CHAPTER 10
TEACHERS' ENGAGEMENT IN CHANGE OF PRACTICE

Influencing Teachers' Engagement in Changing Professional Practice: Application of the Transtheoretical Model of change

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Abstract

This conceptual chapter explores engagement in professional learning experiences as a contributing factor to teachers' change of professional practice. Specific focus is on those teachers who do not easily adapt to the changing milieu of their profession. Following a critique of traditional approaches to professional development programs, the chapter develops the proposition that an improved understanding of psychological factors that influence intentional change at the individual level will enhance the study of how teachers change professional practice. It suggests that such an improved understanding can be provided by the Transtheoretical Model of Change (TTM), a prominent model developed in the health sciences but subsequently found to be effective in other fields. TTM's efficacy derives from its capacity to align particular types of interventions with an individual's level of motivational readiness to change. The chapter recommends that research be undertaken to explore the efficacy of applying TTM to understand and enhance teachers' engagement in professional learning and change of practice.

INTRODUCTION

This chapter is concerned with teachers who do not respond constructively to the technically and emotionally demanding impacts of rapidly changing work environments. It seeks an improved understanding of how professional learning processes bring about adaptive changes in teachers' behaviour. In particular, it seeks to explain why some teachers eagerly embrace the need to grow professionally while others remain intransigent to change.

Recent international (Organisation for Economic Co-operation and Development [OECD], 2005), Australian Government (Meiers & Ingvarson, 2005) and Australian state government reports (Department of Education & Training, Victoria, 2005) observed that societal demands on schools and teachers have rapidly increased in complexity. They note the broadening and deepening of teachers' roles in response to increased student diversity and the need to prepare students for the knowledge society. These demands are compounded by increased expectations for teachers to work in teams, integrate ICT into their practice,

participate in shared leadership structures and help build school-community partnerships. Richardson (1998) describes this change in demands on teachers as representing a shift from an industrial model in which teachers replicate a specific set of instructional tasks to one in which flexibility and a change orientation are essential. Therefore, contemporary teachers need to alter curriculum and instructional methods whenever new knowledge emerges and change their patterns of classroom interaction depending on students' diverse needs and characteristics.

The OECD report (2005) suggested that governments and their education systems have typically responded to the changing societal demands by adopting educational reform and school improvement agendas. Much of the literature has analysed the implementation and impact of these agenda on school performance. Only a small portion of the research has addressed the motivation and emotions of individual teachers, and sought an improved understanding of how they adapt to classroom-level manifestations of societal change. Such investigation is complicated by the fact that broad societal changes are not uniformly reflected in every town, suburb, school and classroom. Classes of students, and their parents, can vary widely in factors such as expectation of schooling, cultural background, level of disadvantage, special education needs, and experience of physical and emotional abuse. Variations in these factors act to expand the already wide levels of professional challenge and affective experiences faced by individual teachers in their daily work. How teachers change practice in order to adapt to rapidly changing work environments is only partially understood.

This chapter's exploration of factors that influence teachers' engagement in change processes begins with a broad examination of professional learning, growth and change. In particular, the efficacy of professional development programs is critiqued. Focus then shifts to other professional learning activities and the psychological characteristics of the individual, which it is argued are important but frequently understated influences on professional change. The lack of a unifying theory of change of professional practice is noted. At this point, the focus moves to an examination of the Transtheoretical Model of change (TTM) and the expanding number of fields in which it is being applied. It is proposed that applying TTM's principles might enhance intentional change of classroom practice at the individual teacher level.

PROFESSIONAL LEARNING, GROWTH AND CHANGE

Clarke and Hollingsworth (2002) observed that the education literature allows multiple interpretations of the term *teacher change*. In its use of the terms teacher change and professional change, this chapter adopts an interpretation of change that recognises even very small alterations in thinking and feeling. This usage contrasts with interpretations of change that require entrenched alterations to behaviour. When referring to such long-term change in teachers' behaviour, the term change of practice is used.

FROM PROFESSIONAL DEVELOPMENT TO IMPROVED STUDENT OUTCOMES

Guskey (1986) claimed that belief in the benefits of professional development programs is based on an implicit model in which professional development activities increase teachers' knowledge and skills in ways that promote growth of positive attitudes towards change, which leads to change of practice, which in turn leads to improved quality of teaching and student outcomes. He proposed an alternative model that reversed the order of the relationship between attitude growth and change of practice. Over time, the reliance of these models on simple linear links has been replaced by recognition of the complexity of the connections among professional development, knowledge, skills, growth, attitude towards change, change of practice, improved quality of teaching and student outcomes. The relationships are now considered to be complex and recursive, with aspects that are reciprocal and dynamic, with models allowing iterative loops between elements (Clarke & Hollingsworth, 2002; Gravani, 2007; Ross & Bruce, 2007).

