


Relationship between student, teacher, classroom characteristics and students' school wellbeing

Karen Van Petegem

Promotor: Prof. Dr. Antonia Aelterman

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Proefschrift ingediend tot het behalen van de academische graad van Doctor in de Pedagogische Wetenschappen

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Aan mijn ouders
voor alle kansen

VOORWOORD

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Karen Van Petegem
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CHAPTER 1

INTRODUCTION

I. STATEMENT OF THE PROBLEM

Student outcomes are normally considered as criteria for evaluating the quality of education. At the legislative level, educational policy outlines what attainment goals should be met, under the persuasion of political and social debate. At the executive level, schools themselves are involved through their specific curriculum, school work plan, and attainment goals (Creemers, 1996; Van Petegem, 1997). Defining outcomes is the only way to create reference points for educational quality; they facilitate a valid process of evaluation. In that sense attainment goals should be well considered by researchers, teachers, and policy makers alike. According to Scheerens, Bosker, and Creemers (2000) educational researchers often assume that educational outcomes are preset. They do not view it as their task to question the legitimacy or ideological basis of these educational aims. However, we believe that researchers can contribute positively to the development of these educational aims by suggesting which attainment goals they believe to be more or less valuable. Researchers can provide valuable information on what they believe can be achieved, as well as contribute suggestions as to how certain aims can be facilitated. They can also analyze future educational needs and argue for or against the desirability of certain attainment goals (Creemers, 1996). Thus, from a research perspective, it is not only necessary to verify that outcomes are attained, it is also necessary to consider the choice of those outcomes (Van Petegem, 1997).

In the last few decades, societal shifts have determined the direction and vision of educational policy (Standaert, 1990). It is useful to examine how these shifts are reflected in the choice of educational outcomes. Nowadays, evaluations of 'quality' in education are largely based on attainment goals, from which, effect variables are deduced. In traditional educational effectiveness research, the primary criterion used to assess the quality of education is academic achievement through exam results. In this respect, the quality of education refers to the realization of specific academic outcomes. However, a review of the literature shows that increasing attention is also being paid to affective outcomes, such as student wellbeing (De Fraine, Van Landeghem, Van Damme, & Onghena, 2005; Opdenakker & Van Damme, 2000; Knuver & Brandsma, 1993; Samdal, Wold, & Bronis, 1999; Konu, Litonen, & Autio, 2002). The importance of student wellbeing as a criterion of quality in education is indicated by its relationship with academic achievement (Samdal et al., 1999; Tymms, 2001). It is expected that a high degree of student wellbeing will be positively related to academic achievement. This emphasis on student wellbeing as an educational outcome is in line with the current emancipatory vision on education which focuses on harmonious development, i.e., by harmonious we mean, an integration of thought,

action, and being on the cognitive, psychomotor, dynamic affective and social level. The emancipatory function of education is important for understanding the context in which this study is executed. We will discuss this further in the theoretical framework.

When determining educational outcomes, a conceptual framework containing the indicators of quality in education is required. When determining educational processes, classroom environment research uses student and teacher perceptions of psychosocial aspects of the learning environment, and subsequently highlights important variables related to student wellbeing (Fraser & Walberg, 1991). Finding relationships between indicators offers new insight into the way educational quality can be enhanced. Research also indicates that students from a lower stream (educational rank according to capability) have more negative attitudes towards school when compared with those in a higher stream (Van Houtte, 2006). High numbers (18.2%) of unqualified exit rates in these lower streams reflect this statement (Stevens, De Groof, & Burssens, 2006). This provides a challenge for researchers to examine the quality of education by using multiple indicators within specific target groups.

The focus of this study is to examine how diverse psychosocial aspects of the classroom are related to student wellbeing. We conclude that the quality of education refers primarily to the realization and assessment of academic achievement (often reflected in language and mathematics) and are considered as crucial effects. However, we believe that there are other important outcomes of education to consider, and that the focus should no longer be exclusively on academic achievement; affective outcomes also deserve our attention. In this dissertation, student wellbeing is considered as a valuable indicator in assessing the quality of education and is expected to be linked with positive academic achievement. Processes that influence academic achievement are described in other studies (Levine & Lezotte, 1990; Sammons, Hillman, & Mortimore, 1995), and are not within the scope of this study. The purpose of this study is to examine the processes that influence student affective outcomes to improve the quality of education.

II. THEORETICAL FRAMEWORK

2.1 Context of this research project: quality of education

2.1.1 Quality of education as societal focus

Striving for quality implies a desire to improve. The interest in maintaining high standards of education can be justified from societal, educational, as well as scientific perspectives. Wielemans (1995) maintains that education has a socializing function. According to his framework, a good education allows students to become valued members of society by teaching them how to function within the community; the goal of education is understood as the complete formation of the person, and as directed towards a critical and creative integration into our current dynamic society (Wielemans, 2004). Such a starting point underlines precisely how the Strategic plan for Flanders (1997) defines quality of education. The Strategic plan for Flanders regards education as something that should be accessible on the basis of equal opportunities. This requires a 'satisfactorily differentiated offering' suited to a variety of target groups. Education should offer students knowledge, aptitude, and attitudes (cf. attainment goals and development goals) which will contribute to their personal and societal development, cultural enrichment, emancipation, and citizenship. It is expected that this will give students, not only a chance at tertiary education and/or entry into the workforce, but also a critical and creative participation in society.

The aim of preparing young people for a meaningful participation in society requires care in ensuring a high quality of education. The danger exists when important components are 'economized' (Leune, 1993). In that respect, educational programmes are judged only according to indicators of immediate usefulness, i.e., qualifications are valued only according to their utility in the job market (Standaert, 1990).

According to the Strategic plan for Flanders (1997), three essential components that contribute to a good quality of education are stressed. First, education is a basic right for everyone, as expressed in the United Nations' universal rights for adults and children. Second, student talent must be maximally developed, independent of later usefulness in the workforce. This would lead to a more diverse community with higher and more varied potential. Third, education must enhance the individual's power of independent critical thinking. This viewpoint supports a pedagogic-didactic approach to education, in

contrast to the economic-technical approach (Standaert, 2001). Within the pedagogic-didactic approach, competition is shifted into solidarity: the needs of students are met and the school has the responsibility of maintaining educational standards.

Wielemans (1995) suggests that there is a two way interaction between education and society. Research into socialization describes how students must be prepared for life within society, and also demonstrates how societal influence impacts educational structures; its effect can be traced in the school and class organization, in the interaction between teachers and students, and in the curriculum contents. Shifts in educational priorities are usually the result of shifts within social priorities. In the theory of rationalities, Matthijssen (1982) describes an important shift of priorities within society as leading to a changed vision on education, namely the shift from a technical rationality to a social rationality or, as Standaert (1990; 2002) phrases it, to a technical-interactive rationality. Within a technical rationality, academic achievement is the primary goal. Within a social rationality, attention for themes such as wellbeing and participation are paramount. This distinction in rationalities also corresponds to the distinction between an economic-technical approach versus a pedagogic-didactic approach to education (Standaert, 2001), as described above.

2.1.2 An emancipatory and student oriented vision on education

Educational policy starts with the premise that every student should be given an equal chance of development. Verhoeven and Elchardus (2000) state that "every individual, desiring integration into society and without consideration of social or ethnic origin, must be given an equal opportunity to develop social as well as personal self development, a reality based and world oriented development, and an education which can lead to a variety of professional options" (p. 26). The choices and values of educational policy are reflected in the current emancipatory and student oriented educational system, and support the social rationality discourse. The emancipatory and student oriented vision on education has been described by Aelterman (2005) as follows:

> “To educate into responsibility, reasoning, self realization and critical thinking, within the contours of a democratic community, with development chances for every one, in other words emancipation in relationship to others” (p. 52).

Aelterman (2005) summarizes the most important principles related to this vision on education. These principles support the development of a powerful learning environment and emphasize the opportunity

to learn for all students:

- active, constructive, cooperative, and self motivated learning with the purpose of giving knowledge that students can apply to life situations, as well as skills that are transferable
- harmonious development: an integration of thought, action, and being on the cognitive, psychomotor, dynamic affective, and social level
- general development: a focus on diverse cultural components such as music-creative, exact-scientific, verbal-literary, technical-technological, and ethnic-religious
- extending special needs provision: a concern for the specific needs of all students

These principles are in line with a social (Matthijssen, 1982) or technical-interactive rationality (Standaert, 2002). The emancipatory function of education takes account of the needs and expectations of the students within the framework of a social and just community. The individual student becomes the central focus; attention is paid to the student's personal progress by integrating dynamic-affective, psychomotor, and cognitive development. This harmonious approach reflects the context in which the present study is performed.

2.1.3 Evaluating the quality of education

The quality of education must be continually evaluated. A technical rationality allows for greater external control and direction of the educational system (Standaert, 1990). However, a broader perspective is required, in which internal and external evaluations are complementary. The decree of July 17, 1991 (BS 31.08.1991), dealing with inspection and pedagogical support services, announced a new direction in school inspection. This decree splits the role of inspection and support. Nowadays in Flanders, the external evaluation of educational quality is the responsibility of the education inspectorate, while internal evaluation (self-evaluation) is the responsibility of the school (Van Petegem, 1997). The role of the education inspectorate is to evaluate whether the attainment goals, determined by educational policy, are being reached. Considering each school separately, the inspectorate evaluates the extent to which the school is fulfilling its societal role (Verhoeven et al., 2000). Indicative of the new vision, described in a 'circular letter SO 49', the primary concern for the inspectorate is not the individual teacher, but the school as a system (Standaert, 2001). These directives are part of a deregulation movement, i.e., a decentralization of responsibilities within the framework of federalization, giving the schools greater autonomy (Standaert, 2001). This strategy was adopted by educational policy following

research indicating that the top-down movement was ineffective in providing a good quality of education. This prompted policy makers to include all concerned in the process of improving the quality of education. Thus, the technical rationality came under pressure.

The increasing demand for accountability came as a consequence of giving a greater autonomy within schools (Winch, 1996). The ministry of education requires that schools meet a certain educational standard, and controls this by means of inspections; schools in return gain a certain degree of freedom. Thus while the government has a less regulating role, it is responsible for creating conditions in which schools can provide an optimal standard of education (Dunon, Moens, Osaer, & Ver Eecke, 1998). Educational policy has to provide the necessary means for what is socially viewed as a solid education. Schools are responsible for the practical side of things, i.e., teaching procedures, methods, and best practices. Schools also determine their educational programmes; however, the ministry of education imposes standards that need to be met.

