Growth of Empowerment in Career Science Teachers - Project Instrument Development

Presented at the 2009 NSF DRK12 Conference by:
Dr. Mary Hobbs and Amy Moreland
Co-PIs: James Barufaldi and Mary Hobbs
(Award # 0554468)
The University of Texas at Austin

CONTEXT

Much of the recent education research has focused on new teachers and why large numbers of teachers are leaving the profession (Ingersoll and Smith, 2003). Few studies have targeted experienced teachers in an attempt to identify factors that may have contributed to their retention. The primary outcome of this exploratory study is the development and testing of a quantitative instrument that can be used to identify pivotal experiences that contribute to long-term teacher retention in a larger teacher sample.

CLAIMS

Empowerment is defined for the purposes of the study as, "the opportunity and confidence to act upon one's ideas and to influence the way one performs in one's profession" (Short, 1992). The literature has tentatively linked teacher empowerment to teacher retention and to student achievement. If empowerment is vital to effective schools, then it is important to know how it develops and how it can be nurtured.

MODEL

In the initial pilot study, Hobbs (2004) found that the six dimensions of empowerment identified by Short (1992) – decision-making, professional growth, status, self-efficacy, autonomy, and impact – appeared and matured in an identifiable sequence. A model emerged (Fig. 1) that conceptualized the teachers' experiences and shows empowerment as a developmental process with three phases.

METHODS

The researchers in Project I.D. initially used techniques of narrative inquiry, as well as behavior over time (BOT) graphing (Fig. 2), to capture the experiences fifty-two K-12 science teachers identified as having positively or negatively impacted their feelings of empowerment.

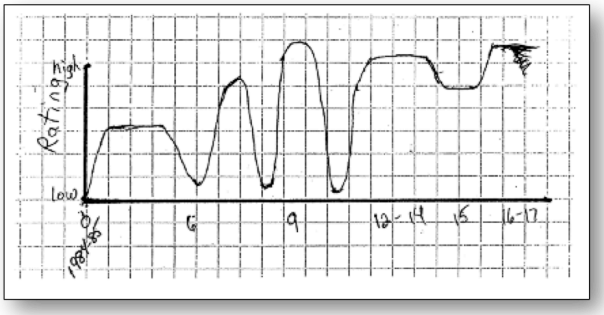

Figure 2. Sample behavior over time (BOT) graph

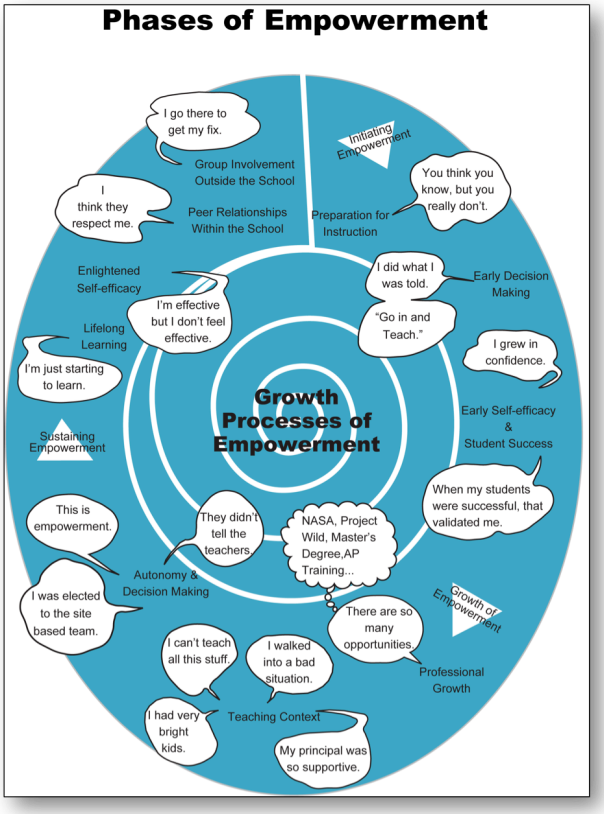

Figure 1. Phases of Empowerment model, adapted from Senge's *The Dance of Change.*

RESEARCH DESIGN & ANALYSIS

Based on the teacher interviews, congruence with the Empowerment Model, regional focus groups, and in consultation with experts in both instrument development and technology, the researchers subsequently developed an instrument that collects similar kinds of data in more efficient ways: the multi-domain Online Teacher Empowerment Survey (Fig. 4). Figure 3 displays a detailed validity map of the research methodology and design.