Despite the increasing complexity of models of growth and change, the assumption remains that well organised professional development for teachers will somehow result in improved student outcomes. The relationship between quality of teaching and student achievement is strong (Hattie, 2003), but the assumed links between professional development and quality of teaching appear to be tenuous. Recent government and education association reports (Department of Education and Training, Victoria, 2005; Meiers & Ingvarson, 2005; Munro, 2005; OECD, 2005) echoed Guskey's repeated assertion (1994, 1999, 2002) that almost every modern school reform and transformation agenda assumes that professional development has a critically important role.

These reports, however, identified that much professional development has been of dubious value in changing professional practice or improving student learning. They variously described much professional development as lacking relevance to teaching practice, being fragmented and having insufficient intensity and follow up. Research findings have been overwhelmingly critical of traditional forms of professional development, especially those of the one-size-fits-all format (Clarke & Hollingsworth, 2002; Fullan, 1992; Guskey, 2002, 2003; Hargreaves, 2004; Richardson, 1998). The weight of negative findings prompted Guskey to assert: "...we know more about what makes professional development fail than what makes it succeed" (1994, p. 8).

Lack of empirical support for the assumption that professional development has a powerful widespread influence on the quality of teaching seems to have stimulated two directions for research. One has focused on the whole-of-school and system levels and sought to identify the characteristics of effective professional development programs. Another has focused on psychological factors that influence teachers' growth and change of practice. As evidenced in

reviews and analyses by Guskey (2003), Meiers and Ingvarson (2005) and Smith, Hofer, Gillespie, Solomon and Rowe (2003), both perspectives have contributed to a proliferation of lists of conditions for effective professional learning, as well as design principles and procedural guidelines for the conduct of professional development and other stimuli for professional learning.

CONDITIONS FOR PROFESSIONAL LEARNING

Lists of conditions and principles for effective professional learning have many common items but the different perspectives have spawned different schemas for categorising the items. Typical of the professional development perspective is Guskey and Sparks' (1996) use of a traditional content-process-context schema to catalogue characteristics of a professional development program's content and the processes used to implement and follow up the activities, plus miscellaneous features of the school system and the program's participants. In contrast, typical of the perspective focusing on individual change, is McCombs' (2002) simple grouping of factors into personal and external variables. The personal variables include psychological factors such as level of reflective awareness, maturity, motivation and self-efficacy. Self-efficacy is the belief in one's capabilities to organise and produce a level of performance required to achieve a specified goal. It explains situation specific confidence in one's ability to change and maintain the change (Bandura, 1977).

Self-efficacy is consistently identified as a critical factor for effective professional development, learning, growth and change of practice. There has also been agreement about the importance of: (a) reflective practice, at both individual and collegial levels, (b) collective participation in learning communities, (c) programs being integrated and of longer duration than traditionally disjointed one-off seminars and workshops, (d) program content being coherent with pertinent workplace characteristics and participants' goals, and (e) feedback and on-going support (Gusky, 2003; Meiers and Ingvarson, 2005; OECD, 2005).

Reviewers and researchers in the field have acknowledged the potential importance of teachers' psychological characteristics, but only a minority have elaborated and even fewer have investigated. Hargreaves (2000, 2004, 2005) and Fullan (1993, 2006) have pursued the theme that professional and personal development are intertwined and system driven change strategies need to coalesce with personal change agendas of individual teachers. Similarly, Guskey (1994) urged professional development designers to recognise that educational change is both an individual and organisational process.

INFLUENCE OF PSYCHOLOGICAL CHARACTERISTICS

In its introduction this chapter referred to a subset of teachers for whom failure to grow and change has negative consequences, ranging from decreased professional satisfaction through to serious mental health problems and career termination. To understand and react to the plight of these teachers, it is not sufficient to

identify features of good quality professional development activities. One also needs to examine those aspects of growth and change of practice associated with teacher identity, emotions, beliefs and personal epistemologies.

ROLE OF IDENTITY AND EMOTIONS IN GROWTH AND CHANGE

At the American Educational Research Association's 2005 annual meeting, the term *emotion* was included, for the first time, in the list of session descriptors (van Veen & Lasky, 2005). Robertson and Murrihy (2005) identified claims in the literature that recognising, understanding and managing emotional reactions are important parts of teachers' growth. Recognising the holistic nature of human identity, Zembylas (2007) argued that the development of teachers' professional expertise involves growth in both pedagogical content knowledge and emotional knowledge. Hargreaves (2004) has also asserted that change and emotion are inseparable.

