Chapter 80
Teacher–Students Relationships in the Classroom

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For both teacher education and professional development programs, information about teacher–students relationships and how interactions shape these relations is important. The way in which a teacher interacts with students is not only a predictor of student achievement, but also it is related to such factors as teacher job satisfaction and teacher burnout as Gabriel Tatar and Moshe Horenczyk (2003) contend. Appropriate teacher–students relationships are important to prevent discipline problems and to foster professional development. Rather than reviewing all the available studies, this chapter discusses typical studies to illustrate the methods used and the type of results found.

A communicative approach is used to analyse teacher–students relationships. We adopt the most comprehensive of three definitions of communicative behaviour. In the first definition, behaviour is called communication only if the same meaning is perceived by the sender and receiver. A second definition considers behaviour to be communicative whenever the sender consciously and purposefully intends to influence someone else. The third definition considers as communication every behaviour that someone displays in the presence of someone else. Adopting this definition, Paul Watzlawick, Janet Beavin and Don Jackson (1967) developed the systems approach to communication that assumes that one cannot not communicate when in the presence of someone else. Our rationale for choosing this perspective is that, whatever someone's intentions are, the other person in the communication will infer meaning from someone's behaviour. For example, if teachers ignore students' questions because they do not hear them, then students might infer that the teacher is too busy, thinks that the students are too dull to understand, or considers the questions to be impertinent. The message that students take from the teacher's inattention can be different from the teacher's intention, because there is no ultimately shared, agreed-upon system for attaching meaning.

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In the systems approach, two levels of extensiveness of interactions are distinguished. Short-term interactions are the exchanges of messages of a few seconds each that consist of one question, one assignment, one response, one gesture, etc. Theo Wubbels, Hans Créton and Anne Holvast (1988) assumed that, in interactions over time, redundancy and repeating patterns evolve. Then interactions on the second level, relatively stable interaction patterns, are seen. According to the systems approach, every form of communication has a content and a relational aspect. The content conveys information or description; the relational aspect carries instructions about how to interpret the content. In a class, the teacher and students relate in ways which are outside the subject matter (content). This chapter focuses on the relational aspect, while not forgetting that every behaviour has at the same time both content and relational meaning.

Gathering Data on Teacher–Students Relationships

Teacher–students relationships and interactions can be studied in several ways. To study short-term interactions, usually observations are employed either with hand or notebook computer scoring. Videotaping improves the quality of this type of data collection because interactions can be reviewed time and time again to get valid and reliable scores. Thus, observer perceptions of these interactions are gathered. For extended patterns over time, these instruments are not economical because they involve a lot of coding and observation time. Instead, other instruments, such as student and teacher questionnaires and interviews, often are used. These instruments map the participants' views of the interactions. It is important to keep in mind that, with these different methods, conceptually different variables are investigated.

Structured Observations

Observation of teacher-students communication in the classroom has a long and firm tradition. Following the development of one of the first instruments for education by Ned Flanders (1970), a plethora of instruments has been documented, such as those by Thomas Good and Jere Brophy (2007). A recent example is an instrument used by Tina Seidel and Manfred Prenzel (2006) in the Third International Mathematics and Science Study. These instruments record observer perceptions of ongoing behaviours of teacher and/or students within the classroom to analyse patterns in the communication. They usually are easy to handle, but extensive training is necessary. Scoring categories can include both verbal elements (question type, source of initiative) and non-verbal elements such as gestures and facial expression. Behaviours are coded using either an event or a time-sampling basis. In an early exemplar instrument, the Science Teaching Observation Schedule (STOS) developed by Maurice Galton and John Eggleston (1979), three main teacher talk categories are distinguished: teacher