In the present climate, there is much thought dedicated to how this system can be successfully accomplished in the environment of a real school. The question most commonly asked is whether schools have sufficient policy making capacity to actually accomplish what the government expects: in other words, the extent to which schools are capable of the self development required to reach present and future expectations. When schools take control of their own quality of education, their policy making capacity is put to the test (Vandenberghe, 2005). Self evaluation is not a goal itself, but an instrument for change and improvement in education. Parents need to receive a guarantee that what the schools declare as educational quality is a reality within the school. Thus, schools are collectively accountable for the quality of the education they provide. Scheerens, Bosker, and Creemers (2000) hold that the 'accountability-movement' provides a positive stimulus to effectiveness research. 'Accountability' is a plus for the directorate of schools geared to high achievement and thus can explain the link with educational effectiveness research. This is the topic of our next section.

We conclude that education has a socializing as well as academic function. There is a need to verify whether specific attainment goals are reached in order to ensure that a good quality of education is being delivered. While the education inspectorate is responsible for ensuring that educational attainment goals are being reached, the schools are responsible for evaluating the process involved. The current emancipatory and student oriented vision of education reflects the context in which this study is performed and supports the social rationality of the quality discourse. In this dissertation attention is drawn to affective output next to cognitive output. We believe that a harmonious approach to development is a requirement for a good quality of education. The next section describes the knowledge base of educational effectiveness research, from which we derive our conceptual framework.

2.2 Educational effectiveness research

2.2.1 Effectiveness research as a starting point

A number of different approaches and models have been used within educational effectiveness research, all of which complement each other.

During the 1960's there was the *economic approach to education* (Scheerens, 1997). This approach focused on estimating "the relationships between the supply of selected purchased schooling inputs and educational outcomes, controlling for the influence of various background features" (Scheerens, 1997, p. 270). The resource input variables included into the analyses were the pupil/teacher ratio, teacher salary, and overall measures of per pupil expenditure. Studies using this approach evaluate which input leads to more output and deal mostly with a 'black box' approach. School effectiveness is measured according to output, usually in the form of academic achievement. Teddlie and Reynolds (2001) have called this *School Effectiveness Research*.

From the 1970's on it was demonstrated that schools do make a difference and are a key factor in student success, along with individual student background characteristics. Two groundbreaking studies, 'Schools can make a difference' (Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979), and 'School matters' (Mortimore, Sammons, Stoll, Lewis, & Ecob, 1988), reflect this Zeitgeist. This movement, known as *Effective Schools Research* (Teddlie & Reynolds, 2000), takes into account the process used to reach output, and began as a reaction to negative views of teachers, schools, and education, as well as the disappointing results of previous research. The inclusion of process variables was introduced to help find reasons for the fact that student output remained significantly different between schools, even when background characteristics were controlled for (Reynolds & Teddlie, 2000; Teddlie, Reynolds, & Sammons, 2000; Scheerens, 1990; Teddlie, Stringfield, & Reynolds, 2000; De Maeyer, Rymenans, Daems, Van Petegem, & Van den Bergh, 2003; Van Damme & Van Landeghem, 2002). Within this approach attention is directed towards school characteristics that may influence student output such as teacher leadership, school policies geared to high achievement, orderly and safe school climate, precise attainment goals, high expectations, continuous evaluation of student progress, as well as continuity and consensus amongst teaching staff. Process variables related to teaching, instruction, the curriculum, and school organization were also thought to be important for this type of analysis (Creemers, 1994).

The 1980's saw a strong influence exerted by the *organizational paradigm*, which takes into account the hierarchical structure of the educational system. Apart from management conditions and aspects of leadership at the school level, elements of what was happening within the classroom (at the

micro level) were now being taken into account. This type of effectiveness research concentrates on aspects of class management, student-teacher interaction, and instructional strategy. Variables such as classroom climate and instruction appeared to play a meaningful role (Zuzovsky & Aitkin, 1990). By the end of the 80's increasing attention was being paid to context variables, resulting in more sophisticated methodologies and improvements in the quality of effectiveness research (Reynolds et al., 2000).

Traditionally, few questions are asked about the educational outcomes that are assumed to determine quality in education, and if they are it usually concerns only one possible interpretation of what 'quality of education' means. For example, effectiveness in education is described as an instrumental approach starting out from certain given attainment goals in education; its focus is primarily on academic achievement. Student achievement is generally used as the dependent variable, and effectiveness is translated in terms of the relative progress of the students. As the measurement of student achievement is mostly limited to academic knowledge and the acquisition of basic proficiencies, the outcomes that define 'quality' are clear: central to this approach is the cognitive development of the students. Because of the importance attached to maximum productivity, discussions with regard to educational content largely revolve around this area and neglect issues such as methods, curriculum, and attainment goals (Creemers, Hoeben, & Koops, 1983). By situating 'productivity' as one of the effectiveness concepts in educational research (Fraser, 1989), this approach fits within the rational goal model, in which productivity and efficiency take a central position (OECD, 1995). We must note however that the term 'efficiency' refers, not only to the drive for maximum output, but also the extent to which the input and the educational process succeed in attaining a certain outcome. Much attention is directed to the relationship between the educational process and student output. Van Petegem (1997) describes it as follows: "an effective school creates optimal conditions so that each student has the opportunity for maximum development" (p. 18). This should not imply causation, but rather, correlation. An 'effect' must therefore always be interpreted as a positive or negative connection between process and output.

Research into educational effectiveness examines 'what works' and investigates the processes necessary to effect change. This type of research is situated within the management discourse in which effectiveness is the priority (Reynolds & Teddlie, 2001). Easily quantifiable variables, such as student behaviours, are often chosen over attitudes of the inner state (Reynolds, Teddlie, Hopkins, & Stringfield, 2000). As students are viewed from a cognitive perspective (Standaert, 1990), a separation between thinking and feeling, and thus, rational and emotional, is introduced.

To conclude, educational effectiveness is often equated with progress in the cognitive sphere (Reynolds et al., 2001). Effectiveness research evaluates what is necessary to bring about progress in schools. The criterion of effectiveness is mostly to bring changes in student academic achievement. According to Reynolds et al. (2001), the most important realization of educational effectiveness research is that it is successful in breaking the myth that schools cannot change society. This implies that previously it was believed that student background was too strong to be influenced by schools.

2.2.2 'Measuring' quality

Striving towards a good quality of education is viewed as a most worthwhile goal. Educational effectiveness research underlines this view. However, 'quality' is a subjective concept that can be approached from a number of perspectives (Van Petegem, 1997). As this concept has evolved over time it not only lends itself to manipulation, but can be understood from a different angle by each interpreter; interpretation will be strongly dependent on the individual vision, and the choice of attainment goals will be determined by that vision. Where academic achievement stood as the main measurable outcome of education in the past, there is now attention for themes such as wellbeing, participation, extending special needs provision, self evaluation, emancipatory education, and the autonomy of schools (cf. supra).

The use of indicators is typical in educational research as it allows for 'measurement' of the various different aspects of educational quality (Land, Lamb, Meadows, & Taylor, 2007). Scheerens (1990) describes educational indicators as statistics which permit an evaluation of many key aspects in the functioning of the educational system. They are often used within an organized framework since they can illustrate the status of the entire educational system. Educational indicators are thus necessary informational tools (Dunon et al., 1998). Within the system approach, indicators give information about the functioning and quality of the system. Criteria are introduced so that this evaluation can lead to an amelioration of educational effectiveness (Fitz-Gibbon & Kochan, 2000).
Changes in educational policy often depend on a set of indicators, as these are put together on the basis of current knowledge of the relationships between system context, input, process, and output (OECD, 1995). According to Deketelaere (1999) indicators are time and context related. Educational policy makers will therefore formulate what appears to be of consequence at the time. Indicators are not just useful for policy makers in setting attainment goals, they also inform society on educational matters (NCES, 1991), and researchers on what phenomena need further examination. Indicators are thus a

starting point of reflection, rather than a goal point of educational evaluation.
At the international level, the Organization for Economic Cooperation and Development (OECD), an organization with an economic purpose, works towards a consensus on a set of indicators. The International Association for the Evaluation of Educational Achievement (IEA) deals with comparable data. At the national level, the National Center for Educational Statistics (NCES) gives yearly reports on 'The condition of Education' (NCES, 1991).

2.2.3 A conceptual framework

The context, input, process, and output (CIPO) model is a conceptual framework that has been derived from educational effectiveness research (Scheerens, 1990). Within this model the four components (CIPO) can be considered empty pockets that can be filled to need (Deketelaere, 1999; Teddlie, Reynolds, & Pol, 2000). What follows is an example of how these components can be filled in an educational effectiveness research design. Effectiveness is the extent to which the pre-established attainment goals (output) are reached, taking into account context, input, and process indicators. *Context* includes identification data, the location, policy, and judicial school data which are to be taken into account when considering input, process, and output. *Input* stands for the complete set of personal data for anyone with direct links to the educational process, i.e., human potential, structural as well as material means, and the resources introduced by the school so as to achieve quality of education. This input should be taken into account in order to avoid false positives. *Process* indicates the totality of educational and school activities, which show the effort made by a school to reach authority-implemented outcomes. In other words, how a school uses its available means to achieve quality. Process variables help us interpret results, usually by means of manipulatory characteristics of the educational system. They are, as it were, manipulatory predictors of output. Finally, depending on the study, the *output* will identify which results or outcomes have been reached, the educational effects on student achievement and attitude, or what effect the school has had on its students. Aside from academic achievement, attention is paid to student progress and non-cognitive outcomes.

When the indicators are situated within the CIPO-model any intercorrelations are taken into account. Correlations between the different components are expected and considered as an added value. There are relationships not only between the components, but also within the components. There are no purely causal relationships, and therefore no need for direction indications or arrows in the model. This is a hermeneutic or interpretive model in which indications are suggested for possible causes. Opting for

the CIPO-model implies choosing a system approach. There is a cyclical process at work in which the output restarts a process which is in turn influenced by the input and context. Within the CIPO-model several levels (macro, meso, and micro) are distinguished. This model allows for clarity in interrelationships among indicators of different levels.

Figure 1. Integrated multilevel educational effectiveness model (Scheerens, 1990).

