Chapter 13
Implementing High-Quality Educational Reform Efforts: An Interpersonal Circumplex Model Bridging Social and Personal Aspects of Teachers' Motivation

Jeannine E. Turner, Ralph M. Waugh, Jessica J. Summers, and Crissie M. Grove

Abstract Professional-development is often a catalyst for transforming research-based theories and findings into best-teaching-practices and increased student-achievement within whole-school reform efforts. In the following chapter, we present a theoretical model that integrates social aspects of personal motivation (i.e., Self-Determination Theory), personal aspects of motivation (i.e., Control-Value Theory), and circumplex models of interpersonal relationships to understand factors that affect teachers' implementation of promising ideas presented in professional development. From a Self-Determination Theory perspective, individuals' intrinsic motivation is facilitated through environmental supports of three elements: autonomy, competence, and relatedness. From a Control-Value Theory perspective individuals' motivations and emotional correspondents are due to personal judgments regarding issues of personal control (e.g., agency/self-efficacy) and personal values (e.g., goals). We integrate these theories, and present a circumplex model to describe two primary dimensions of principals' interactional behaviors that provide overt and covert messages about their support (or lack of support) for teachers' autonomy and competence. We propose that principals' supportive or unsupportive behaviors merge with teachers' personal values and perceptions of control to shape teachers' motivations for implementing high-quality professional development for whole-school reform.

Keywords teacher emotions • teacher motivation • interpersonal • interactions

With the goal of boosting students' engagement, learning, and achievement; high-quality professional development is often sought as a catalyst for transforming research-based theories and findings into best-teaching educational reform efforts. If the educational reform and professional development are high-quality and

J.E. Turner (✉)
Department of Educational Psychology and Learning Systems, Florida State University, Tallahassee, FL, USA
e-mail: turner@mail.coe.fsu.edu

research-based, how do social aspects (e.g., teachers' interactions with their principals) interact with teachers' personal characteristics (e.g., their perceptions of personal values and efficacy) in ways that facilitate or hinder their motivation to apply newly-learned skills and content knowledge? Understanding factors that affect teachers' implementation of promising ideas presented in high-quality professional development activities as part of educational reform efforts is important because their implementation can ultimately impact students' achievement (Turner et al. 2006).

In the following chapter, we present a theoretical model that integrates social aspects on personal motivation (i.e., Self-Determination Theory) and personal aspects of motivation (i.e., Control-Value Theory). Furthermore, we propose that emotional foundations, developed through teachers' interpersonal interactions with individual contextual authorities (e.g., individual principals and/or district authorities), merge with teachers' personal values and personal perceptions of control to shape their motivations. These interactions take place in ways that influence dynamically teachers' motivations for implementing high-quality professional development to obtain or maintain high-quality teaching.

Specifically, we integrate three theoretical perspectives, Self-Determination Theory (Deci and Ryan 2000), circumplex models of interpersonal interactions (Benjamin 1974; Freedman et al. 1951; Leary 1957), and Control-Value Theory (Pekrun 2000). From the perspective of Self-Determination Theory (SDT), principals' supports for personal autonomy, personal competence, and interpersonal relatedness facilitate teachers' intrinsic motivation (i.e., energized behaviours that are rewarded by doing an activity, without regard to receipt of external rewards). A circumplex model is then used to describe two primary dimensions of principals' interactional behaviors that provide overt and covert messages about their support (or lack of support) for teachers' autonomy and competence. Finally, from the perspective of Control-Value Theory (CVT), teachers' subjective judgments regarding perceptions of personal control (e.g., agency/self-efficacy) and personal values (e.g., goals) merge into their emotions and motivations. Hence, teachers' on-going evaluations of social aspects and personal aspects act as a catalyst for their emotional reactions and motivations, which strengthen or weaken their implementation efforts of professional development and reform efforts.

Implementing Professional Development and Reform Efforts: The Role of Teachers' Emotions

Researchers have revealed that teachers' continued professional growth, in ways that support students' learning, is an important element of successful schools (Billig et al. 2005). These post-graduate educational experiences are expected to augment teachers' instructional repertoire, thereby helping teachers keep their instructional practices current. With respect to high-quality, educational reform efforts, scholars have suggested that teachers will not teach differently unless their

instructional models or pedagogical understandings have been elaborated or altered (Hashweh 2003; Leinhardt 2001). Indeed, some scholars contend that professional development should focus on shifting teachers' models of instruction to more complex, effective models of teaching and learning (Kent 2004). In support of this claim, Haim et al. (2004) found that, compared to levels of content knowledge, the most important factor influencing changes with regard to teachers' instructional choices was a shift in teachers' cognitive instructional models. High-quality, educational reform efforts often require substantial modifications to teachers' instructional models. Consequently, teachers may be required to make changes in ways that challenge their beliefs about teaching and learning. These changes, in turn, may challenge teachers' personal identities and values as teachers.

Within this context, professional development for educational reform can initiate strong emotional reactions in teachers (Darby 2008; Lasky 2005; Reio 2005). Indeed, Reio (2005) discussed "the influence of reform on teacher identity, emotion, risk taking, and learning" (p. 992). He suggested that, within the context of educational reform, aspects of teachers' personal identities influence the emotions that teachers experience and the levels of risk-taking (e.g., making substantial changes; feeling embarrassed) they are willing to accept. Consequently, the emotions that teachers experience and the risks they are willing to take may impact their learning and development, which, consequently, may impact their personal identities. Reio (2005) maintained that educational reform efforts "must take into account that teachers have natural emotional reactions to change that have both positive and negative influences on the construction of their professional and personal identity. All too often, unfortunately, change evokes negative emotions due to insufficient information and vague perceptions of unnecessary loss" (p. 992).

We propose that teacher-principal[1] interpersonal interactions may be critical to teachers' perceptions of reform, their emotions, and their motivations to implement high-quality professional development for educational reform. In particular we propose that, under positive conditions of support from school principals, the dynamic interplay of teachers' and principals' motivations and emotions may facilitate teachers' motivation to apply newly-learned skills and content knowledge gained through high-quality professional development.

To begin, we describe our overarching model for bridging social and personal aspects of teachers' motivation for reform. Then we review literature that further describes and supports components of the model from the perspectives of (1) social influences on individual motivation, (2) authority-behaviors and interpersonal interactions, and (3) personal aspects of teachers' motivation. We conclude with suggestions for future research.

---

[1]We use the term "principals" to signify persons of authority. Respectfully, we acknowledge that, in addition to principals, other persons of authority have central importance in role-hierarchy relationships and interpersonal interactions with teachers. Such persons may include district leaders, school principals, school leadership teams and other persons of authority who interact with teachers.

