14. LET’S MAKE THINGS BETTER

Developments in Research on Interpersonal Relationships in Education

INTRODUCTION

Philips, the Dutch multinational, had as its mission until 2004 “Let’s make things better”. We chose this sentence as the title of our contribution to this book because despite considerable progress in the study of interpersonal relationships in education during the last two decades, a great deal of work remains. Two topics are particularly relevant. First, further development is needed on the theoretical basis of the Model for Interpersonal Teacher Behaviour and the instrument based on this model, the Questionnaire for Teacher Interaction (QTI; Wubbels, Brekelmans, Den Brok & Van Tartwijk, 2006). Second, attention is needed for the search for (causal) relationships between moment-to-moment interactions in the classroom and the patterns of interpersonal relationships between teacher and students. The first is a sine qua non for sustainable progress in the field and the development towards a more parsimonious model. The second will advance progress in providing formative guidance and professional development to teachers in pre and in-service programmes.

This chapter will first summarise the original presentation of the Model for Interpersonal Teacher Behaviour and the QTI. It reflects on some problematic issues, including: the use of eight scales of the QTI versus the two dimensions underlying the model, the model’s graphic representation, the names for its dimensions and scales, and the difficulties when translating the QTI to different languages. The chapter then analyses our research on moment-to-moment interactions and teacher-students relationships. Recommendations for improvement and future research as well as references to other chapters in this volume are provided.

THE MODEL FOR INTERPERSONAL TEACHER BEHAVIOUR

An Interpersonal Perspective on Teaching

Throughout the past three decades our overriding aim has been to improve teacher education by building a knowledge base about effective learning environments. Within this domain we have focused our research on the role of the teacher in the classroom social climate. Naturally, a variety of perspectives have been employed
in the study of teaching, including views of effectiveness based on methodology, discourse, moral positions and orientations toward gender and ethnic diversity. Because of our belief in the importance of human relationships we have chosen to analyse the field from an interpersonal perspective that describes and analyses teaching in terms of the relationship between teacher and students.

This outlook analyses the perceptions of students and teachers regarding their interpersonal relationships according to the Model for Interpersonal Teacher Behaviour (MITB). Starting in The Netherlands in the 1980s, this line of research has now expanded to many other countries, including Australia, Canada, Greece, Israel, Slovenia, Serbia, Turkey, Korea, Taiwan, Indonesia, Singapore, and the US.

The Model for Interpersonal Teacher Behaviour is based on Timothy Leary's research on the interpersonal diagnosis of personality (1957) and its application to teaching (Wubbels, Créton, & Hooyomayers, 1985). The Leary model has been investigated extensively among others in clinical psychology and psychotherapeutic settings (Strack, 1996) and has proven effective in describing human interactions (Foa, 1961; Lonner, 1980). While not conclusive, there is evidence that the Leary model is cross-culturally generalizable (Abele & Wojciszke, 2007; Brown, 1965; Dunkin & Biddle, 1974; Kiesler, 1983; Lonner, 1980; Segall, Dasen, Berry, & Poortinga, 1990). Two significant dimensions emerged from Leary's research, which he named ‘Dominance-Submission’ and ‘Hostility-Affection’. Although these two dimensions have occasionally been given other names – Brown (1965) used ‘Status and Solidarity’, and Dunkin and Biddle (1974) called them ‘Warmth and Directivity’ – they have generally been accepted as universal descriptors of human interaction. According to interpersonal theory (Fiske, Cuddy, & Glick, 2007; Judd, James-Hawkins, Yzerbyt, & Kashima, 2005) these two dimensions are primary to all interpersonal perceptions.

The two dimensions have also been applied to education. Slater (1962) used them to describe pedagogical relationships, and Dunkin and Biddle (1974) demonstrated their importance in teachers’ efforts to influence classroom events. Robertson (2002) employed two similar dimensions – assertiveness and cooperation – to describe classroom management behaviour. In the original MITB the two dimensions were Influence (Dominance-Submission) and Proximity (Opposition-Cooperation), represented in an orthogonal coordinate system depicted in Figure 1. The two dimensions, represented as two axes, underlie eight types of teacher behaviour: Leadership, Helpful/Friendliness, Understanding, Student Freedom and Responsibility, Uncertainty, Dissatisfaction, Admonishing, and Strictness (see Figure 2).

The sectors are labelled DC, CD, etc., according to their position in the coordinate system (much like the directions in a compass). For example, the sectors Leadership and Helpful/Friendly are both characterized by Dominance and Cooperation. In the DC-sector, Dominance prevails over Cooperation and includes behaviours such as teacher enthusiasm, motivating strategies, and the like. The adjacent CD-sector includes more cooperative and less dominant perceptions in which the teacher demonstrates helpful, friendly and considerate behaviour. Figure
2 presents an overview of typical teacher behaviours that relate to each of the eight sectors of the Model.