While examining the dynamic nature of connections among teachers' emotion, cognition and action, Hargreaves (2000) identified the importance of strong emotional understanding between teachers and their students. He articulated the dangers of disrupted relationships and disengagement when emotional misunderstanding occurs. Thus, it seems logical that the confusion and frustration of teachers struggling to adapt to new professional challenges, would be compounded if combined with ineffective emotional scanning of their students.

Cole (1997) identified that the working conditions of some teachers contribute to them feeling anxious, fearful, lonely, meaningless, helpless, hopeless and hostile. She argues that such psychological states act as serious barriers to engagement in reflective practice, thus inhibiting growth and adaptation. In similar vein, van Veen, Sleegers and van de Ven (2005) apply Lasky's concept of *inefficacious vulnerability*, to understand the situation of a teacher who needed to adapt to new circumstances but whose willingness to attempt change was immobilised by negative emotions and challenges to his identity.

POSITIVE COGNITIONS AND ENGAGEMENT IN GROWTH AND CHANGE

How do teachers break free from negative emotional states, or avoid falling into their grip in the first place? Most comprehensive theories of human agency have been underpinned by the dynamic relationships among emotion, action and cognition (Bandura, 2001; Seligman & Csikszentmihalyi, 2000). Positive cognitions and actions can turn around negative emotions as surely as negative emotions can inhibit positive thought and action.

In considering the phenomenon of teachers' failure to embed change or even actively engage in learning activities, a section of the educational literature has focused on readiness, motivation and the *will to learn*, which is described as a state of alert open-mindedness involving a desire to learn, experiment and

do something new (Van Eekeleen, Vermunt & Boshuizen, 2006). Will to learn is held to precede intention to learn, goal-directed learning and self-regulated learning. Van Eekeleen et al. (2006) found that teachers with high will to learn were characterised by an openness to others, sound self-efficacy, and a propensity to be reflective and critical of one's own performance rather than produce predominantly external attributions about negative classroom experiences. When facing challenging situations, such teachers tended not to develop avoidance behaviours, feelings of hopelessness and learned helplessness.

Imants and Tillema (1995) have explored the dynamic relationship between self-efficacy and teachers' evaluation and integration of new professional practices. They argue that teachers who fail to engage in training and development, despite a clear need for new knowledge and attitudes, tend to be those with low self-efficacy. They suggested that training and professional development activities should be differentiated according to participants' self-efficacy levels and that some activities should specifically target the development of self-efficacy. Because self-efficacy is situation-specific, some teachers might have high self-efficacy for curriculum planning and assessment tasks, but low self-efficacy for teaching students who lack academic aspirations or are from different cultural backgrounds. Such teachers might eagerly engage in learning activities, grow and embrace change in aspects of their profession in which they already have a relative strength, but be oblivious to an urgent need to develop skills to foster positive classroom dynamics and build student-teacher relationships.

Thus far, this chapter has described two of the lenses used to research how teachers learn, grow and embed professional change. One focuses on the impact of professional development programs upon whole-of-school and system level change; the other focuses on teachers' emotions, motivational readiness and willingness for engagement in professional learning and change. It has also described the contributions made by such research to enhancing knowledge about effective professional development, and providing insights into the psychological processes that influence teachers to change practice after experiencing professional learning.

These lines of research, however, have been overwhelmingly inductive in nature. As evident in government and education system reports (Department of Education & Training, Victoria, 2005; Meiers & Ingvarson, 2005; Smith et al., 2003), the usual approach has been to identify characteristics of professional development programs and learning experiences that have been judged to be effective, then compile the characteristics into sets of guidelines. This branch of the education literature has not developed a unifying theory that provides a basis for deducing conditions of effective professional learning, or comprehensively explaining how teachers grow and embed professional change of practice. The psychological theories of intentional change drawn together in The Transtheoretical Model have the potential to provide such explanations.

THE TRANSTHEORETICAL MODEL: INTENTIONAL INDIVIDUAL CHANGE

The Transtheoretical Model of Change, commonly referred to as TTM, provides an understanding of how people intentionally change their behaviour. It was developed in the health and psychology disciplines during therapeutic efforts to guide people in the intentional change of addictive behaviours, but has also proved to be useful in understanding and facilitating positive behaviour acquisition. At an operational level, TTM can maximise positive change in a target behaviour via a simple framework in which psychological processes that facilitate change are matched to a person's level of readiness to change. Prochaska, DiClemente and Norcross (1992) describe the essence of using TTM as simply doing the right things at the right times. At a conceptual level, however, TTM is an integrative model with complex interwoven sets of independent variables, dependent and intervening variables and outcome measures, derived from several psychological theories.

