

Chapter 22

Effective Interpersonal Relationships: On the Association Between Teacher Agency and Communion with Student Outcomes



Perry den Brok, Jan van Tartwijk, and Tim Mainhard

Abstract This chapter reviews research that has investigated the link between teacher-student interpersonal relationships and student outcomes. First, prior research reviews investigating the relationship between these two sets of variables is discussed. Such research overwhelmingly shows the importance of warm and supportive relationships for both cognitive and affective outcomes, with affective outcomes also acting as an intermediary between the other two variables. Next, interpersonal theory is discussed, that conceptualizes interpersonal relationships from a systems perspective and distinguishes between the communion and agency dimensions of relationships. At the end of the contribution, research is reviewed that has used interpersonal theory as its leading framework and that has mapped students' perceptions of interpersonal relationships with one particular instrument, the Questionnaire on Teacher Interaction (QTI). Findings show that both interpersonal dimensions are positively related to cognitive as well as affective outcomes, either jointly or separately, with agency being more strongly related to cognitive outcomes and communion being more strongly related to affective outcomes.

Keywords Teacher-student interpersonal relationships · Agency · Communion · Student outcomes · Questionnaire on teacher interaction (QTI)

P. den Brok (✉)

Education and Learning Sciences, Wageningen University and Research,
Wageningen, The Netherlands

e-mail: perry.denbrok@wur.nl

J. van Tartwijk

Graduate School for Teaching, Utrecht University, Utrecht, The Netherlands

T. Mainhard

Institute of Education and Child Studies, Leiden University, Leiden, The Netherlands

© The Author(s) 2023

R. Maulana et al. (eds.), *Effective Teaching Around the World*,
https://doi.org/10.1007/978-3-031-31678-4_22

1 Introduction

A vast amount of research has shown that the learning environment directly and indirectly influences students' learning and learning outcomes (Fraser, 2014). As part of the learning environment, the teacher is one of the most important factors in determining students' learning processes (Hattie, 2009). Teachers influence students in several ways, such as via providing assignments and homework, assessment, contact with parents and other teachers, and by providing instructional, emotional, and other support. Through their teaching, teachers seem to affect students' time on task (Fraser et al., 1987), emotional security (Thijs & Koomen, 2008), beliefs in their learning potential (Muijs et al., 2014), motivation and engagement (Martin & Dawson, 2009), and peer interaction (Hughes et al., 2001).

The present chapter focuses on a specific aspect of teaching in the classroom: teacher-student relationships. According to Roorda et al. (2017; also see Cornelius-White, 2007) a beneficial teacher-student relationship stimulates learning and helps to create a safe, positive classroom climate. Negative teacher-student relationships, on the other hand, may lead to feelings of insecurity and may make it harder for students to meet the demands of the school context. Also, interpersonal relationships are seen as one of the main factors in classroom management, and as such conditional to other elements in teaching and the learning environment (Evertson & Weinstein, 2006; Fraser et al., 1987; van der Lans et al., 2020).

In this contribution, we discuss teacher-student communication in terms of interpersonal theory. Interpersonal theory conceptualizes this communication in terms of two dimensions: communion or interpersonal warmth; and agency or influence (Wubbels et al., 2006). Agency refers to the degree to which someone, in this case the teacher, is perceived as dominant in or control in an interpersonal interaction; communion refers to the degree to which someone is perceived as empathic, social, harmonious or friendly (Gurtman, 2009).

The aim of the narrative review in this chapter is to investigate (1) if and to what degree both interpersonal dimensions are related to (cognitive and affective) student outcomes, and (2) to see to what degree these associations can be found in different countries and contexts across the world. In doing so, this review adds to existing reviews in several ways.

First, most of the existing research investigating links between interpersonal relationships and student outcomes focuses on just one of the two relational dimensions, such as research departing from frameworks such as self-determination (Ryan & Deci, 2000), approach-avoidance theory (Witt et al., 2004), engagement theory (Roorda et al., 2011) or student-centered relational theory (Cornelius-White, 2007), most of which focus on the communion dimension (see also Sect. 2). While there is a large number of studies in the domain of classroom management investigating the role of rules, behavior interventions by teachers or teacher punishment (e.g. Evertson & Weinstein, 2006), these studies do not relate such aspects of teaching to one (or both) of the potentially underlying interpersonal dimensions and as such research

on the influence or agency dimension in relation to student outcomes is limited (see Sect. 2).

Second, the present review uses a set of studies that all depart from the same theoretical framework (the interpersonal circumplex; Leary, 1957), focus on student perceptions of the relationship rather than a variety of methods also including observations and teacher perceptions, and use the same instrument to map these perceptions, namely the Questionnaire on Teacher Interaction (Wubbels et al., 2006; see also Sect. 3). This enhances the comparability and interpretation of the various studies discussed.

Third, as communication and perceptions are influenced by contextual and cultural factors such as values and beliefs with respect to for example individualism versus collectivism or attitudes towards leadership (den Brok & van Tartwijk, 2015), it is interesting to see whether students in different countries have different perceptions of the interpersonal relationships with their teachers and whether these perceptions affect student outcomes to the same degree.

2 General Evidence for the Association Between Teacher-Student Relationships and Student Outcomes

Jeffrey Cornelius-White (2007) conducted a meta-analysis on studies investigating the link between learner-centred teacher-student relationships and student outcomes. He defined such relationships as ‘empathic (understanding), unconditional positive regard (warm), genuine (self-awareness), non-directive (student-initiated and student-regulated) and encouraging’ (p. 113). His synthesis included 119 studies from 1948 to 2004 and covered primary, secondary and higher education. He found an overall average (corrected) correlation of .39 between such positive teacher-student relationships and student outcomes. He also found a slightly higher correlation with affective outcomes than with cognitive outcomes ($r = .35$ vs. $r = .31$). Moreover, highest correlations were found in studies using observational methods ($r = .40$), followed by studies using student perceptions ($r = .33$) and studies using a composite of different methods (.27). Studies using teacher perceptions produced the lowest correlations ($r = .17$).

