Experiences with Structured Recording and Replay in Interactive Remote Instruction

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Introduction

• Two widely used distance learning methods are:
  TV-based courses  Web-based courses

• IRI (Interactive Remote Instruction) combines key features of both methods. It has been used for the past 4 years in regular credit classes.
Degree of Interaction

• “In its most fundamental form education is interaction among teacher, student, and subject content.”

• Increasing the degree of interaction increases effectiveness and satisfaction.

• When comparing traditional environments (2-way audio, one-way video and traditional classrooms) with IRI, the perception of classroom interaction of the IRI group is consistently higher.
Recording Architecture

- Recording is based on a passive “participant” that records the session.
- Playback is based on an active “participant” that plays back on demand.
- The architecture allows us to mix live with recorded sessions.
- Storage: anywhere from 300MB to 1GB/h.
Recording and Review

• IRI session recording and review are completely controlled through Java applets.
Recording and Review (cont.)

• IRI Control Panel in a session
Recording and Review (cont.)

- Interfaces for review selection
1.4 Cleanroom software development

The name is derived from the 'Cleanroom' process in semiconductor fabrication. The philosophy is defect avoidance rather than defect removal.

- Software development process based on:
  - Incremental development
  - Formal specification.
  - Static verification using correctness arguments
  - Statistical testing to determine program reliability.
Architecture of Replaying and Recording Controller
Status and Future Work

• IRI has evolved into a reliable system.
• We plan to continue use of this UNIX version for classes over the next year.
• We are currently designing a platform independent version, Java based, with an emphasis on supporting at-home class members.