CONSTRUCTS AND THEORETICAL UNDERPINNINGS

Central to TTM is the Stage-of-Change construct: a continuum ranging from an individual having no recognition of a need to change a target behaviour, through to having thoroughly embedded positive change in that behaviour. Within the continuum, five stages have been derived via factor analytic methods: the commonly used labels are precontemplation, contemplation, preparation, action and maintenance. TTM recognises behaviour change as a process that occurs by degrees over time. Moving through the stages of change involves various affective, behavioural and cognitive appraisal shifts (Miller, 1998). Regression and full relapses are common; so progress through the stages seldom takes a simple linear path.

TTM's second major construct is Process-of-Change, which comprises the cognitions, emotions and behaviours that lead people through the stages of change. The model's eclectic, integrative nature is reflected in this construct's amalgamation of numerous strategies and techniques that are typically associated with behaviour change. Ten processes were derived by a series of principal components analyses of activities that had their theoretical origins in a wide range of behavioural, cognitive, experiential, humanistic and psychoanalytical approaches to change (Prochaska & DiClemente, 1983). Thus, each process relates to multiple techniques and interventions (Prochaska et al., 1992). The crux of TTM is that a person's stage of change influences the efficacy of any given process of change experienced by that person. Table 1 indicates the stages of change at which each process seems to have maximum impact on an individual's rate of change.

Table 1. Processes of Change Matched to Particular Stages of Change

	Processes of Change	Stages of Change
Experiential processes	Consciousness raising Dramatic relief Environmental re-evaluation	Precontemplation/Contemplation
	Social liberation	Precontemplation/Contemplation/ Preparation
	Self re-evaluation	Contemplation/Preparation
Behavioural processes	Self-liberation	Preparation/Action
	Helping relationships	Preparation/Action/Maintenance
	Reinforcement management Counter conditioning Stimulus control	Action/Maintenance

Note: Based on information in Prochaska et al. (1992).

TTM also integrates the construct of decisional balance from Janis and Mann's decision-making model (Armitage, Povey & Arden, 2003). Decisional balance refers to a person's assessment of the positive and negative aspects of making the behaviour change in question. For a person at the precontemplation stage, the perceived advantages (pros) of changing are heavily outweighed by the perceived disadvantages (cons). As the person moves towards changing the behaviour, the gap between the pros and cons narrows until a crossover point emerges. As the person advances to the maintenance stage, the gap between pros and cons will widen, but now the perceived advantages of change will outweigh the perceived disadvantages. In their integrative study of TTM across 12 behaviours, Prochaska et al. (1994) repeatedly found this crossover pattern regardless of whether the target behaviour was an acquisition or cessation behaviour. Crossover most commonly occurred during the contemplation and preparation stages.

Attitudinal ambivalence is highest when the weighting of pros and cons is near the crossover point, and is lowest at the precontemplation stage where there is the greatest difference between pros and cons. How to alter levels of ambivalence has attracted attention from proponents of Motivational Interviewing (Armitage & Arden, 2007). Motivational Interviewing is an eclectic set of clinical techniques and principles for both assessing and advancing a person's motivational readiness to change (Allsop, 2007; Britt, Blampied & Hudson, 2003). It has been found to be useful for the resolution of ambivalence when clients are stuck in an approach-avoidance conflict equilibrium, where the pros and cons of change are roughly equivalent (Moyers & Rollnick, 2002). Petrocelli (2002) has observed that it can also effectively address indifference to change, which characterises the precontemplation stage. Although it is but one technique, the effectiveness of Motivational Interviewing in helping people advance to and through the decisional balance crossover point makes it a potentially valuable part of TTM applications in counselling and consultation realms.

Of the remaining theories and constructs integrated into TTM, the most important is Bandura's (1977, 2001) social cognitive theory and construct of self-efficacy, which has permeated modern psychology's view of how people think, feel, motivate themselves and behave. Within TTM, self-efficacy is a determinant of transitions from contemplation to preparation to action stages. It also has an important role in helping prevent regressions early in the maintenance stage, when a person's change of behaviour is not fully embedded.

LIMITATIONS AND EXTENSIONS OF TTM

TTM has not become a panacea for all obstacles to intentional behaviour change. Claims that one could assess a person's stage of change and specify a set of activities that precisely match the person's readiness to advance to and through the next stage were too ambitious. In reality, the relationships between TTM's stages and processes of change are simply not strong enough to enable such precision. As evident in Table 1, each process can have similiar efficacy at more than one stage of change: several processes can have similiar efficacy at the same stage of change. Moreover, the success of each process in effecting change at different stages can vary slightly according to target behaviour, and from study to study. Given this level of imprecision, the relationships between TTM's processes and stages are best considered as tendencies and trends, which ideally should be supplemented by confirmatory information prior to starting sensitive interventions (Petrocelli, 2002).

