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Metacognition, Metamemory, and Commitment to Change Strategy:

Enhancing Adoption of Innovation of Staff Development

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Abstract

While transfer of information to practice is a goal of professional development programs for educators, the gap between learning of new information and application to practice continues to be problematic. Synthesizing theoretical viewpoints of innovation adoption and diffusion theory, normative re-education strategies, self-efficacy theory and commitment development strategies with metacognitive and goal setting theories strategies resulted in an enhanced Commitment to Change (CTC) strategy. Self-reported levels of implementation of desired changes in practice were collected three and seven months after sessions of the Nebraska Adult Basic Education Teacher Training Institute over three years. The first two years, sessions one through four, utilized the CTC model developed by Dirkx and Turner (1993) while the third year, sessions five and six, implemented the enhanced CTC model. Including strategies which facilitate transfer of learning into practice, the revised CTC fostered increased long-term implementation while maintaining integrity of participants' satisfaction and perceptions of continued importance of desired changes.

Keywords: Commitment to change, teacher training, adoption of innovation, staff development, diffusion, goal setting, metacognition

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Professional development continues to be a priority for teachers concerned with challenging conditions which effect all levels of education. Inservices, continuing education, and other formal and informal staff development courses abound for educators, and desired outcomes include transfer of new information to education practice. The gap between professional development and application to practice is well known. Traditional staff development models have consisted of “update” designs, largely ignoring the importance of participants’ prior beliefs, values and attitudes in the process of adopting innovations or changes in their practice, contributing to little actual application of new knowledge to practice.

An alternative to update delivery, the Commitment to Change (CTC) process was developed and applied to the Nebraska Adult Basic Education Teacher Training Institute (TTI) (1992-1993 and 1993-1994) and included a process by which educators may track progress and self-evaluate importance of, satisfaction with, and barriers to desired change in practice. Four theoretical viewpoints were synthesized to develop the CTC process, including innovation adoption and diffusion theory (Rogers, 1983); normative re-education strategies (Chin and Benne, 1985); behavioral change and self-efficacy theory (Bandura, 1977, 1982); and commitment development strategies (Devlin-Scherer, Devlin-Scherer, Schaffer, and Stringfield, 1983).

Barriers to change remained, spurring researchers to ask how the existing CTC process could be modified to further enhance change in practice. Barriers maintained a consistent profile: lack of time, lack of cooperation or collaboration with supervisors or agency partnerships,

inefficient programming issues, and so on. Questions driving the CTC study for the fifth and sixth sessions (1994-1995), then, followed two themes: Can the theoretical understanding of CTC be expanded by incorporating cognitive psychology theories pertaining to metacognition and metamemory? and Would such an expanded version or strategy foster improved change in teacher practice?

Commitment to Change: Sessions One Through Four

Turner and Dirkx (forthcoming) developed the CTC strategy to be used at the two sessions of the 1992-1993 TTI, a state-wide residential staff development program for paid instructors, instructional volunteers, coordinators, and program directors of adult basic education. Key elements of the CTC strategy included early adoption decisions; learner understanding of content; mediation of change through norms, values, beliefs, etc.; declaration of commitment; and participant follow-up. Also implemented at the 1993-1994 Institute, the learning environment each year consisted of two instructional sessions of two and one-half days each, four to six months apart. At the outset of each session, the CTC strategy was discussed at length with the participants at which time values, beliefs and attitudes toward their own practices, impact of adoption of innovation on practice were explored. Participants were instructed to consider three criteria: (a) changes must be *very specific* and capable of being implemented over a period of time; (b) changes must be *very important* to the practitioner; and (c) participants should feel *very confident* about the feasibility of implementing the specified changes. Discussion also included information about Dweck and Leggett's (1988) motivational model and goal orientation. Including information about learning goals and performance goals before launching into the topics provided a framework for exploring goals and objectives for attending the TTI while increasing teacher's self-efficacy.

Participants were given worksheets and instructed to make notes about changes while engaged in the session. Additional time was allocated at the end of each instructional session at which time participants were asked to examine their worksheets and identify one specific change for each topic addressed at the session that they would like to make in their practices as a result of their participation in the TTI. To promote feasibility, participants were encouraged to limit the total number of identified changes to three, even when more than three topics were covered at each session. Final statements of intended changes were given to the coordinator before departure, implementing the public declaration aspect of change strategy.