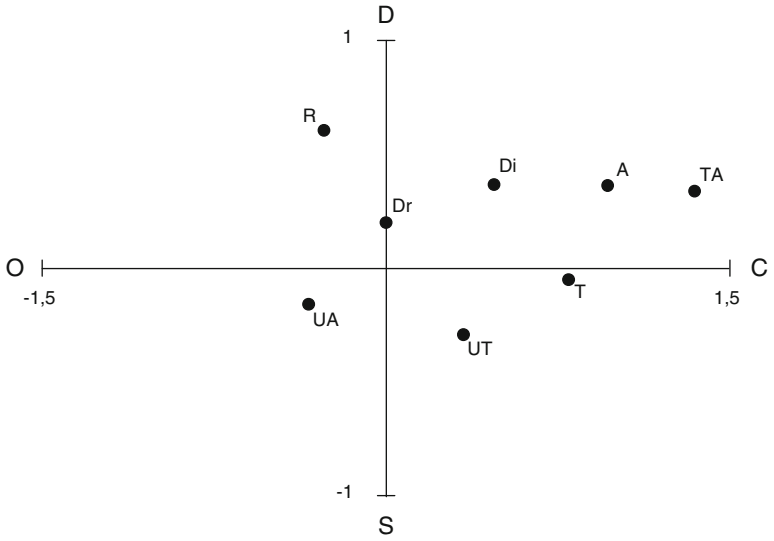

Fig. 80.1 Coordinate system of the Model for Interpersonal Teacher Behaviour and main points of the eight types of patterns of teacher–students relationships: (see section Teaching Styles). *A* authoritative, *Di* directive, *Dr* drudging, *T* tolerant, *R* repressive, *TA* tolerant/authoritative, *UA* uncertain/aggressive, *UT* uncertain/tolerant

asks questions (seven sub-categories including recalling facts); teacher makes statements (four sub-categories including one about problems); and teacher directs students to sources of information (four sub-categories designating the purpose, including one for seeking guidance on experimental procedures). There are two main categories for talk and activity initiated and/or maintained by students: students seek information or consult (four sub-categories designating the purpose, including one for making inferences); and students refer to teachers (four sub-categories designating the purpose, including one for seeking guidance on experimental procedures).

Another observation schedule is based on research on teacher–students relationships by Theo Wubbels et al. (2006). In this system, classroom interaction is analysed on the basis of two dimensions. The *proximity* dimension runs from Cooperation to Opposition and designates the degree of emotional closeness between teacher and students. The *influence* dimension runs from Dominance to Submission and indicates who is directing or controlling the communication and how often. For example, when a teacher is lecturing uninterrupted, his or her behaviour is graphed in the upper right part of the chart in Fig. 80.1. If the students listen in an interested way, this behaviour is shown in the lower right part of Fig. 80.1. The two-dimensional chart can be refined by drawing two extra lines as in Fig. 80.2. This figure (the Model for Interpersonal Teacher Behaviour) provides examples of eight categories of behaviours displayed by teachers: Leadership; Helpful/Friendly; Understanding; Student Responsibility/Freedom; Uncertain; Dissatisfied; Admonishing; and Strict behaviour. Instead of scoring behaviours in the eight categories, they also can be scored on two rating scales (Fig. 80.3).