An Interpersonal Circumplex Model Bridging Social and Personal Aspects of Teachers' Motivation

Similar to findings with regard to students' learning-related perceptions, teachers' perceptions of environmental supports (SDT, Deci and Ryan 2000) and their perceptions of personal control and personal values (CVT, Pekrun 2000) may facilitate or hinder their motivation to (1) *learn* from professional development and (2) *implement* professional development (Grove 2007, 2008; Turner and Grove 2008). The construct connecting teachers' perceptions of principals' supportive behaviors and their individual motivations is that of principals' interpersonal behaviors, which create an emotional climate.

As Fig. 13.1 illustrates, teachers' motivation for implementing professional development and educational reform efforts is influenced by (1) environmental supports for teachers' personal autonomy, values, and competence, (2) the emotional climate established through their interpersonal interactions with the principal (or contextual authorities), and (3) their own personal values, perceptions of control, competencies, and emotional experiences. Aspects of interpersonal interactions drive teachers' appraisals of environmental supports that interact with their personal appraisals of control and values, thereby impacting their ongoing emotions and motivations for implementing their newly-learned skills and content knowledge, which has the potential to influence students' learning and achievement. Student-outcomes subsequently can influence principals' supports for teachers' motivations, principals' interpersonal behaviors, teachers' personal motivations, and teachers' implementation of professional development, thus creating dynamic processes.

Consistent with dynamical systems theories (e.g., Op 't Eynde and Turner 2006; Waugh 2002, 2003a, b) each component is connected dynamically through interactive reciprocal feedback loops. This means that each component influences, and is reciprocally influenced by, each of the other components. Although fairly stable patterns may develop (e.g., principals' leadership styles, teachers' values, teachers' perceptions of efficacy), reciprocal feedback loops allow for the possibility of flexibility, adaptations, adjustments, and other changes that can occur within each component (e.g., principals may come to value teachers' input because of the relationships they develop with them, teachers' values or perceptions of efficacy may change because of their interactions with principals).

Across the model four related categories of social aspects and personal aspects of motivations are aligned: (1) Autonomy/Control (i.e., perceptions of the principal's autonomy support and teachers' individual perceptions of control), (2) Values (e.g., the principal's valuing the promotion of students' mastery goals over performance goals and teachers' valuing/promoting students' mastery goals over performance goals), (3) Knowledge and Skills (e.g., the principal's acknowledgement and promotion of teachers' knowledge and teachers' maintenance and development of domain knowledge and pedagogical knowledge), and (4) emotions (i.e., the principal's emotions; the emotional climate that develops through interpersonal interactions; teachers' personal emotions associated with appraisals of personal control, values, skill, and emotional climate) (see Fig. 13.2).
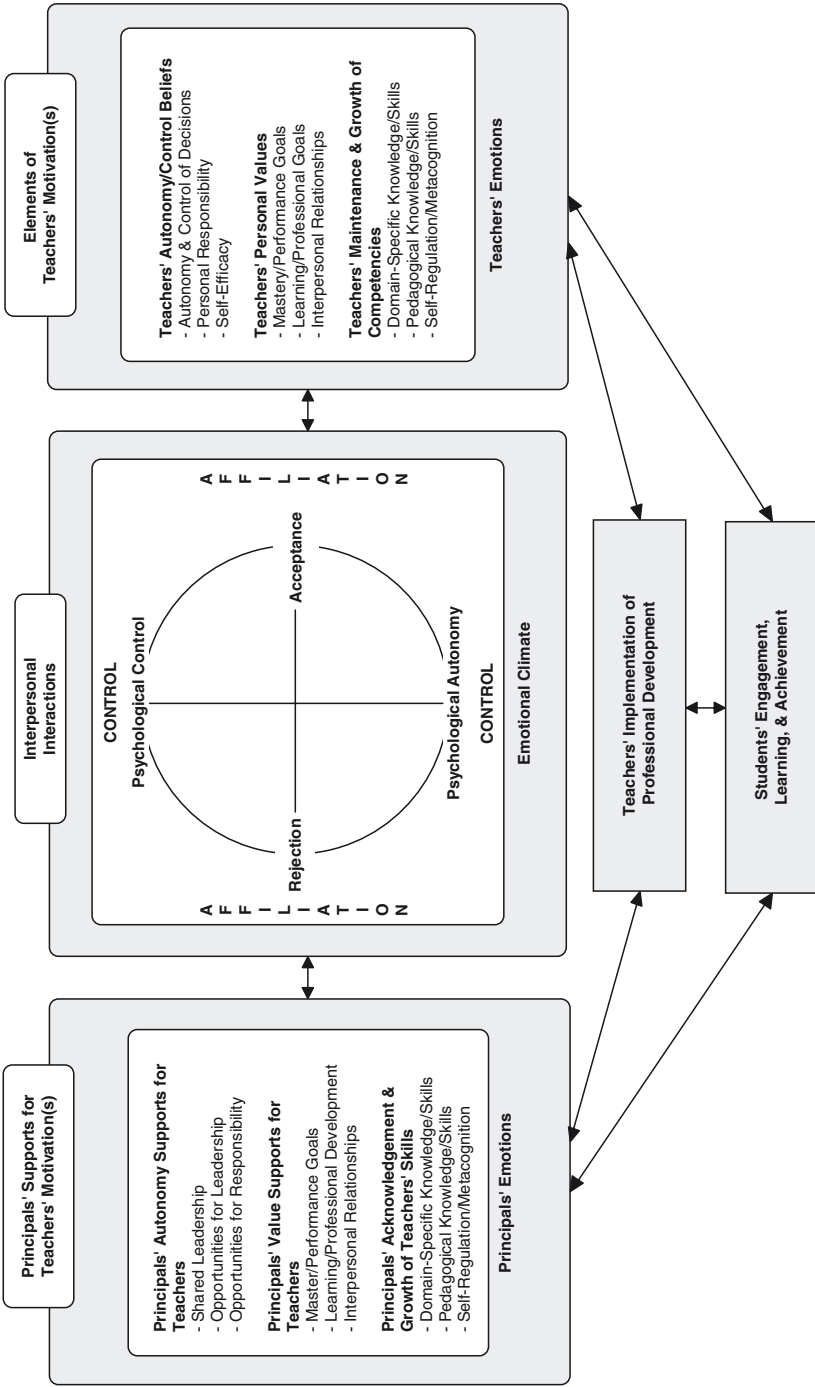
Fig. 13.1 An interpersonal circumplex model bridging self-determination theory and control-value theory
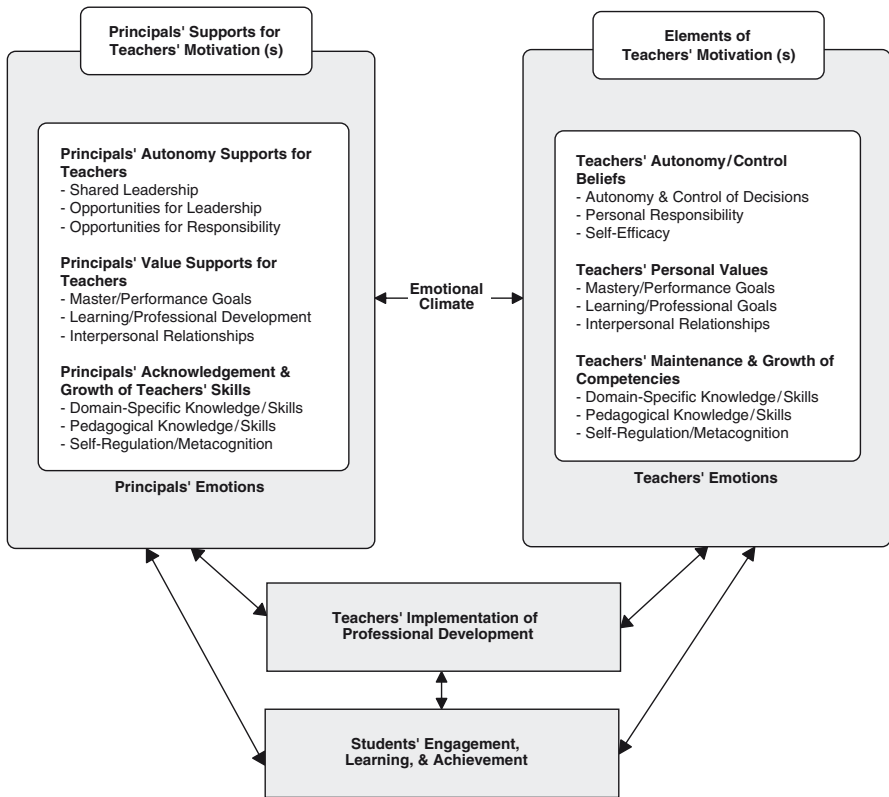
Fig. 13.2 Alignment of components: principals' supports for teachers motivation and elements of teachers' motivation