TTM is not free of criticism. Following a critical editorial by Davidson (1992), the *British Journal of Addiction* provided a forum for prominant critics and proponents of TTM. The criticisms did not seem to impede TTM's expansion and popularity with practitioners over the next decade. Again following a critical editorial and subsequent articles by West (2005, 2006), the journal *Addiction* reopened lively debate about TTM's virtues and shortcomings. Although dismissive of West's major criticisms about TTM's internal consistency, focus on conscious decision making, and legitimacy of the concept of stages of stages, DiClemente (2005) acknowledged the existence of some valid concerns. He agreed that some proponents had made exaggerated claims and treated the model as a religion rather than a heuristic model to explore the change process. In a balanced review of the debate, Sharma and Atri (2006) stated the case for some fine tuning of the model.

Despite some criticism and technical limitations, TTM has a vast research literature and a strong following among practitioners (Herzog, 2005). It pervades the health sciences and is being successfully applied to improve rates of intentional change in an expanding range of fields. Prochaska, Prochaska and Levesque (2001) and Prochaska (2007) give examples of TTM's application in management, community and organisational change, and argue its potential for further use in those fields. In an elegant irony, in hospital settings where TTM was introduced to help patients change their addictive behaviours, TTM is now being employed to help medical staff change their professional practices

(Levesque et al., 2001). The extension of TTM into contexts far removed from its origins in addiction rehabilitation begs the question: how might one apply TTM to enhance adaptive change in an education setting?

POSSIBLE APPLICATION OF TTM TO UNDERSTAND AND ENHANCE TEACHER CHANGE

Consider the following situation in which adaptive change is essential for the well-being of a school and the individuals in it. Suppose that 40% of the Nameless High School student population consists of two sub-groups: those who are assured of gaining well-paid unskilled jobs at the local coal mines and those who see only a welfare-dependent future for themselves. Most of these students see little purpose in formal education, do not engage in academic endeavours and treat school simply as a place to socialise until they can leave. Most were relatively compliant and respectful during early school years, but now resent, resist and even openly defy disciplinary measures. Many of the teachers have been driven beyond the limit of their professional skills in presenting curriculum offerings likely to engage these students, and in creating positive teacher-student relationships in such an emotionally challenging environment.

Several teachers have dysfunctional classroom and playground interactions. They are distressed, but are set in their professional practice and believe that the students, parents, and principal are the ones who need to change. A few, in similar distress, countenance potential benefits of a different approach, but are so dispirited they lack the will to try. The majority of the teachers, although outwardly confident, recognise that they are struggling to manage the interpersonal dynamics in their classrooms and playground. They primarily blame the students, but several harbour nagging doubts about their professional skills. Several others are quietly making fledgling attempts to develop new practices. Some teachers have positive classrooms and interact easily with students whom other staff find troublesome. They are eager to participate in whole-school improvement of teacher-student relationships.

The teachers' diverse states of readiness to change professional practice span those with no awareness of a need to change, through to those who have already embedded individual change and are ready to contribute to broader school change. What should happen next? Although it is far too premature to claim that TTM would provide the best way forward, the following section suggests that applying TTM to tailor activities to the different readiness levels among the staff might provide an effective way forward.

RATIONALE FOR APPLYING TTM

Velicer, Prochaska, Fava, Norman and Redding (1998) suggest that employing TTM in the development and implementation of interventions has potential benefits because of its sensitive measures of cognitive, emotional and behavioural

change that identify and reinforce smaller units of change than do traditional action-oriented approaches. TTM can facilitate analysis of the mediating mechanisms at work in a particular intervention. It also tends to have high recruitment and retention rates because intervention activities are matched to participants' levels of readiness. Thus the use of TTM survey instruments provides a method for individualising intervention plans for large numbers of participants in a highly time efficient manner that also has effective outcomes.

Statistically robust scales have been developed for measuring each of the major constructs of TTM for a variety of target behaviours: the University of Rhode Island Cancer Prevention Research Centre (2004) and the University of Maryland Baltimore County (2004) alone list several dozen. Moreover, there is an abundance of reported applications of TTM to both ceasing negative behaviours and acquiring positive behaviours (Levesque et al., 2001; Prochaska, 2007). Prochaska, Prochaska and Levesque (2001) observed that 20 years of research into the efficacy of interventions based on TTM had revealed the model to be robust in its ability to explain change across a broad range of target behaviours ranging from addictions to professional practices.

Earlier analyses of research into both the professional learning of teachers and the development of TTM, indicates that during the 1980s, education researchers such as Guskey (1986) and health researchers such as Prochaska and DiClemente (1983) were making similar findings. Both groups were reporting the poor efficacy of traditional one-size-fits-all, action oriented interventions, whether the interventions were professional development programs for teachers or therapy programs for patients. These researchers identified a need for professional learning activities to have greater coherence with teachers' readiness to engage in professional learning, and similarly, for more coherence between therapy activities and patients' readiness to engage in change. Given the subsequent success of TTM in helping medical and management practitioners enhance such coherence, it is surprising that there seem to have been no attempts to develop a similar tool in education.