Witt et al. (2004) reported a meta-analysis on studies investigating the link between teacher immediacy (the degree to which people approach each other based on similar cues of non-verbal and verbal behaviour) and student learning. They ground the ‘immediacy principle’ in the approach-avoidance theory that was developed in research on nonverbal behavior, suggesting that “people approach what they like and avoid what they don’t like” (Mehrabian, 1981, p. 22). Witt et al.’s meta-analysis included 93 studies from 1979 to 2001 investigating links between verbal and non-verbal immediacy on the one hand and cognitive (as measured via achievement tests), affective (as measured via motivation surveys) outcomes and self-perceived learning behaviour on the other. Their meta-analyses included mainly

studies conducted in higher education contexts, although a small number from other contexts was included as well. They found relatively high average correlations with affective outcomes or self-perceived learning ($r = .49$ to $r = .51$) but a markedly lower average correlation for cognitive learning outcomes ($r = .11$). Moreover, they found a higher average correlation for studies using perception scores via questionnaires ($r = .54$), than for studies using an experimental or observational design ($r = .31$).

Roorda et al. (2011) conducted a meta-analytic review to investigate the associations between positive and negative teacher–student relationships and students’ school engagement and achievement. Results were based on 99 studies from preschool to high school. Overall, medium to large associations were found for positive teacher–students relationships (e.g., closeness, involvement, relatedness, emotional support, warmth, and acceptance) with engagement, whereas small to medium associations were found with cognitive outcomes. Overall, the effects of negative relationships (e.g., conflict, rejection, role strain, verbal abuse, and relational negativity) were stronger in primary than in secondary education. In a follow-up meta-analysis, Roorda and colleagues (2017) investigated whether engagement acted as mediator in the association between teacher–student relationships and students’ cognitive outcomes. A total of 189 studies were included from preschool to high school. Meta-analytic structural equation modelling showed that both positive and negative relationships with achievement were partially mediated by student engagement.

Thus, overall, these review studies suggested that warm and caring relationships of teachers have an effect on both students’ cognitive and affective outcomes. The effects seem to be slightly stronger for affective outcomes than for cognitive outcomes – with the former acting as mediator. Interestingly, the reviews also seem to indicate that studies that have used students’ perceptions of teacher–student relationships find equally strong, if not stronger associations with student outcomes, than studies using other approaches to map teacher–student relationships. As such, the review in the present study, focusing on student perceptions of the teacher–relationship, can be considered relevant, as student perceptions are typically relatively easy to collect, reliable and valid (Fraser, 2014).

Interestingly, only a few review studies could be found reporting on concepts related to the teacher authority or interpersonal agency dimension and its potential relation to student outcomes, and evidence from these studies is less decisive than for the communion dimension.

Judith Pace and Anette Hemmings (2007) provided an overview of theoretical approaches to classroom authority – which can be seen as conceptually related to the agency dimension. They concluded that authority plays an important role in student compliance, student behaviour and student learning.

Schrodt et al. (2008) provided an overview of research investigating links between teachers’ use of power in the classroom and student outcomes. Similar to the conceptualisation in interpersonal theory, they regard power as ‘social influence’ in the classroom and distinguish it from teacher behaviour aimed at promoting interpersonal ties with students in the classroom. They reported that research

suggested that pro-social forms of power, (e.g. power based on expertise, support and rewards) rather than other types of power are positively associated with student ratings of their teachers, student behaviour and student outcomes.

Woolfolk Hoy and Weinstein (2006) reviewed research on teacher and student perceptions of teacher classroom management and concluded that a host of studies suggest that warm and demanding teachers succeed best in stimulating their classes to high achievement and cognitive outcomes. They argue that demanding or authoritative behaviour is important for student outcomes, yet in combination with warmth or cooperative behaviour.

3 Interpersonal Theory as Framework for Teacher-Student Relationships

3.1 Interpersonal Theory and Its Assumptions

In the remainder of this chapter, interpersonal theory will be the central focus to discuss associations between teacher-student relationships and student outcomes. Interpersonal theory highlights the importance of warmth and agency in teacher-student relationships and research has indicated the conditional nature of relationships on other processes in the classroom (Zijlstra et al., 2013). Many classroom studies based on Interpersonal theory, focused on teacher-student relationships as assessed by students' generalized perceptions of teachers' interpersonal classroom behaviours rather than focussing on dyadic relationships between a teacher and a single student.

A key assumption in interpersonal theory is that people mutually influence each other's behaviour and perceptions thereof (Strack & Horowitz, 2011). Student perceptions of their teachers' interpersonal style are the data source in the studies reviewed in the present chapter, which can be regarded as the generalized interpersonal meanings that students attach to their interactions with teachers, which are indicative of the perception of the relationship with their teacher (cf. Wubbels et al., 2006, 2014). These perceptions of the relationships originate in moment-to-moment verbal and nonverbal interactions (Granic & Hollenstein, 2003; van Tartwijk, 1993; Watzlawick et al., 1967); however, these moment-to-moment interactions are not the focus of the present review. Since both students and the teacher mutually influence each other, searching for causes of either healthy or problematic communication by looking at only one of these two sides is usually not productive (e.g., Watzlawick et al., 1967; Wubbels et al., 1988).

Another important assumption within this theory is that all behaviours of people, or perceptions thereof, can be described with two dimensions that together form a circumplex structure (Sadler et al., 2011): agency and communion (see Fig. 22.1). As indicated earlier, agency refers to the degree the teacher is perceived as dominant in or control; communion refers to the degree to which the teacher is perceived as