The MITB (as well as the Leary model) is a unique entity within a branch of models characterized by their circumplex structure. Circumplex models are based on a specific set of assumptions that describe interpersonal constructs (Tracey, 1994). The following assumptions undergird the MITB: (Fabrigar, Visser, & Browne, 1997; Gurtman & Pincus, 2000; Tracey, 1994)

1. the eight behavioural sectors of the model are represented by two dimensions;
2. the two dimensions are uncorrelated;
3. the sectors can be evenly distributed in a circular structure.

The implications of these assumptions are that a sector correlates highest with its adjacent sectors and lowest with the sector opposite in the model.

The Questionnaire on Teacher Interaction

The perceptions of teachers and students of the teacher-students relationship can be measured with the Questionnaire on Teacher Interaction (QTI). To map interpersonal teacher behaviour, the QTI was designed according to the two-
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dimensional Leary model and the eight sectors (Wubbels et al., 1985, 2006). It was originally developed in The Netherlands, and a 64-item American version was constructed in 1988 (Wubbels & Levy, 1991). The original Dutch version consists of 77 items that are answered on a five-point Likert scale ranging from ‘Never/Not at all’ to ‘Always/Very’. The items are divided into eight scales corresponding with the eight behaviour types. Since its development the QTI has been translated,

Figure 2. Model for Interpersonal Teacher Behaviour (Wubbels & Levy 1991).

revised and administered in a number of countries, including Australia (Fisher, Waldrip, & Den Brok, 2005), Brunei (Den Brok, Fisher, & Scott, 2005b; Khine, 2002), Canada (Lapointe, Legault, & Batiste, 2005), China (Wei, Den Brok, & Zhou, 2009), Cyprus (Kyriakides, 2005), India (Den Brok, Fisher, & Koul, 2005a), Indonesia (Margianti, 2002), Israel (Kremer-Hayon & Wubbels, 1993a, 1993b), Korea (Lee, Fraser, & Fisher, 2003), The Netherlands (e.g., Brekelmans, Wubbels,
& Créton 1990; Den Brok, Brekelmans, & Wubbels, 2004), Poland (Sztejnberg, Den Brok, & Hurek, 2004), Singapore (Goh & Fraser, 1998), Turkey (Telli, Den Brok, & Cakiroglu, 2007), Thailand (Wei & Onsawad, 2007), the UK (Wales; Van Oord & Den Brok, 2004), and the US (Wubbels & Levy, 1991, 1993), among others.¹

As noted above, in circumplex models such as the one on which the QTI is based, scales representing the octants are expected to be ordered in a circular structure and be represented by two uncorrelated factors or dimensions. The factor loadings of a factor analysis on the eight scales represent coordinates within the circular structure, and each scale is expected to load on both factors at the same time, even though different in magnitude. For example, the leadership subscale loads stronger on Influence than on Proximity. This is different from regular factor models, in which scales (or items) are constructed so as to load on only one factor. Thus, Influence and Proximity scores are calculated by linearly transforming the eight scale scores from the QTI on the basis of their position on the interpersonal circle.²

Several studies have been conducted on the reliability and validity of the QTI. They have included research on Dutch (e.g., Brekelmans et al., 1990; Den Brok, 2001; Den Brok, Brekelmans, & Wubbels, 2006a; Wubbels et al., 1985), American (Wubbels & Levy, 1991) and Australasian (Den Brok, Fisher, Brekelmans, Wubbels, & Rickards, 2006b; Fisher, Fraser, & Wubbels, 1992; Fisher, Henderson, & Fraser, 1995;³) samples, among others.

REFLECTIONS ON THE PAST

Dimensions or Scales

Circumplex models are a way to combine two dimensions in an orthogonal framework (see e.g., Leary, 1957; Wiggins, 1991). Though Leary (1957) often used 16 (and occasionally 32) sectors, we decided to use eight in our circular structure in order to operationalise the two underlying dimensions. In research, for most analyses, use of the two dimensions has advantages over the eight scales because the latter are mutually correlated whereas (ideally) the two dimensions are not and their scores are sufficient (and necessary) to describe the interpersonal relationships. We have not identified any studies outside our own research group that used dimension scores in their analyses, and therefore we want to emphasise the need for this type of analysis. These scores can be based on the ideal formula mentioned in note 2 or can be calculated from actual factor scores derived from a two-factor analysis, either confirmatory or exploratory.

One might wonder why we still want to use scale scores at all. In many teacher education institutes and secondary schools both in The Netherlands and abroad teachers reflect on sector results to develop more productive relationships with their students. For these pre- and in-service teachers the eight sector profiles are more understandable than points on a dimension. A comparison of Figures 3 and 4
clarifies the difference between reporting in terms of scales versus dimensions (Wubbels et al., 2006).