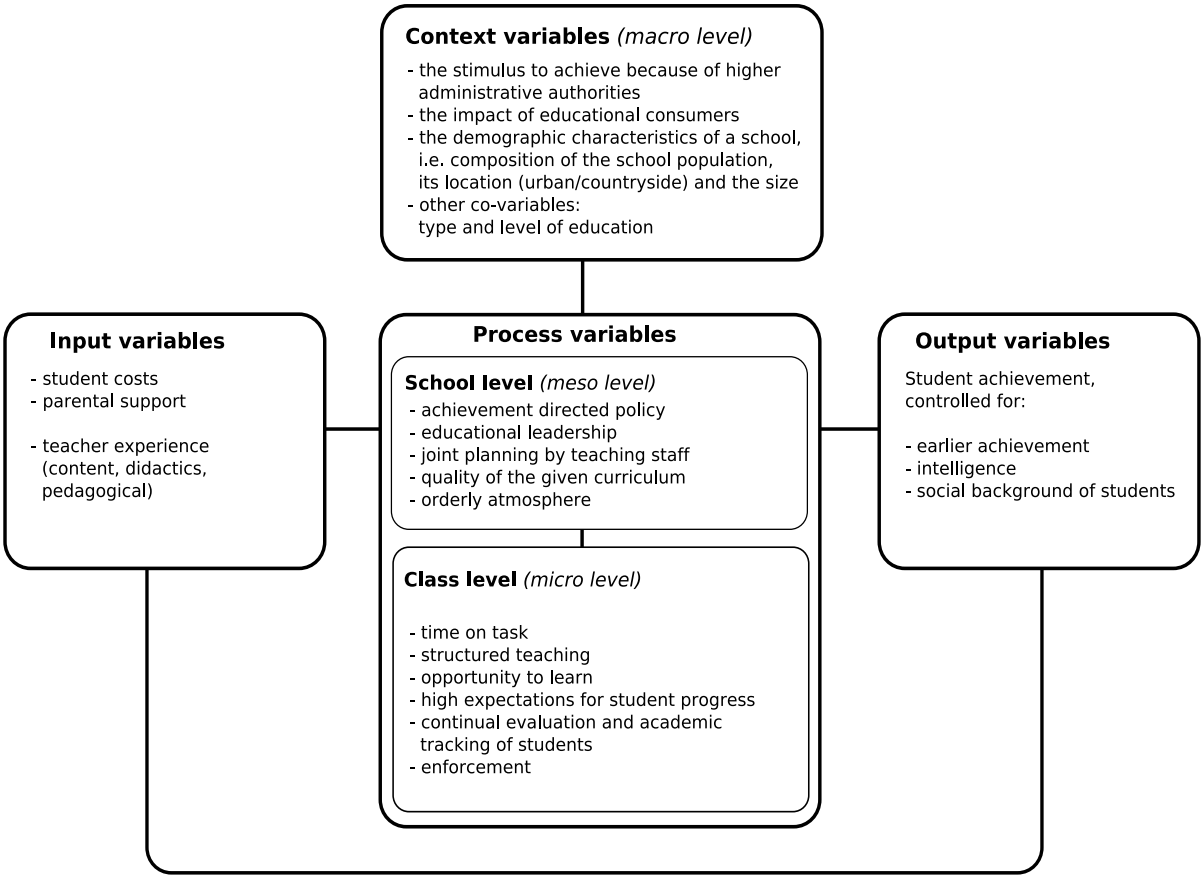


Figure 1 shows Scheerens' integrated multilevel educational effectiveness model (1990). This is an interpretation of the CIPO model within effectiveness research, in which various perspectives are offered to illustrate the relationships between variables defined at different levels. Substantive findings are integrated from different educational effectiveness research areas such as unequal chances in education, the economical approach of education, traditional school effectiveness research, effective instruction, and effective teachers (Van Petegem, 1997).

Context variables which are related to school effectiveness are situated at the macro level:

- the stimulus to achieve because of higher administrative authorities (e.g., the department of education, the education inspectorate)
- the impact of educational consumers such as students, parents, business, higher education
- the demographic characteristics of a school (e.g., composition of the school population, its location and size)
- other co-variables such as type and level of education

Input variables include; student costs, parental support, teacher experiences (content, didactics, pedagogical). The *process variables* are situated at two levels within the model. The school level includes; achievement directed policy, educational leadership, joint planning by teaching staff, quality of the given curriculum, and orderly atmosphere. The classroom level includes; time on task, structured teaching, opportunity to learn, high expectations for student progress, continual evaluation and academic tracking of students, and enforcement. The *output variables* include; student achievement (controlling for earlier achievement), intelligence, and social background of students.

The Flemish education inspectorate also makes use of the CIPO model as a particular framework for quality control purposes (Verhoeven et al., 2000; Standaert, 2001). This offers a broad concept of quality in which the school can find its own space for enhancement of quality. The school's characteristics are taken into account, which implies a system directed focus. Quality is generally considered to be the result of input, context, process, and output factors. Finally, it comes down to an individualized quality which differs from school to school (Standaert, 2001). The CIPO model serves as a guide for procedure and reporting during inspections. However, when an inspection can only address factors that are within a school's power of influence, caution is required when the exact measure of influence exerted by these schools is not clear. In other words, judgment on whether schools are of better or of lesser quality must be based on a differentiation between factors that are within each school's sphere of influence, and those that are not.

Inspection teams use a set of indicators to verify the extent to which predetermined attainment goals have been met. These indicators are used as bookmarks in the measurement of quality in education and are advised for use in establishing evaluation outcomes (Scheerens, 1990). This system is not exhaustive. It may include any indicator, but for the purpose of evaluation and judgment of quality, there must be a relationship between the indicator and the criteria for quality in education. The choice of indicators is jointly established by what is viewed as policy and scientifically relevant. The descriptions

of input and context provide relevant information for the education inspectorate so that a significant framework can be used (Standaert, 2001). These mutual relationships determine the school's quality of education. Output factors, which are of prime importance when evaluating schools, are chosen as performance indicators, and count as effectiveness criteria to evaluate the educational learning process (Smyth & Dow, 1998). Performance indicators are used globally in secondary education to guarantee a standard for the quality of educational services. The idea of examining performance indicators as the measurement for effectiveness in education originated in research which concluded that several different variables, apart from student achievement can be assessed in schools. A range of effectiveness measures provides a more nuanced view of a school's effectiveness (Teddlie et al., 2000). Indeed, research that studied a number of indicator systems showed that students' sense of wellbeing was one of the most important performance indicators of guarantee in quality; this was thought to be due to its strong link with effectiveness of education (Karatzias, Power, & Swanson, 2001).

2.2.4 Factors explaining differences in affective outcomes

Within effectiveness research, attention to the affective aspects of education is governed by the supposition that the student's subjective perception influences academic achievement. This suggests a positive link between affective and cognitive outcomes: an enhancement of student wellbeing (affective component) may improve academic achievement (cognitive component).

The use of cognitive and non-cognitive performance indicators in research supports the view of Uline, Miller, and Tschannen-Moran (1998) who investigate the underlying dimensions of educational effectiveness. These authors parallel cognitive and non-cognitive indicators with instrumental and expressive dimensions. The instrumental dimension includes academic achievement, while the expressive dimension uses indicators such as wellbeing and motivation. Both dimensions are essential to understanding effective education. However, academic achievement is easier to quantify than wellbeing. Reynolds et al. (2001) state that the basic foundation for measuring both cognitive and non-cognitive output factors is available, while the affective or non-cognitive component requires the use of other types of measurement.

Over the last few decades research into educational effectiveness on non-cognitive criteria has increased (Hofman, Hofman, & Guldemond, 1999; Knuver et al., 1993; Konu et al., 2002; Opdenakker et al., 2000; Thomas, 2001; Samdal et al., 1999; Engels, Aelterman, Schepens, & Van Petegem, 2004). Within quality evaluations, student wellbeing and academic achievement are equally considered as

measures of effectiveness. Technical rationality has been under pressure because of its shortcomings (Standaert, 1990) and the shift from a technical to a social rationality is mirrored in the increased attention to affective aspects of the educational process. While educational policy focuses on a broad and harmonious development of cognitive and affective outcomes, the education inspectorate now uses student wellbeing as a criterion of quality and as an output indicator within the CIPO model.

The positive relationship assumed between affective and cognitive output factors explains the increased attention given to wellbeing as a criterion for quality. Research examining the link between cognitive and non-cognitive student output indicates that those interventions which increase student wellbeing are positively related to student academic achievements; moreover, student satisfaction is the best predictor of student achievement (Samdal et al., 1999). These results suggest that schools attempting to enhance students' wellbeing and motivation to comply with educational demands may produce higher academic achievement. The strength of this correlation is, however, related to the manner in which cognitive and affective functioning is operationalized.

We should not think of a unilateral link between wellbeing and achievement; a mutual relationship is considered more appropriate (Samdal et al., 1999; Tymms, 2001). Satisfaction at school does not necessarily stimulate academic achievement; in itself it can be the result of academic success experiences. The ideal situation would be that a positive upward spiral is created, where both academic achievement (cognitive output) and student wellbeing (non-cognitive output) increase simultaneously, with one realized output strengthening the other. This has been described as 'the good circle' in previous research (Samdal et al., 1999). High academic achievement is related to a high degree of satisfaction, which in turn contributes to a higher degree of motivation, and so on. Other research has indicated that a high degree of motivation improves student wellbeing (Engels et al., 2004; Opdenakker et al., 2000; Van Damme et al., 2002).
Despite the fact that cognitive and affective variables are understood to reinforce one another positively, they are relatively independent constructs. This means that the extra focus on non-cognitive abilities is not at the expense of educational quality at the cognitive level (Knuver et al., 1993; Opdenakker, 2004). Pursuing student wellbeing and academic achievement as educational outcomes within a school, and achieving high academic results, is not an automatic guarantee of an increased student wellbeing (Opdenakker et al., 2000). However, research by Knuver et al. (1993) reports that schools can be effective on both levels and that a school does not just focus on students' cognitive development.

Finally, the criteria used to measure quality of education should always be viewed critically. Priorities can be different for researchers, mentors, teachers, policymakers, etc., because of the different perspectives from which they draw up their frame of reference. While there is no doubt that all those involved strive to enhance the quality of education, it must be noted that they all work with different criteria.

Karatzias, Power, and Swanson (2001) describe the quality of secondary students' school life as follows:

> "It refers to a general sense of student well-being, determined strictly by school-related factors and educational experiences resulting from pupils' involvement in school life and their engagement in school climate" (p. 266).

Once attainment goals have been stated, the quality of education can be measured. Student wellbeing is currently viewed as an output factor, along with academic achievement. However, educational quality is not only ascertained through achieved output, there is also the question about the process (Verhoeven et al., 2000). Review studies concerning the link between process variables and student academic outcomes find that, at the classroom level, aspects of instructional behaviour are related to student achievement; the time taken on a task, the opportunity to learn, and high expectations are just some of the process variables linked with academic outcomes (Levine et al., 1990; Sammons et al., 1995).