To help envision a possible TTM application in an education setting, let us return to Nameless High School and tentatively use TTM's framework to consider relationships between some typical in-service interventions and the teachers' diverse levels of readiness to change. For the exercise, assume that a comprehensive suite of education-specific TTM survey instruments exists, and that the resulting profiles can assist the teachers and their supervisors to identify and develop meta-awareness of their current stage of change, decisional balance status, level of self-efficacy and the processes of change most likely to be effective for them.

For example, the Nameless High School teachers who suspect that part of the problems lie within them are probably on the cusp between precontemplation and contemplation stages, with a decisional balance weighted towards maintaining their current practices. A TTM analysis might indicate that their immediate needs are for simple awareness-raising information about creative curriculum design and

teacher-student relationships, plus meetings with a mentor or colleagues to share fears about their current predicament and facilitate reflection on the benefits of making a change. TTM subsumes these strategies under the processes labelled consciousness-raising and dramatic relief. The teachers who have fully externalised the causes and solutions for their classroom problems would also benefit from participation in these processes, but the actual activities might initially need to be organised by the teachers' supervisor and be facilitated by a person skilled in Motivational Interviewing. Using Table 1, one could deduce the types of interventions most likely to suit the other groups of teachers in the example.

SIGNIFICANCE OF SUCCESSFUL APPLICATION OF TTM IN THE EDUCATION CONTEXT

If it is found that use of TTM can lead to increased engagement of teachers in both systemic and self-directed endeavours to improve their classroom practice, then likely contributions to knowledge and practice will be:

1. *Movement towards a comprehensive explanation of change at the individual level, that can guide the decision-making of both professional development designers and teachers embarking on self-directed learning.*
2. *Increased satisfaction with professional development experiences.*
3. *Increased meta-awareness by teachers of their change practices.*
4. *Improved outcomes for students, assuming that the change has included improved classroom practice.*

For those teachers overwhelmed by negative emotions about their classrooms, change, and their very identities, the use of TTM might attract and retain their engagement in processes that help them through the early stages of change and eventually into action-orientated change processes. If so, it seems likely that such teachers will experience morale and mental health benefits. Improved classroom climate and teacher-student relationships may also accrue.

CONCLUSIONS AND IMPLICATIONS FOR RESEARCH

Derived from the preceding analyses of TTM and of teachers' learning and change is the proposition that a teacher's state of readiness to engage in learning activities is a significant determinant of change of professional practice. Research is required to explore this proposition and determine the broader question of whether TTM can make worthwhile contributions in educational contexts.

Research might usefully explore the efficacy of stage-matched activities in enhancing teachers' initial recruitment into a change intervention, retention in the program and progress through the stages of change. Consistent with this chapter's underlying concern with the plight of teachers immobilised in the precontemplation stage of change, a narrow but important research focus might be the efficacy of Motivational Interviewing in facilitating these teachers' awareness and progression through the early stages of change.

Application of TTM in a new field typically begins with the development and validation of scales to map its constructs in relation to the target behaviour. Given the numerous possible target behaviours within the realm of teachers' professional practice, a substantial research effort will be required to adapt and validate the required number of instruments. Exploring the efficacy of TTM in understanding and enhancing teachers' engagement in professional change will require multiple lines of research, employing a range of quantitative, qualitative and mixed method approaches.

This chapter has outlined researchers' efforts to identify salient features of effective professional development and professional learning experiences, and then deduce guidelines for planning and practice for improving professional development policies and programs. Unfortunately, these broad endeavours to improve professional development hold little promise for those teachers whose will to learn and willingness to attempt change is hindered by negative emotions and psychological barriers to reflective practice. Successful applications of TTM with similarly dispirited populations in health contexts provide grounds to propose that TTM might provide a valuable lens for understanding and guiding change for this sub-group of teachers. Moreover, the cited applications of TTM in management and organisational change provide optimism that it might also be used on a larger scale to strengthen the capacity of professional development programs to engage a broad range of teachers, thus facilitating their professional growth and improved practice.

The importance of coherence between intervention activities and participants' readiness to change was recognised in both health and education disciplines during the 1980s. Health researchers responded by developing TTM. This chapter contends that systematic attempts to tailor professional learning experiences so they match teachers' psychological characteristics and readiness to change are long overdue, and that research into how TTM might be adapted for use in school settings seems a highly promising way to proceed.