From the teachers' perspective, their motivations will be impacted by the extent to which they believe their principals' supports their control-related perceptions, their values, and their competencies. Additionally, teachers' own control beliefs, personal values, competencies, and emotions will influence their motivations for implementing newly-learned skills and content knowledge. Which component will create the greatest influence on teachers' in-the-moment motivation will depend on the strength on the individual components as well as teachers' own perceptions and interpretations of the various components within the current time-frame.

Social Support for Intrinsic Motivation: Self-Determination Theory

The notion that environmental factors can impact an individual's motivations is consistent with Deci and Ryan's Self-Determination Theory (Deci and Ryan 1985, 2000; Ryan and Deci 2000). A foundational tenet of SDT is that, while humans

may have natural tendencies to pursue their own interests, that pursuit most often requires external support. Hence, SDT provides a foundation for understanding ways in which principals may influence teachers' personal control-related and value-related appraisals for implementing newly-learned skills and content knowledge for educational reform.

Deci and Ryan's (2000) theory is based on the assumptions that humans are active, growth-oriented organisms who are naturally inclined toward integration of psychological elements into a unified sense of self and integration of themselves into larger social structures. Proponents of SDT tend to suggest that it is part of the adaptive design of the human organism to engage in interesting activities, to exercise personal capacities, to pursue connectedness in social groups, and to integrate intrapsychic and interpersonal experiences into a relative unity (ibid., p. 229).

Furthermore, proponents of SDT proposes that humans have three foundational, psychological needs that must be met for healthy functioning and for the promotion of intrinsic motivation: the needs to experience *competence*, *autonomy*, and positive interpersonal *relatedness*. When social aspects facilitate individuals' basic needs for competence, autonomy, and interpersonal relatedness, they are more likely to perceive that their actions are "self-determined," and they are more likely to experience intrinsic motivation (involvement in an activity is personally rewarding). When individuals perceive their actions are not autonomous (i.e., the environment uses coercive, external controls for promoting motivation), personal intrinsic motivation is thwarted. For our purposes, SDT helps to explain the impact of principals' support (or lack thereof) on teachers' intrinsic motivation for implementing newly-learned skills and content knowledge for educational reform.

Researchers have shown that principal–teacher relationships may influence teachers' implementation of professional development (Grove 2007, 2008) and can affect teachers' classroom practices (Beachum et al. 2008). These researchers have focused on the relationships between principals and teachers and the effects of these relationships on teachers' cognitions, motivations, behaviors, and feelings. For example, Scribner's (1998) research demonstrated that teachers who saw their principals as "supportive" of professional development – compared to those who saw principals as controlling "gatekeepers" of information – also had intrinsic motivation for learning professional development content and held beliefs of high personal efficacy (i.e., perceptions of competence). Similarly, Ellett et al. (1997) found a strong relationship between teachers' ratings of positive teacher–administrator relationships and their perceptions of increased opportunities for professional development. Furthermore, Ellett et al. (1997) found that teachers' reports of having a positive professional learning environment predicted their sense of efficacy and human caring. They suggested that opportunities for teachers' learning are more likely to occur when administrators and teachers have positive relationships (i.e., principals fostered teachers' autonomy, competence, and positive relatedness) and that having an environment that fosters teachers' learning specifically impacts teachers' positive perceptions efficacy (i.e., competence). Finally, Ciani et al. (2008) found that feelings of teacher community – encouraged by trust, collaboration, and support from administration – predicted teachers' perceptions of collective

efficacy, which in turn predicted their perceptions of individual teacher efficacy (i.e., competence) and mastery classroom goal structures.

With respect to research on school reform efforts, Lasky's research (2005) showed that when teachers felt safe (i.e., emotionally supported through positive relationships) to take risks of becoming visibly stressed and embarrassed in front of others, they were more willing to be vulnerable professionally during the uncertainty of changes. Additionally, Darby's (2008) investigation of teachers' emotions and professional self-understandings during reform efforts demonstrated that when teachers experienced positive professional development relationships with coaches and university faculty who provided competency-supports, they felt less fear and intimidation and they were able to make requested changes that resulted in positive student outcomes.

Power of Role Hierarchies

One reason that principals' support has an important influence on teachers' personal work-related motivation and emotions is that a relationship between principals and teachers is enacted within a role hierarchy and across a relational history (Darley 2001; Grove 2007). The role hierarchy incorporates levels of authority and power that are associated with individual participants' role structure (e.g., principal's and teacher's). Principals impact the environmental resources and autonomy provided to teachers. Consequently, consideration of teachers' personal cognitions, emotions, and motivations in relation to their principals' decisions and behaviors (i.e., the extent to which teachers believe principals support their autonomy and competence) may be crucial to understanding teachers' implementing newly-learned skills and content knowledge.