It is expected that other process variables will be identified when the focus is on affective student outcomes. The knowledge base of classroom environment research is used to determine variables that can enhance student's affective outcomes at the classroom level. Fraser (1994) reports that within classroom environment research, subtle aspects of school life are considered, in addition to the focus on academic outcomes. Classroom climate is an essential part. The role of the teacher and the teacher's interaction with the students are important factors that can be linked to student outcomes (Fraser et al., 1991). Classroom environment research is, in comparison with traditional effectiveness research, concerned with the more psychosocial aspects of the educational process. As the teacher's instructional behaviour in the classroom is crucial for the student's academic achievement, it can be expected that interpersonal relationships between the teacher and the students are linked to the student's affective outcomes.

To conclude, for many years traditional educational effectiveness research has concentrated exclusively on student academic achievement. In the last few decades a shift has been made towards other, albeit subtle aspects of school life such as student wellbeing. The CIPO model is considered as a conceptual framework that has been derived from educational effectiveness research and is used by the education inspectorate. In this dissertation the CIPO model is also applied as a general frame in which interrelationships between specific variables are defined at different levels. We focus on the link between process variables at the classroom level (the micro level), and student wellbeing. Within educational effectiveness research numerous studies have examined which variables can improve student achievement (Levine et al., 1990; Sammons et al., 1995). To increase affective outcomes such as student wellbeing, we consider classroom environment research as a relevant approach. This is largely because psychosocial characteristics of the classroom are the subject of inquiry. The next section describes interpersonal relationships between teacher and students as an important dimension of the classroom climate, and the link with student outcomes is explored.

2.3 Learning and classroom environment research

2.3.1 The student as the nexus of relationships

Within the current vision on education, the student has a central position and is viewed as the nexus of relationships (Wielemans, 1995). Learning and teaching happen in a relational sphere. Educational processes demand supple and differentiated interactions, especially between students and teachers. The role of the teacher and the way in which the teacher interacts with the students has been given increasingly more importance. The learning environment is a dual interaction between teacher and student wherein both subjects are involved. This is thought to lead to an improvement in the teacher-student relationship at school. Cooperation and mutual dependence remain important. It is the task of the teacher to create an environment in which productive learning experiences are possible for the student. A positive relational atmosphere is thought to be essential in facilitating the harmonious development and motivation of the students. Thus both cognitive and affective student outcomes are attainment goals of education, and can be improved by aspects of the classroom environment.

Within classroom environment research, attention is paid to the perceptions held by students and teachers regarding various social and psychological characteristics of the classroom as a learning environment. In this approach the relationship between student and teacher perceptions of the classroom environment, and cognitive and affective outcomes is examined (Johnson & Stevens, 2006). The focus is on how the quality of teaching and learning can be enhanced. While searching for useful evaluation indicators, a variety of process variables that may determine the quality of learning experiences are noted. Hofman et al. (1999) suggest that the indicators of cognitive and social effectiveness are mainly classroom factors. The teacher's behaviour within the classroom is also an important factor; indeed, according to Vandenberghe (2005) it is a determinant of the quality of student results.

2.3.2 Distinction between school and classroom climate

"If I say school climate, what is the first word that comes to your mind? The usual word association from educators is feel, wellbeing, health, learning environment, safety, openness and caring" (Freiberg & Stein, 1999, p. 13).

We need to make a distinction between school and classroom climate; this requires referring to various research traditions (Creemers & Reezigt, 1999). According to Anderson (1982), research into *school climate* is related to organizational studies and the effective schools research tradition. In organizational studies, attention goes to the difference between climate and culture (Hoy, 1990; Van Houtte, 2005). According to Van Houtte (2005), climate is a multidimensional construct which includes culture. Climate describes the total organization, including the relationships between individuals and groups within this organization, the physical environment, and the characteristics of both individuals and groups belonging to this organization. Culture on the other hand, reflects the totality of meanings and cognitive structures (Van Houtte, 2005). Traditional effective schools research, as described above, examines the influence of aspects of school climate, such as orderliness and safety, on school achievement (Creemers et al., 1999).

Research into the *classroom climate* can be found in classroom effects research and classroom environment research. Classroom effects research focuses on management techniques that are linked to climate factors, and which focus less on the school level. Classroom environment research examines students' perceptions of the classroom climate. In this approach, links between perceptions of classroom climate, and cognitive and affective outcomes are studied. Classroom environment research has its origin in teacher effectiveness research and studies that investigate the interaction between the person and the environment (Moos, 1979).

Teachers do not function within a vacuum, what they do in their classroom is strongly related with school climate (Muijs & Reynolds, 2005). Notwithstanding the link between classroom climate and school climate, these two concepts deal with different issues (Van Vilsteren & Witziers, 1989). Classroom climate refers to characteristics of the educational setting, whereas school climate refers to the organizational functioning of the school. While classroom climate refers to the relationships between the teacher and students, or between the students, school climate refers to the relationships between teachers, their colleagues, and the principal (Fraser, 1994). In what follows, we will examine the perceptions of both students and teachers regarding the classroom climate.

2.3.3 Interpersonal relationships as a dimension of classroom climate

Factors of the classroom climate are often operationalized as perceptions of students and teachers, also known as the perceptual measurements-organizational attribute approach (Fraser et al., 1991; Griffith, 2000; Anderson, 1982; Opdenakker et al., 2000). This means that the classroom climate is described

according to the experiences of the participants. Their behaviour is understood to be determined by the climate, which is assessed based on the collective perceptions of the classroom environment. Perceptions do not necessarily reflect reality, they refer to the manner in which students and teachers experience certain aspects of classroom life. It is assumed that the subjective experience of the daily environment influences their behaviour more than any objective classroom circumstance. Often times the way in which students and teachers experience the classroom climate is mutual. Nevertheless, more value is attributed to the perception of students than to those of teachers, because the student's perception is thought to be more reflective of the classroom reality (De Fraine, 2003). Research has also compared the manner in which students and teachers experience classroom climate with their image of what an ideal classroom climate is like (Wubbels, Brekelmans, & Hooymayers, 1991).
Classroom climate has been the subject of research for some time (Anderson, Hamilton, & Hattie, 2004). The most frequently used instruments in classroom environment research are the *Classroom Environment Scale* (Moos, 1979), the *Learning Environment Inventory (*Walberg, 1969), and the *My Class Inventory* (Fisher & Fraser, 1981). The description of organizational climate of Tagiuri (1968) is well known. Four dimensions are identified; (1) ecology (physical and material aspects), (2) milieu (the composition of the population, (3) social system (relationships between persons), and (4) culture (belief systems and values). Based on this description it can be ascertained that climate incorporates culture (Van Houtte, 2005). Translated to the educational context, classroom climate is described as "the mood or atmosphere that is created in the teacher's classroom through the rules set out, the way the teacher interacts with pupils, and the way the physical environment is set out" (Muijs et al., 2005, p. 107).

The dimension of the social system within an organization can be studied as a unit of the classroom climate (Anderson, 1982). According to Muijs et al. (2005) the relationship between teachers and students is the most important aspect of the classroom climate. Three types of classroom climate are distinguished: the competitive, the cooperative, and the individualistic classroom climate. These are situated according to the authority or the measure of leadership held by the teacher, as well as the measure of student orientation. In a *competitive classroom climate* there is no student authority, the teacher leads. Students are assessed and compared to one another. This type of classroom climate demands no cooperative skills or abilities from the students. A disadvantage is that this can have negative consequences for the self confidence of weaker students if they are constantly being compared to other students. In the *cooperative classroom climate* students are strongly involved in a dialogue monitored by the teacher. Students are allowed to discuss and introduce ideas; however, the teacher intervenes and helps to formulate and clarify their ideas to facilitate higher order thinking and creativity. The role of the teacher is to stimulate discussion, mediate debates, and intervene when

students disagree. At the end of the debate the teacher will summarize and organize the ideas expounded by the students. Students exchange essays and share ideas. The advantage of this type of class is that it helps develop social and cooperative skills. Students like working together, they find it motivating. Students in a cooperative classroom climate have more input compared to students in a competitive climate. However, this leads to the dominant students taking over for other less communicative students. In the *individualistic classroom climate* the students are expected to take responsibility for their own learning even to the point of self testing. The teacher acts as monitor. This allows students to work at their own level and to search for personalized answers on questions and tests. However, less talented students need a teacher's guidance or their progress will suffer. There is no development of cooperative skills here either.

The social quality of the classroom relates to perceptions and feelings about social relationships among students and teachers (Cheng, 1994; Tagiuri, 1968; Muijs et al., 2005). The classroom climate can be considered as a social context for learning. The social interaction process, i.e., the relationship between the teacher and the students, is an important dimension of the classroom climate. This is experienced by teachers as well (Day, Stobart, Sammons, & Kington, 2006). Terms, such as classroom psychological environment, classroom atmosphere, classroom social climate, classroom social interactions, and classroom social relationships, are often used interchangeably in classroom environment research. In the classification of Moos (1979), relationships within the classroom are also considered as a basic dimension of the classroom climate. The relationship dimension identifies the nature and intensity of personal relationships within the environment. Social relationships refer to the extent that students are supported by the teacher, the amount of involvement, and the extent to which students are enabled to participate in classroom activities and realize their freedom of expression. The manner in which the teacher approaches the student is crucial.

2.3.4 Wellbeing of the teacher as enhancement of interpersonal relationships in the classroom

Teachers are motivated by a desire to help students; they want to make a difference in students' lives through learning. This goal raises teachers' morale and keeps them motivated (Day et al., 2006). As a result, interpersonal relationships with students can be considered as an intrinsic reward at work. Research indicates that a positive relationship between teachers' wellbeing and interpersonal relationships with students in the classroom can be expected (Scott, Cox, & Dinham, 1999; Shann, 1998). On the other hand, daily intensive work of teachers with their students can be experienced as a

source of frustration (Huberman & Vandenberghe, 1999; Kelchtermans, 1999). Job dissatisfaction has a negative impact on the teacher, and the students then also have negative school experiences (Shann, 1998; Maslach & Leiter, 1999). Besides the link with interpersonal relationships in the classroom, job satisfaction of the teacher is also thought to be determined by the expectations with regard to student progress and achievement (Gaziel & Maslovaty, 1998; Nias, 1996). In this context teacher satisfaction is found to be related to self-efficacy (Aelterman, Engels, Van Petegem, & Verhaeghe, 2007). This refers to the extent to which teachers experience the feeling of purpose and achievement. Conley and Muncey (1999) state that the more teachers see results in their work, the higher their job satisfaction. Moreover, the more teachers trust students, the more satisfied teachers are with their jobs (Van Houtte, 2007). We conclude that job satisfaction is key to sustaining a positive sense of effectiveness in relation to students, relationships, and results (Day et al., 2006).