A = Authoritative, Di = Directive, St = Struggling, T = Tolerant, R = Repressive, TA = Tolerant/Authoritative, UA = Uncertain/Aggressive, UT = Uncertain/Tolerant.

Figure 3. Main points of the eight types of patterns of interpersonal relationships.

Circle, Dimension and Sector Labels

For technical reasons the model has until recently been presented as an octagon. A possible drawback to this presentation is that the two dimensions seem less important than the sectors (see Figure 2). This is unintended, since – as noted – in a circumplex model the underlying dimensions are crucial for statistical analyses. To be more loyal to its circumplex nature, we began to present the model as a circle rather than an octagon. (e.g., Den Brok et al., 2006a, 2009; Telli, Den Brok, & Cakiroglu, 2010; Wei et al., 2009) (Figure 5).

We now propose some other adaptations (see figure 6). The first will better align the dimension names with those used in other studies on interpersonal relationships. In addition, we will adjust sector labels to improve clarity and consistency.
Figure 4. Profiles of the eight types of patterns of interpersonal relationships.
In psychological research on interpersonal relationships the terms ‘Affiliation’ and ‘Control’ have been widely used as dimension labels. (e.g., Kiesler, 1983; Tiedens & Jimenez, 2003). Interpersonal theory assumes these factors to be primary to all social interaction (Fiske et al., 2007; Gurtman & Pincus, 2000; Judd et al., 2005). Control and Affiliation can therefore be considered equivalent to Dominance-Submission (Influence) and Cooperation-Opposition (Proximity) As a result, we will now use Control and Affiliation to designate the two dimensions of the Model for Interpersonal Teacher Behaviour.

We have also noted some inconsistencies in our sector labels. First, while most referred to the teacher’s behaviour, one sector (Student Responsibility and Freedom) describes the effects on students. The term ‘Student Responsibility and Freedom’ inaccurately leads readers to imagine a broad range of teacher behaviours that might help students bear responsibility. Instead the label should reflect the particular combination of low teacher Control and medium teacher Affiliation. We have therefore changed the label to ‘Complying’ to describe teacher behaviour that is in between the interpersonal meaning of Understanding and Uncertain.
Second, ‘Leadership’ was conceived by many readers as a broad term that can in fact refer to behaviours in many sectors, including friendliness, understanding or dissatisfaction. Thus, the term ‘Leadership’, was intended to specify a particular combination of a high amount of teacher Control and medium amount of teacher Affiliation rather than a mix of broad categories. We therefore propose to change the label to ‘Leading’.

Third, two sectors (‘Helpful/Friendly’ and ‘Student Responsibility and Freedom’) included two terms each, whereas the other six labels only used one term. The revised sector labels will only include one word. Finally, the definitions of some of the labels were misunderstood. We changed the label for the ‘Admonishing’ sector to ‘Reprimanding’, primarily because admonishing appeared to be used infrequently in English and was not understood by many readers. Finally, we replaced ‘Strict’ by ‘Imposing’, which better describes teacher actions.

Figure 6 presents the best current representation, a circle with eight titles placed equidistantly on the circumference that represent the original sectors as measured by the eight scales of the QTI.
Translation of the QTI

The Dutch and US/Australian versions of the QTI were developed after several pilot administrations and analyses (see Wubbels & Levy, 1993). Extensive interviews with students and teachers were conducted and items were repeatedly revised in pursuit of satisfactory psychometric properties. The goal was to produce an instrument with high alpha reliabilities for each scale, as well as a pattern of scale correlations that represented the circumplex nature of the model. Employing a similar comprehensive process, Telli, Den Brok, and Cakiroglu (2007) developed a Turkish QTI version and Wei, Den Brok, and Zhou (2009) a Chinese version.

The design procedure for these newer versions were noteworthy in that the authors did not simply translate the items from one language to another, but rather adapted them to the cultural environment as well. Most QTI adaptations, however, were not as thorough and usually involved translation and occasional back translation. This heightened the risk of misunderstanding caused by variation in the interpretation of similar words in different languages.

In addition to the limited attention to the circumplex framework of the model in translating the QTI, two characteristics of the Dutch QTI and later the US version hindered adequate development of adaptations in other languages. Translators were not aware of these problems because they had only been published in Dutch (Créton & Wubbels, 1984). Wubbels and Levy (1991) provided an indication of these challenges in their comparison of the Dutch and US versions. First, the correlations between scales deviated from that expected of an ideal circumplex: in terms of the original scale labels, the correlation between the Leadership and Strict scales was not strong enough, whereas the correlation between Friendliness and Understanding was too strong. This led to an uneven distribution of the scales in the circle (see Wubbels & Levy, 1991, 1993). Unless the translators were aware of these weaknesses, adaptations of the QTI to other languages risked exacerbating them. Next, in the Student Freedom and Responsibility scale some items had deliberately been chosen because they tended to correlate higher with Understanding and others with Uncertain. Taken together this resulted in adequate correlations with the two adjacent scales, but a translation might distort the importance of one item over another, thus further distorting the relationship between scales. Finally, misunderstandings caused by the sector titles (described above) might have further hindered the development of sound versions in other languages. As a result of these difficulties, psychometric qualities of translated versions are usually lower than those of the Dutch, US/Australian and Turkish versions (see Den Brok et al., 2005b, 2006a, 2006b; Kokkinos, Charalambous, & Davazoglou, 2009; Telli et al., 2007).

