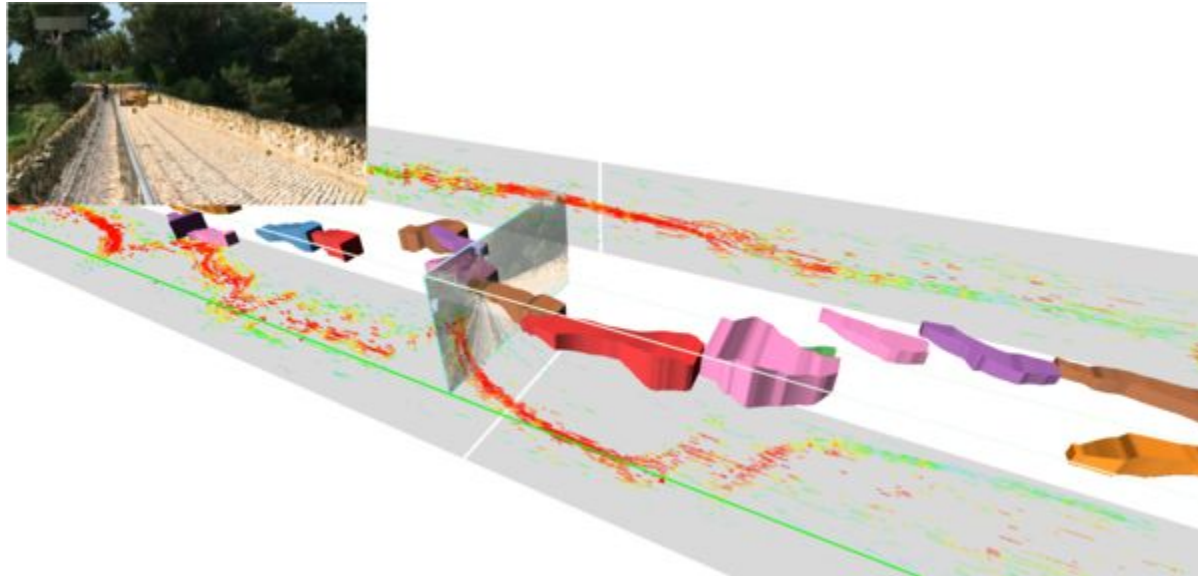
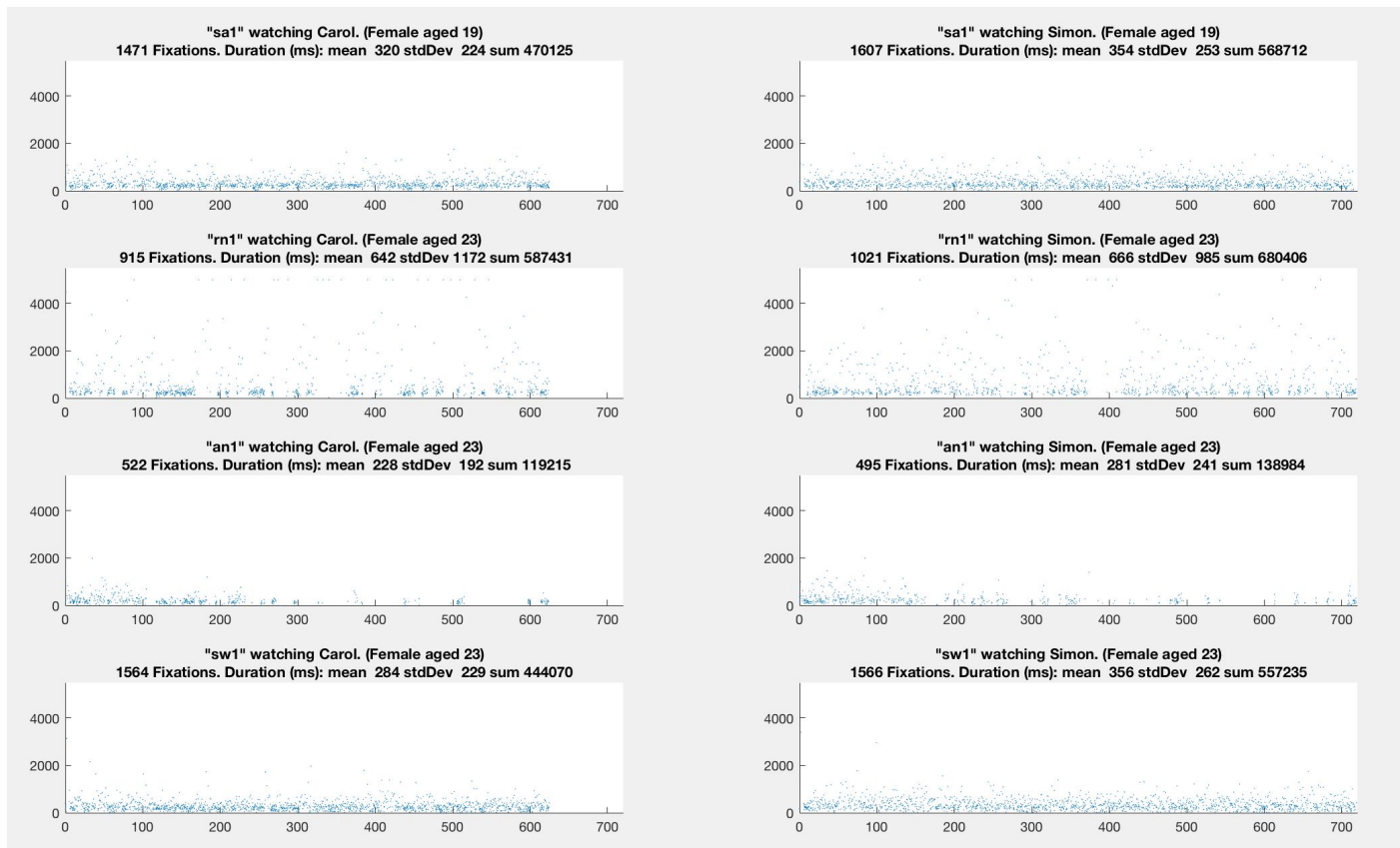# Comprehension(across all subjects by item as per video)

Video 1: carol

Video 2: simon

*look at 1) "more correct items": might be easier or paying more attention,
2) "less correct items": might be difficult or bad items or paying less attention,
3) "medium level items": might be good at differentiating subjects than the other two.

Fixation duration and item comprehension(binary)

"sa1" watching Carol. (Female aged 19)
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"sa1" watching Simon. (Female aged 19)
1607 Fixations. Duration (ms): mean 354 stdDev 253 sum 568712

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"sw1" watching Simon. (Female aged 23)
1566 Fixations. Duration (ms): mean 356 stdDev 262 sum 557235

*need to map comprehension item timeline onto the x-axis;
*might be a time issue: items located at later half of the video might be answered more correctly. This is because subjects get better and bigger picture of the video content at later stage.

Fixation location and item comprehension(binary)

*Locate the time frame of comprehension item and do screen shots