2.3.5 Link between classroom climate and student outcomes

Numerous studies have examined the relationship between classroom climate and cognitive and affective outcomes (Moriarty, Douglas, Punch, & Hattie, 1995; Cheng, 1994; Fraser & Fisher, 1982; Fraser, 1989; Maslowski, 2001). A positive classroom environment is found to be strongly and consistently associated with achievement and affective outcomes.

The link between classroom climate and academic achievement is central to much of the research into effectiveness in education (Anderson et al., 2004; Muijs et al., 2005; Fraser et al., 1991; Creemers et al., 1999). Student perceptions of their classroom environment may help explain their achievements (Hofman et al., 1999). There appears to be a link between better school results and high teacher expectations, stress on academic skills, the reward and encouragement of high achievement, and the measure in which students are allowed to take responsibility (Maslowski, 2001). A warm and supportive classroom climate is important in motivating students to contribute constructively in lessons. Teachers must succeed in creating an environment that is non-threatening and where student opinions are valued and respected. More student involvement in lessons is positive. As far as the relationship between teacher and students is concerned, a link with academic achievement has been established (Brekelmans, 1989). Teachers who are friendly, helpful, and display an understanding of their students are better able to get the most out of their students. Virgilio, Teddlie, and Oescher (1991) establish a higher score on agreeable classroom climate for more effective schools, in comparison to less effective schools.

In addition to research into the link between classroom climate and academic achievement, the link between classroom climate and affective functioning is also under examination. Improvement in classroom climate can lead to more motivation and interest in the taught subject (Moos, 1979; Fraser, 1986). Cheng (1994) reports that a good classroom environment is highly correlated with student affective performance. A good classroom environment is recognized as a place where teachers care for students, pay attention to teaching, do not use force or punishment, but instead create an agreeable environment with their professional knowledge, personal morality, and personality. Social interactions are perceived positively in that students are attentive to class activities and participate in discussions; they have good social relationships with each other and behave in an orderly and polite manner. The teacher is supportive, task oriented, establishes rule clarity, and encourages creative thinking in the students. Den Brok (2001) gives an overview of recent research on the link between the teacher's interpersonal behaviour and student affective functioning. Teachers with leading, friendly, and helpful behaviour can better motivate their students. The opposite is true for teachers who appear uncertain, and those who come across as strict and admonishing.

Researchers have also focused on the relationship between the learning environment and the teacher's interpersonal behaviour in the classroom (Wubbels et al., 1991; Wubbels, Brekelmans, den Brok, & Tartwijk, 2006). De Fraine (2003) distinguishes between an academic and communitarian climate and has studied the link with student wellbeing. In an *academic climate* teachers maintain high expectations for their students. Achievement is evaluated on a regular basis. This kind of climate is not necessarily competitive or strongly disciplined, but it has clear rules which are applied fairly and consistently (Phillips, 1997). In a *communitarian climate*, teacher-student interactions are warm and positive. This climate is comparable to the cooperative classroom climate described earlier. Students feel respected, valued, and that they are taken care of. These two approaches are not mutually exclusive. Truancy appears to be lowest in schools which are both academic as well as communitarian oriented (De Fraine, 2003). In addition, a communitarian climate has an indirect positive influence on student achievement via the sense of wellbeing. In general it is noted that a communitarian climate contributes to wellbeing, self-concept, motivation, and the behaviour of students (De Fraine, 2003). More specifically, the quality of the relationship between teachers and students is linked to wellbeing. These findings agree with the study of Anderson et al. (2004) which suggests that the social environment of the classroom has a significant bearing on student motivation.

We conclude that the role of the teacher, and the interactions with the students**,** are psychosocial aspects of the classroom environment that are essential for a harmonious development of students. Interpersonal relationships between teacher and students are considered as an important dimension of classroom climate, and are the subject of inquiry in classroom environment research. In this dissertation student and teacher perceptions are thought to provide an understanding of the psychosocial characteristics of the classroom environment. We focus on the link between perceptions of the classroom climate and student outcomes. Because interpersonal relationships in the classroom are often an intrinsic reward for teachers, we will also include teacher wellbeing in further analyses.

2.3.6 Conclusion

Within our theoretical framework various insights regarding quality and effectiveness in education have been described. An emancipatory vision on education is advocated by educational policymakers, who are led by changes in society. Indicators can be situated within a conceptual framework, such as in the empty components of the CIPO model (Scheerens, 1990). Evaluating educational quality means determining whether educational outcomes are realized. Within the last few decades attention has been paid to affective output factors such as student wellbeing (Samdal et al., 1999; Knuver et al., 1993). Throughout educational effectiveness research, diverse variables that enhance academic achievement are well known. Moreover, the work of Levine et al. (1990) and Sammons et al. (1995) offer a clear overview of possible factors bearing on academic achievements.

In this dissertation we focus on processes that are related to student wellbeing. Student wellbeing is considered as a valuable outcome next to academic achievement, and a relationship between both outcomes is expected. We believe that aspects of classroom environment research can be relevant in explaining affective student outcomes, i.e., student wellbeing. In that context, the link between the teacher's interpersonal behaviour and student wellbeing is examined. Teaching is not approached from the learning activities perspective, but rather from an interpersonal perspective (den Brok, 2001). The interpersonal relationship between teacher and students in the classroom is considered as an important dimension of classroom climate (Tagiuri, 1968). As mentioned above, it is expected that the interpersonal relationship between the teacher and the students, as an important intrinsic motivator, is also related to teacher wellbeing. Therefore, we investigate the link between teacher and student wellbeing. The main goal of this study is to examine which aspects and processes can improve student wellbeing.

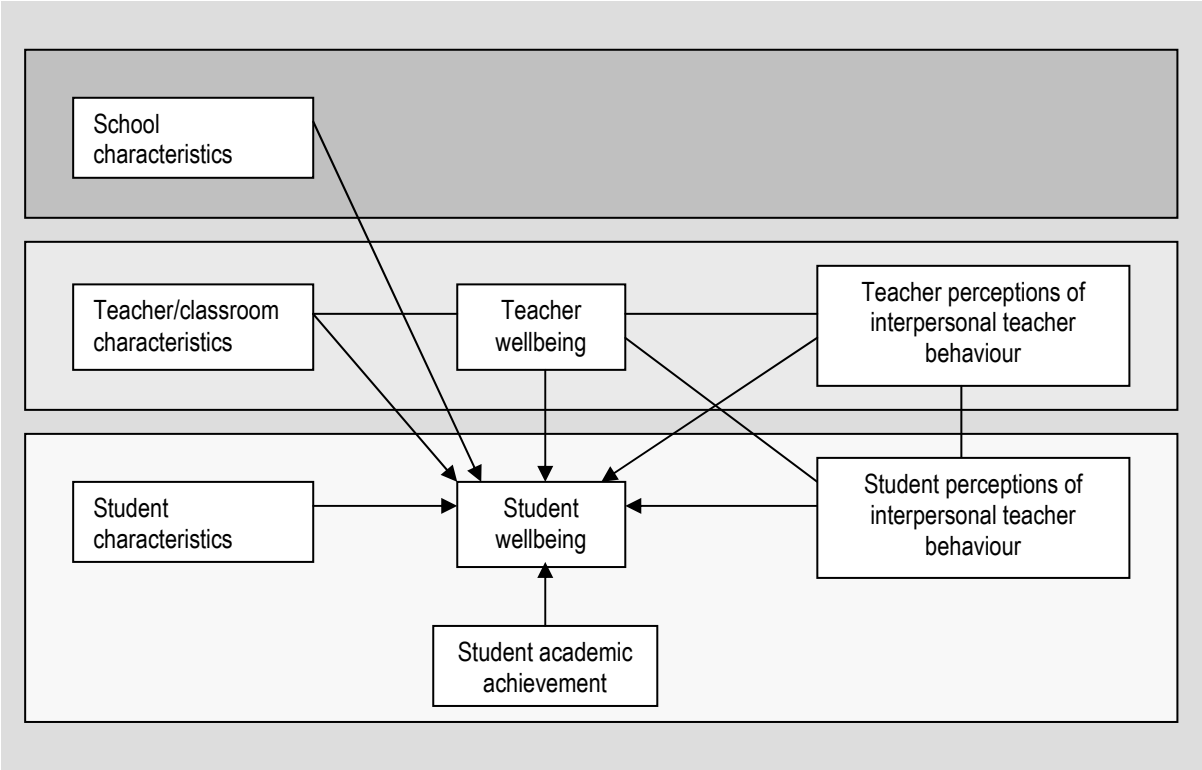
III. STUDY PURPOSE AND OVERVIEW OF THE CHAPTERS

3.1 Purpose of this study

Current educational policy mainly promotes academic achievement and student wellbeing as criteria that should be used to measure quality in education. Traditional research of educational effectiveness has studied the link between a number of variables and student academic achievement: at the classroom level, instructional variables are mainly related to academic achievement. The present study focuses on the wellbeing of students as output of the educational process; a link with academic achievement is expected. Furthermore, from an interpersonal perspective on education we investigate which student, teacher, and classroom variables are related to student wellbeing. Factors related to the interpersonal relationships between the teacher and students are included in the model to examine the link with student wellbeing. The relationship between student wellbeing and teacher wellbeing will also constitute part of our analyses. A hypothetical model that reflects the link between diverse variables at different levels is given in Figure 2.

This dissertation focuses on third and fourth year students (Grades 9 and 10) in technical and vocational training of secondary education. Research indicates a decrease in motivation and wellbeing among this group of students (Engels et al., 2004). Possible reasons for this decrease have been attributed to puberty and the school environment (Anderman & Maehr, 1994; Eccles, Lord, & Midgley, 1991). The mismatch between the needs and expectations of students and various aspects of their school environment are examined as a possible explanation. Other research notes negative attitudes towards school in students in the lower streams (Hargreaves, 1967; Van de gaer, Pustjens, Van Damme, & De Munter, 2006; Van Houtte, 2006). Often students in technical and vocational training are in these streams out of a second choice as a result of the cascade system. Over the years these streams have developed a negative image. However, the last few years have seen a revaluation of technical and vocational secondary education by the Flemish educational authorities (Vanderpoorten, 2000; Vandenbroucke, 2004; De Maeyer et al., 2003).

Figure 2. Overview of diverse variables situated within the hypothetical research model.