Final statements were transcribed and returned to participants participants were asked to reflect, self-evaluate, and respond to a questionnaire which addressed a) the extent of implementation of each identified change; b) level of satisfaction with the change; c) level of perceived importance; d) barriers to implementation; and e) effects of implementation on practice, students, and the participants. Seven month follow-ups were conducted for the first and third sessions.

Responses to the questionnaires were analyzed and discussion at subsequent sessions focused specifically on factors which either facilitated or impeded the change process and on the nature of change itself. Overall, participants indicated relatively high levels of success regarding the extent of change and very high levels of satisfaction with changes in practice as a result of using the CTC strategy. Barriers to implementation remained, however, and additional attention to the CTC model was pursued.

Enhanced Version: Sessions Five and Six

Metacognitive, metamemory, and goal setting strategies drawn from cognitive psychology were incorporated into the established CTC process for the fifth and sixth sessions of the TTI

(1994-1995) to enhance overall change in practice. Metacognition is a term which means thinking about thinking. For purposes of this research, metacognition refers to the awareness which practitioners have of their own thinking processes which are vital to fostering change in practice.

Metamemory refers to thinking about memory (Glover, Ronning, & Bruning, 1990, p. 102), and involves three skills – awareness, diagnosis, and monitoring – which enabled participants to consider knowledge about how their own thought processes contribute to successful adoption of change. Awareness is “being aware of the need to remember” (p. 103). Diagnosis involves understanding “what it will take to remember” (p. 103) further involving assessment of the difficulty and determination of the demands which retrieval will require. Monitoring involves self-assessment of one’s progress as information is committed to memory (p. 105). These major skills are central to transfer of learning, or change in practice.

Goal orientation also impacts outcomes. Performance goals are those in which learning takes place to meet a outcome criteria, such as attaining the high school equivalency (GED) diploma. Learning goals are mastery-oriented and geared toward gaining intrinsic reward. For example, a mastery-oriented person will view the challenge as just that, a challenge which will bring satisfaction when resolved. Dweck and Leggett (1988) discuss research during which manipulation of subject’s goals (performance vs. learning) resulted in an effect on goal orientation of the subjects. Farrel and Dweck (in Dweck and Leggett, 1988) studied children’s tendency to transfer knowledge to novel tasks and found that learners with learning (mastery-oriented) goals more actively transferred knowledge to new tasks than subjects with performance goals (p. 260).

Methods

Demographics

The 1994-1995 TTI participants were mostly women, with one male practitioner in attendance, and were teachers, volunteers, coordinators, and directors of adult basic education. Experience in the field ranged from more than 20 years to new, first-year practitioners. They represented programs from large urban and small rural areas of Nebraska.

The TTI was a residential, three-day session held in central Nebraska. The umbrella topic of these sessions addressed motivation and retention of the ABE learner. Participants were asked to identify three changes in practice they intended to make as a result of their participation in the Institute. For each session, a one-month follow-up letter confirmed identified changes and offered participants to make any changes or corrections necessary. Three-month and seven-month follow-up questionnaires sought progress reports in five areas.

Follow-up questionnaires was identical to those used in previous years, requesting information in five areas. The level of implementation of each intended change was scored on a nominal scale (1= 0-25%, 2= 26-50%, 3= 51-75%, 4= 76-100%, 5= NA or blank). Levels of satisfaction with implementation of intended changes were measured using a Likert scale (1= very satisfied, 2= somewhat satisfied, 3= somewhat dissatisfied, 4= very dissatisfied, and 5= blank). Participants were asked to self-assess whether the change continued to be important for practice. These responses were also measured on a Likert scale (1= very important, 2= somewhat, 3= not very, and 4= not at all and 5= no response). Participants were also asked to self-evaluate their perceptions of barriers to change and effects of changes on co-workers and learners.

Enhanced Pre-TTI Strategies

Crafting an atmosphere which reflects mastery-oriented goals models a success orientation toward change. Such strategies were modeled by Institute facilitators during the fifth and sixth sessions during the 1994-1995 TTI. Existing pre-Institute strategies remained in place. Explanation covered metacognition and metamemory in the CTC process. Discussion included the three skills. *Awareness*: Discussion of the CTC requirements, with emphasis upon personal values and beliefs and goal orientation with consideration of feasibility, was intended to impact participants' memory recall. Outlining the steps of the CTC process, including description of the worksheet, selecting intended changes in practice (emphasizing the importance of specificity, importance, and feasibility), and the follow-up mailings, participants were familiarized with the process and, therefore, better able to direct their own learning to match their own needs. *Diagnosis*: Because participants understood that they would be asked to select a specific change to implement in practice, they were able to encode the topics presented at the Institute to allow for more effective retrieval. *Monitoring*: Periodically during the sessions (about every twenty minutes) participants were allowed two or three minutes to double-check their notes and ask questions of their neighbors. This strategy slowed the flow of information to allow formulation of questions for clarification while still in the learning session.