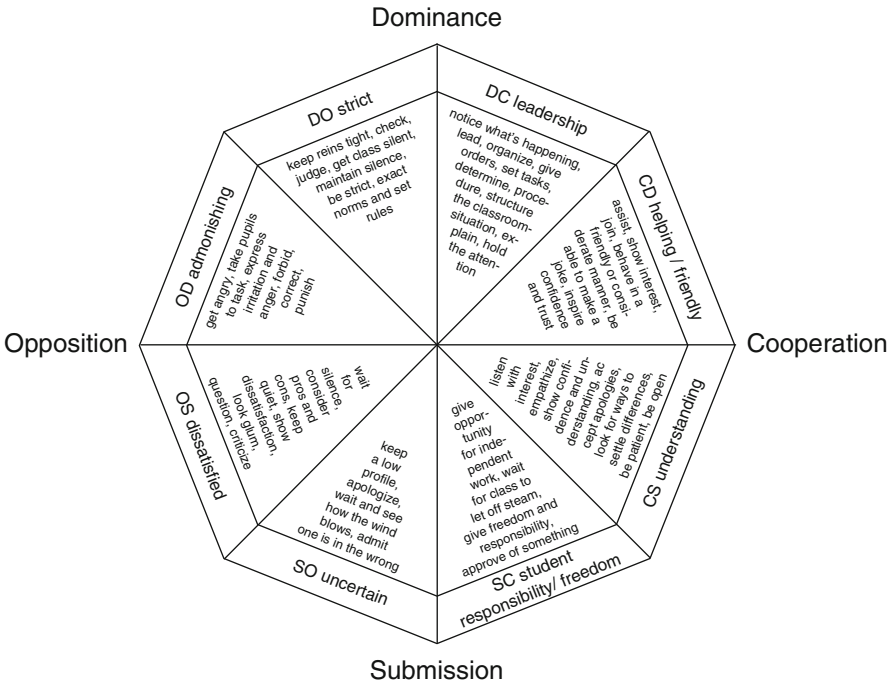

Fig. 80.2 Model for Interpersonal Teacher Behaviour

Dominance (D)		Submission (S)
The teacher determines the students' activities.	5--4--3--2--1	The students can determine their own activities.
Co-operation (C)	5--4--3--2--1	Opposition (O)
The teacher shows approval of the students and their behavior.		The teacher shows disapproval of the students and their behaviour.

Fig. 80.3 Rating scales for observation of students' perceptions

Qualitative Observations

Ethnographic (participant and non-participant) observations often are used to investigate the relational aspect of teacher-students interactions. The type of field notes taken depends on the research question. In the data analysis phase, these observations

can be categorised under several headings. Usually, after an initial non-structured phase, observations become more focused on a specific topic. An example of this approach is a study by Wendy Nielsen, Samson Nashon and David Anderson (2009) on students' meta-cognitive engagement in both out-of school and classroom settings, as they participated in an amusement park physics programme. Reflection journals, field notes arising from observations, and formal and informal interviews during post-visit learning activities provided the data corpus on the students' meta-cognitive engagement.

Student and Teacher Questionnaires

In research on classroom social climate, gathering participants' views has a strong tradition. The advantages of this procedure relative to observational measures, as described by Barry Fraser (2007), also hold for measuring teacher–students relationships. Scales that directly or more indirectly give information about teacher–students relationships are contained in the Learning Environment Inventory (LEI) (Goal direction, Formality and Disorganisation), the Classroom Environment Scale (CES) (Teacher Support, Order and Organisation, Task Orientation, Rule Clarity and Teacher Control), the Individualised Classroom Environment Questionnaire (ICEQ) (Participation, Personalisation, Independence) and the What Is Happening In this Class? (WIHIC) questionnaire (Teacher Support, Task Orientation, Involvement, Equity) (see Fraser 2007).

The Questionnaire on Teacher Interaction (QTI) was developed specifically to investigate teacher–students relationships at the pattern level. The QTI, based on the model for interpersonal teacher behaviour, is divided into eight scales which conform to the eight sectors of the model. It was originally developed in the Netherlands, and a 64-item American version was constructed in 1988. The original Dutch version consists of 77 items that are answered on a five-point Likert scale. To make the QTI more accessible to teachers, a short (48-item) version was developed with a hand-scoring procedure. The instrument exists in the following languages, among others: Dutch, English, French, German, Hebrew, Russian, Slovenian, Swedish, Norwegian, Finnish, Spanish, Mandarin Chinese, Singapore Chinese and Indonesian. The QTI was intended for use in secondary education and formed the basis of several new versions, such as a Malay version for primary education by Rowena Scott and Darrell Fisher (2004). Combining elements of the QTI and other communication aspects important for science learning, Hsiao-Ching She and Darrell Fisher (2002) developed the Teacher Communication Behaviour Questionnaire consisting of five scales: Challenging, Encouragement and Praise, Non-Verbal Support, Understanding and Friendly, and Controlling.

With the QTI, student perceptions about the relationship of the teacher with the students as a class, rather than relationships with individual students, have usually been investigated. Perry den Brok, Mieke Brekelmans and Theo Wubbels (2006) used a multi-level design to compare the structure of the traditional QTI and a form

developed to measure teachers' relations with individual students. They concluded that, in their relations with individual students, teachers on average were perceived to have more Influence and more Proximity than in their relationship with the class as a whole.

Robert Pianta (2001) developed an instrument that has been used primarily to gather data on teacher perceptions of the relationship with individual children – the Student–Teacher Relationship Scale (STRS). The STRS consists of 28 items rated on a five-point Likert-type scale and contains three sub-scales that measure Conflict, Closeness, and Dependency. The instrument has been widely used and is available in several languages.