We propose that principals' support for teachers can be facilitated through the emotional climate and environmental supports in which principals initiate and enact supportive (or unsupportive) interpersonal interactions. Hence, these interpersonal interactions may create constructive or unconstructive emotional climates for subordinate teachers' implementation of newly-learned skills and content knowledge within the contexts of local efforts (school and/or district) and statewide efforts to achieve educational reforms.

In a negatively-valenced climate, teachers may struggle for personal autonomy, experience unpleasant emotions (e.g., anger, despair), and/or have appraisals of low efficacy for their abilities to implement the educational reform efforts (e.g., Sandholtz and Scribner 2006). Additionally, they may have low expectations and low valuation for professional development tasks and the potential outcomes of educational reforms. In a positively-valenced climate, teachers' may have perceptions of autonomy support, experiences of pleasant emotions (e.g., enjoyment, hope), and high expectancies and valuation for professional development tasks and the potential outcomes of educational reforms. Using the circumplex model as a theoretical framework for understanding the emotional climate that is generated via the principal–teacher

relationship, in the following section we outline the processes through which inter-personal interactions may bridge principals' behaviors and teachers' appraisals.

A Circumplex Model of Principal–Teacher Interpersonal Interactions

Drawing upon theory and empirical evidence with respect to systems communica-tions (Watzlawick et al. 1967; Creton et al. 1993) and interpersonal interactions (Benjamin 1974; Freedman et al. 1951; Leary 1957), we suggest that every education-related communication carries both an informational message and a relational message (i.e., an underlying emotional/relational communication). The relational aspect is often communicated through nonverbal behaviors, such as voice tone and facial expressions. When individuals interact over time, interactional patterns are established.

Leary and his colleagues (Freedman et al. 1951; Leary 1957), as well as Wubbels and colleagues (e.g., Wubbels et al. 1993; Wubbels and Brekelmans 2005; Wubbels and Levy 1993) have advocated using an interpersonal circumplex model to describe educational interpersonal interactions. Leary (a clinical psychologist) and his colleagues developed an interpersonal behavioral classification system known as a *circumplex model* (for a history of circumplex models, see Wiggins 1996). Through analysis of clinical interactions (e.g., patient–therapist interactions, group discussions), Leary and his colleagues categorized interpersonal behaviors along two dimensions: *Affiliation* (i.e., Hostility – Love) and *Control* (i.e., Dominance – Submission). Using a circumplex structure, they arranged interpersonal behaviors around a two-dimensional circular space. The two dimensions of the circle-space are divided further into eight octants, with each octant describing a position relative to the two coordinates (e.g., Benjamin 1974, 1996; Lorr 1996; Wiggins 1996; for example, see Fig. 13.3).

A circumplex model implies circular order, such that opposite octants are most dissimilar and negatively related to one another, and adjacent octants are more simi-lar and more positively related to one another. Wiggins (1996) explained that, "the circle design involves dimensional classification in which category membership … is continuous rather than discrete and in which elements are distributed continu-ously around the perimeter of a circle, with each fuzzy category emerging into its neighboring categories" (Wiggins 1996, p. 226). Circumplex models have been developed and validated (e.g., Wiggins et al. 1989) to explore an array of psycho-logical phenomena such as levels of interpersonal interactions (Benjamin 1996), clinical interactions (Kiesler 1996), parental behavior (Schaefer 1965), and emo-tions (Barrett and Russell 1999).

For more than 25 years, Wubbels and his colleagues (e.g., Wubbels and Levy 1993; den Brok et al. 2006; den Brok and Levy 2005; Levy et al. 2003) have used a circumplex model to investigate the importance of teachers' and students' interactions and relationships (for a review, see Wubbels and Brekelmans 2005).

Within the role-hierarchy milieu in which teachers and students interact, Wubbels and colleagues' research began with the assumption that these interactions are driven by teachers' behaviors that subsequently impact students' behaviors. Wubbels and Levy's (1993) circumplex model used the dimensions of Opposition – Cooperation (*Proximity*) and Dominance – Submission (*Influence*) to classify teachers' Control-related and Affiliation-related behaviors in relation to students. Their studies regarding teacher–student classroom environments have shown strong associations among students' perceptions of teachers' controlling behaviors, teachers' affiliation behaviors, and measures of students' outcomes. For example, emotionally hostile teacher-behaviors (i.e., oppositional) were found to be associated with lower levels of students' achievement, while emotionally supportive teacher-behaviors (i.e., cooperative) were associated with higher levels of students' achievement (den Brok et al. 2006; Goh and Fraser 2000).

A few scholars have adapted Wubbels' circumplex model to investigate principal–teacher interactions (Creswell 1997; Fisher and Creswell 1998; Fisher et al. 1995). These researchers modified Wubbels, Creton, Levy, and Hooymayers' (1993) teacher–student interpersonal circumplex model to accommodate principal–teacher interactions. Investigating associations between teachers' ideal preferences for their principals' behaviors and their perceptions of principals' actual interpersonal behaviors, Cresswell (1997, Cresswell and Fisher, 1999, Fisher and Cresswell, 1998) found differences between teachers' "ideal" and "actual" ratings. For example, compared to their ratings indicating the behaviors that principals were currently displaying, teachers wanted their principals to engage in more cooperative interpersonal behaviors, and use fewer opposing behaviors. More importantly for our purposes, Creswell (1997) found strong associations between teachers' perceptions of the independence their principals gave them (i.e., autonomy-support) and the extent to which teachers felt empowered (i.e., personal control). Additionally, teachers' higher ratings of principals' tendencies to interact with disapproving interpersonal behaviors (i.e., not supporting interpersonal relationships) was associated with negative perceptions of the school environment (i.e., school climate).

