

QUESTIONING IN ACTION, AN INHERENT ATTRIBUTE OF TEACHING MATHEMATICS IN THE FUTURE

Bridget Arvold and Luisa Rosu

University of Illinois at Urbana-Champaign

Questioning is an art associated with good teaching practice. Research on questioning and related research on teaching for inquiry (Schön, 1987) ground the development of strategies for good questioning in teacher education programs. However, investigation of how teachers develop and use questioning practices in the changing landscape of education is needed. Access to online lessons and software designed to promote mathematical problem solving raises the question of how questioning for understanding mathematics will be reflected in social and cultural technological transformations.

This is a study of the process of understanding questioning as determined by the “re-educative process” (Lewin & Grabbe, 1945) required in the context of a technology-rich environment. One cohort of secondary mathematics preservice teachers focused on questioning for understanding as we focused on their year long transformation. We analyzed how teachers selected and transformed information, developed hypothesis and made decisions about their use of questioning in the new socio-cultural framework (Bruner J, 1986) imposed by technology.

The cross-case studies were supported by multiple data sources. These included surveys, virtual field experiences, classroom observations, interviews, and webboard, university classroom, and informal small group discussions. As modeled in our poster, we identified similar patterns of discussion and action as the teachers progressed through three cycles of involvement during their teacher education program. We complement the model with a brief case study of the one major exception to the patterns. We ask ourselves, why only one preservice teacher was able to internalize the concept of questioning for understanding as an essential component in the art of teaching.

References

- Levin, K.& Grabbe, P. (1945). Conduct, knowledge, and acceptance of new values. *Journal of Social Issues* 1(3), 53-64.
- Bruner, J. (1986). *Actual minds, possible worlds*. Cambridge, MA: Harvard University Press
- Schön, D.A. (1987). *Educating the reflective practitioner*. San Francisco: Jossey Bass.