CHALLENGE FOR THE FUTURE

From previous research we know that teacher-students relationships that are characterized by a combination of high levels of teacher control and affiliation are
conducive to learning. Several studies have shown that students who attend classes with relatively high average levels of teacher control and affiliation show greater cognitive achievement and more positive subject-related attitudes than those whose teachers are rated lower on these dimensions (See, for example, overviews of studies with the QTI Den Brok et al., 2004; Wubbels et al., 2006, and Fraser in this volume, and for other studies Allen, Witt, & Wheeless, 2006; Cornelius-White, 2007). In this volume several chapters have added to the knowledge base on positive teacher-students relationships. For example, Georgiou and Kyriakides confirmed the relationships between control and affiliation and student achievement in the Cypriot setting. In addition, Wentzel provided extensive evidence for the association between teacher-students relationships and student motivation. She describes effective teachers as those who develop relationships with students that are emotionally close, safe, and trusting; that provide access to instrumental help; and that foster a more general ethos of community and caring in classrooms. In their study of kindergarten teachers, Roorda, Koomen, and Oort reported that the amount of teacher affiliation was negatively related to conflicts and student external problem behaviour. In another study of kindergarten classrooms Spilt and Koomen found that effective management and sensitivity on the part of teachers led to lower levels of conflict for boys experiencing external problem behaviour. The results of these studies are consistent with the conclusion that teachers who demonstrate high control and affiliation behaviour form more positive relationships with their students and experience greater success in learning outcomes. It should be noted, however, that the studies provided more support for the effects of affiliation than of control.

The challenge for future research is to determine how teachers can create such positive relationships. Teacher-students relationships can be understood as the generalized interpersonal meaning students and teachers attach to their interactions with each other. However, the exact moment-to-moment interactions of teachers and students that add up to the more general conceptual level remain unknown. Dynamic systems theory (e.g., Thelen & Smith, 1994) can provide a framework for analysis of the relationship between these two levels in communication by connecting two separate time scales of development: a micro-social or moment-to-moment scale (i.e., teacher-students interaction) and a macro-social or outcome scale (i.e., the teacher-students relationship). The theory aims to understand the changing patterns of moment-to-moment interactions in relation to changes in outcome patterns. For example, Bronfenbrenner and Morris’s (1998) biocultural theory posits that the moment-to-moment time scale (teacher-students interaction) is the primary engine of development and outcomes (e.g., teacher-students relationships). Thus, moment-to-moment interactions may be regarded as building blocks of patterns and habits of interaction within a social system (Hollenstein, 2007). Self-stabilizing feedback is the mechanism by which moment-to-moment processes determine macro-level outcomes. In turn, macro-level factors feed back on and restrict moment-to-moment interactions, thus serving both as outcomes (of previous processes) and as constraints (for subsequent processes). In terms of the dynamic systems theory the challenge for future research is to learn
the type of moment-to-moment interactions that lead to profitable teacher-students relationships at the macro-social level.

Some outcomes in this domain have already been realized. In 1989, Créton, Wubbels, and Hooymayers (1989) reported findings regarding the relationship between undesirable teacher-students relationships and everyday teacher-students interactions. In a case study they found that teacher-students relationships that were low on both control and affiliation had been reinforced by such behaviours as overresponding aggressively or not at all to student disruptive behaviour. The sections to follow will elaborate on future challenges building on what already has been achieved.

**Measurement**

A prerequisite for progress in the research on teacher-students interactions is the ability to measure the interpersonal valence of teacher and student behaviour at the moment-to-moment level. Building on earlier work of Van Tartwijk, Brekelmans, Wubbels, Fisher, and Fraser (1998), Mainhard, Brekelmans, and Wubbels (2011a) developed coding schemes for observation of both teacher and student behaviour (Figure 7). Observers used videotaped lessons, and the interpersonal valence was coded in real-time following an event-sampling procedure. Each change in interpersonal valence of teacher or student behaviour was separately recorded. The coding process was consistently dyadic, with teacher and student behaviour each coded for valence. A specific combination of students

![Figure 7. Coding scheme for observation of teacher and class behaviour at the micro level of interactions.](image)
and teacher behaviour was considered an *interpersonal state* of the classroom social system. An example would be a teacher lecturing and the students listening. The class interpersonal standing was conceived as a generalized aggregate of all students in a class. Acceptable inter-rater reliability in terms of concordance and Cohen’s kappa was established (Mainhard, et al., 2011a).