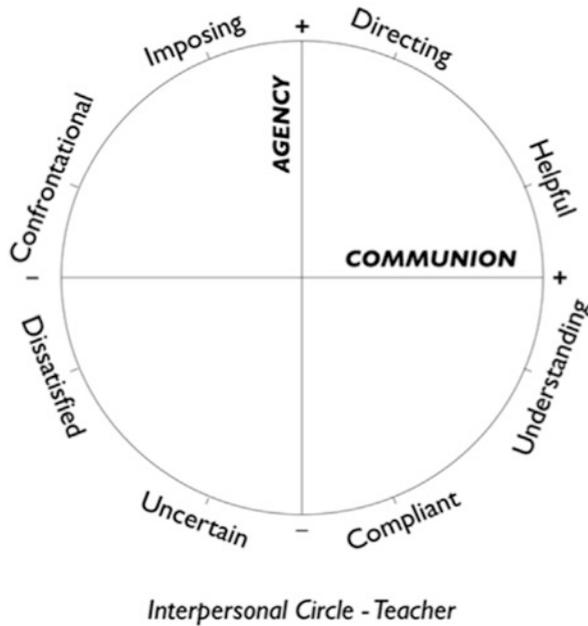


Fig. 22.1 The model for interpersonal teacher behavior (or teacher interpersonal circle). (Pennings et al., 2018)

empathic, social, harmonious or friendly (Gurtman, 2009). The agency dimension has also been referred to as the influence, control or power dimension of interpersonal relationships and the communion dimension as the proximity, warmth or affiliation dimension (Wubbels et al., 2012). Research on relationships and interactions between people in a variety of fields such as psychology, sociology, communication and even evolutionary biology has suggested that both of the two dimensions are at the same time necessary and sufficient to describe and analyse interpersonal relationships (Gaines et al., 1997; Leary, 1957; Lonner, 1980).

3.2 The Model of the Teacher Interpersonal Circle and Its Measurement

Within this chapter, we focus on studies investigating teacher-student relationships using the model of the Teacher Interpersonal Circle (Pennings et al., 2018). This model is an adaptation of more general models used in interpersonal theory (see also Leary, 1957) to the teacher-class relationship. It describes the teacher student relationship based on the agency and communion dimensions with eight interpersonal adjectives that represent various combinations of agency and communion

(see Fig. 22.1). Each adjective combines both dimensions and displays different degrees of agency and communion; for example, ‘directing’ teacher behaviour can be characterized as high on agency and moderate on communion, while ‘helpful’ behaviour is moderate on agency but high in terms of agency.

Studies investigating teacher-student interpersonal relationships have often focused on students’ perceptions of this behaviour and have measured these with the Questionnaire on Teacher Interaction (QTI; Wubbels et al., 2006). The QTI has eight scales corresponding with eight adjectives positioned around the interpersonal circle. Scales contain 3 to 12 items, depending on the version of the questionnaire used. There are versions of the QTI for different forms and types of education, such as primary, secondary and higher education, but also online education and supervisor-student interactions (Wubbels et al., 2014). It is a widely used instrument to measure perceptions of the teacher-student relationship. It has been used in more than 30 countries (Wubbels et al., 2006) and shown high construct validity and reliability (e.g., den Brok et al., 2006a). It also appears to be valid for measuring students’ perceptions of their teachers in various cultures (e.g., den Brok, et al., 2006b; den Brok & van Tartwijk, 2015).

While studies have shown that teacher-student interpersonal behaviours in the classroom can and do occur across the full interpersonal circumplex, healthy teacher-student interpersonal relationships have often been associated with high amounts of both teacher agency and communion. Teachers perceived by their classes as high on both agency and communion often have a relatively high sense of efficacy, a smaller chance for burnout, relatively high motivated students in their class, and are able to create learning environments that are both pleasant and safe, as well as varied and rich for learning (Wubbels et al., 2006). Interestingly, there are differences between teachers and students in associations between the two interpersonal dimensions and teacher versus student outcomes. For example, while for teacher well-being and positive emotions teacher agency is more predictive, for student outcomes teacher communion is more predictive (Donker et al., 2021). In the remainder of this chapter we zoom into the associations between teacher interpersonal agency and communion and student outcomes.

4 Teacher Agency, Communion and Student Outcomes

In this section we first discuss studies that have used the QTI and investigated associations with cognitive outcomes, such as achievement tests or report card grades. Subsequently, we discuss studies that have used the QTI and related teacher-student interpersonal behaviour to affective outcomes, such as subject-related attitudes and autonomous or intrinsic motivation. In doing so, we also indicate if covariates that were included in studies, such as prior outcomes, student characteristics or other context or learning environment characteristics.

4.1 *Student Achievement*

4.1.1 **Studies Using Dimensions of Interpersonal Relationships**

Studies using the QTI have been conducted in a variety of countries, ranging from Europe, Australia and the USA, to India and the Far East. When investigating associations between the two interpersonal dimensions and student achievement, studies mostly found positive associations of achievement with perceptions of both teacher agency and communion (e.g., Brekelmans, 1989; Georgiou & Kyriakides, 2012; Zijlstra et al., 2013). These associations were usually moderate to small. Effects were smaller in studies using multilevel analysis of variance and correcting for effects of student and teacher characteristics, than in studies investigating only the effect of interpersonal behaviours and not accounting for the hierarchical structure of collected data.

Zijlstra et al. (2013) reported that agency was a slightly stronger predictor for achievement than was communion. After control for prior achievement, about 5% of the differences in mathematics achievement in their study could be accounted for by both interpersonal dimensions. Interestingly, whereas the effect of agency on achievement appeared stable across classes, a differential effect could be found for communion. However, this differential effect could not be explained by variables such as class size, gender distribution, average class ability, teacher experience or the number of days a teacher taught the class per week. As their study was conducted in primary education, they argued that a potential effect for the stable findings for agency might lie in the lower self-regulatory skills of students, thus needing more agency by teachers.

In a study by Brekelmans (1989) on students' perceptions their relationship with their physics teachers in secondary education, perceptions on both dimensions were related to cognitive outcomes. The higher a teacher was perceived on the agency and communion dimension, the higher the outcomes of students on a physics test. In her study, teacher agency was the most important variable at the class level.

4.1.2 **Studies Using Sectors of Interpersonal Relationships**

Other studies did not investigate the association with the dimensions underlying the model, but instead focused on the associations with each of the scales (cf. Fig. 22.1). Positive correlations or regression coefficients were found for the directing scale and cognitive student outcomes (Goh & Fraser, 1998; Henderson & Fisher, 2008). In a study in Greece, Charalambous and Kokkinos (2018) also found positive associations between the directing scale and achievement in language and mathematics, as well as between supporting, understanding and compliant scales and achievement. However, they also found a negative association between the imposing scale and achievement in both school subjects, suggesting that teacher agency does not

always lead to high cognitive outcomes and that in the Greek context, communion may be more decisive than agency.

