

Workshop11:

Methodologies for Evaluating Collaboration in Co-located Environments

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In this workshop, we investigated a few themes about co-located collaboration and discussed open issues and solutions. Specifically we looked at

- defining what makes a collaboration successful
- how to measure those elements
- how our choice of task impacts our results

Essential Elements of Collaboration:

What are the mechanics or atomic elements of collaboration?

Coordination

Different Perspectives/Roles

Window of vitality

Explicit Communication

Implicit Communication

Diversity

Common Ground

Gestures

Discourse

Parallel Play

Linguistic Development

Benefits of Co-located Collaboration:

What does co-located collaboration provide that we don't obtain in other mediums?

Energizing

Motivating

Emotional Support

Affirmation of Ideas

Often intangible or unexpected

Different specialties or breadth

Cross fertilization of knowledge, skill sets, ideas

Increasing/redefining search space

Increases discourse domain

Tacit knowledge acquisition

Feedback/feedthrough

What is Effective Collaboration?

How do we define what constitutes success?

Did people accomplish their task goal?

Appropriate level of awareness

User satisfaction

Perceived effectiveness

Interaction *with* each other

Impact on group, on knowledge

Communicative efficiency

Seamlessness/ lack of breakdowns

Sense of community

Not detract from face-to-face interaction

Process management

Approaches to Measuring Co-located Collaboration

Observational-
Ethnographical
Approach

Quantitative
Metrics

Behavioral
Measures

Behavioral Measures

High level of understanding but big time commitment.

Types of data

Verbal data

Counting words, speech rates, deictic references

Categorization of statements, lexical entrainment

Gestural data

Body language, facial expressions, pointing, gaze

Types of Analysis

Sequential data analysis

Look at process, not just outcome

Performance

Subjective measures

Adaptation of standard coding systems needed

Quantitative Metrics

Straight forward measures but not straight forward correlation to whether collaboration was successful.

Challenges

1. Task that produce clear quantitative results are often highly contrived and irrelevant for real-world applications.
2. Evaluating the group, not the individuals. Individual performance statistics can be misleading. Group level measures (such as a stdev of individual measures) should be considered.

Observational/Ethnographical Approach

Provides rich, contextual data but often difficult to know which behaviours/events are most relevant

Types of data

- Field notes

- Video (micro-ethnography / interaction analysis)

 - Determine “what” to video can be challenging, requires some prior theories of the behaviour/event

Artefacts

 - Can provide useful insights for technology design

Ways to involve participants beyond “main event”

 - Retrospective video analysis

 - Getting people to simulate what “will have” or “has happen” pre- and post- main event

Task Selection:

Every study uses different tasks, each with their own benefits and drawbacks

General problems with tasks chosen

Generalizing results to other tasks

Realism vs. Precision

Expert task needs expert users

Motivation of participants (with unrealistic task)

Individual differences in task ability can
overshadow experimental manipulation

Large participant numbers to statistically deal
with individual differences

Task Dimensions:

Choice of task will impact the collaborative behaviors

We need a taxonomy of task characteristics and how the characteristics impact collaboration