### Non-verbal Behaviour and Relationships

Van Tartwijk et al. (1998) investigated associations between judges’ perceptions of the interpersonal aspect of teachers’ messages (micro level) and the students’ perceptions of the teacher-students relationship (macro level). Strong significant correlations were established between students’ and judges’ control perceptions during lecturing whereas no significant correlations were found during individual seatwork. These findings suggest that the teacher control behaviour during whole class teaching (which normally takes place in front of the class) is more important for the development of the teacher-students relationship than during seatwork.

![Figure 8. Combinations of behaviour with a relatively high (left) and low (right) control perception. In the left position the teacher is relatively far from the student, with his or her head in upright position, scanning and talking extensively in a low voice. In the right position the teacher is close to the students with head down so that his/her facial expression cannot be seen and the message content cannot be heard.](image)

Given these relationships between the interpersonal meaning of teacher behaviour at the micro level and the teacher-students relationship at the macro level, it is important to examine specific features of teacher behaviour that are systematically related to the interpersonal meaning at the message level. Van Tartwijk (1993) described strong relationships between teachers’ non-verbal behaviour of the teacher and students’ perceptions of the interpersonal valence of the teacher’s messages. The latter were measured by observers as proxies whose ratings correlated significantly with student scores (Van Tartwijk et al., 1998). Five channels of behaviour were investigated: space (the teacher’s use of the space in the classroom); body (position and movement of the trunk, the arms and the head); face (various expressions), visual behaviour (duration of the teacher looking at the students), and voice (the non-content aspects of speech). All channels explained variance in the perceived degree of Control at the message level, with voice being the most important channel. Only Face and Voice significantly explained the
Affiliation variance, with facial expression most strongly related. Figure 8 presents a summary of Control behaviours across all channels. It describes behaviours that occurred together often and were linked with high control perceptions (left) and low score control perceptions (right). For example, teachers who continuously look at students and speak loud and emphatically generally were perceived as strong in Control by students.

Interactions in Different Classes

In Mainhard et al. (2011a) we reported on a first study in which the moment-to-moment interactions of two teachers – one with favourable ratings (a Tolerant and Authoritative profile, figures 3 and 4) and another with unfavourable ratings (a Struggling profile, figures 3 and 4) were coded during three consecutive lessons for each. Results were displayed with State Space Grids (Lewis, Lamey, & Douglas, 1999), one for Control and one for Affiliation.

Figure 9 presents an example of a State Space Grid representing a few minutes of teacher-students interaction for the Control dimension. Twenty-five combinations of teacher and student scores are possible. Each time the combination of the interpersonal valence of teacher or student behaviour changes, a new point is plotted. The recorded interaction in the example starts in cell 42 (xy convention), and represents moderately high teacher control and intermittently dependent class behaviour. The observation was made during a lecture in which students listened quietly for a while and then began to chat with each other. Since their interaction did not interfere with the teacher’s presentation the class behaviour was rated as less dependent than the initial 42 rating and thus the Control rating changed to cell 43. The teacher then asked students to work on an assignment, and though they began the task they were not silent. At this point the teacher began to grade papers at his desk, and his Control behaviour was represented by cell 33 (i.e., both teacher and class are assigned a moderate degree of interpersonal Control), and so on. Next, when students started to chat and engage in more off-task behaviour the teacher rose and walked through the classroom. He again asked the students work on their assignments, but without a great deal of success. Thus, the students’ behaviour became more independent, while the teacher became more dependent on the class (cell 24). Finally, the teacher returned to the front of the room and loudly demanded that students stop talking and start working again. This interaction is once again represented by cell 43. In Figure 9 the resulting trajectory of interpersonal interaction is shown as it evolves over time.

The concept of complementarity is helpful in interpreting the results. Complementarity describes the behaviour in interactions that most probably invites specific reactions (De Jong, Van Tartwijk, Veldman, Verloop, & Wubbels, 2010). Research on human interactions has shown that Affiliation behaviour most probably invites similar responses. For example, friendly behaviour triggers a friendly reaction, and angry behaviour evokes anger (Tracey, 1994, 2004).
Behaviour on the Control dimension most probably invites contrasting responses: dominant behaviour, for instance, might invite a submissive reaction, and submissive behaviour can lead the recipient to try and take Control (Dryer & Horowitz, 1997). For example, a person might be talking (high Control), while the companion responds by listening (low Control). Sequences of communication are called complementary if they proceed according to these patterns. Complementarity is theorized to be the most probabilistic pattern, but other responses may occur (Estroff & Nowicki, 1992; Markey, Funder, & Ozer, 2003; Tiedens & Fragale, 2003; Tiedens & Jimenez, 2003; Tracey, 1994, 2004, 2005). Given these general trends it is interesting to analyse the degree to which the State Space Grids in our study demonstrate complementary interactions between teacher and students. Figure 9 includes three of the five combinations that represent complementarity.