Strong and positive relationships with cognitive outcomes have also been found for the communion dimension and high communion related scales such as helpful and understanding (Goh & Fraser, 1998; Henderson & Fisher, 2008; Evans, 1998; see also Charalampous & Kokkinos, 2018). The more teachers were perceived as high on communion, the higher students' scores on cognitive tests. However, relationships between communion and cognitive outcomes were not always straightforward. In some studies, it could only be proven that low communion, or scores on the dissatisfied and confrontational scales, were related to lower performance, but not that scores on the helpful and understanding scales were related to higher performance (Rawnsley, 1997). In other studies, the relationship between communion and cognitive outcomes was not linear but curvilinear (i.e. lower perceptions of communion went together with low outcomes, but intermediate and higher values with higher performance until a certain ceiling of optimal communion was been reached; den Brok, 2001).

4.1.3 Other Findings Related to Student Achievement

Some studies found that only one of the two dimensions was related to student achievement, either agency (den Brok et al., 2004; Sivan & Chan, 2013) or communion (Bacete et al., 2014; Gupta & Fisher, 2008). A study by Gupta and Fisher (2008) reported a negative association of agency with student outcomes, where other studies reported mainly positive associations.

If report card grades were used as outcome measures, relationships with interpersonal behaviour were inconclusive (Levy et al., 1992; Telli et al., 2007). No relationship between student perceptions of communion and agency and their report card grades was found in these studies. A potential explanation might lie in that report card grades often are not just a measure of achievement, but are determined by other factors as well, such as affective factors and subjective factors, such as teacher expectations and beliefs (Brookhart et al., 2016).

When looking at the consistency of findings across contexts, higher associations have been found for both dimensions in mathematics and science than in (foreign) languages or social science classes (den Brok et al., 2004; Georgiou & Kyriakides, 2012). Within classes, different associations have been found for ethnic minority students and for mainstream students. den Brok et al. (2010) for example, found a positive association between teacher agency and report card grades for students with a Surinamese background in Dutch multicultural classes, but negative associations for students with parents born in the Netherlands and students with a Moroccan background, and no association for students with a Turkish background. In their study, no direct effects were found for communion on report card grades, but indirect effects were found for communion, with student motivation as a mediator.

4.2 *Affective Student Outcomes*

4.2.1 **Studies Using Dimensions of Interpersonal Relationships**

Studies using the two interpersonal dimensions all found a positive effect for both agency and communion on students' subject-related attitudes. Generally, effects of communion were stronger than those of agency.

For example, in a study of physics teachers and their students in the Netherlands, Brekelmans and her colleagues (Brekelmans, 1989; Brekelmans et al., 1990) found a stronger relationship between communion and students' attitudes than between agency and student attitudes: the stronger the perception of communion the more positive the attitude of the students towards the subject was. Also in a study of English as a foreign language (EFL) teachers in the Netherlands (den Brok et al., 2004) it was found that the effect of communion on students' pleasure in the subject was three to four times stronger than the effect of agency, even though both had a positive effect. For students' willingness to put effort in the subject and their degree of confidence in the subject, the association with communion was almost twice as large as the association with agency. In both studies the effects of agency and communion were corrected for the effect of student, class and teacher characteristics, such as gender, SES, class size, teacher gender, school type and report card grade. Moreover, these studies employed multilevel analysis techniques, thereby taking into account the effects of non-random sampling.

A study in Brunei (den Brok et al., 2005b) - also employing multilevel analyses and correcting the effect of interpersonal relationships for various student, class and teacher characteristics - indicated equally strong effects of agency and communion. However, that study was conducted with primary education science teachers and their students. A study on secondary science students and their teachers in India (den Brok et al., 2005a) again found similar positive associations of both agency and communion with students' attitudes towards science. In the study in India, multilevel analyses were conducted and associations were corrected for student covariates as well as other teaching variables.

A series of studies looking at both the dimensions of agency and communion in relation to affective outcomes in secondary school science was conducted in Turkey (den Brok et al., 2007; Telli et al., 2007, 2010). When looking at raw correlations, positive associations of agency were found with enjoyment of the subject, perceived usefulness of the subject, interest in the subject and time effort; however, correlations of communion with these variables was almost twice as high, except for effort where a similar correlation was found. In all cases, correlations were moderate to strong. Interestingly, after correcting for student, class and teacher covariates and conducting multilevel regression analyses, a less distinct pattern was found, showing small and positive associations between agency and enjoyment and interest, a small positive association of communion with interest, and no significant associations between the dimensions and the other outcome variables.

4.2.2 Studies Using Sectors of Interpersonal Relationships

Positive, strong associations have also been demonstrated between several QTI-scales, such as directing and helping, and subject-related attitudes, while negative relationships were found with the dissatisfied, confrontational, and, in most cases, the imposing scales (e.g., Evans, 1998; Goh & Fraser, 1998; Fisher et al., 1995; Henderson & Fisher, 2008; Rawnsley, 1997; van Amelsvoort, 1999). In most of these studies, all scales related significantly to student attitudes in terms of correlation coefficients – with directing, helpful, understanding and compliant relating positively; uncertain, dissatisfied, confrontational and imposing relating negatively – but only a small number of scales (e.g. supporting and understanding) remained statistically significant if the more conservative regression weights were used (e.g. den Brok et al., 2005b).

A number of these studies were conducted in Australia. Henderson and Fisher (2008), for example, studied Biology classes. In their study, they found that the QTI scales explained 33% of the variance in enjoyment, either uniquely or in combination with other learning environment variables. Evans (1998) studied Australian science classes and reported similar associations. Rawnsley (1997) studied mathematics teachers and again reported similar findings as in the other two mentioned Australian studies. Characteristic of these Australian studies is that they investigated the effects of interpersonal relationships taking into account other learning environment elements, but that respondent characteristics were not included. The studies indicated large amounts of variance explained jointly by interpersonal and other teacher behaviours (Rawnsley, 1997), while also a large amount of variance appeared to be explained by the QTI results uniquely.

In Greek classes, Charalampous and Kokkinos (2018) found positive correlations between scales displaying high communion and affective outcomes, such as attitudes towards language or mathematics and academic self-efficacy, while scales with low communion displayed negative correlations with these outcome variables.