Teacher and Student Interviews

Classroom environment questionnaires provide information about students' and teachers' perceptions of teacher–students relationships. In order to understand more fully participants' views, open-ended interviews are helpful because they give participants the opportunity to describe the relationships in their own words. In addition, they have been used in several studies to gather data about underlying beliefs, attitudes, cognitions, intentions, the history of the relationship, interpretations of differences between teachers' and students' perceptions, etc. Finally, interviews also are used as a source for developing questionnaire items.

Teacher–Students Relationships and Student Outcomes

Student outcomes and relations between teachers and their students have been analysed in several studies using typologies of patterns in teacher–students interaction: teaching styles. Non-verbal behaviour and instructional strategies play a role in the relation between teaching styles and student outcomes.

Teaching Styles

The most familiar typologies of teaching styles make the distinction between directive and non-directive communication styles introduced by Neville Bennet (1976). Briefly, open, non-directive teachers emphasise support, innovative instructional procedures and flexible rules. Other studies have extended these typologies to cover more refined categories for communication styles. For example, based on research with the Science Teaching Observation Schedule (STOS), Galton and Eggleston (1979) identified three communication styles in science education. *Problem solvers* are teachers who ask relatively many questions and emphasise problems, hypotheses

and experimental procedures. *Informers* are characterised by infrequent use of questions except those demanding recall and the application of facts and principles to problem solving. In the classroom of the third type (the *enquirers*), students initiate interactions more often than in the other classrooms, and they particularly seek information and guidance in designing experimental procedures and in inferring, formulating and testing hypotheses.

A typology of eight categories based on student QTI data from the Netherlands and the USA (see Wubbels et al. 2006) includes three categories that are perceived primarily in the CD quadrant (Fig. 80.1; the Directive, Authoritative and the Tolerant/Authoritative types). Two other types are also very close to this quadrant: the Drudging teacher's behaviour can be located exactly on the influence dimension just above the CO axis; and the Tolerant teacher's behaviour fits just below the proximity axis in the CS quadrant. The three types in the CD quadrant represent more than 50% of the teachers in any sample studied thus far. The three types of teachers in the CD quadrant all show about the same amount of influence. While each one is fairly dominant, they differ in the amount of proximity. The Directive teacher is least cooperative and the Tolerant/Authoritative teacher is most cooperative. The Drudging teacher is a little less dominant and much less cooperative than the other three types. The Tolerant teacher is about as cooperative as the Authoritative teacher, but far less dominant. The Uncertain/Aggressive and Uncertain/Tolerant profiles are most noteworthy for their low scores on the influence dimension. Both are seen as far more submissive than the other types. They differ strikingly from each other on the proximity dimension. The Uncertain/Tolerant teacher resembles the Directive teacher in cooperation, whereas the Uncertain/Aggressive teacher compares to the Repressive teacher in being highly oppositional. Finally, the Repressive teacher is the highest of all on the influence dimension. An Australian study on science teachers by Tony Rickards, Perry den Brok and Darrell Fisher (2005) by and large confirmed this typology. However, two additional types seemed to be present in the Australian context, labelled as Flexible and Cooperative-Supportive. The two new types were characterised by high amounts of helpful/friendly and understanding behaviours, and moderately high amounts of both leadership and student freedom behaviours. Thus, both of these types of teachers are able both to display leadership and to provide opportunities for students to have freedom, depending on the situation.

Teaching Styles and Student Outcomes

Now, how do these communication styles relate to student outcomes? Bennett (1976), in a classical study of teacher communication style and student progress, found that a formal teaching style, with emphasis on external motivation, no choice for students, structured teaching and seatwork with good teacher monitoring and frequent evaluation, was more effective than informal teaching characterised by choice for students, little emphasis on evaluation and control and integration of subjects. Osman Yildirim, Ahmet Acar, Susan Bull and Levent Sevinc (2008)

reported that a person-oriented leadership style, more so than a task-oriented style, was favourable for student achievement.

As a historical example of a study in science education using multiple outcome measures, we mention the research with the STOS (Galton and Eggleston 1979). It generally showed that the three teaching styles did not differ in student performance for below-average students. The enquirer style, more so than the other styles, seemed to help low-ability students to enjoy science. The informer style generally was the least effective, particularly for affective outcomes. The problem-solver style was most effective for high-ability students' performance in physics (recall, data manipulation and problem solving). A recent review of research by Tina Seidel and Richard Shavelson (2007) shows that such studies could have overestimated the influence of teaching on student learning.