Figure 10 presents the State Space Grids for Control and Affiliation for three consecutive lessons of the Struggling and Tolerant and Authoritative teacher. The grids for Control are similar in that the most frequent combination of teacher and student control can be seen in cell 42 which represents a complementary interaction of medium high teacher and low student control. A corresponding classroom situation is an orderly, teacher-guided discussion, where students raise their hands and wait their turns to speak. However, the grids for control differ in
Figure 10. State space grids of teacher-students interaction for Control and Affiliation for three lessons for a Struggling teacher (unfavourable teacher-students relationships) and a Tolerant and Authoritative teacher (favourable teacher-students relationships). Bold lines represent complimentary interpersonal interactions.

The stability of the interactions: the Struggling classroom has a greater variety of interactions (as indicated by a larger number of cells) and does so more frequently than the Tolerant and Authoritative classroom. These cells deviate from complementary interaction in that they represent relatively more student control. The second most frequently occurring interaction for the Struggling teacher is cell 34. In this instance the teacher might be lecturing but is often interrupted by students, resulting in a disorderly atmosphere.

There is a greater difference in the Affiliation grids for the two teachers than in the Control grids. Again there is more variation for the Struggling teacher, but in addition the most frequently occurring type of interaction for Affiliation differs between the two classrooms. For the Struggling teacher, communication is mainly
found in cell 33, which indicates complementarity in moderate Affiliation for both teacher and students. For example, the teacher might unenthusiastically present a homework assignment and then ask students to provide the answers. Students might cooperate but do not contribute voluntarily or spontaneously. For the Tolerant and Authoritative teacher, the most frequent interaction does not indicate complete complementarity, with medium high teacher Affiliation and moderate student affiliation.

The results initially indicate the range of communication in classes with more and less positive teacher-students relationships. A salient similarity between the two classrooms was that in both settings there was a higher Control valence for the teacher than for students (complementarity), and mutually positive Affiliation behaviours were most frequently observed. This might reflect the commonly-assumed social relationship in class in which a teacher exercises legitimate power and students are receptive and civil. Though the most frequent interactions in both classrooms were similar in terms of Control, in the more favourable Tolerant and Authoritative classroom these patterns were more stable. In the more positive classroom, Affiliation behaviours (ex: Friendly) occurred more frequently than in the less favourable setting. Strikingly, these interactions were not complementary: the students’ affiliation towards the teacher was lower than would be expected based on the principle of complementarity. While the most frequently occurring interactions were comparable in the two classrooms, the differences at the start of the school year were especially apparent in terms of stability – especially in deviations of this most frequently occurring interaction and the number, duration, and kind of episodes. The Struggling teacher paid more and longer attention to calls-outs and disruptions, and displayed both very strict (i.e., high Control) and moderately low Control behaviours. At times the Struggling teacher behaved with hostility towards the students (i.e., very low Affiliation). These types of teacher behaviours did not occur in the favourable classroom, where the communication was characterized by high teacher Affiliation indicated by friendliness from both teacher and class. These types of interactions did not occur in the less favourable classroom.

**Coercive and Supportive Behaviour and Teacher-Students Relationship**

A final study on the link between teacher-students relationships and moment-to-moment interactions employed students’ perceptions of coercive and supportive teacher behaviour in one lesson. The students’ views were gathered in 10 consecutive lessons of 48 teachers (Mainhard, Brekelmans & Wubbels, 2011b). Through multiple administrations of short versions of the QTI that assured that students did not have to answer the same questionnaire more often than once every three weeks, data were gathered on both teacher-students relationships and the occurrence of supportive and coercive incidents (the Teacher Behaviour Observation Checklist). For the latter instrument, an example of a coercive incident item is “In this lesson the teacher yelled at us”, and an example of a supportive incident is “In this lesson the teacher said we were doing well”. The student
observations were very reliable and showed sufficient agreement between students of the same class. Supportive and coercive-behaviour-incident scores were negatively correlated (−.44; p < .01).

It appeared that coercive teacher behaviour incidents (e.g., using sarcasm, yelling at students, or punishing students during a classroom lesson) were associated with lower teacher Affiliation, both during the same lesson and in a lesson a week later. Thus, using coercive behaviour immediately disrupted the relationship between teacher and class, and unfortunately the effect remained for a week. However, if no new additional coercive behaviour occurred in the subsequent two weeks after the incident, the affiliation level was re-established.

