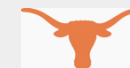# Project Instrument Development (I.D.) - Growth of Empowerment in Career Science Teachers

Dr. James Barufaldi, P.I. and Dr. Mary Hobbs, Co-P.I., Amy Moreland, Graduate Research Associate
The University of Texas at Austin

CONTEXT

Recent education research has focused on new teachers and why large numbers of teachers leave the profession (Borman & Dowling, 2008; Ingersoll & Smith, 2003). Few studies have targeted experienced teachers in an attempt to identify factors that have contributed to their retention. The primary outcome of this exploratory study was the development and testing of a quantitative instrument that could be used to identify pivotal experiences that contribute to long-term teacher retention in a larger teacher sample.

CLAIMS

Since the 1980s, teacher empowerment has been one focus of reform in public schools, yet existing research has failed to give much insight regarding what empowerment means to individual teachers, how these meanings are constructed, what events change these meanings, and whether teachers can retain a sense of empowerment in the context of events and changes that occur within and beyond the school setting. Researchers with the Center for Teacher Quality made connections between working conditions, student achievement, and teacher retention. In the Center's Teacher Working Conditions Toolkit (2006), the researchers recognized the importance of teacher empowerment and proposed that the connection can help improve the retention of teachers and ultimately, the success of the students they teach. If empowerment is vital to effective schools, then it is important to know how it develops and how it can be nurtured.

TEACHER EMPOWERMENT

Though the term 'empowerment' is used frequently in contemporary educational discourse, no one accepted meaning is shared among all educators. However, some common themes have emerged within the literature. Empowerment is most often viewed as a process through which people become powerful enough to engage in, share control of, and influence events and institutions affecting their lives. In part, empowerment requires that people gain the knowledge, skills, and power necessary to influence their lives and the lives of those they care about.

PHASES OF EMPOWERMENT

In an 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. The Hobbs' (2004) Phases of Empowerment model (Fig. 1) emerged that conceptualized the teachers' experiences and shows empowerment as a developmental process with three phases: Initiating (years 1-3), Growth (years 4-8), and Sustaining (years 9+) Empowerment.

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

PROJECT I.D. METHODOLOGY

This sequential, mixed-methods study was a continuation of the research begun by Hobbs (2004) to identify those empowering experiences of career (12+ years) science teachers that have caused them to persist in their careers. Initial qualitative data collection was accomplished through the use of one-on-one interviews in conjunction with the systems dynamics technique of utilizing behavior-over-time graphing (Fig. 2) to capture the experiences of science teachers (N = 52) identified as having positively or negatively impacted their feelings of empowerment. The qualitative data set was coded and analyzed and teacher comments for the survey were selected as representative of the range of experiences teachers reported within the construct of empowerment.
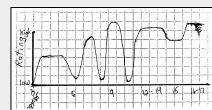

Figure 2. Sample BOT graph.

Based on teacher input, and in consultation with experts in both instrument development and technology, the researchers developed and tested a quantitative survey instrument that collected similar kinds of data in more efficient ways. The sequential mixed methodology allowed the researchers to formulate quantitative survey items from the qualitative data while confirming analyses of the qualitative data via the quantitative survey results.

The quantitative data set was analyzed using the Rasch Rating Scale to determine an 'Empowerment Score' comprised of the six dimension of empowerment. The resulting survey data (N = 263) was used to identify pivotal experiences that contribute to long-term teacher retention in a much larger sample of teachers who collectively represent varying years of experience along the professional continuum.

EMPOWERMENT MODEL - QUAL

The Hobbs (2004) personal and organizational empowerment model, which parallels two 'arenas' occurring along the professional continuum, proposes an order in which the dimensions appear and mature. This model (Fig. 3), based on Klecker and Loadman (1996) and Short (1992), identifies two simultaneous processes of empowerment that develop along a continuum: (1) the personal empowerment process, which includes professional growth, self-efficacy, and status, and (2) the organizational empowerment process, which includes autonomy, decision-making, and impact. The research confirmed professional growth to be within the realm of personal empowerment, and attainable by individual teachers.

Arena of Personal Empowerment

Confidence → Self-efficacy → Evidence of Student Success → Status →

-------------------- Increasingly Targeted Professional Growth ---------------→

Professional Development
Fueling Process
Personal Maturity

-------------------------- Maturing Feelings of Autonomy -----------------------→

Naïve Feelings of Freedom → Opportunities for Decision-Making → Impact

Arena of Organizational Empowerment

Figure 3. Personal and Organizational Arenas of Empowerment

SIGNIFICANT RESULTS - QUANT

The survey results indicated that teachers who had participated in a community of learners program where they received 60 or more hours of professional development annually had a statistically significant higher average Empowerment Score than teachers who did not (t = 2.138, p =0.033).

Professional Community?	N	Mean Empowerment 'Score'	Std. Deviation
Yes	171	48.31	19.111
No	76	42.99	15.404

t-value	df	Sig. (2-tailed)	Mean Diff.
2.138	245	0.033 *	5.323

Table 1. Mean differences between teachers who had or had not participated in a professional community of learners.

RESULTS – TRENDS

Although there was no statistical significance across the other demographic variables in this study, we did observe some interesting trends that are worth further study. The mean Empowerment Score from the 263 survey results indicated the following trends:

• **Teaching Experience Groups** - increasing low to high from the least experienced induction years (1-3 years) teachers to mid-career teachers (4-8 years) to the more empowered veteran teachers (9+ years).
• **Grade Level Taught** – increasing low to high from high school teachers, to middle school teachers, to the more highly empowered elementary school teachers.
• **School Context** – increasing low to high from rural school teachers to the more empowered urban teachers and suburban teachers.
• **Certification Type** – increasing low to high slightly from alternative certified to the more empowered traditionally certified teachers.

FURTHER RESEARCH

To further investigate empowerment in career teachers, we recommend expanding the study in three ways:
(1) Refine and re-validate the Teacher Empowerment Survey, and include a much larger and national sample of teachers, including another STEM discipline like mathematics.
(2) Create a Teacher Self Assessment Tool at the end of the survey so that participants can receive instant information and recommendations based on other teachers' experiences of their own professional growth and empowerment.
(3) Publish and provide findings about teachers' empowerment and professional development explicitly to professional development providers, school districts, and other networks.

TEACHER EMPOWERMENT SURVEY

The survey can be found online at **www.empoweredteacher.org**