As shown in Figure 2, student wellbeing is the central concept of the research model used in this study. We stated above that educational effectiveness research suggests a positive link between student wellbeing and academic achievement (Samdal et al., 1999). We are looking for factors which might enhance student wellbeing, i.e., we want to know how diverse psychosocial aspects of the classroom are related to student wellbeing. Thus, in our model student wellbeing will be considered a performance indicator of quality in education, and variables which can enhance wellbeing will be explored. Classroom environment research has informed us that student and teacher perceptions of positive interpersonal relationships within the classroom are linked to the wellbeing of students, and will therefore be viewed in this study as an important dimension of the classroom climate (Tagiuri, 1968). The teacher is a crucial figure in the educational learning process. Considering the importance of working with students as an intrinsic motivator of the teaching profession, we expect that a positive perception of the teacher's interpersonal behaviour within the classroom is related to the wellbeing of the teacher (Scott et al., 1999; Shann, 1998). Furthermore, the relationship between teacher wellbeing and student wellbeing will be examined in more detail. We expect that students' perceptions of their relationship with the teachers are crucial to student wellbeing, even when the link with teacher and classroom variables is examined.

The variables used in our hypothetical research model (Figure 2) are organized on three levels; variables at the student level, variables at teacher/classroom level, and a limited number of variables at school level. No causal links are suggested in this model. The arrows indicate that student wellbeing is considered as a dependent variable. In other words, we propose only correlational links, rather than 'cause and effect'. We believe this model is progressive insofar as diverse approaches used in previous research have been brought together into one single research model.

The main research question of this dissertation is:
How are diverse psychosocial aspects of the classroom related to student wellbeing?

When answering this question, student, teacher/classroom, and school characteristics are taken into account. The psychosocial aspects of the classroom environment include the teacher's interpersonal behaviour as perceived by both teacher and students, and teacher wellbeing. The link with student academic achievement will also be explored. The operationalization of variables within our research model and their possible links are detailed in the following chapters.

3.2 Overview of the chapters

Figure 3. Overview of the chapters.

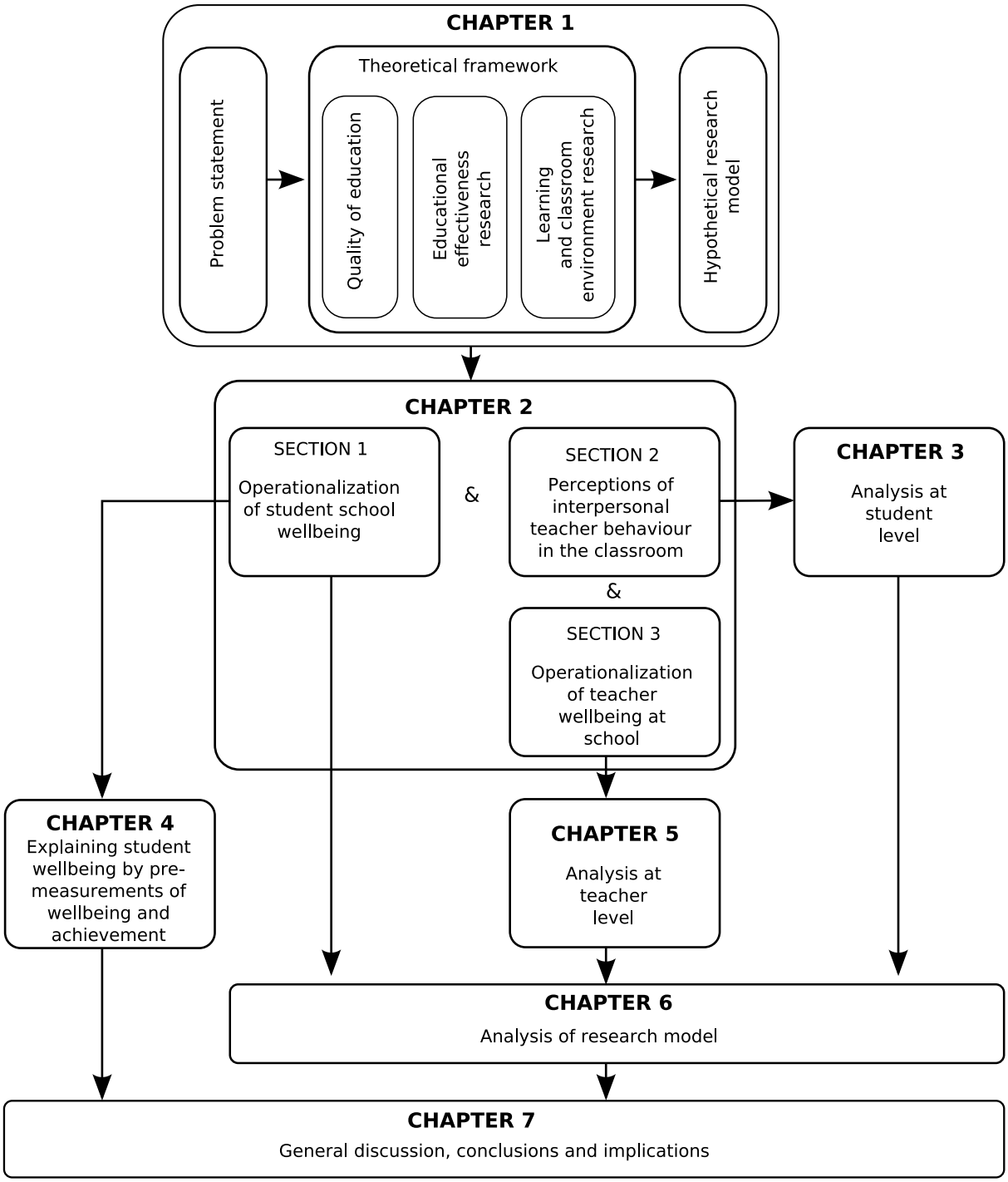


Figure 3 gives an overview and brief description of each chapter in this study. In the current chapter, Chapter 1, we began with the statement of the problem that is central to this study. Secondly, the theoretical framework describes how quality of education is conceived. The knowledge base of educational effectiveness research and a useful conceptual model, derived from this approach, are included. Aspects of classroom environment research, such as the teacher's interpersonal behaviour, are described in the last section. Thirdly, the purpose of the study, together with an overview of the variables situated within the hypothetical research model is presented.

The education inspectorate considers student wellbeing as a criterion for quality of education. Within the conceptual framework this affective component is a valid output factor of the educational process. It is assumed that student wellbeing enhances academic achievement. The attention we pay to student wellbeing must be seen in the context of an emancipatory vision on education which strives for harmonious development.

The first section of Chapter 2 describes how the wellbeing of students at school is operationalized (see Figure 3). The diverse aspects of wellbeing (feeling, satisfaction, and behaviour) are included. A distinction is made between current and sustainable wellbeing (Eder, 1995). An exploratory factor analysis (with Amos) reduces student wellbeing into a simple measure which is useful for further analyses. This operationalization of student wellbeing creates a manageable concept.
Interpersonal relationships between teachers and students in the classroom are an important dimension of the classroom climate and a reflection of psychosocial factors within the classroom. The second section of Chapter 2 includes a simplification of the model of interpersonal teacher behaviour (Wubbels et al., 1991). Four poles on two dimensions provide the basis for a distinction between different types of interpersonal behaviour. This typology allows for the profiling of each teacher. Further analyses include student and teacher perceptions of the teacher's interpersonal behaviour in the classroom.
Interpersonal relationships between the teacher and students are an important source of intrinsic motivation for the teacher. For this reason, a link between the teacher's interpersonal behaviour and teacher wellbeing is suggested. In the third section of Chapter 2 an operationalization of teacher wellbeing is included. Similar to the first section, an exploratory factor analysis (with Amos) is performed in order to simplify the wellbeing construct (teacher wellbeing) into a manageable concept that can be used in further analyses.

In conjunction with classroom environment research, Chapter 3 focuses on the link between the students' perceptions of the teacher's interpersonal behaviour as a process variable, and student wellbeing as an output factor. As shown in Figure 3, at the student level this analysis integrates concepts of the first and second section of Chapter 2. Following the work of Creemers (1996), we expect that student wellbeing will be strongly related to a variety of environmental factors. We infer that the manner in which students perceive their teacher's interpersonal behaviour correlates with students' wellbeing. A teacher who is perceived by the students as one that takes charge yet demonstrates understanding and friendly behaviour towards students will enhance student wellbeing. Student characteristics such as gender, nationality, study orientation, and motivation to attend school are controlled for in this part of the analysis. At the same time, the link between student wellbeing and academic achievement is examined. A positive link is hypothesized.

Even though this study approaches student wellbeing as a dependent variable, the link with academic achievement is also verified. We expect a positive link between student wellbeing and academic achievement. Traditional educational effectiveness research views enhancement of academic achievement as the main goal of education, often reflected in mathematics and language results. For many years, educational policy considers academic achievement in these two basic areas as important for a community's socio-economic development. Even within current society the importance of these basic competencies is repeatedly emphasized (Creemers, 1996). The link between student wellbeing and academic achievement is described in Chapter 4: student perceptions of the teacher's interpersonal behaviour are used as process variables in the analysis. Within the conceptual framework student academic achievements, along with student wellbeing, are both valid output factors of the learning process.

Chapter 5 integrates concepts of sections 2 and 3 of Chapter 2, and proceeds with an analysis at the teacher level. This analysis verifies the link between the teacher's interpersonal behaviour, as perceived by the teacher and the teacher's wellbeing. Teacher characteristics such as age, gender, parental status, experience, and job security are taken into account. We hypothesize that teacher wellbeing is high for those who have firm control of their students, yet the distance in the relationship is small.

In Chapter 6 the hypothetical research model is tested. The relationships between the different variables, especially links with student wellbeing, are brought into focus. The link between the teacher's perceptions of his/her interpersonal behaviour, teacher wellbeing and student perceptions of the teacher's interpersonal behaviour are examined. In addition to this, student wellbeing is examined in this complete research model. It is expected that student perceptions of the teacher's interpersonal

behaviour will be related to student wellbeing, even when other variables are included into the multilevel model. It is hypothesized that there will be a positive link between teacher and student wellbeing, as well as between student wellbeing and academic achievement.

Finally, Chapter 7 gives an overview of the results and integrates all findings of the previous chapters into a general discussion. Limitations of this study, directions for further research and practical implications are described. Following this, some final conclusions are formulated.