REFERENCES

Allsop, S. (2007). What is this thing called motivational interviewing? *Addiction*, 102, 343-345. Retrieved May 4, 2007 from the EBSCOhost database.

Armitage, C., & Arden, M. (2007). Felt and potential ambivalence across the stages of change. Journal of Health Psychology, 12(1) 149–158. Retrieved May 4, 2007 from EBSCOhost database.

Armitage, C., Povey, R, & Arden, M. (2003). Evidence for discontinuity patterns across the stages of change: A role for attitudinal ambivalence. Psychology and Health, 18, 373-86.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behaviour change. Psychological Review, 84, 191-215.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. Annual Review of Psychology, *52*, 1-26.

Britt, E., Blampied, N., & Hudson, S. (2003). Motivational interviewing: A review. Australian Psychologist, 38(3), 193-201.

Clarke, D. J., & Hollingsworth, H. (2002). Elaborating a model of teacher professional growth. Teaching and Teacher Education, 18, 947-967.

Cole, A. L., (1997). Impediments to reflective practice. Teachers and Teaching, 3(1), 7-23.

Davidson, R. (1992). Prochaska and DiClemente's model of change: A case study? British Journal of Addiction, 87, 821-822.

Department of Education and Training, Victoria. (2005). Professional learning in effective schools: The seven principles of highly effective professional learning. Melbourne. Retrieved May 12, 2006, from <http://www.eduweb. vic.gov.au/edulibrary/public/teachlearn/teacher/ProfLearningInEffectiveSchools.pdf>.

DiClemente, C. (2005). A premature obituary for the Transtheoretical Model: A response to West (2005). Addiction, 100, 1046-1048.

Fullan, M. G. (1992). Visions that blind. Educational Leadership, 49(5), 19-20.

Fullan, M. G. (1993). Why teachers must become change agents. Educational Leadership, 50(6), 12-17.

Fullan, M. G. (2006). Leading professional learning. The School Administrator, 10-14

Gravani, M. (2007). Unveiling professional learning: Shifting from the delivery of courses to an understanding of the processes. Teaching and Teacher Education, 23, 688-704.

Guskey, T. R. (1986). Staff development and the process of teacher change. Educational Researcher, 15(5), 5-12.

Guskey, T. R. (1994, April). Professional development in education: In search of the optimal mix. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, Louisiana. Retrieved November 24, 2005, from CINAHL database.

Guskey, T. R. (1999). New perspectives on evaluating professional development. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada. Retrieved November 24, 2005, from CINAHL database.

Guskey, T. R. (2002). Professional development and teacher change. Teachers and Teaching, 8(3/4), 381-391.

Guskey, T. R. (2003). What makes professional development effective? Phi Delta Kappan, 84(10), 748-750.

Guskey, T. R., & Sparks, D. (1996). Exploring the relationship between staff development and improvements in student learning. Journal of Staff Development, 17(4), 34-38.

Hargreaves, A. (2000). Mixed emotions: Teachers' perceptions of their interactions with students. Teaching and Teacher Education, 16, 811-82.

Hargreaves, A. (2004). Inclusive and exclusive educational change: Emotional responses of teachers and implications for leadership. School Leadership and Management, 24(2), 287-309.

Hargreaves, A. (2005). Educational change takes ages: Life, career, and generational factors in teachers' emotional responses to educational change. Teaching and Teacher Education, 21, 967-983.

Hattie, J. (2003, October). Teachers make a difference: What is the research evidence? Keynote address presented to the conference Building teacher quality: What does the research tell us? Australian Council for Educational Research, Melbourne. Retrieved January 28, 2007, from <http://www. staff.auckland.ac.nz/j.hattie>.

Herzog, T. (2005). When popularity outstrips the evidence: Comment on West (2005). Addiction, 100, 1040-1041.

Imants, J., & Tillema, H. (1995, April). A dynamic view of training for the professional development of teachers. Paper presented at the Annual meeting of the American Educational Research Association, San Francisco, CA. Retrieved August 24, 2005, from the ERIC database.

Levesque, D., Prochaska, J. O., Prochaska, J. M., Dewart, S., Hamby, L., & Weeks, W. (2001). Organizational stages and processes of change for continuous quality improvement in healthcare. Consulting Psychology Journal, 53(3), 139-153.

McCombs, B. (2002). Knowing what teachers know: A response to Schraw and Olafson's Teachers' epistemological world views and educational practices. Issues in Education, 8(2), 181-187.

Meiers, M., & Ingvarson, L. (2005). Investigating the links between teacher professional development and student learning outcomes. (Vol. 1), Australian Council of Educational Research. Australian Government. Department of Education, Science and Training.

Miller, W. (1998). Why do people change addictive behaviour? The 1996 Archibald lecture. Addiction, 93(2), 163-172.