A Circumplex Model of Principal–Teacher Interpersonal Interactions

In Fig. 13.3, we present a circumplex model that integrates Fisher and Creswell's (1998) circumplex model (Creswell and Fisher 1998; Fisher and Creswell 1998; Fisher et al. 1995) of principals behaviors towards teachers and Schaefer's (1965) circumplex model of parental behaviors. Although Fisher and Creswell's (1998) model targets our population of interest (principals and teachers), Schaefer's model uses descriptive labels that more closely align Self-Determination Theory in relation to Control-Value Theory. Both circumplex models allow for the conceptualization of the emotional climate that is created by various affiliative qualities and differentials in power, authority, and personal
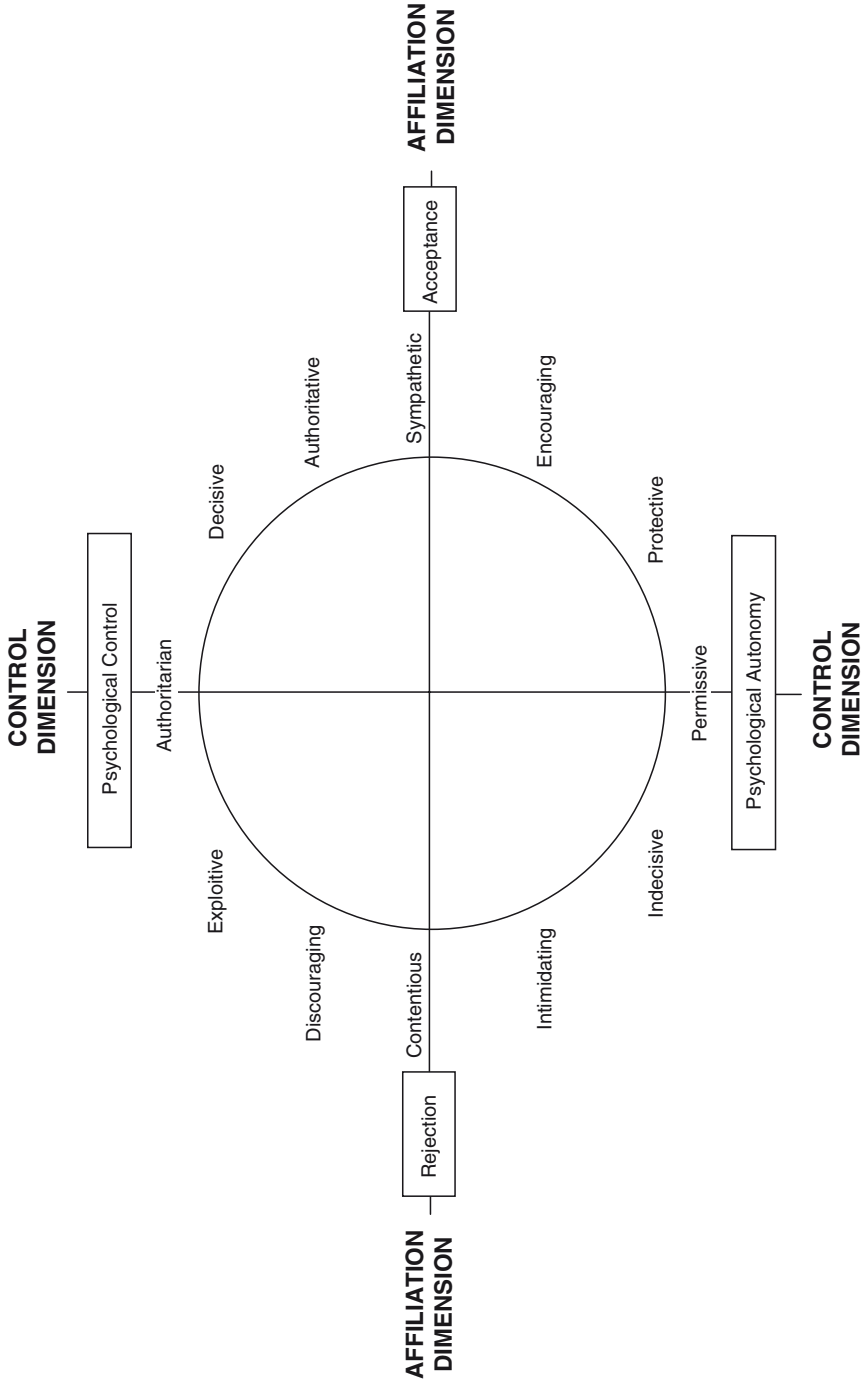
**CONTROL
DIMENSION**

Psychological Control

Authoritarian

Decisive

Authoritative

Sympathetic

Acceptance

**AFFILIATION
DIMENSION**

Encouraging

Protective

Permissive

Psychological Autonomy

**CONTROL
DIMENSION**

Indecisive

Intimidating

Contentious

Rejection

**AFFILIATION
DIMENSION**

Discouraging

Exploitive

Fig. 13.3   A circumplex model of principal–teacher interactions

resources found within the role-hierarchy milieu that exists between individual principals and individual teachers.

Our model includes the fundamental facets of previous theories and we apply them to specific theoretical considerations of teacher–principal interpersonal interactions: (1) the Affiliation and the Control dimensions, (2) conceptual alignment of social aspects (i.e., SDT) and personal aspects (i.e., CVT), and (3) from teachers' perspectives, identification and use of pertinent theoretical labels that address specifically the interpersonal dynamics between teachers and principals. In our model the *Control* dimension encompasses the continuum, Psychological Control – Psychological Autonomy, and the *Affiliation* dimension includes the continuum, Rejection – Acceptance. The unique labels of the circumplex model are consistent with historical interpersonal models of interpersonal behaviors, from clinical and personality psychology (Freedman et al. 1951; Leary 1957; Benjamin 1974, 1996), social and lifespan developmental psychology (Waugh 2002), child development and parenting behavior (i.e., Schaefer 1965), and educational leadership (Creswell and Fisher 1998; Fisher and Creswell 1998; Kremer-Hayon and Wubbels 1993).

Each of the labels around the circumplex model denote individual principals' behaviors toward teachers, with each octant describing a position relative to the control and affiliation dimensions. The octants around the circumplex describe the interpersonal behaviors that individual principals present to individual teachers. These octants are labelled as follows: *decisive, authoritative, encouraging, protective, indecisive, intimidating, discouraging, and exploitive*. Each octant, opposite in the circle, is proposed to be most dissimilar and most negatively related to the octant on the other side of the circle, and each adjacent octant is proposed to be more similar and more positively related to the two adjacent octants.

We believe that the interactional process dimensions of *Control* and *Affiliation*, provide a lens through which we can understand better principals' enactment of principal–teacher interpersonal transactions. Additionally, we believe that, over time, the enactment of these interpersonal transactions can lead to the development of principals' individual communication patterns or styles with respect to teachers. Furthermore, over time and in relation to their respective principals, teachers develop appraisals, expectations, and emotional interlinkages regarding their principals' interpersonal styles. The dynamical and reciprocal (i.e., bidirectional influences and effects) interplay between (1) principal–teacher transactions, (2) individual principals' and individual teachers' communication/interactional patterns or styles, and (3) individual principals' and individual teachers' appraisals, expectations, and emotional interlinkages contribute to the creation of an emotional climate within which a teacher functions within a specific school and within a given school system. Hence, the emotional climates established by principals may strongly influence teachers' motivations for implementing professional development. However, teachers' motivations may also be strongly influence by internally-generated perceptions and goals. We discuss this perspective in the following section.