Several studies investigating associations between QTI scales and attitudes have been conducted in Singapore, one with primary education mathematics classes (Goh & Fraser, 1998), one with secondary education science classes (Fisher et al., 1995), and two by Quek and her colleagues (Quek et al., 2005, 2007) in science classes. Interestingly, the authors of these studies report higher amounts of variance explained in student enjoyment than was the case in the Australian studies. Fisher et al. (1995), for example, reported a percentage of explained variance by interpersonal variables of 49%. This strong association was also reflected in correlation coefficients, ranging between $-.56$ (imposing) and $+.66$ (supporting). These patterns were similar in both studies. In a study on chemistry lessons (Quek et al., 2005), positive associations were reported for directing, helpful and understanding behaviour and negative associations were reported for uncertain, confronting and imposing. In that study, interpersonal variables explained twice as much variance in enjoyment as did other teaching or learning environment variables. In a study investigating attitudes to project work, Quek and her colleagues (Quek et al., 2007) reported a positive association between both the imposing and directing scales and

enjoyment (in project work), while a negative association was reported between imposing and attitude towards inquiry in project work. Overall, in their study low associations between teacher-student interpersonal relationships and affective outcomes were reported.

One other study was conducted in Korean science classes (Kim et al., 2000) and reported correlation coefficients ranging between $-.36$ (objecting) and $+.49$ (supporting). In all aforementioned studies, scales on the positive side of communion correlated positive, while scales on the negative side of communion correlated negatively.

In a study in Hong Kong, it was found that high communion scales displayed positive correlations with students' attitudes towards their teacher, their school subject as well as moral outcomes ($+.33$ to $+.71$), while low communion scales displayed negative associations with these variables ($-.25$ to $-.51$), with the imposing scale showing no correlation with these outcomes (Sivan & Chan, 2013).

In a study in Thailand, a negative association between the imposing scale and attitude towards English as a foreign language (EFL) was reported, but none of the other interpersonal scales was associated with attitude towards EFL (Wei & Onsawad, 2007).

4.2.3 Other Findings Related to Affective Outcomes

In an Indonesian study, associations were investigated between teacher agency and communion and student motivation in general, distinguishing between more autonomous forms and more controlled forms of motivation (Maulana et al., 2011). They found that both agency and communion were positively related to autonomous motivation and in similar strength, but that agency was more strongly related to controlled (or more extrinsic) motivation. They explained the latter finding by the cultural context of Indonesia, where high teacher agency in the classroom is both expected and valued.

A recent study in China investigated associations of teacher students' interpersonal relationships with student enjoyment and anxiety (Sun et al., 2018). It was found that only communion was moderately to strongly associated with these outcomes, being positively related to enjoyment and negatively to anxiety. However, the agency dimension was not significantly associated with either enjoyment or anxiety.

In a study by den Brok et al. (2010) in multicultural classes in the Netherlands, teacher-student communion showed strong associations with positive attitudes towards subject content among all cultural groups involved in their study. However, higher levels of teacher agency did not correlate with subject attitude among students with a Dutch background. For students with a Moroccan, Turkish or Surinamese background (but born in the Netherlands), higher levels of teacher agency had small to medium positive effects on subject attitude. The positive relationship between teacher agency and subject attitude might seem contrary to expectations based on the self-determination theory that predicts high motivation with

student autonomy and corresponding low teacher agency, but in recent applications of this theory to educational context, the importance of providing structure combined with autonomy is emphasized (Aelterman et al., 2018). Providing structure requires a certain level of teachers directiveness according to these authors. Another explanation might be that most multicultural schools in the Netherlands are situated in the major cities, where teaching is often rather challenging for teachers from a classroom management perspective (van Tartwijk et al., 2009). Low success in classroom management may result in low agency in student perceptions of the teacher-student relationship (Wubbels et al., 2006). Such low agency scores in these classes do not indicate high student autonomy, but rather disorder, which is negatively related with student motivations (Wubbels et al., 2006).

4.3 *Summary of Findings*

Overlooking all of the studies and their findings, some general trends could be seen. For achievement, both teacher agency and communion were positively related to student achievement, with the agency dimension (or its related scales) displaying stronger and more consistent associations with achievement than communion. For communion, associations were sometimes inconsistent or less straightforward. Associations of both dimensions or their related scales were more consistent for achievement tests than for report card grades.

For affective student outcomes, positive associations were also found with both teacher agency and communion, in this case communion showing stronger associations than agency. Findings showed some differences in strength depending on the type of affective outcome involved, but in all cases associations were positive.

As for both types of outcomes, it was found that associations of agency and communion often remained statistically significant if they were corrected for student or teacher covariates, as well as if they were combined with other teaching or learning environment variables. Also, while there was some variation between cultures, countries or school subjects, in general findings were consistent in the vast majority of studies.

5 Discussion

Research on teacher-student relationships has shown that warm and supportive relationships are positively related to students' affective learning outcomes, and via these outcomes - as well as directly - also to cognitive student outcomes (Cornelius-White, 2007; Roorda et al., 2011; Roorda et al., 2017; Witt et al., 2004). The present chapter reviewed research from an interpersonal (circumplex) theory perspective, including next to teacher warmth or interpersonal communion also a dimension depicting teacher authority or interpersonal agency.

Results of studies using the same instrument to link students' perceptions of the teacher-student relationship to student outcomes, namely the Questionnaire on Teacher Interaction (QTI) (Wubbels et al., 1985, 2006), showed an interesting picture. In most studies teacher agency positively, directly and in a stable and strong way related to student achievement. While communion related positively to achievement as well, this association was typically less strong than that of agency, and also less stable across classes, countries and contexts, and sometimes showed a more curvilinear association rather than a linear one. In this sense, the effect of communion on student achievement is complex: it may be that a minimum amount of communion is needed to enhance student achievement, but that too much communion may be detrimental, and that the optimal amount of communion to be supportive for achievement may be different for different students (Wubbels et al., 2023). The review did show that associations of both dimensions remained present after taking into account student, class or teacher background characteristics or other teaching or learning environment variables, although the effect would become smaller in most cases.

As for affective outcomes, most studies showed even stronger and positive associations with the two interpersonal dimensions of agency and communion than was the case for cognitive outcomes; in these cases, the association of communion was typically stronger than that of agency. These findings appeared rather consistently across countries, and remained as such after taking into account other covariates and learning environment variables. This finding may potentially be explained by the conditional nature of interpersonal relationships for the classroom climate and its effect on other teaching variables, which both directly and indirectly affect affective outcomes (Evertson & Weinstein, 2006; Fraser et al., 1987; van der Lans et al., 2020). Findings also appeared largely consistent for different affective variables, although effort and interest sometimes seemed to benefit slightly more from agency than did pleasure or autonomous motivation.