Moyers, T., & Rollnick, S. (2002). A Motivational Interviewing perspective on resistance in psychotherapy. Journal of Clinical Psychology, 58(2), 185-193.

Munro, J. (2005). Professional learning teams: Building the capacity for improving teaching and learning. National College for School Leadership. Retrieved August 20, 2006, from <http://www.ncsl.org.uk/publications/ publications-p.cfm>.

Organisation for Economic Co-operation and Development. (2005). Teachers matter: Attracting developing and retaining effective teachers. OECD Publishing, Paris.

Petrocelli, J. (2002). Processes and stages of change: Counselling with the Transtheoretical Model of change. Journal of Counselling and Development, 80, 22-30.

Prochaska, J. M. (2007). Commentary: The Transtheoretical Model applied to the community and the workplace. Journal of Health Psychology, 12(1), 198-200. Retrieved May 4, 2007 from the Academic Search Elite database.

Prochaska, J. M., Prochaska, J. O., & Levesque, D. (2001). A transtheoretical approach to changing organisations. Administration and Policy in Mental Health, 28(4), 247-261.

Prochaska, J. O., & DiClemente, C. (1983). Stages and processes of self-change in smoking: Toward an integrative model of change. Journal of Consulting and Clinical Psychology, 51, 390-395.

Prochaska, J. O., DiClemente, C., & Norcross, J. (1992). In search of how people change: Applications to addictive behaviours. American Psychologist, 47, 1102-1114.

Prochaska, J. O., Velicer, W., Rossi, J., Goldstein, M., Marcus, B., Rakowski, W., Fiore, C., Harlow, L., Redding, C., Rosenbloom, D., & Rossi, S. (1994). Stages of change and decisional balance for 12 problem behaviors. Health Psychology, 13(1), 39-46.

Richardson, V. (1998). What will lead to change that most benefits student learning? Change, 2(C). Retrieved October 10, 2006, from <http://www.ncsall.net/?id=395>.

Robertson, J., & Murrihy, L. (2005). Developing the person in the professional. (National College for School Leadership Rep. Spring 2006). Retrieved May 10, 2006, from <http://www.ncsl.org.uk/publications/publications-d.cfm>.

Ross, J. & Bruce, C. (2007). Teacher self-assessment: A mechanism for facilitating professional growth. Teaching and Teacher Education 23, 146-159. Retrieved May 4, 2007 from the EBSCOhost database.

Seligman, M., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. American Psychologist, 55, 5-14.

Sharma, M., & Atri, A. (2006). Application of the Transtheoretical Model (TTM) to addictive behaviors: Need for fine tuning. Journal of Alcohol and Drug Education, 50(4), 3-6.

Smith, C., Hofer, J., Gillespie, M., Solomon, M., & Rowe, K. (2003). How teachers change: A study of professional development in adult education (NCSALL Report No. 25). Cambridge, MA: National Centre for the Study of Adult Learning and Literacy. Retrieved May 4, 2007, from http://www.ncsall.net/fileadmin/resources/research/report25.pdf

University of Maryland Baltimore County. (2004). HABITS Lab. Retrieved August 20, 2006, from http://www.umbc.edu/psyc/habits/index.html

University of Rhode Island Cancer Prevention Research Centre. (2004). Measures. Retrieved May 4, 2007, from <http://www.uri.edu/research/cprc/measures. htm>.

Van Eekelen, I., Vermunt, J., & Boshuizen, H. (2006). Exploring teachers' will to learn. Teaching and Teacher Education, 22, 408-423.

van Veen, K., & Lasky, S. (2005). Emotions as a lens to explore teacher identity and change: Different theoretical approaches. Teaching and Teacher Education, 21, 895-898.

van Veen, K., Sleegers, P., & van de Ven, P. (2005). One teacher's identity, emotions, and commitment to change: A case study into the cognitive-affective processes of a secondary teacher in the context of reforms. Teaching and Teacher Education, 21, 917-934.

Velicer, W., Prochaska, J., Fava, J., Norman, G., & Redding, C. (1998). Smoking cessation and stress management: Applications of the Transtheoretical Model of behavior change. Homeostasis, 38, 216-233. Retrieved August 20, 2006, from <http://www.uri.edu/research/cprc/TTM/ detailedoverview.htm>.

West, R. (2005). Time for a change: Putting the Transtheoretical Model to rest. Addiction, 100(8), 1036-1039.

West, R. (2006). The Transtheoretical Model of behaviour change and the scientific method. Addiction, 101(6), 774-778.

Zembylas, M. (2007). Emotional ecology: The intersection of emotional knowledge and pedagogical content knowledge in teaching. Teaching and Teacher Education, 23, 355-367. Retrieved May 4, 2007 from the EBSCOhost database.