Enhanced Post-TTI Strategies

Six main steps comprised post-session discussion: (a) *Reflection*: Time for individual reflection ensured that intended changes were highly important to the individual; (b) Decision about desired changes: Participants formulated, in writing, specific changes to practice; (c) Visualization: Participants were encouraged to "see" interactions with students and co-workers in an attempt to "feel" the success of implementation and predict potential effects and barriers; (d) Public declaration: Participants engaged in small group interaction to discuss the

nature and feasibility of desired changes. By mixing members of the small group to represent different ABE programs and different job types (paid instructor, volunteer, program director, or volunteer coordinator) perspective was gained regarding feasibility and the potential for successful implementation from the point of view of others outside the dynamics of any single ABE program; (e) *Reconsideration*: Fine tuning or changing of intended changes occurred during this phase; and (f) *Declaration*: The formal, written statement describing the desired change, accompanied by a statement about how the change was developed. Instructions for writing specific, effective statements of intended change were also discussed within the framework of values, beliefs and attitudes. Practitioners were encouraged to consider their initial goals when determining their desired changes in practice and think in terms of specific changes rather than broad statements. Examples of effectively and ineffectively written statements from past TTIs were presented, while care was taken not to use statements written by practitioners who were present.

Limitations and Delimitations

Subjects of this study were not selected using random sampling, but were ABE practitioners who were able to arrange to participate in the residential format of the TTI sessions. In the case of third-year TTI, participation was limited to those practitioners who were recommended by program directors. As a result, subjects are not intended to be a representative sample of all educators, or even all ABE practitioners.

Findings

Quantitative Results

Implementation of desired changes resulting from the 1994-1995 TTI (the fifth and sixth sessions) was compared with results from the 1992-1993 sessions (the first and second sessions).

For sessions one and five (autumn sessions), results were obtained at three and seven months. Sessions two and six (early spring sessions) were evaluated at three months only. All sessions indicated movement toward success with long-term changes in practice. Dissatisfaction tended to be coupled with decreased perceptions of importance, very low implementation, and focus on barriers. Self-assessed estimations of progress toward implementation for sessions one and two (1992-1993 TTI) and sessions five and six (1994-1995 TTI) are reported in Tables 1 and 2.

Self-reported implementation increased from the 1992-1993 TTI to the 1994-1995 TTI. Implementation of greater than 50% at three months after the first session was 61.4% while 62.8% after session five. Seven month follow-up reports of greater than 50% implementation were 59.9% after session one but 66.7% after session five. Reports of less than 26% were lower for the first session. Implementation of 51 - 75% was lower at three and seven months for the fifth session, but implementation was greater at three and seven months after the fifth session for the 76 - 100% level than for the first session.

Participant satisfaction with changes in practice was very similar between the sessions. Three and seven months after sessions one and five, average satisfaction was 1.8. Three and seven months after session five, 88% of participants still consider their changes to be important, but the numbers shifted from 41.7% as somewhat important and 45.8% as very important three months after session five to 33.3% as somewhat important and 66.7% as very important seven months after session five.

Table 1

Self-reported level of implementation of change following sessions one and five

Percent of Implementation	Percent of participants self-reporting change at 3 and 7 months			
	3 months		7 months	
Sessions	One	Five	One	Five
0 – 25	9.7	20.8	12.7	18.7
26 - 50	19.3	20.8	21.8	14.6
51 - 75	45.2	35.4	32.7	25.0
76 - 100	16.1	27.4	27.2	41.7
No response	9.7	0	5.4	0

Table 2 validates findings reported in Table 1. After three months, implementation of greater than 50% in sessions one and two is 61.3% and 61.1% respectively, and 62.8% and 50.0% for sessions five and six. Distribution of levels of implementation, however, show higher levels of low implementation at three months after the enhanced CTC process, but the highest level of implementation of change is evident at the 7 month follow-up of session five.

