Technology-delivered Instructional Coaching

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K-12 Teacher Professional Development

• Research has shown that teacher PD should include *follow-up* support that is directly tied to what is happening in a teacher’s classroom

• Technology can connect teachers in rural areas with instructional coaches
CSI: Coaching Science Inquiry in Rural Schools

• CSI is a professional development/research program conducted by the National Center for Research on Rural Education (R²Ed) at the University of Nebraska-Lincoln
  – Key PD element is technology-delivered coaching
  – Study involves determining the impact of the PD on teacher and student outcomes
Coaching Process

- **Teacher**
- **Coach**
- **WebEx Video Conference**
- **Dropbox**
- **UNL Server**

Diagram showing the process of coaching with images of a classroom, teacher, coach, and web conferencing interface.
Use of Technology for Multiple Purposes

• Teacher recording classroom lessons for review by themselves, coaches, and data coders
• Delivery of video files from teachers to coaches and data coders
• Connecting teachers and coaches for the synchronous coaching sessions
Teacher Recording of Classroom Instruction

• Teachers recorded lessons using GoPro cameras and mics

• Teachers offloaded videos by either removing the storage card or connecting GoPro to computer
Transfer of Video Files to Coaches

• Files were uploaded to DropBox
• Project-developed software automatically uploaded new files to the main project computer
Coaching Sessions

• Usually twice a week for about 45 min. each over a 6 – 8 week period

• Bi-directional feedback based on video-recorded classroom lesson

• Used WebEx
  – Two-way video/audio
  – Playback of video examples of classroom instruction
  – Sharing of documents and desktop
  – Recording capability
Technology Use in Data Collection

• 6,000 – 8,000 hours (7 TB) of classroom video to code using three observational instruments

• Also recorded coaching sessions to assess coach adherence to established coaching protocols
Technology Advantages: Coaching

• Eliminated need for coaches to travel to school site
  Huge $ savings
• Anywhere, anytime advantages for both coaches and teachers
  • Coaching sessions were scheduled weekends, early mornings, and late evenings
• Physical separation of coaches meant they were viewed as separate from the school administration
• Allowed teachers to review their lessons
• Allowed sharing of video clips during coaching
• Videos provided a teaching portfolio
Technology Advantages: Data Collection and Coding

- Coders could stop and review recording
- Eliminated need for coders to travel to school site
- Coders could work anywhere with computer access
Technology Challenges: Coaching

• Teachers were unfamiliar with web-based videoconferencing
• Teachers needed hands-on practice with technology
• Large video files required long transfer times and large storage capability
• Project required ongoing troubleshooting at regional and local levels
Technology Challenges: Data Collection and Coding

- Coding video was a difficult, time consuming process.
- Coders typically watched video 2 – 3 times to code three instruments.
- Getting coders trained to established criteria was challenging.
- IRB issues with video recording.
Evaluation of Technology-Delivered Coaching

Coaching improved my teaching skills: 4.5
Coaching encouraged self-reflection: 4.5
Technology was easy to use: 4.5
Reviewing video was valuable: 4.5
Overall coaching rating: 4.5

Rating Scale: 1 to 5
Evaluation of Technology-Delivered Coaching

Baseline vs. PtUnit

- Treatment: Increasing trend
- Control: Steady trend

Teaching Rating (4 point scale)
Lessons Learned

• Technology for teachers
  – Provides access to high quality PD for teachers
  – Power of watching videos for teacher self-reflection and to lead to change in instructional practice

• Technology for coding
  – Cost savings
  – Allowed coding of multiple measures
  – Video coding is challenging and time consuming

• Coaching has a powerful impact on teacher classroom instruction
Future Technology Directions

• Newer, cloud-based applications such as Google Drive may replace DropBox and WebEx

• Estimate that 1/4 - 1/3 of our teachers are using some portion of Google Apps
  – Could reduce learning curve and local approval

• Modification of project software to automatically run compression of video files
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