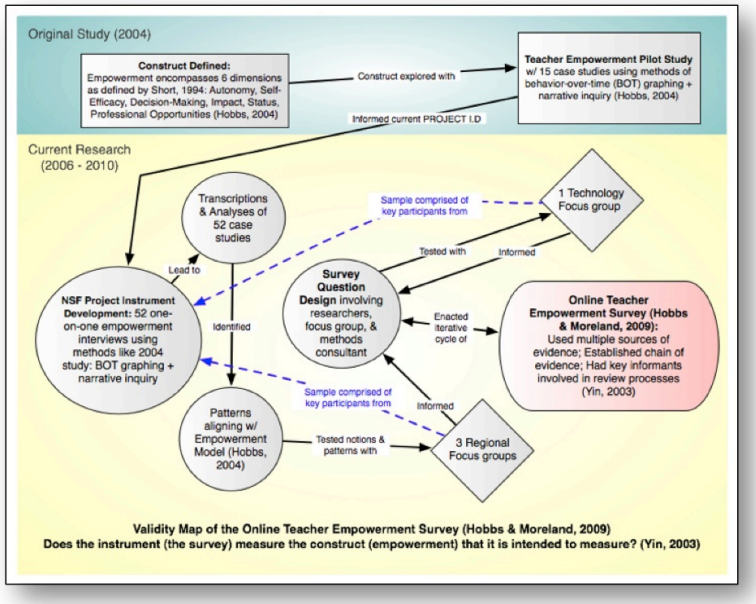

Figure 3. Project ID research design and construct validity map.

PRELIMINARY RESULTS

The contextual issues that affect the quality of teacher learning opportunities include the following discussion points:

- Decision-making had the most immediate effect on teacher empowerment as the events associated with changes in teaching context and the decisions that precipitated those changes caused their BOT graphs to plummet.

- Professional growth provided an intellectual remedy for lack of preparation for teaching and challenging teaching contexts, and eventually supported a mature sense of self-efficacy, as reflected in teachers' increased confidence in their teaching, involvement in decision-making, and their status as professionals.

- Professional development needs of the teachers varied as their careers progressed and the context of their assignment changed.

- The stories told by the teachers as they interpreted their graphs did not reflect a need for control over schools, but focused primarily on their quest for effectiveness as teachers, their need for targeted professional development, and the importance of collegial relationships.

ONLINE TEACHER EMPOWERMENT SURVEY

www.empoweredteacher.org

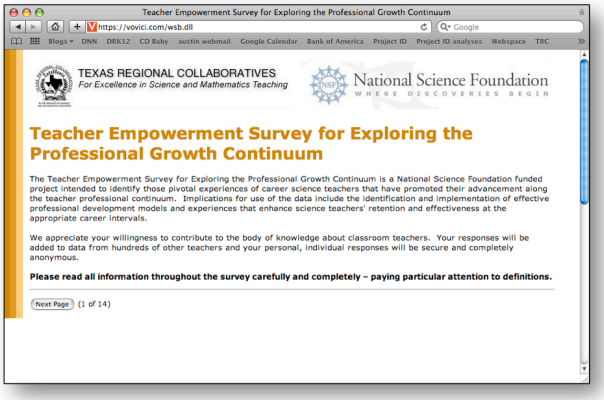

Figure 4. Screen shot of the online Teacher Empowerment Survey.

IMPLICATIONS

If we can identify pivotal events and gain some sense of when those events need to be made available to teachers, then we will have a chronology that will help us better understand the paths that successful teachers have followed (although in most cases probably unintentionally), infer some implications for professional development policies, retention and effectiveness studies, and maximize the use of quality STEM teacher programs identified or created via other research. In addition, the information, once disseminated, may help individual teachers better understand their own professional development needs and enable them to make wiser professional development choices.

PRESENTERS:

Mary Hobbs, Ph.D., (Co-PI on Project I.D.)
The University of Texas at Austin
Coordinator for Science Initiatives – Texas Regional Collaboratives
1 University Station D5500
Austin, TX 78712-0377
maryhobbs@mail.utexas.edu
512-673.3707

Amy Moreland, M.S., Graduate Research Assistant
(2007 NSF's New Researcher Award recipient in 2007)
The University of Texas at Austin
Graduate Research Assistant
1 University Station D5500
Austin, TX 78712-0377
amy_moreland@mail.utexas.edu
817-944-0498