Teachers' Motivations and Emotions: Control-Value Theory

Focusing on factors that shape individuals' emotions and respective motivations, Control-Value Theory (CVT), Pekrun (2000, 2006) suggests that, if individual teachers do not hold a modicum of perceived *value* and perceived *control* with respect to the enactment of newly-learned skills and content knowledge, they will not experience positive emotions and energized motivation concerning their efforts. Pekrun and colleagues posit that two classes of appraisals – "subjective control over achievement activities and their outcomes … and the subjective values of these activities and outcomes" (Pekrun 2006, p. 317) – are of primary importance for understanding reciprocal and dynamical processes among individuals' emotions (e.g., enjoyment, fear), cognitions (e.g., perceptions, appraisals), and motivations (e.g., approach, avoidance; intrinsic or extrinsic goals). For example, just as teachers' perceptions of control and values may influence the extent to which they experience pleasantly-valenced or unpleasantly-valenced emotions about implementing newly-learned skills and knowledge, the emotions they experience may influence subsequent appraisals of control and values related to their motivations.

Previous research regarding teachers' motivations has examined relationships among variables with respect to teachers' perceptions of personal control (most often defined as expectancy perceptions regarding personal control and self-efficacy), values (most often defined as perceptions concerning valued personal goals), and to a lesser extent, their emotions. For example, with respect to teachers' motivation for implementing professional development, van Eekelen et al. (2006) analyzed teachers' interviews for their perceptions and experiences about mastering new skills and found three groups of teachers regarding their *will to learn* ("a psychological state in which the learner has a desire to learn" p. 410). These groups were identified as (1) those who do not see the need to learn (i.e., have low value) (2), those who wonder how to learn (i.e., concerns about control), and (3) those who are eager to learn (i.e., experience pleasant emotions).

CVT (Pekrun 2000, 2006) posits that teachers' appraisals about their abilities to control aspects of their activities include personal identity-related beliefs (e.g., Wenger 1998), attributions about the causes of their successes and failures (e.g., self-generated or other-generated; Weiner 1985), and their appraisals about their abilities to regulate actions to attain desired outcomes (e.g., self-efficacy beliefs; Bandura 1986, 1989). Depending upon individuals' appraised levels of control, they experience different emotions. For example, low levels of control can be associated with feelings of anxiety, while high levels of control can be associated with feelings of confidence.

In a comprehensive model of teacher-motivation, low levels of teachers' expectancies for personal control and expectancies for success in their classrooms were related to low levels of teachers' professional engagement, especially when teachers had high valuing for goals that were difficult to attain (de Jesus and Lens 2005). Additionally, findings from a study conducted by Roth et al. (2007) showed strong, positive relationships among teachers' ratings of personal autonomy, teachers' self-efficacy for

teaching, and their perceptions of personal accomplishments (Roth et al. 2007). These findings are consistent with CVT in that appraisals of personal control interact with appraisals of personal values to influence motivations and emotions.

With respect to personal values, the primary foci of the value component within academic motivation have been individuals' goals (e.g., social goals, mastery goals) and their reasons for engaging in academic tasks (e.g., intrinsic incentives such as personal interest, extrinsic incentives such as monetary rewards). Value-/goal-related research has linked teachers' job satisfaction (an emotional element) with a focus on mastery goals for their students (a value element, Papaioannou and Christoduouulidis 2007). With respect to educational reform efforts, Lasky's research (2005) demonstrated that teachers' identity, which included their perceptions of agency, influenced their willingness to be professionally vulnerable (an emotional element) during the uncertainty of reform efforts. Furthermore, changes in teachers' control perceptions throughout the reform effort impacted their emotional reactions, their willingness to take risks, and their ultimate implementation of teaching practices. Consistent with CVT, teachers' were more willing to take the risks involved with implementing change when they valued the potential outcomes that change could provide.

Finally, CVT posits that ongoing appraisals of control and value, with subsequent emotions and motivations, in turn, lead to further shifts in cognitive appraisals, emotions, and motivations. Supporting this claim, Darby's (2008) study regarding teachers' specific emotions and their self-understanding during comprehensive reform revealed that teachers' feelings of fear were initiated when their professional self-understandings (i.e., aspects of their identity) were threatened. However, supportive interactions from coaches and university faculty facilitated teachers' conceptual changes. In particular, when teachers were involved with collaboration (i.e., given opportunities for control) they were willing to take on challenges associated with instructional changes. Furthermore, Darby's results showed that, as teachers made changes to their instructional practices, they saw increases in students' learning, which prompted boosts in self-efficacy, self-esteem, and instigated emotions of pride and excitement. Consistent with CVT, these cognitive appraisals and pleasant emotions seemed to further enhance teachers' motivation to continue the reform program.

Influence of Social Interactions on Individual Motivation

As suggested by Darby's (2008) research, CVT recognizes that individuals' appraisals of environmental factors (e.g., messages from authorities) will affect their motivations and emotions (Pekrun 2006). This occurs because environmental authorities deliver information directly related to individuals' perceived levels of control and perceived levels of valuation. Messages received through important social interactions include "induction of values, autonomy support, goal structures and achievement-related expectancies of significant others, as well as feedback and

consequences of achievement" (Pekrun 2006, p. 325). According to CVT, individuals' appraisals of these socially-delivered messages mediate the motivational and emotional impact of situational factors.

One factor that may influence a principal's willingness to act in autonomy-supportive ways is the degree to which principals and their subordinate teachers share professional values. Analyzing interview data, Grove (2007) found that, when teachers shared similar values with their respective principals, a positive relational affiliation was established. For example, if (1) individual principals held mastery orientations toward students' learning (i.e., promoted a focus on students' mastery of skills vs. students' high performance on standardized assessments), and (2) individual teachers also held mastery orientations (i.e., provided students with mastery-focused messages and activities), then individual principals were more likely to promote positive relationship affiliations by supporting individual teachers' autonomy and competence (Grove 2007).

The same phenomena occurred when principals and teachers shared performance-focused goals. Having shared-values seemed to foster principals' confidence in teachers' capabilities as well as principals' willingness to provide the teachers with self-autonomy. These teachers implemented successfully those high-quality, professional development strategies and reform efforts that principals and teachers both supported. Thus, when principal's perceived that teachers' behaviors confirmed the principals' beliefs, the principals were more likely to establish a positive emotional climate through interpersonal interactions that were low in principals' control and high in principals' affiliation behaviors.

Interestingly, Grove's results also suggested that when principals held performance-focused goals and teachers held mastery-focused goals, the teachers often chose to pursue their goals and not the principals, even if the actions could foster a lowering of principals' autonomy support. This result suggests that personal motivational factors (e.g., individual values) may take precedence in influencing teachers' behaviors when the factor has higher strength than those coming from social influences.

Implications and Future Research

CVT researchers highlight the importance of individuals' values for promoting personal motivation, a variable that SDT researchers do not directly emphasize. In contrast, SDT researchers focus upon the extent to which individuals perceive that contextual authorities' support their development of personal competence and the extent to which contextual authorities promote interpersonal relatedness, variables that CVT researchers tend not to directly address. Given that these two theories are frequently used to investigate students' academic motivations, we believe these two theories may work in tandem to reveal social and personal aspects that affect teachers' motivations for implementing high-quality professional development for educational reform.