To some degree, the findings seem to confirm the potential intermediating role of affective outcomes in the relation between interpersonal relationships and cognitive outcomes (also see studies based on attachment theory and self-determination theory, Roorda et al., 2017). The intermediating effect can be inferred from the fact that stronger associations of the interpersonal relationship with affective outcomes were found than with cognitive outcomes; it suggests that both direct and indirect associations are at play, whereas the associations with cognitive outcomes are more direct. However, the findings also suggested that there is a direct relationship between the agency dimension of interpersonal relationship and cognitive outcomes, and that both dimensions of interpersonal relationships are relevant for student outcomes, separately as well as jointly. The present chapter did confirm prior findings that detrimental relationships can be characterized by opposition or conflict, but in addition showed that these relationships can also be typified by low agency, such as hesitancy.

Further research is needed to better understand what the precise interplay of both interpersonal dimensions is for student outcomes, what intermediate variables operate in this relationship, and if dimensions of the interpersonal relationship operate

more as conditional or as direct variables in their effect on student learning and outcomes. Combining insights from interpersonal and self-determination theory, where recently the role of structure for student motivation has been emphasized, might be useful when doing this. In this way, it can for example be investigated if structure in the classroom enhances (perceptions of) relations in the classroom, which in turn affect motivation, or if relations enhance the use of structure in the classroom, which in turn affect motivation. In general, research could further investigate the joint and unique effects and interplay of interpersonal relationships and other learning environment variables in relation to student outcomes, as we only understand the precise role of relationships on other environment variables to a limited degree (Fraser & Walberg, 2005). Also, since the dimensions may have different effects in different cultures or countries, more research is needed to understand what verbal and non-verbal behaviors play a role in this, and how moment-to-moment interactions determine the interpretation of relationships at the developmental level.

References

- Aelterman, N., Vansteenkiste, M., Haerens, L., Soenens, B., Fontaine, J. R. J., & Reeve, J. (2018). Toward an integrative and fine-grained insight in motivating and demotivating teaching styles: The merits of a circumplex approach. *Journal of Educational Psychology, 111*(3), 497–521.
- Bacete, F. J. G., Ferrá, P., Monjas, M. I., & Maranda, G. (2014). Teacher student relationships in first and second grade classrooms: Adaptation of the questionnaire on teacher interaction early primary. *Revista de Psicodidáctica, 19*(1), 211–231.
- Brekelmans, M. (1989). *Interpersonal teacher behavior in the classroom*. W.C.C. [In Dutch].
- Brekelmans, M., Wubbels, T., & Créton, H. A. (1990). A study of student perceptions of physics teacher behavior. *Journal of Research in Science Teaching, 27*, 335–350.
- Brookhart, S., Guskey, T., Bowers, A. J., McMillan, J., Smith, L., Smith, J., & Welsh, M. (2016). A century of grading research: Meaning and value in the Most common educational measure. *Review of Educational Research, 86*(4), 803–848.
- Charalampous, K., & Kokkinos, C. M. (2018). The structure of pre-adolescents' perceptions of their teachers' interpersonal behaviours and their relation to pre-adolescents' learning outcomes. *Educational Studies, 44*(2), 167–189.
- Cornelius-White, J. (2007). Learner-centered teacher-student relationships are effective: A meta-analysis. *Review of Educational Research, 77*(1), 113–143.
- den Brok, P. (2001). *Teaching and student outcomes. A study on teachers' thoughts and actions from an interpersonal and a learning activities perspective*. W.C.C.
- den Brok, P. J., & van Tartwijk, J. W. F. (2015). Teacher-student interpersonal communication in international education. In M. Hayden, J. Levy, & J. Thompson (Eds.), *The Sage handbook of research on international education* (Vol. 2, pp. 309–324). Sage.
- den Brok, P., Brekelmans, M., & Wubbels, T. (2004). Interpersonal teacher behaviour and student outcomes. *School Effectiveness and School Improvement, 15*(3/4), 407–442.
- den Brok, P., Fisher, D., & Koul, R. (2005a). The importance of teacher interpersonal behaviour for secondary science students in Kashmir. *Journal of Classroom Interaction, 40*(2), 5–19.
- den Brok, P., Fisher, D., & Scott, R. (2005b). The importance of teacher interpersonal behaviour for student attitudes in Brunei primary science classes. *International Journal of Science Education, 27*(7), 765–779.

