Session Title:
Using a Reflective Tool for Online Mentoring

MSP Project Name:
A TIME for Physics First in Missouri

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Project Session

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Summary:
We present two tools developed for supporting teachers in the classroom following a content and pedagogy focused professional development program. The first tool is geared to face-to-face observations, while the second is a reflective tool geared for online or hybrid mentoring. These tools were employed in a Freshman Physics PD and leadership development program. We will present the tools and demonstrate a follow-up conversation between a mentor and a mentee who used the reflective tool for online mentoring. Attendees will be asked to comment on the tool and discuss possible generalizations of the tool for other projects. Results of the research conducted on the two tools will be presented.

Section 1: Questions framing the session:
How does a reflective tool (reflective summary sheet) support teachers through an online mentoring system?
How can mentoring tools be generalized for use by other projects?
Would a video observation component affect the reflective nature of the discussion we wish to promote?
• The reflective tool provides the initial steps in helping the teacher gather there thoughts after a call
• The reflective tool provides the online mentor with the outline (context) of the teacher's class.
• The reflective tool provides the starting point for a conversation

Section 2: Conceptual framework:
Backg   nd: A TIME for Freshman Physics in Missouri, an MSP Institute project, is currently in its fourth year. As part of the academic year support for teachers as they implement a full year 9th grade physics course and develop leadership skills, the project

provides mentors who provide support for the teachers. The project compares two matched cohorts: Cohort 1, which started the three-year PD in 2010, receives support face-to-face classroom visits from Coaches during the academic year. Cohort 2, which started its 3-year cycle in 2011, receives online support from Mentors. Both cohorts begin their relationship during the first summer, when teachers and their Coaches/Mentors are placed in the same classrooms over a four-week long academy. They continue to interact in person during subsequent summers and follow-up sessions.

Section 3: Explanatory framework:
The project has developed two tools, the first for face-to-face mentoring scenarios and the second for online mentoring. Both were adapted from a tool used by the Department of Elementary and Secondary Education in the state of Missouri. Both were modified to suit the inquiry and modeling aspects of the project. While the form used for face-to-face mentoring by Coaches is suited for observations of research-based practices, and for a script that is valuable for project use and discussion, the online mentoring tool is designed for reflection by the teacher and subsequent discussion with the Mentor. The development of both tools took place during the summer academy, when the Coaches/Mentors and teachers were present. Considerable discussion was held over the details of each tool.

For the face-to-face tool, most of the discussions centered around the details that the Coach needed to record about inquiry-oriented and modeling-based teaching practices by the teacher.

The online tool, in contrast, needed substantial change, since it would be filled out and submitted by the teacher, rather than the observing mentor. The mentor would need to receive enough information in a reflective format, so that in a later conversation (usually within two days of receiving the form) a substantive discussion could be conducted with the teacher. Since this form was a new format to both teachers and mentors, it was "practiced" during the summer academy and revised repeatedly. The physics instructors (faculty and peer teachers) chose a lesson that they would reflect on, and filled out the form with help from teachers during the class. The form was then handed to a mentor (who was not present in the class during either the instruction or when the form was being filled out). A few hours later the mentor returned to the class, and conducted a discussion with the physics instructor about the entries in the form. Three of four versions were tested and refined, with input from the teachers, before a final version was produced for academic year use. This process of practicing the use of the form allowed buy-in from the teachers, and a sense of ownership for both mentors and teachers.

Re ea ch S d :
In teacher education, mentoring as a supportive mechanism is broadly used to assist pre-service and in-service teachers gain content knowledge and pedagogical skills. Furthermore, mentoring has been widely used as one of the effective components to deliver teacher professional development. With the advent of new technologies, there are increasing opportunities for professional development activities, such as mentoring, to be carried out virtually (Gentry, Denton & Kurz, 2008). However, people are not aware of

the level of technology used in PD and are not clear about the impact of the different levels of technology used in teacher learning. Technology can offer a lower cost option than traditional face-to-face PD, since it reduces the cost of travel. It can also offer flexibility of scheduling for both mentor and mentee.

From a research perspective, understanding how mentoring in face-to-face and online environments differ is important to improve teacher learning. Thus, our research questions were:
- What do teachers perceive as essential for effective mentoring in a professional development program?
- In what ways do various delivery models (face-to-face, online, and hybrid) support effective mentoring and teacher learning?
- What are the limitations of each delivery model (face-to-face, online, and hybrid) in supporting effective mentoring and teacher learning?

We used qualitative case study research methods to examine each case (Yin, 2008). Data sources included semi-structured interviews, coach observation forms, mentor reflection forms, online discussion forums as well as artifacts and field notes over a six-month period. We adapted cross-case analysis and open coding technique to analysis the data (Yin, 2008; Strauss & Corbin, 1990). By doing so, we were able to compare three cases and look for difference and similarities.

All of the teacher-participants in this study discussed the importance of receiving coaching and mentoring from the PD project, but emphasized the advantages of each venue in facilitating effective mentoring. We found that:

In the face-to-face delivery model, teachers were able to
  1) Receive just-in-time feedback;
  2) Receive specific feedback on their actual implementation of teaching practices;
  3) Have the opportunity for an expert to witness their teaching firsthand and provide feedback, which was viewed as desirable and necessary for improving their practice;
  4) Have opportunity to address immediate concerns regarding their teaching or student learning;
  5) Hold the teacher more accountable of their teaching.

The online delivery model provides more opportunities for teachers and mentors to have frequent meetings to discuss their teaching practice. Meeting online
  1) Helped overcome time and location constraints;
  2) Helped teachers better utilize time; therefore, teachers could meet more frequently;
  3) Helped teachers self-reflected on their teaching practice.
  4) Reflected on specific courses or topics

In the hybrid delivery model, teachers utilized hybrid delivery model to collaborate with others to learn, share ideas and develop teaching materials (e.g. lesson plans and lab

equipment). Teachers were benefits with options to freely use both settings by using hybrid delivery model. Thus, the benefits of hybrid delivery model are:

1) Take advantage of the best features of both face-to-face and online learning
2) Teachers had more flexibility to meet with coaches and to reflect on their teaching practice as well as
3) Enhance collegiality.

References:
Gentry, L. B., Denton, C. A., & Kurz, T. (2008). Technologically-based mentoring provided to teachers: A synthesis of the literature. Journal of Technology and Teacher Education, 16(3), 339-373.
Strauss, A., & Corbin, J. (1990). Basics of qualitative research: Grounded theory procedures and techniques. Newbury Park, CA: Sage.
Yin, R. K. (2008). Case study research: Design and methods (3rd ed.). Thousand Oaks: Sage Publications.

Section 4: Discussion:
In the current academic year we continue to use both the observation and reflection tools. School districts are interested in using both tools in the future, and feedback we receive from LNC conference participants will allow us to modify the tool for use by other MSPs.

Section 5: How will you structure this session? What is your plan for participant interaction?
- Participants will be provided with the reflection tool
- 5-7 minutes intro
- 10 minutes research
- 5-10 minutes of video of a teacher and a mentor using the reflective tool. Participants will be asked to anticipate questions that a mentor might ask, and have them comment on the interaction.
- 5 minutes wrap up