Our synthesis and new theoretical framework can open avenues for research and theory for advancing our understandings of dynamical and reciprocal processes in teachers' learning endeavors. These processes underlie the rich full range of inter-personal characteristics that underpin hierarchical interactions in education. Further research is needed to articulate, elaborate, extend, validate, and revise the theoretical framework presented in this chapter. Here, we have focused on the interpersonal interactions of teachers with their principals (and other authorities) within the context of professional development for whole school reform; however, we recognize that the model could be used to investigate hierarchies of other learning situations as well.

In our current research, we are using the model to investigate ways that teachers' perceptions of their principals' autonomy-, competence-, and value-supports influence the school climate and teachers' personal motivations and emotions for implementing whole school reform. Initial results from investigating a whole-school reading initiative (Roehrig et al. 2008) have suggested that teachers, who were given autonomy through collaborative school leadership, also held more positive reasons (i.e., "because it was good for them" or because of intrinsic motivation), for participating in the reform program. On the other hand, teachers who indicated they did not participate in collaborative leadership were more likely to hold extrinsic reasons (i.e., they were required to participate by administration) or felt amotivated (i.e., a lack of motivation) for participating in the reform program. Additionally, teachers' who indicated they had been given more control over their classroom decisions (i.e., provided with autonomy-supports) felt higher levels of teaching efficacy, positive motivations for the reform program, and job satisfaction.

Further research is needed to understand how interactional behaviors impact teachers' motivations. Along with investigating elements of principals' support and school climate, understanding the dynamic interconnections among these variables and teachers' specific emotions, cognitions, and motivations can help identify specific environmental supports (or lack of supports) that lead to different trajectories of teachers' willingness or resistance for educational reform. We are particularly interested in ways that the interpersonal circumplex model of principal–teachers interactions can help define and describe teachers' perceptions of their principals' on-going behaviors that influence their motivations and emotions. Along this line of inquiry, the circumplex model may be used to investigate similarities and discrepancies between principals' perceptions of their own interpersonal behaviors and teachers' perceptions of their principals' interpersonal behaviors. For example, using Wubbels' interpersonal circumplex model (Wubbels et al. 1991, 1993), Fisher et al. (1995) compared teachers' perceptions of their interpersonal behaviors with students' ratings of their teachers' interpersonal behaviors. They provided professional development that targeted discrepancies between the two perceptions to help teachers improve their interpersonal interactions with students. A similar procedure could be used to help principals' improve their interpersonal interactions with teachers. By showing principals the discrepancies between their own perceptions of their behaviors and teachers' perceptions of their behaviors, principals may learn more effective and efficient interpersonal leadership behaviors.

We believe that affiliative, positive dynamics of human interaction lie at the heart of great and successful high-quality education and educational reform, and merits continued empirical inquiries. In the educational process, when authorities provide autonomy-, competence-, and value-supports – thus creating positive interactional climates – both supervisors and subordinates may transcend individual differences in the interest of working together and learning together – ascertaining and enlivening the education and educational opportunities of all who participate in learning endeavors.

References

Bandura A (1986) Social foundations of thought and action: a social cognitive theory. Prentice-Hall, Englewood Cliffs, NJ

Bandura A (1989) Self-regulation of motivation and action through internal standards and goal systems. In: Pervin LA (ed) Goal concepts in personality and social psychology. Erlbaum, Hillsdale, NJ, pp 19–86

Barrett LF, Russell JA (1999) The structure of current affect: controversies and emerging consensus. Curr Dir Psychol Sci 8(1):10–14

Beachum FD, Dentith AM, McCray CR, Boyle TM (2008) Havens of hope or the killing fields: the paradox of leadership, pedagogy, and relationships in an urban middle school. Urban Educ 43(2):189–215

Benjamin LS (1974) Structural analysis of social behavior. Psychol Rev 81:392–425

Benjamin LS (1996) A clinician-friendly version of the interpersonal circumplex: structural analysis of social behavior (SASB). J Pers Assess 66(2):248–266

Billig SH, Jaime II, Abrams A, Fitzpatrick M, Kendrick E (2005) Closing the achievement gap: lessons from successful schools. U. S. Department of Education, Office of Vocational and Adult Education, Washington, DC (ERIC Document Reproduction Service No. ED491863)

Ciani KD, Summers JJ, Easter MA (2008) The influence of academic context on the motivational beliefs and classroom practices of high school teachers. Contemp Educ Psychol 33:533–560

Creswell J (1997) A study of principals' interpersonal behaviour and school environment. Unpublished Doctoral Dissertation, Curtin University of Technology, Australia

Creswell J, Fisher D (April, 1998) A qualitative description of teachers' and principals' perceptions of interpersonal behavior and school environment. Paper presented at the meeting of the American Educational Research Association, San Diego, CA

Creswell J, Fisher D (April, 1999) A school level environment study in Australia. Paper presented at the annual meeting of the American Educational Research Association, Montreal, QC, Canada

Creton H, Wubbels T, Hooymayers H (1993) A systems perspective on classroom communication. In: Wubbels T, Levy J (eds) Do you know what you look like? Interpersonal relationships in education. London, England: RouledgeFalmer Press, pp 1–12

Darby A (2008) Teachers' emotions in the reconstruction of professional self-understanding. Teach Teach Educ 24:1160–1172

Darley JM (2001) The dynamics of authority influence in organizations and unintended action consequences. In: Darley JM, Messic DM, Tyler TR (eds) Social influences on ethical behavior in organizations. Lawrence Erlbaum Associates, Mahwah, NJ, pp 37–52

de Jesus SN, Lens W (2005) An integrated model for the study of teacher motivation. Appl Psychol Int Rev 54:119–134

Deci EL, Ryan RM (1985) Intrinsic motivation and self-determination in human behavior. Plenum, New York, NY

Deci EL, Ryan RM (2000) The "what" and "why" of goal pursuits: human needs and the self-determination of behavior. Psychol Inq 11:227–268

den Brok P, Levy J (2005) Teacher–student relationships in multicultural classes: reviewing the past, preparing the future. Int J Educ Res 43:72–88

den Brok P, Brekelmans M, Wubbels T (2006) Multilevel issues in research using students' perceptions of learning environments: the case of the questionnaire on teacher interaction. Learn Environ Res 9(3):199–213

Ellett CD, Hill FH, Liu X, Loup KS, Lakshmanan A (1997, March) Professional learning environment and human caring correlates of teacher efficacy. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL

Fisher D, Creswell J (1998) Actual and ideal principal interpersonal behavior. Learn Environ Res 1(2):231–247