- den Brok, P., Brekelmans, M., & Wubbels, T. (2006a). Multilevel issues in studies using students' perceptions of learning environments: The case of the questionnaire on teacher interaction. *Learning Environments Research*, 9(3), 199–213.
- den Brok, P., Fisher, D., Brekelmans, M., Wubbels, T., & Rickards, T. (2006b). Secondary teachers' interpersonal behaviour in Singapore, Brunei and Australia: A cross-national comparison. *Asia-Pacific Journal of Education*, 26(1), 79–95.
- den Brok, P., Telli, S., & Cakiroglu, J. (2007). Teacher interpersonal behaviour and students' subject related attitudes in general and vocational science classes in Turkey. In C. S. Sunal & K. Mutua (Eds.), *Undertaking educational challenges in the 21st century: Research from the field* (Research on education in Africa, the Caribbean and the Middle East, Volume 5) (pp. 169–190). Information Age Publishing, Inc.
- den Brok, P., van Tartwijk, J., Wubbels, T., & Veldman, I. (2010). The differential effect of the teacher-student interpersonal relationship on student outcomes for students with different ethnic backgrounds. *British Journal of Educational Psychology*, 80, 199–221.
- Donker, M. H., van Vemde, L., Hessen, D. J., van Gog, T., & Mainhard, T. (2021). Observational, student, and teacher perspectives on interpersonal teacher behavior: Shared and unique associations with teacher and student emotions. *Learning and Instruction*, 73, 101414.
- Evans, H. (1998). *A study on students' cultural background and teacher-student interpersonal behaviour in secondary science classrooms in Australia*. Unpublished doctoral dissertation, Curtin University of Technology.
- Evertson, C. M., & Weinstein, C. S. (2006). Classroom management as a field of inquiry. In C. M. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice, and contemporary issues* (pp. 3–15). Erlbaum.
- Fisher, D., Henderson, D., & Fraser, B. (1995). Interpersonal behaviour in senior high school biology classes. *Research in Science Education*, 25(2), 125–133.
- Fraser, B. J. (2014). Classroom learning environments: Historical and contemporary perspectives. In N. Lederman & S. Abell (Eds.), *Handbook of research on science education volume II* (pp. 104–119). Routledge.
- Fraser, B. J., & Walberg, H. J. (2005). Research on interpersonal relationships and learning environments: Context, retrospect and prospect. *International Journal of Educational Research*, 43(1–2), 103–109.
- Fraser, B. J., Walberg, H. J., Welch, W. W., & Hattie, J. A. (1987). Syntheses of educational productivity research. *International Journal of Educational Research*, 11, 145–252.
- Gaines, S. O., Panter, A. T., Lyde, M. D., Steers, W. N., Rusbult, C. E., Cox, C. L., & Wexler, M. O. (1997). Evaluating the circumplexity of interpersonal traits and the manifestation of interpersonal traits in interpersonal trust. *Journal of Personality and Social Psychology*, 73, 610–623.
- Georgiou, M., & Kyriakides, L. (2012). The impact of teacher and principal interpersonal behavior on student learning outcomes: A large scale study in secondary schools of Cyprus. In T. Wubbels, P. den Brok, J. van Tartwijk, & J. Levy (Eds.), *Interpersonal relationships in education: An overview of contemporary research* (pp. 119–136). Sense Publishers.
- Goh, S. C., & Fraser, B. J. (1998). Teacher interpersonal behaviour, classroom environment and student outcomes in primary mathematics in Singapore. *Learning Environments Research*, 1, 199–229.
- Granic, I., & Hollenstein, T. (2003). Dynamic systems methods for models of developmental psychopathology. *Development and Psychopathology*, 15(3), 641–669.
- Gupta, A., & Fisher, D. (2008). Teacher-student interactions in a technology-supported science classroom environment in relation to selected learner outcomes: An Indian study. In *Proceedings international conference on science*. Mathematics and Technology Education.
- Gurtman, M. B. (2009). Exploring personality with the interpersonal circumplex. *Social Psychology Compass*, 3, 1–19.
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
- Henderson, D. G., & Fisher, D. L. (2008). Interpersonal behaviour and student outcomes in vocational education classes. *Learning Environments Research*, 11, 19–29.

- Hughes, J. N., Cavell, T. A., & Willson, V. (2001). Further support for the developmental significance of the quality of the teacher–student relationship. *Journal of School Psychology, 39*, 289–301.
- Kim, H. B., Fisher, D. L., & Fraser, B. J. (2000). Classroom environment and teacher interpersonal behaviour in secondary science classes in Korea. *Evaluation and Research in Education, 14*(1), 3–22.
- Leary, T. (1957). *An interpersonal diagnosis of personality*. Ronald Press Company.
- Levy, J., Wubbels, T., & Brekelmans, M. (1992). Student and teacher characteristics and perceptions of teacher communication style. *Journal of Classroom Interaction, 27*, 23–29.
- Lonner, W. J. (1980). The search for psychological universals. In H. C. Triandis & W. W. Lambert (Eds.), *Handbook of cross-cultural psychology* (pp. 143–204). Allyn & Bacon.
- Martin, A. J., & Dawson, M. (2009). Interpersonal relationships, motivation, engagement, and achievement: Yields for theory, current issues, and educational practice. *Review of Educational Research, 79*(1), 327–365.
- Maulana, R., Opdenakker, M. C., den Brok, P., & Bosker, R. (2011). Teacher-student interpersonal relationships in Indonesia: Profiles and importance to student motivation. *Asia Pacific Journal of Education, 31*(1), 33–49.
- Mehrabian, A. (1981). *Silent messages*. Wadsworth Publishing Company.
- Muijs, D., Kyriakides, L., van der Werf, G., Creemers, B., Timperley, H., & Earl, L. (2014). State of the art – Teacher effectiveness and professional learning. *School Effectiveness and School Improvement, 25*(2), 231–256.
- Pace, J. L., & Hemmings, A. (2007). Understanding authority in classrooms: A review of theory, ideology and research. *Review of Educational Research, 77*(1), 4–27.
- Pennings, H. J. M., Brekelmans, M., Sadler, P., Claessens, L. C. A., van der Want, A. C., & van Tartwijk, J. (2018). Interpersonal adaptation in teacher-student interaction. *Learning and Instruction, 55*, 41–57.
- Quek, C. L., Wong, A. F. L., & Fraser, B. J. (2005). Student perceptions of chemistry laboratory environments, student-teacher interactions and attitudes in secondary school gifted education classes in Singapore. *Research in Science Education, 35*, 299–321.
- Quek, C. L., Wong, A. F. L., Divarahan, S., Liu, W. C., Peer, J., & Williams, M. D. (2007). Secondary school students' perceptions of teacher-student interaction and students' attitudes towards project work. *Learning Environments Research, 10*, 177–187.
- Rawsley, D. G. (1997). *Associations between classroom learning environments, teacher interpersonal behaviour and student outcomes in secondary mathematics classrooms*. Unpublished doctoral dissertation, Curtin University of Technology.
- Roorda, D. L., Koomen, H. M. Y., Spilt, J. L., & Oort, F. J. (2011). The influence of affective teacher-student relationships on students' school engagement and achievement: A meta-analytic approach. *Review of Educational Research, 81*(4), 493–529.
- Roorda, D. L., Jak, S., Zee, M., Oort, F. J., & Koomen, H. M. Y. (2017). Affective teacher–student relationships and students' engagement and achievement: A meta-analytic update and test of the mediating role of engagement. *School Psychology Review, 46*(3), 239–261.
- Ryan, R. M., & Deci, E. L. (2000). Self determination theory and the facilitation of intrinsic motivation, social development and well-being. *American Psychologist, 55*(1), 66–78.
- Sadler, P., Ethier, N., & Woody, E. (2011). Interpersonal complementarity. In L. M. Horowitz & S. Strack (Eds.), *Handbook of interpersonal psychology* (pp. 123–142). Wiley.
- Schrod, P., Witt, P. L., Myers, S. A., Turman, P. D., Barton, M. H., & Jernberg, K. A. (2008). Learner empowerment and teacher evaluations as functions of teacher power use in the college classroom. *Communication Education, 57*(2), 180–200.
- Sivan, A., & Chan, D. W. K. (2013). Teacher interpersonal behavior and secondary students' cognitive, affective and moral outcomes in Hong Kong. *Learning Environments Research, 16*(1), 23–36.
- Strack, S., & Horowitz, L. M. (2011). Introduction. In L. M. Horowitz & S. Strack (Eds.), *Handbook of interpersonal psychology: Theory, research, assessment, and therapeutic interventions* (pp. 1–13). Wiley.