Several studies of the associations between teacher–students relationships and student outcomes have been carried out with the QTI in science education classrooms. The results of these studies indicate medium to strong relations between student outcomes and student perceptions of teacher–students relationships. The relations are stronger for affective than for cognitive outcomes (Wubbels et al. 2006). The studies show that student perceptions of leadership, helpful/friendly and understanding behaviours are positively related to both student attitudes and student achievement. Uncertain, dissatisfied and admonishing behaviours are negatively related to student outcomes. The direction of relationships between teacher interpersonal behaviour and student outcomes described above confirm earlier findings about the effectiveness of direct instruction strategies summarised by Jere Brophy and Thomas Good (1986). For one aspect of teacher behaviour, the results extend prior research. The results emphasise that disorder, more than openness, seems to be associated with poor student outcomes. Therefore, it is essential that teachers using open teaching styles are able to control student input and procedures in class so as to avoid disorder. Differences in the results found in different countries highlight the need for more research into whether students respond differently to teacher behaviour in different cultures.

It should be kept in mind that the designs in the studies reviewed are correlational and that therefore they do not warrant causal inferences. Certain teacher behaviours can build a working climate in the class and promote student outcomes, whereas other behaviours could hinder student learning. However, it also is plausible that a certain class composition or student characteristics could help to build a positive classroom atmosphere and that this atmosphere gives teachers the possibility to, and even stimulates them to, show behaviours that are positively related to student outcomes. Probably the relationship will be bi-directional, with negative and positive circular processes between teacher behaviour, classroom atmosphere and student outcomes occurring.

Non-verbal Teacher Behaviour

Non-verbal behaviour plays an important role in the development of teacher–students relationships. For example, research by Monica Harris and Robert Rosenthal (2005) indicates that non-verbal aspects of behaviour are important for

their interpersonal significance and that these are also related to student outcomes, particularly affective outcomes. Non-verbal behaviours that imply visual contact with the class and emphatic verbal presence are important during whole-class teaching for the rating of teacher behaviour as relatively dominant. When teachers are relatively close to the students, or when they cannot see the students, their behaviour is rated as relatively submissive. The major aspect of non-verbal behaviour for explaining variance in the degree of proximity is the facial expression of the teacher. Further, when teachers raise their voices, this contributes to an oppositional rating of their behaviour.

Instructional Strategies

Because both observed instructional strategies and student perceptions of teacher–students relationships are related to student learning (e.g. Brophy and Good 1986), it is important to ask how much teacher interpersonal behaviour and instructional strategies overlap. The only quantitative measure for this overlap we know of is by Jack Levy, Rely Rodriguez and Theo Wubbels (1992), who found the amount of overlapping variance to be 31%. Statistically significant relations were found mainly for students' perceptions of the influence dimension and instructional strategies. The more the students perceived that teachers behave in dominant ways, the more the teachers displayed effective organisational techniques according to the observer. Further, a teacher who displayed uncertain behaviour, or allowed students a lot of freedom, or often got angry, was not seen by observers to be clear in terms of directions, skill explanation or organisation. The results support the contention that as teachers communicate uncertainty, anger, impatience and dissatisfaction, they display fewer instructional strategies associated with effectiveness.

Correlates of Teacher–Students Relationships

Several variables can be thought to influence the way in which teachers communicate with their students. Most associations with teacher background variables appear to be weak. We will not discuss such weak associations, but focus on variables with stronger associations or variables of potential interest in future research.

Teacher Age and Experience

Throughout their careers, teachers often experience periods of professional growth and decline as described vividly by Christopher Day and his colleagues (2006). These peaks and valleys can affect teacher communication style. Both *experience and age* indeed are important to teacher communication style. Very few studies

using other than self-reports are available on teaching careers. An extensive study with the QTI by Mieke Brekelmans, Theo Wubbels and Jan van Tartwijk (2005) indicates that, according to students, changes occur in interpersonal behaviour during the professional career, mainly in behaviour on the influence dimension. This behaviour intensifies during the first 6 years of teaching and stabilises after this point. On the proximity dimension, behaviour basically remains consistent throughout the entire teaching career, but with a slight tendency to weaken after 10 years. The results suggest that teachers with about 6–10 years of experience have the best relationships with their students in terms of promoting student achievement and positive attitudes.