There was not a straightforward link between coercive behaviour and teacher Control in the teacher-students relationship. The use of coercive behaviour in one lesson was associated with somewhat more Control in class, but acting coercively in two consecutive lessons appeared to diminish Control. This finding is in contrast to more general theories on interpersonal power (French & Raven, 1959; Schrodt et al., 2008) which assume that coercive behaviour strengthens interpersonal influence. It is, however, in agreement with some studies which show that coercive strategies are associated with more student misbehaviour (Lewis, Romi, Xing, & Katz, 2005; Miller, Ferguson, & Byrne, 2000). This result might be unpleasant for teachers, because it seems to highlight the unproductiveness of using coercion to establish greater control, whereas from the general theory on interpersonal power it is reasonable to expect positive results from coercion on Control. Although coercion seemed to work to some degree within a single lesson, teacher control seemed to decline in the long run. Further, coercive behaviour might also be viewed as unproductive given its effect on the Affiliation dimension. Teachers who engage in coercive behaviour may understand that this is not beneficial to their affiliation with students. However, these teachers may deliberately sacrifice affiliation in the belief that it will ultimately be re-established or be replaced by greater control. Disciplinary actions may be necessary at times, even though it might ruin the positive classroom atmosphere.

Teachers who exhibited supportive behaviour frequently were perceived by students as demonstrating greater Affiliation, an effect that was repeated in two lessons that spanned a week. Nonetheless, the effect faded after two weeks. Finally, frequent supportive behaviour was not significantly associated with teacher Control.

Overall, coercive and supportive teacher behaviour related more strongly to student perceptions of a teacher’s affiliation than to control. In both cases (coercive and supportive) the effects did not last longer than one week. In addition, for supportive behavioural incidents the relationship improved and for coercive episodes it declined. The fact that teacher behaviour was less associated with teacher control than affiliation is in agreement with earlier findings. There are some indications that differences between classrooms of the same teacher are greater in Affiliation than Control (Wubbels et al., 2006). This may demonstrate that the Affiliation dimension is subject to more situational (i.e., classroom)
influences than Control. It may also point to the need to account for additional situational factors. For example, yelling at students may be associated with more Control if students agree that they misbehaved, whereas if students disagree it might have the opposite effect.

CONCLUSION

Summary

The main messages of this chapter have been the need to focus on the QTI dimensions rather than the scales, and consideration of the model as circumplex in nature. We therefore propose a new name for the model: Teacher Interpersonal Circle (TIC). In addition we have offered some ideas to improve the circle’s labels and alerted colleagues to the danger of straight translations of the QTI without contemplating unique language and cultural aspects. Such adaptations usually require several pilot rounds to acquire an understanding of the interpersonal meaning of words. From a strictly scientific point of view, the measurement of interpersonal relationships only requires a small number of items on the circle, and the original Dutch and US QTI versions were not very efficient. The 48-item Australian QTI (Wubbels, 1993) is an improvement in this respect, but unfortunately it is slightly less valid and reliable than the longer versions. For research purposes 8-16 well chosen items might be sufficient to map the teacher-students relationship. It is our experience, however, that teachers appreciate feedback on several scales regarding their relationships with students. Consequently, we are now developing 16-32 item versions of the QTI with eight scales distributed over the circle in which each scale would include 2-4. Thus, we hope to serve both practice and science, while using the time of respondents efficiently.

This chapter also offered initial results for what we believe to be the main challenge for future studies on the (causal) relationships between moment-to-moment interactions (the micro level) and the macro-level teacher-students relationship. Several studies (e.g., Lewis, 2001; Sava, 2002) had already shown the destructive effects of coercive teacher disciplinary actions. Our work highlights the way in which coercive and supportive behaviour associates with the teacher-students relationship and how these linkages appear across time. We can conclude that although consequences of teacher coercive actions do fade away, they nonetheless have negative effects when they repeatedly occur. Further, efforts to improve control through coercive actions do not seem effective.

In the two classes that featured high and low-quality teacher-students relationships, our work suggests that the most frequent interactions were similar in terms of Control. In the Tolerant and Authoritative classroom higher levels of Affiliation appeared in the favourable than in the less favourable setting. The favourable and less favourable classrooms differed at the start of the school year in the stability of and deviations from the most frequently occurring communications. The Struggling teacher paid more and longer attention to call-outs and disruptions,
behaved with greater hostility towards the students at times, and displayed both very strict and very lenient behaviour. These types of teacher behaviours did not occur in the favourable classroom.

**Implications**

We have advocated elsewhere that teachers should create classroom environments where students perceive high teacher Control and Affiliation in the teacher-students relationship (Wubbels et al., 2006). In addition, we have now proposed some new ideas about creating such an atmosphere through moment-to-moment interactions. When, as we expect, the differences we found between the teachers with favourable and less favourable teacher-students relationships become generalizable, our results will send a clear message to teachers: they should try to keep classroom interactions consistent, make as few disciplinary interventions as possible, and reduce the number and duration of interactions that deviate from more favourable types. Our research results support the recommendation that teachers should use small rather than intense corrections, behave as unaggressively as possible (Evertson & Weinstein, 2006), and apply increased intensity of disciplinary actions only for seriously disruptive student behaviour (Crétton et al., 1989).