- Sun, X., Mainhard, T., & Wubbels, T. (2018). Development and evaluation of a Chinese version of the Questionnaire on Teacher Interaction (QTI). *Learning Environments Research*, 21(1), 1–17.
- Telli, S., den Brok, P., & Cakiroglu, J. (2007). Students' perceptions of science teachers' interpersonal behaviour in secondary schools: Development of the Turkish version of the questionnaire on teacher interaction. *Learning Environments Research*, 10(2), 115–129.
- Telli, S., Den Brok, P., & Cakiroglu, J. (2010). The importance of teacher-student interpersonal relationships for students' subject-related attitudes in Turkey. *Research in Science and Technological Education*, 28(3), 261–276.
- Thijs, J. T., & Koomen, H. M. Y. (2008). Task-related interactions between kindergarten children and their teachers: The role of emotional security. *Infant and Child Development*, 17, 181–197.
- van Amelsvoort, J. (1999). *Perspective on instruction, motivation and self-regulation* [In Dutch]. Unpublished doctoral dissertation, Katholieke Universiteit Nijmegen.
- van der Lans, R., Cremers, J., Klugkist, I., & Zwart, R. (2020). Teachers' interpersonal relationships and instructional expertise: How are they related? *Studies in Educational Evaluation*, 66, 100902.
- van Tartwijk, J. (1993). *The interpersonal significance of nonverbal behaviour in the classroom* (in Dutch: De interpersoonlijke betekenis van nonverbaal gedrag van docenten in de klas). WCC.
- van Tartwijk, J., den Brok, P., Veldman, I., & Wubbels, T. (2009). Teachers' practical knowledge about classroom management in multicultural classrooms. *Teaching and Teacher Education*, 25(3), 453–460.
- Watzlawick, P., Beavin, J. H., & Jackson, D. (1967). *The pragmatics of human communication*. Norton.
- Wei, M., & Onswad, A. (2007). English teachers' actual and ideal interpersonal behaviour and students' outcomes in secondary schools of Thailand. *The Journal of Asia TEFL*, 4(2), 1–29.
- Witt, P. L., Wheelless, L. R., & Allen, M. (2004). A meta-analytical review of the relationship between teacher immediacy and student learning. *Communication Monographs*, 71(2), 184–207.
- Woolfolk Hoy, A., & Weinstein, C. S. (2006). Student and teacher perspectives on classroom management. In C. M. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice, contemporary issues* (pp. 181–223). Erlbaum.
- Wubbels, T., Créton, H. A., & Hooymayers, H. P. (1985). Discipline problems of beginning teachers, interactional teacher behaviour mapped out. *Abstracted in Resources in Education*, 20(12), 153. (ERIC Document Reproduction Service No. 260040).
- Wubbels, T., Créton, H., & Holvast, A. J. C. D. (1988). Undesirable classroom situations. *Interchange*, 19, 25–40.
- Wubbels, T., Brekelmans, M., den Brok, P., & van Tartwijk, J. (2006). An interpersonal perspective on classroom management in secondary classrooms in The Netherlands. In C. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice and contemporary issues* (pp. 1161–1191). Lawrence Erlbaum Associates.
- Wubbels, T., Brekelmans, J. M. G., den Brok, P. J., van Tartwijk, J. W. F., Mainhard, T., & Levy, J. (2012). Let's make things better! Developments in research on interpersonal relationships in education. In T. Wubbels, P. J. den Brok, J. van Tartwijk, & J. Levy (Eds.), *Interpersonal relationships in education: An overview of contemporary research* (pp. 225–249). SENSE Publishers.
- Wubbels, T., Brekelmans, M., den Brok, P., Wijsman, L., Mainhard, T., & van Tartwijk, J. (2014). Teacher-student relationships and classroom management. In E. T. Emmer, E. Sarbonie, C. Evertson, & C. Weinstein (Eds.), *Handbook of classroom management* (2nd ed., pp. 363–386). Taylor and Francis Publishers.
- Wubbels, T., Mainhard, T., den Brok, P., Claessens, L., & van Tartwijk, J. (2023). Classroom management at different timescales: An interpersonal perspective. Accepted for publication. In E. Sabornie & D. Espelage (Eds.), *Handbook of research on classroom management: Research, practice and issues* (3rd ed.) (pp. 388–414). New York: Routledge.
- Zijlstra, Z., Wubbels, T., Brekelmans, M., & Koomen, H. M. Y. (2013). Teacher interpersonal behavior and associations with mathematics achievement in Dutch early grade classrooms. *The Elementary School Journal*, 113(4), 517–540.

Perry den Brok is a professor of learning and education sciences at Wageningen University and Research, The Netherlands. His research focuses on all types of education, and particularly on topics such as learning environments, teacher behaviour, teacher professional learning and development, and educational innovation. He is also chair of the 4TU Centre for Engineering Education, a centre focusing on innovation in higher education.

Jan van Tartwijk is a professor of education and director of the Graduate School for Teaching, Utrecht University in Utrecht, The Netherlands. In his research, he focuses on teacher student communication processes, learning and assessing learning at the workplace, teacher education and expertise development.

Tim Mainhard is professor in educational sciences at the Institute of Education and Child Studies at Leiden University. His research focusses on social dynamics in educational settings and their impact on student and teacher outcomes. Tim teaches in the teacher education programme of Leiden University.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