Table 2

Self-reported level of implementation of change following sessions two and six

Percent of Implementation	Percent of participants self-reporting change at 3 months	
	Two	Six
0 - 25	14.8	21.4
26 - 50	24.1	28.6
51 - 75	24.1	25.0
76 - 100	37.0	25.0

Qualitative Results

Follow-up questionnaires included an open-ended question which asked participants to report barriers to implementation. Barriers to implementation were analyzed using descriptive statistics and qualitative content analysis. Barriers to change were accounted for within four

categories: lack of time, program influences including lack of resources, lack of collaboration or cooperation from required partnerships, and student-related influences. Of these, the largest percentage of responses (35.7% at 3 months and 55.9% at 7 months) related to time. Teacher commentary clearly speaks to the pervasiveness of this barrier: “Monthly follow-up is difficult for the teachers to keep up with all other demands.” Participant comments also spoke to the impact of student resistance to change: “Students have the expectation of completing the GED tests and do not want to take time for setting other goals,” and “Some of my students do not wish to become computer literate.”

Discussion

Differences in implementation between the first and fifth sessions may result from a number of influences, including participant’s goal orientation toward the TTI experience, nature of changes, and nature of barriers. Table 1 reported an increase of low implementation in sessions five and six. However, strong evidence of positive movement is reported as percentages decrease from the three month to seven month follow-ups, until the seven month follow-up for session five reported stronger reports of the highest level of implementation-41.7% as compared with 27.2% after the same period following session one. This slow approach with strong outcome suggests that participants spent more time thinking through their needs and planning their changes in practice. The consistent movement into higher levels of implementation suggest that participants may have been oriented toward long-term change rather than for quick success. The 45.2% level of 51-75% implementation at three months after session one suggests an orientation toward quick success. The quick start after session one, however, did not follow with continued success. These figures suggest that, overall, the enhanced CTC fostered greater long-term success in terms of change in practice.

Qualitative analysis of the nature of the intended changes identified at session one reflected changes related to content (what they teach) or pedagogy (how they teach) (Dirkx, Blodgett, & Turner, 1994). Participants attempted to incorporate new content into their practices

after the 1992-1993 TTI. Changes involving pedagogy were largely an identification of new strategies for teaching math and reading. Session one changes, then, were strongly task-oriented efforts to plug new information into existing teaching-learning transactions.

Sessions five and six were more theoretical in focus. With an umbrella focus on motivation and retention of adult learners, individual topics stressed understanding of underlying concepts which impact ABE learners. Some intended changes still reflect specific actions, such as “Use [presenter’s] interview form in [program name] classroom” which are easily measurable and require less effort to attain success. A participant with performance goal orientation would rely on this type of change in practice to measure success. The majority of intended changes from the 1994-1995 TTI reflect mastery-orientation, or learning goals. Changes indicated tend to be lengthy, detailed and require considerable autonomy in the classroom: “Build a greater rapport with my students using many of the techniques taught at this workshop,” and “Discover the correlation between attendance and persistence in my program by using ‘Patterns and Predictors of Client Attendance’ to analyze persistence and non-persistence of students.”

Barriers to implementation during the first four sessions included seven areas: unstable student population, lack of opportunity to implement specific goal, lack of time, difficulty initiating change, change in duties and responsibilities, lack of resources, and bureaucratic problems (Turner & Dirks, 1993). Lack of time necessary to make intended changes was the primary barrier to implementation expressed by participants in sessions one and two. Barriers to implementation expressed by sessions five and six participants focus primarily on time limitations, followed by student resistance. Comments regarding failure due to lack of cooperation by supervisors, peers, and agency partnerships were isolated after the enhanced CTC was implemented. This suggests that emphasis placed upon consideration of feasibility, combined with group discussion of changes and visualization of implementation process encouraged participants to examine carefully the feasibility issue. Discussion of past barriers was included in CTC discussion during the TTI increased participants’ awareness of the nature of

barriers which have influenced lack of successful implementation in past sessions. Such awareness would influence goals and objectives of participants, as well as avoidance of unfeasible expectations for the TTI.

Conclusion

Increased change in practice which followed the original Commitment to Change strategy and the enhanced version suggest that the strategy could be applied outside of the adult basic education arena. Implications for further application of the enhanced CTC strategy include professional development courses currently available in industry and education. High levels of long-term change in practice as evidenced by this three-year study indicate that the gap can be overcome.

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