For future research we suggest a greater focus on individual students – in terms of teacher behaviour and their perceptions. Until now, we have coded classroom interactions as a dyadic process between teacher and class. It may be argued that, especially on the level of moment-to-moment interaction, the teacher interacts not only with the whole class, but also with individual students. A fruitful avenue for future research might therefore be to focus in the teacher-class interaction on teacher contacts with individual students and/or specific groups of students. Some studies employing State Space Grids in other contexts have indeed chosen such an approach to study group level development from samples of individual interactions (c.f., Martin, Fabes, Hanish, & Hollenstein, 2005). It might also be informative to differentiate between teacher-whole class interaction and interaction with individual students. A related issue is the conceptualization of the teacher-students relationship as a class-level construct. We analysed the association between teacher behaviour and the teacher-students relationship, rather than studying links with individual student perceptions. A drawback of this strategy is that processes relating to individual as opposed to collective aspects of student perceptions cannot be studied. Especially when studying effects on student learning outcomes, individual aspects of student perceptions, in addition to collective aspects, may be essential.

This section has summarized the main points of the chapter, presented implications for practice and mentioned issues for future research. The chapter has tried to facilitate further research that is simultaneously scientifically more productive, yet still useful for practice: as the title suggests, it hopes to “make things better”.
LET'S MAKE THINGS BETTER

KEYWORDS
Teacher-students relationships, Interpersonal circumplex, Teacher-students interactions, Questionaire on Teacher Interactions.

NOTES

i The QTI was intended originally for use in Secondary Education and formed the basis of several new versions such as for Primary Education (e.g., Goh & Fraser, 1996), early primary education (Zijlstra, Wubbels, & Brekelmans, 2011), and for Higher Education teachers (e.g., Soerjaningsih, Fraser, & Alldridge, 2002), for supervisors of student teachers (Kremer-Hayon & Wubbels, 1993a), and one for teachers about school managers (the Questionaire on Principal Interaction, e.g., Kremer-Hayon & Wubbels, 1993b; Fisher & Cresswell, 1998). The instrument also formed the starting point for adaptations that are being used in post-compulsory education (Hockley & Harkin, 2000) and in supervision of doctoral students (Mainhard, Van der Rijst, Van Tartwijk, & Wubbels, 2009).

ii To this end the eight scores are represented as vectors in a two-dimensional space, each dividing a section of the model of interpersonal behaviour in two and with a length corresponding to the height of the scale score. We then compute the two coordinates of the resultant of these eight vectors. Dimension scores are computed as follows: Influence = 0.92DC + 0.38CD – 0.38CS – 0.92SC – 0.92SO – 0.38OS + 0.38OD + 0.92DO; Proximity = 0.38DC + 0.92CD + 0.92CS + 0.38SC – 0.38SO – 0.92OS – 0.92OD – 0.38DO.

iii This is often referred to as developmental outcome, but we avoid the term developmental because also at the micro-social level development occurs.

iv Interpersonal valence or standing refers to the meaning of the behaviour for the other party in the interaction.

v For the teacher, Affiliation ranged from level 1/very low (e.g., the teacher behaves hostile towards the students, is repulsive or uses sarcasm, the teacher is irritatated or angry) to level 5/very high (e.g., the teacher is very responsive towards the students needs, he or she is very friendly, praises students for good work, makes students feel at ease, grabs the students’ attention); Control ranged from level 1/very low (e.g., instead of guiding the general classroom process the teacher is forced to act in response to students call outs and interruptions, the teacher is uncertain or hardly intervening in what the students do) to level 5/very high (e.g., the teacher is strict or firmly leading the classroom processes). For students, Affiliation ranged from level 1/very low (e.g., students are hostile, quarrel with or make fun of the teacher, students are dissatisfied) to level 5/very high (e.g., students are enthusiastic, laugh, are grabbed by the classroom process in a positive way, or actively cooperate with the teacher); and Control ranged from level 1/very low (e.g., students obey the teacher, are submissive and hinge on the teacher in many ways, students are uncertain or anxious) to level 5/very high (e.g., students do what they want, show off –task behaviour in presence of the teacher, refuse to comply and ignore or violate rules the teacher had set, students ignore the teacher).

vi Observing a classroom group of students posited some specific challenges. An important issue was whether individual students or the group as a whole should be rated. Therefore, priority scores that followed two rules, were used to rate the valence of student behaviour: 1) whenever specific events occurred, for example, a call out or other interruption of the ongoing classroom process initiated by a specific student, or if the teacher interacted with a specific student, the interpersonal valence of the behaviour of this student was coded; and 2) the general tendency of the group was coded (e.g., students work quietly on an assignment, or actively participate in a classroom discussion). Note that the first rule had priority over the second rule.
REFERENCES


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