A recent study by Tim Mainhard, Theo Wubbels, Mieke Brekelmans and Perry den Brok (2009) sought to identify the development of teacher–students relationship over a much shorter time span: the first months of the school year. On average, there was a small but persistent decline on the influence and proximity dimensions (i.e. in the quality of the relationship). Thus experience during a school year does not seem to improve teacher–student relationships.

Teacher Cognition

Teacher cognition is often considered an important factor in teacher–students relationships. Teachers' sense of self-efficacy, for example, has generally been found to be a correlate of the quality of teacher–students relationships. The more positively teachers think about their potential to influence student outcomes, the more they achieve a positive classroom atmosphere in their teaching. Similarly, the more teachers think they are able to solve problems in their teaching and the better they think that they can associate with other people, the more they create good student–teacher relationships. For anxiety, the relationship is the other way around as appears from a review by Patricia Jennings and Mark Greenberg (2009). Teachers with a high anxiety level behave in a dogmatic and authoritarian way and lack flexibility. This can produce hostile behaviour in students and make the classroom atmosphere tense and explosive. It is important to keep in mind that, for these kinds of relationships, causality can be in both directions and, therefore, it is most plausible that the relationships are reciprocal. That is, a good classroom atmosphere will give teachers a high regard of their competence to help students to learn and also this self-perception will help teachers to create good relationships.

In teachers' attributions of causes of student performance or problems in classrooms, two distinct patterns can influence their relationships with students. According to Penelope Peterson and Sharon Barger (1985), in the *ego-enhancing pattern*, teachers attribute student success to their own teaching behaviour and student failure to student characteristics such as low ability or low effort. In the other *counter-defensive pattern*, low student outcomes are explained, for example, by a teacher's failure to explain things clearly and students are given credit for their success. Clearly, these two attribution patterns can be the origin of different classroom

interaction patterns. In the second pattern more than in the first, the teacher will be inclined to help students and to explain difficult material again, to interact with students in order to explore their mistakes, etc.

Teacher thinking in classroom interaction processes can have a self-reinforcing function. The classical example is the Pygmalion effect described by Robert Rosenthal and Leonore Jacobson (1968). Although the original experiment has been criticised rightly and extensively according to Lee Jussim and Kent Harber (2005), sufficient evidence has been gathered about the (small) influence of teacher expectations on student outcomes. Differential teacher expectations for students go along with differential teacher treatment in terms of such things as praise, questioning, grouping of students and feedback, thus causing unequal opportunities for student learning. Teachers who have low expectations of some students, for example, tend to direct more lower-level questions to these students and more higher-order questions to students with high ability. This could stimulate high-ability students to develop more and more quickly than low-ability students, thus reinforcing teacher perceptions of students and making the prophecy become reality. These results are not by themselves a testimonial of poor teaching. It could be perfectly appropriate for teachers to teach in this way on the basis of valid expectations. In teaching, the validity of expectations, however, should be under continuous scrutiny.

Self-fulfilling prophecies have been studied primarily for teacher expectancies and student outcomes. They are also important in the process of creating a positive classroom climate. An example is the evolution of an undesirable and strongly dependent relationship between teacher and students (Wubbels et al. 1988). When teachers think that students cannot bear much responsibility, they might tend to give limited responsibility to students. For example, they could organise experiences rigidly and give students little opportunity for choice of subject and methods of working. Thus students have to rely on the teacher very much during their activities. This then can stimulate student dependent behaviour and teachers could encourage from students the very behaviour that they expect, thus creating a self-fulfilling prophecy.

Student Gender

Gail Jones and Jack Wheatley (1990) studied differences in teacher–students interactions for male and female students in secondary science classrooms. While they found no differences for several variables, such as the number of student-initiated questions and the number of abstract questions, they found that science teachers praise boys more than girls, put more questions to boys than to girls, and warn boys more often. Although such research has shown that teachers interact differently with boys and girls, Robyn Beaman, Kevin Wheldall and Coral Kempit (2006) contend that this could be more a matter of a small group of troublesome boys receiving extra teacher attention than a general pattern.