Fisher DL, Fraser BJ, Cresswell JC (1995) Using the questionnaire on teacher interaction in the professional development of teachers. Aust J Teach Educ 20:8–18

Freedman MB, Leary TF, Ossorio AG, Coffey HS (1951) The interpresonal dimension of personality. J Pers 20:143–161

Goh SC, Fraser BH (2000) Teacher interpersonal behavior and elementary students' outcomes. J Res Child Educ 14(2):216–231

Grove CM (2007) The importance of values-alignment within a role-hierarchy to foster teachers' motivation for implementing professional development. Unpublished Doctoral Dissertation, Florida State University, Tallahassee, FL

Grove CM (2008, March) Self-determination theory and control-value theory in a professional development for teachers: from motivation to implementation. Paper presented at the annual meeting of the American Educational Research Association, New York, NY

Haim O, Strauss S, Ravid D (2004) Relations between EFL teachers' formal knowledge of grammar and their in-action models of children's minds and learning. Teach Teach Educ 20(8):861–880

Hashweh MZ (2003) Teacher accommodative change. Teach Teach Educ 19:421–434

Kent AM (2004) Improving teacher quality through professional development. Education 124(3):427–435

Kiesler DJ (1996) From communications to interpersonal theory: A personal odyssey. J Pers Assess, 66(2):267–282

Kremer-Hayon L, Wubbels T (1993) Supervisors' interpersonal behavior and teachers' satisfaction. In: Wubbels T, Levy J (eds) Do you know what you look like? Interpersonal relationships in education. RoutledgeFalmer, London, England, pp 113–122

Lasky S (2005) A sociocultural to understanding teacher identity, agency, and professional vulnerability in a context of secondary school reform. Teach Teach Educ 21:899–916

Leary T (1957) Interpersonal diagnosis of personality: a functional theory and methodology for personality evaluation. Ronald Press, New York, NY

Leinhardt G (2001) Instructional explanations: a commonplace for teaching and location for contrast. In: Richardson V (ed) Handbook of research on teaching. American Educational Research Association, Washington, DC, pp 333–357

Levy J, den Brok P, Wubbels T, Brekelmans M (2003) Students' perceptions of interpersonal aspects of the learning environment. Learn Environ Res 6(1):5–36

Lorr M (1996) The interpersonal circle as a heuristic model for interpersonal research. J Pers Assess, 66(2):234–239

Op 't Eynde P, Turner JE (2006) Focusing on the complexity of emotion-motivation issues in academic learning: a dynamical component systems approach. Educ Psychol Rev 18:361–376

Papaioannou A, Christoduoulidis T (2007) A measure of teachers' achievement goals. Educ Psychol 27(3):349–361

Pekrun R (2000) A social cognitive, control-value theory of achievement emotions. In: Heckhausen J (ed) Motivational psychology of human development. Elsevier, Oxford, England, pp 143–163

Pekrun R (2006) The control-value theory of achievement emotions: assumptions, corollaries, and implications for education research and practice. Educ Psychol Rev 18(4):315–341

Reio TG (2005) Emotions as a lens to explore teacher identity and change: a commentary. Teach Teach Educ 21(8):985–993

Roehrig A, Turner JE, Petscher Y (2008) Evaluation of the Florida Reading Initiative for the NorthEast Florida Education Consortium. Unpublished Manuscript

Roth G, Assor A, Kanat-Maymon Y, Kaplan H (2007) Autonomous motivation for teaching: how self-determined teaching may lead to self-determined learning. J Educ Psychol 99:761–774

Ryan RM, Deci EL (2000) Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. Am Psychol 55:68–78

Sandholtz JH, Scribner SP (2006) The paradox of administrative control in fostering teacher professional development. Teach Teach Educ 22:1104–1117

Schaefer ES (1965) Configurational analysis of children's reports of parent behavior. J Consult Psychol 29:552–557

Scribner JP (1998, October) Teacher efficacy and teacher professional learning: what school leaders should know. Paper presented at the meeting of the University Council for Educational Administration, St. Louis, MO

Turner JE, Grove CM (2008, March) Investigating situational aspects and personal aspects of teachers' motivation and emotions for implementing whole school reform. Paper presented at the annual meeting of the American Educational Research Association, New York, NY

Turner JE, Biscoe B, Harris B (2006, April) Great expectations of Oklahoma's whole school reform model: evidence of student achievement gains. Paper presented at the annual meeting of American Educational Research Association, San Francisco, CA

van Eekelen IM, Vermunt JD, Boshuizen HPA (2006) Exploring teachers' will to learn. Teach Teach Educ 22:408–423

Watzlawick P, Beavin JH, Jackson D (1967) The pragmatics of human communication. W. W. Norton & Co., New York, NY

Waugh RM (2002) A grounded theory investigation of dyadic interactional harmony and discord: development of a nonlinear dynamical systems theory and process-model. Unpublished Doctoral Dissertation, The University of Texas at Austin, Austin, TX

Waugh RM (2003, May) A nonlinear dynamical systems process-model of dyadic interactional harmony and discord. Paper presented at the meeting of the Fifteenth Annual Convention of the American Psychological Society, Atlanta, GA

Waugh RM (2003, July) A self-reflexive, holographic nonlinear dynamical systems process-theory of dyadic interactional harmony and discord. Paper presented at the meeting of the Thirteenth Annual International Conference of the Society for Chaos Theory in Psychology & the Life Sciences, Boston, MA

Weiner B (1985) An attributional theory of achievement and motivation and emotion. Psychol Rev 92(4):548–573

Wenger E (1998) Communities of practice: learning, meaning, and identity. Cambridge University Press, Cambridge, UK

Wiggins JS, Phillips N, Trapnell P (1989) Circular reasoning about interpersonal behavior: Evidence concerning some untested assumptions underlying diagnostic classification. J Pers and Soc Psychol, 56(2):296–305

Wiggins JS (1996) An informal history of the interpersonal circumplex tradition. J Pers Assess 66(2):217–233

Wubbels T, Brekelmans M (2005) Two decades of research on teacher–student relationships in class. Int J Educ Res 43:6–24

Wubbels T, Levy J (1993) Do you know what you look like? Interpersonal relationships in education. RoutledgeFalmer, London, England

Wubbels T, Brekelmans M, Hooymayers H (1991) Interpersonal teacher behavior in the classroom. In: Fraswer BJ, Walberg HJ (eds) Educational environments: evaluation antecedents and consequences. Pergamon, Oxford, England, pp 141–160

Wubbels T, Creton H, Levy J, Hooymayers H (1993) The model for interpersonal teacher behavior. In: Wubbels T, Levy J (eds) Do you know what you look like? Interpersonal relationships in education. RoutledgeFalmer, London, England, pp 13–28