IV. RESEARCH SAMPLE AND METHODOLOGY

4.1 Research sample

The sample used in this study is extracted from a database of the education inspectorate. The database contained all schools which were inspected during the 2003-2004 school year. Schools which provide technical and vocational secondary education were selected. Within these schools the most common study options of Grades 9 and 10 were selected. Between these options a certain classification was made based on mean scores for language and mathematics. According to this analysis the study options could be classified as; strong, average, or weak. These criteria are in agreement with that of the PISA2000 study (De Meyer, De Vos, & Van de Poele, 2002). Mean scores in reading and mathematics are used as cognitive output or academic achievement in educational effectiveness research (Knuver et al., 1993; Van Damme & Onghena, 2002). The strong study options include industrial sciences, technical-scientific sciences, and social and technical sciences. The average options are electro-mechanical, electro-technical and mechanical technical, and office and sales studies. The weak options include care/nutrition, electrical installation, metal and woodworking.

A total of 24 schools fulfilled our criteria and were qualified. In June 2003 these schools were sent a written request for participation and were subsequently contacted by telephone. The letter referred to a meeting organized by the education inspectorate (May 5, 2003) in which the study was presented and a request for participation was issued. This request was posted on the inspectorate's website. Of the 24 schools contacted, 5 schools opted not to participate. All other contacted schools agreed to our request. One school had already volunteered participation in response to the web posted information. As this school fell within the aforementioned conditions, it became part of our sample even though the school was not in the database (i.e., not inspected in 2003-2004). Finally, the research sample consisted of 20 schools which are listed in Table 1. These schools were spread over various provinces. Four schools from West Flanders, three from East Flanders, seven from Antwerp, four from Limburg, and two schools from Flemish Brabant participated in this study. As shown in Table 1, 13 of these schools belong to the free subsidized educational network, while 7 schools are part of the official schools educational network. The 2003-2004 school year had a total of 427,922 students in 909 secondary schools. This produces an average of 470 students per school. Schools with a student number greater than 470 were classified as large, while schools with fewer than 470 students were classified as small schools. Based on this criterion our sample contains 13 large and 7 small schools. We notice that the majority of the catholic schools (free subsidized education) in our sample are large schools, whereas the official subsidized

schools are mostly small.

Table 1

Overview of the student numbers of participating schools

School	School size	Denomination	Total	Year 1/2	GSE	VSE	TSE
School 1	Large	Free subs	657			310	347
School 2	Large	Free subs	741			379	362
School 3	Large	Free subs	1200	392		348	460
School 4	Large	Free subs	612		340	109	163
School 5	Large	Free subs	1460	398		446	616
School 6	Large	Free subs	707	201		223	283
School 7	Large	Free subs	659	209		163	287
School 8	Small	Free subs	471	151		87	233
School 9	Large	Free subs	781	210		230	341
School 10	Large	Free subs	2952	770		664	1518
School 11	Large	Free subs	780	252		234	294
School 12	Large	Free subs	685		231	249	205
School 13	Large	Free subs	1848			898	950
School 14	Small	Official subs	299			185	114
School 15	Small	Official subs	311		96	132	83
School 16	Large	Official subs	531		201	204	126
School 17	Small	Official subs	471	136		183	152
School 18	Small	Official subs	370		176	128	66
School 19	Small	Official subs	235			134	101
School 20	Small	Official subs	189	99	19	66	5

Note: Large = large school; Small = small school; Free subs = free subsidized education; Official subs = official subsidized education; Total = total number of students per school; Year 1/2 = total number of students in the first and second year (Grades 7 and 8), GSE = total number of students in general secondary education; VSE = total number of students in vocational secondary education; TSE = total number of students in technical secondary education.

The participating students were selected according to a three stage sampling strategy. First, the schools were sampled. Within each of the sampled schools, certain class options were sampled. Finally, all of the students of these classes were the final sample. This indicates a hierarchical structure which determines the statistical analytical methods to be used.

4.2 Methodology

The present study used a repeated measures design. This involved two phases of data collection. The first stage of data collection took place in October 2003. Students and teachers were questioned at the beginning of Grade 9 (third year) of technical and vocational secondary education. Of the 20 schools which were willing to participate in the research study 129 classes were selected based on study options. This amounted to a total of 1701 students. All students and 3 teachers per selected class (2 for either mathematics or Dutch for theoretical subjects, and 1 for a practical course) made up the analysis units. During the first stage of data collection, 271 teachers were questioned. Teachers of theoretical subjects were classified separately from those teaching practical subjects, allowing for the possible importance of student attitude towards the different subjects (Doppelt, 2006). A crucial characteristic of technical and vocational secondary education is the practical experience in the field of study and practical instruction. In some analyses, a further division within the theoretical subjects, mathematics and language (Dutch), can be useful as this division appears relevant in other research (Van Den Broeck, Opdenakker, & Van Damme, 2005).

The second stage of data collection took place in June of 2005, when the same group of students was finishing Grade 10 (fourth year). Out of the 20 schools and 129 classes (1701 students and 271 teachers), which had been selected for the first stage of data collection, a total of 1203 students remained, and 246 teachers were willing to continue to cooperate with this research.

The above sections hopefully give a clear overview of this dissertation; a logical sequence of the different chapters has been used. Once the operationalization of the basic concepts has been established, the links between the diverse variables are studied. As stated above, the data contain a hierarchical structure and therefore analyses are executed at different levels. At the first stage of our analyses, each level is taken into consideration separately. Following this, analyses of correlations between variables of different levels are examined. Multilevel techniques are applied.

While the analyses in this study are primarily quantitative, qualitative analyses were implicitly important for the choice and development of the research instruments. Every chapter includes a description of the used analytical techniques dependent on the research questions centralized. Once all separate factors have been examined the entire research model will be tested.

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CHAPTER 2

MAIN VARIABLES OF THE RESEARCH MODEL

I. INTRODUCTION

In Chapter 1 of this dissertation, a conceptual framework was derived from educational effectiveness research. Indicators were selected within this framework to evaluate the quality of education. Positioning different indicators towards each other lead to our hypothetical research model which we use to examine how diverse psychosocial aspects of the classroom are related to student wellbeing. Before analyses are performed to examine these relationships, we now describe how the main concepts of the research model are operationalized and measured.

As stated in Chapter 1, a harmonious development is a requirement for a good quality of education. This means that alongside student achievement, student wellbeing deserves attention and as such is the main variable of focus in this chapter. In the first section below, conceptual choices are made and the way student wellbeing is measured is explained. Simplifications of existing measurements are needed and a psychometric analysis is performed to demonstrate the utility of the student wellbeing concept for further, more complex analyses.

Apart from 'student wellbeing', other variables related to the educational process that are relevant for student wellbeing are described. Based on classroom environment research, we focus on two main characteristics: perceptions of the teacher's interpersonal behaviour and teacher wellbeing. In the second section, perceptions of the teacher's interpersonal behaviour are expounded because we expect that the student-teacher relationship in the classroom is an important dimension of the classroom climate and is related to student wellbeing. The model of interpersonal teacher behaviour is simplified in order to derive a usable construct. The third section includes a definition of teacher wellbeing and analyses are performed to describe the psychometric properties of the teacher wellbeing construct. The aim of this chapter is to provide conceptual clarity for further analyses.

II. MEASURING STUDENT WELLBEING AT SCHOOL

2.1 Introduction

The scientific study of subjective wellbeing developed partly as a reaction to the overwhelming emphasis on negative states in psychology. A positive psychology movement emerged to counteract the fact that almost no research was devoted to people's strengths and positive characteristics (Seligman & Csikszentmihalyi, 2000; Arthaud-Day, Rode, Mooney, & Near, 2005; Luthans, 2002; Schaufeli & Bakker, 2001). In the positive psychology approach a shift has been made towards pro-active techniques and building strengths in people. The positive psychology movement is a reaction to the preoccupation in general psychology with the negative aspects of human functioning and behaviour. Moving from a deficit-driven perspective to a strengths-based perspective was a challenge, in that it was a change in focus from survival and basic needs to 'beyond survival' (e.g., development, protection, provision, and participation); in other words, from the negative to the positive (Fattore, Mason, & Watson, 2007).

2.2 Subjective wellbeing

Befinden is a basic concept used by Eder (1995, p. 16) and is described as *"affektiv-wertende selbst-wahrnehmung einer person in ihrem lebensraum"* (affectively valued self-observation of a person in his environment). The *lebensraum* is in this context the individual world which exists for a particular person based on his needs and expectations (Eder, 1995). The idea of *befinden* has a judgmental evaluative component which can be good or bad, positive or negative. In Eder's view, *befinden* in the positive sense can be translated as *wohlbefinden* or wellbeing and coincides with psychological health. Many international studies focus on subjective wellbeing (Ben-Arieh, 2005; Arthaud-Day et al., 2005; Nieboer, Lindenberg, Boomsma, & Van Bruggen, 2005; Diener, Suh, Lucas, & Smith, 1999). Subjective wellbeing can be described as a broad category of phenomena that include people's emotional responses, domain satisfaction, and global judgments of life satisfaction (Diener et al., 1999). Nevertheless, with the wellbeing construct there is a lack of consensus, both at the level of definition and explanatory theory (Eid & Diener, 2004).

Subjective wellbeing is *a multidimensional construct*, i.e., both a judgment and a psychological state of health (Diener & Fujita, 2005; Arthaud-Day et al., 2005; Eder, 1995). Wellbeing is considered as a comprehensive concept that involves people's affective (moods and emotions) and cognitive

evaluations of their lives. Within this meaning, the emotional interpretation and cognitive processing of what happens to an individual is what determines their state of wellbeing. This distinction between a cognitive and an affective component of wellbeing is generally accepted (Nieboer et al., 2005; Arthaud-Day et al., 2005; Diener et al., 1999; Rask, Astedt-Kurki, Tarkka, & Laippala, 2002). In the study of Kaplan and Maehr (1999), cognitive and emotional experiences are examined, in addition to behavioural experiences. The authors believe that feelings and satisfaction are reflected in behaviour. These indicators become sets of measurements when dealing with student wellbeing, and they are tools used in developing and evaluating policies as well.

In literature, there is no consensus as to whether subjective wellbeing can be understood as a stable trait or a momentary state. First, where researchers believe that the influence of objective circumstances is limited, wellbeing is considered as a *trait* (Costa, McCrae, & Zonderman, 1987). Despite momentary influences on the measures, substantial stability in satisfaction is found. However, a longitudinal study of subjective wellbeing indicates that between 44% and 52% of the variance in wellbeing is attributable to genetic influences (Lykken & Tellegen, 1996). It is therefore arguable that a significant proportion of subjective wellbeing is also due to personality. Indeed, numerous studies have found personality correlates of subjective wellbeing (Diener & Lucas, 2003; Myers & Diener, 1995). For example, extraversion, self-esteem, and optimism have been demonstrated as being positively related to positive affect, whereas neuroticism is positively related to negative affect.