In addition to observational studies, research on student perceptions with the QTI, the TCBQ, and the Science Laboratory Environment Inventory has shown

consistently that girls perceive the learning environment more positively than boys (She and Fisher 2002). In particular, girls tend to score the behaviour of the same teacher more dominantly and cooperatively than boys do.

Setting

Some studies have investigated differences in teacher–students interactions in different settings in science education. For example, Seidel and Prenzel (2006) investigated interactions in physics lessons for different topics and classroom activities. Teacher–students interactions in these settings appeared to differ very little. Jan van Tartwijk et al. (1998) found that the contribution of teacher–students relationships to the social climate in the science classroom is greater for teacher's behaviour in whole-class settings than during group or laboratory work.

A review by Carol Weinstein (1979) highlighted the influence of physical characteristics of the classroom on teacher–students communication. In whole-class teaching, a short physical distance and eye contact are important for helping teachers to convey to students interest, support and involvement, which are important characteristics of effective teachers. A platform for the teacher to stand on is a physical barrier which can become a psychological barrier. The traditional physics classroom with a demonstration bench could hinder a good relationship and the way in which students sit can obstruct eye contact. It is important to arrange seating in such a way that as few students as possible are sitting behind each other and so that the teacher can move freely between the students.

School Environment

Using the School Level Environment Questionnaire (SLEQ), Darrell Fisher, Barry Fraser and Theo Wubbels (1993) investigated relations between teachers' perceptions of the school environment and teacher–students relationships. Work Pressure, participatory decision making and professional interest appeared to be (weak) negative predictors of student perceptions of the teachers' degree of influence on students and proximity to students. The weak relationship between the SLEQ and QTI scores indicates that a teacher's behaviour in class might have little to do with his/her perception of the school environment. As a result, it seems that teachers believe they have considerable freedom to shape their own classroom regardless of the school atmosphere.

Conclusion

The research reviewed in this chapter supports the importance of teacher–students relationships for creating a classroom atmosphere conducive for science learning. Affective variables seem to be important in a traditional classroom and even more

important in a 'constructivist' classroom, where emotion plays a more prominent role. The observation instruments and questionnaires mentioned in this chapter have proven to be helpful for research, as well as for giving teachers feedback about their behaviour. Based on the research reviewed in this chapter, the following recommendations for improving science education can be drawn:

1. In their communication with students, teachers should strive to establish relationships characterised by high degrees of leadership, helpful/friendly and understanding behaviours. In order to succeed, teachers' non-verbal behaviour in whole-class teaching should guarantee good visual contact (e.g. by scanning the class) and teachers should 'hold the floor' verbally. When applying open teaching styles, teachers should avoid the risk of disorderly climates.
2. Teachers can use several student questionnaires (general ones, as well as ones specifically for science education) to gather feedback about their relationships with students, as a basis for reflection and improvement of these relationships. It is important not to rely solely on teacher perceptions because usually the teacher's and students' perceptions differ widely.
3. To improve science teaching through staff development and in-service training programmes, it is more important to change teachers' behaviour and not just attitudes. Attitudes are only a weak predictor of behaviour.
4. Middle-aged teachers should be aware of potential detrimental effects on the classroom atmosphere of lower levels of cooperative teacher behaviour. Beginning science teachers should focus their attention on their leadership behaviour. A good beginning of the school year is essential. Teachers experiencing undesirable classroom situations should focus on their own behaviour as a means for improvement.
5. Teachers should self-analyse their attributions for the success and failure of students as an important means to be attentive to potential interaction patterns that emerge from self-fulfilling prophecies.

Although many issues around teacher–students relationships have been investigated, many others are still open for research. We mention two avenues for future work. First, dynamic systems theories, as described by Esther Thelen and Linda Smith (1994), fits very well with our communicative systems approach and therefore might prove helpful for productively studying the way in which teachers develop positive relationships with their students. For teacher education, this is an important topic of study. Second, we would welcome work on teacher–students relationships in more innovative (e.g. computer-supported) learning environments. A lot of work has been done on student–peer relationships in computer- supported learning environments, but the role of the teacher in such environments has been paid too little attention.

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