

Growth of empowerment in career science teachers: Implications for professional development

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Challenge

Much of the recent education research has focused on new teachers and why large numbers of teachers are leaving the profession. Few studies have focused on experienced teachers in an attempt to identify factors that may have contributed to their professional growth and retention.

The researchers in this study used techniques of narrative inquiry as well as behavior over time (BOT) graphing to capture the experiences fifty teachers identified as having positively or negatively impacted their feelings of empowerment. The purpose of this research is to identify those pivotal experiences of career science teachers that have promoted their advancement along the teacher professional continuum and have helped them to persist in their careers.

Background

What is empowerment and why is it important? 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.

Short (1992) presented six empirically derived dimensions underlying the construct of teacher empowerment. These dimensions were based on the definition of empowerment as “a process whereby school participants developed the competence to take charge of their own growth and resolve their own problems.” In this study empowerment was specifically defined as, “the opportunity and confidence to act upon one’s ideas and to influence the way one performs in one’s profession” (Melenyzer, 1990).

If teacher empowerment is vital to effective schools then it is important to know how it develops and how it can be nurtured. Short (1992) called empowerment a complex construct (p. 7). Vogt and Murrell (1990) described empowerment as a dynamic process, and Liden and Tewksbury (1995) discussed it as occurring on a theoretical continuum, yet researchers have not thoroughly examined empowerment to this level of complexity. To do so requires consideration of how the component parts that embody empowerment (its dimensions) interact within the environment of teachers’ lives.

Methodology

Data collection was accomplished through the use of one-on-one interviews (Clandinin & Connelly, 2000) in conjunction with the Systems Dynamics (Anderson & Johnson, 1997) technique of utilizing behavior over time (BOT) graphs. Fifty teachers graphed their highs and lows of empowerment as they described in detail those pivotal events that caused them to feel empowered (or un-empowered) over the course of their careers. Later their experiences were categorized and patterns were identified and the data was examined for its congruence with the growth of empowerment model developed by Hobbs (2004) during a previous study.

In the initial study Hobbs (2004) found that the six dimensions of empowerment identified by Short (1992), which include decision-making, professional growth, status, self-efficacy, autonomy, and impact, appeared and matured in an identifiable sequence. Autonomy appeared early as a naïve sense of choice and evolved over time into a mature sense of responsible decision-making. Decision-making had the most immediate effect on teacher empowerment but of all the dimensions, autonomy most nearly mirrored empowerment itself. A sense of autonomy gave “heart” to the empowerment process, allowing teachers to persist through trying circumstances, while professional growth experiences fueled the mind. As teachers obtained more knowledge their feelings of self-efficacy increased, they were more likely to be involved in decision-making, and they increased in status and had more impact.

Two models emerged:

The first model identifies two simultaneous processes of empowerment that develop along a continuum: (1) the personal empowerment process, which includes self-efficacy and status, and (2) the organizational empowerment process, which includes autonomy, decision-making and impact.

A second model shows empowerment as a cycle with three stages of empowerment: The Initiating Phase, The Increasing Phase, and the Sustaining Phase. Although all six dimensions of empowerment (as identified by Short)--autonomy, self-efficacy, decision-making, professional growth, status and impact--are present during all stages, they become increasingly complex and sophisticated, and reach maturity during the third phase.

The current research, the NSF-funded *Project Instrument Development*, duplicates the techniques used in the original study with a larger and more diverse sample of fifty teachers with 7 to 31 years experience from rural, urban and suburban schools and who are reflective of the demographic makeup of Texas science teachers statewide.

Preliminary data analysis from the current study confirms the models and supports the following observations:

- During the Initiating Phase (Years 1-3) teachers recalled struggling with their lack of preparation yet growing in confidence as they practiced their craft in their classrooms. Their time was devoted to learning what to teach and how to teach it.
 - During the Increasing Phase (Years 4-8) teachers recalled becoming more aware of professional development opportunities. Their growing feelings of self-efficacy were supported by real evidence of student success. They were challenged by the teaching context—in students, principals, and working conditions. They began to be involved in decision-making groups.
 - During the Sustaining Phase (Years 9+) these teachers saw learning as a lifelong process. They felt admired and respected and were impacting education on campus and off. They had strong connections to organized groups and they were redefining their own sense of self-efficacy.
- By Year 9 the teachers' graphs all showed a “leveling off” of empowerment, indicating different professional development needs for the most mature teachers.

Contribution to the world of science teacher education

By better understanding the paths that successful teachers have followed (although in most cases probably unintentionally), we can infer some implications for professional development programs and policies for the future. The needs of Phase 1 teachers and the needs of Phase 3 teachers are vastly different. Yet, most school systems take a one-size-fits-all approach to offering growth opportunities to its professional staff. This study supports the implementation of tiered professional development opportunities for teachers. Recommendations based are as follows:

Phase 1: During the first three years of employment new teachers should be supported as they learn the logistics of being a classroom teacher. Teachers in the study reported that assistance from peers facilitated this process. However, this assistance was often incidental and not available when needed. The stories of these teachers provided a convincing argument that an organized and systemic mentoring program is needed. Furthermore, new teachers should be directed toward targeted professional development opportunities that address individual needs and weaknesses. New teachers are overwhelmed by the process of becoming competent and efficient classroom teachers and any demands on their time should be carefully structured so that outcomes are related to the challenges they are encountering at this stage of their careers.

Phase 2: Professional development during this phase should assist teachers in becoming more effective in designing and delivering instruction that meets the needs of their particular student populations. This study indicated that this is the time when teachers are especially attuned to self-efficacy as it relates to student achievement, and that professional development should capitalize on that teacher focus. Many of the teachers in the study found areas of strong interest during this time that later became their professional focus for collegial connections beyond their campuses. Teachers should be encouraged to sample a variety of professional development offerings. They should also

be given opportunities during this phase to become involved in leadership roles, both at the campus and district levels.

Phase 3: During this phase teachers should be encouraged to self-select those professional development opportunities that support a new interpretation of self-efficacy. The teachers emphasized lifelong learning and a strong need for collaboration with other professionals who are functioning at their levels of competence. School districts should be flexible in allowing these Phase 3 teachers to forego some of the standard offerings and attend instead workshops and conferences that meet their individual needs and interests.

Who better to ask what types of professional development opportunities have important impact on teachers than those teachers who have experienced them—teachers who have not only survived but thrived in their classrooms, schools, and the larger community. 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 maximize the use of the quality professional development programs being identified and/or created via other research.

This research is part of *Project Instrument Development*, currently funded through the National Science Foundation's Teacher Professional Continuum (TPC) program. The current study is specifically focused on the TPC goals of encouraging research on effective professional development models and on advancing the knowledge base on enhancement and retention of STEM teachers. The ultimate goal of Project I.D. is to develop a survey instrument that will collect quantitative data to compliment the qualitative research. To that end, the researchers are currently piloting an instrument that they believe will collect data similar to that obtained using the interview techniques and which will tell us even more about the empowering experiences of classroom science teachers.

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Additional resources related to this research can be found on the Texas Regional Collaboratives (TRC) website at <http://theTRC.org> under Online Resources TRC Event Presentation / resources Library.