Second, the assumption of 'wellbeing as a trait' has been criticized by others who argue that wellbeing can change over time. Circumstances in which people spend a considerable amount of time may have a significant impact on their wellbeing (Konu, Litonen, & Autio, 2002). Wellbeing is a socially contingent construct embedded in society and culture. It is prone to change and redefines itself over time. Wellbeing is then considered as a *state* (Kozma, Stone, & Stones, 2000).

Third, according to Diener et al. (1999) wellbeing has both trait-like and state-like components. The authors indicate that "the working model of researchers in the field is that personality predisposes people to certain affective reactions but that current events also influence one's current levels of subjective wellbeing" (Diener et al., 1999, p. 280). The link between momentary mood ratings and global judgments of subjective wellbeing is also examined by Eid and Diener (2004).

Apart from the state-trait discussion, Eder (1995) makes a distinction between the *aktueller (wohl)befinden* (current wellbeing) and the *habituellem (wohl)befinden* (habitual, sustainable wellbeing): the 'here and now' circumstantially determined state of wellbeing and the long term state of wellbeing. As indicators of a current, circumstantially oriented state of wellbeing (the *aktueller wohlbefinden)*, Eder (1995) refers to the immediate aspects of feeling good, satisfaction with elements of the situation, in

addition to feelings of fear and various psychological and psychosomatic factors induced by the situation. Indicators of sustainable wellbeing are general self-confidence, the image of one's own capabilities, one's self image, self-esteem, as well as one's social and emotional self image (the *habituellem wohlbefinden)*. There is also a continual exchange between current and sustainable wellbeing. Current wellbeing is the result of influences coming from various directions to the person: a person's judgements (cf. satisfaction) and perceptions (cf. feelings) of specific situations create personal needs and expectations. Through repeated exposure to these forces, some perceptions become internalized. As a consequence, people develop certain attitudes. After some time, personality characteristics become specific to the person and are described as indicators of sustainable wellbeing. These personality characteristics are, in turn, the starting point from which the current situational perception takes shape (Marsh, Oliver Lüdtke, Köller, & Baumert, 2006).

2.3 Student wellbeing at school

Students are, with their personal needs and expectations, a kind of sub-system within a more extensive system, i.e., the school. In its turn, school is part of a specific social context (Wielemans, 1995). The needs of students are not static but are formed by a social reality, i.e., the environment. Specific to the relationship between the students and their environment is that there has to be evidence of a mutual relationship, a person-environment fit model (Kristof, 1996). A dynamic approach is used when defining the concept of student wellbeing at school (Vos, 1990). Literature on this subject reveals the following description of student wellbeing at school:

> "Wellbeing at school (of students in secondary education) expresses a positive emotional state which is the result of a harmony between the sum of specific context factors on the one hand and personal needs and expectations towards the school on the other hand" (Engels, Aelterman, Schepens, & Van Petegem, 2004a, p. 128).

In this study 'wellbeing at school' is a dynamic concept reflected by the term 'harmony' and refers to the fit between context factors, as well as the personal needs and expectations of students. This definition of student wellbeing fits into the positive psychology movement (Luthans, 2002; Seligman et al., 2000). The 'positive emotional state' has a positive connotation, which concentrates less on the correction and remediation of problem behaviour, and more on offering harmonious training to young students based on an emancipatory, person-oriented view of education which furthers student wellbeing. In sum, the focus of this study is on students' strengths and positive characteristics rather than burnout and stress.

As already mentioned, it can be stated that wellbeing at school has a cognitive component (cf. judgement), as well as affective (cf. feelings) and behavioural facets. To gain insight into these facets, an examination of students' perceptions of their own wellbeing is essential. Students are considered as active participants in their own environment and should be given a voice (Ben-Arieh, 2005; Karatzias, Power, & Swanson, 2001; Perreijn, 1993); they are capable of indicating what is important for their wellbeing at school and they want to be heard (Ben-Arieh, 2005); and are also viewed as acting and reflexive subjects with personal perspectives. Therefore attempting to understand student wellbeing and exploring their view of what constitutes their wellbeing, the student must be centralized. This starts from engaging with the students as social actors that are driven by their experiences and opinions (Fattore et al., 2007). This way we can identify the key domains which can be operationalized for monitoring and measuring important aspects of wellbeing. The important point here is that students should have the role of active participants in research, i.e., as actors and knowers, able to speak for themselves, rather than of subjects of research (Ben-Arieh, 2005). Allowing students to be the source of information has the advantage of gaining information about their experiences in diverse situations characteristic of school life. Only when we can develop means of gathering students' subjective perceptions of their school experiences, we can create an accurate measure of student wellbeing. An obvious concern in this regard would be the accuracy of students' self-reporting, however, Myers et al. (1995) indicate that the effects of social desirability do not invalidate the wellbeing measures: students want to be listened to and articulate what is important to them in ways that they find interesting (Ben-Arieh, 2005).

In this study the state-trait debate has been taken into account. If use is made of indicators of sustainable wellbeing, the differences between schools and classes are not really evident. When the focus is on the effort of schools and teachers to develop students' wellbeing, then measuring 'current wellbeing', i.e., current feelings and satisfaction, seems to be the best option. This also includes behaviour as an expression of feelings and satisfaction. Schwarz and Strack (1999) argue that reports of wellbeing are highly context dependent. They demonstrate that situational conditions can strongly influence self-reports of satisfaction. Despite the impact of personality on wellbeing, circumstances can matter (Diener et al., 2005). Individuals usually use their current mood as an indicator of their wellbeing (Schwarz & Strack, 1999).

2.4 The Wellbeing Inventory of Secondary Education

In an earlier study the Wellbeing Inventory of Secondary Education (WISE) was developed (Engels et al., 2004a; Engels, Aelterman, Van Petegem, Schepens, & Deconinck, 2004b) to examine a tendency of reduced motivation in students' wellbeing at school (Anderson, Hamilton, & Hattie, 2004). The WISE is also used in the present study, as we adhere to the positive psychology movement (Luthans, 2002; Seligman et al., 2000). This instrument sheds light on diverse aspects of student wellbeing and can be considered as the most complete questionnaire about current student wellbeing in secondary education. It is a self-report questionnaire and is used by the education inspectorate and schools to measure student wellbeing as indicator of educational quality. This extensive questionnaire takes specific and contemporary context variables of Flemish schools into account. Starting points for action plans can be generated from the results.

The construction of the items used in the questionnaire resulted from a qualitative analysis of approximately 57 panel discussions (Engels et al., 2004a). The essence of the panel discussions was to ascertain which perceptions were considered by students as relevant to their wellbeing at school. Each panel discussion was based on open questions which stimulated the free expression of students' opinions and feelings. A qualitative analysis (with Atlas.ti) attempted to make sense of, or interpret, phenomena in terms of the meanings students bring to them.

Based on student experiences the definitive version of the questionnaire was developed. The WISE consists of 117 items. Specific personal characteristics, such as student gender, age, study options, and motives for attending school, were included. Following this, questions that best reflected student wellbeing were formulated. Four different types of questions can be distinguished: questions related to feelings, satisfaction, behaviour, and more general questions about wellbeing at school. In order to assess the affective (feelings) component of wellbeing, students were asked to rate the frequency and the intensity of their emotions (Diener & Larsen, 1993). The general questions about wellbeing at school are: (1) I usually like going to school; (2) I would prefer to go to another school; (3) I really like my school; (4) I generally feel good at school. Using different types of questions reflects the multidimensional character of the wellbeing construct. All items were scored on a 5-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree). Questions that were negatively formulated were reverse scored for the analysis. The questions were constructed around themes that are crucial for students' wellbeing at school. Questions concerning student perceptions of the classroom and the school as a learning and living environment were included; as were student involvement, contact with

teachers, and perceptions of the learning process. Within the school context, questions about infrastructure and facilities, action plans, school atmosphere, rules, and contact with other members of the staff were included. Furthermore, items related to study pressure and the curriculum were also part of the WISE. Finally questions about student behaviour and interaction with peers were included.

The difficulty in measuring student wellbeing is that it is a subjective concept concerning the student's interpretation of external circumstances. The answers to questions about satisfaction are sensitive to positive and negative connotations of the terminology used. Interpretations will vary from student to student and from one time to another (Wikman, 2006). Thus, student wellbeing is not easily measured in the objective sense.

The goal of this section is to examine the psychometric properties of the wellbeing construct. For pragmatic reasons we want to develop a simple operationalization and measure of student wellbeing that can be included in further analyses. Due to the relevance of the Wellbeing Inventory of Secondary Education (WISE) (Engels et al., 2004a; Engels et al., 2004b) in this dissertation, an extensive description if its inception, development, and usefulness has been included. The focus is on current wellbeing, aspects related to sustainable wellbeing are excluded.

2.5 Sample

A sample of 1701 Grade 9 students, attending technical and vocational training schools in Flanders (Belgium) participated in this study. The students were selected using a three-stage sampling strategy. First, a sample of 20 schools was drawn from a database of the inspectorate that consists of all technical and vocational training schools inspected in the school year 2003-2004. Second, within all of these schools, 129 classes of the 10 most common study options were selected. Third, data of all 1701 students in those classes were used to perform the analysis. After receiving informed consent from principals, students were approached at the beginning of Grade 9 and asked to fill out the WISE.

2.6 Results

First, in order to simplify the wellbeing construct derived from the WISE, a principal axis factor analysis with varimax rotation was performed on the data in SPSS. A scree plot of the principal axis factor analysis indicated that a one factor solution could be clearly supported. The goal was to determine how the wellbeing concept can easily be calculated as a sum score of some items of the WISE.

As the maximum likelihood method of estimation assumes multivariate normality, skewness and kurtosis measures of all items were screened. These values must be between -1 and +1. Some missing data caused problems in executing data analyses. In the methodological literature on missing data (Graham & Hofer, 2000), there is a growing consensus that modern missing data techniques have several advantages over traditional listwise or pairwise deletion, mean substitution or regression substitution methods. To deal with missing data in our study, the expectation-maximization (EM) procedure was executed (Bunting, Adamson, & Mulhall, 2002).

Following this, an exploratory factor analysis was performed on all 117 items of the WISE with Amos (Arbuckle, 2005). One (wellbeing) factor was postulated a priori with an aim to extract items with the highest significant factor loadings. A sum score of these items would then represent the student wellbeing measure. Student wellbeing was considered as a latent variable. For identification reasons the regression weight of one item with the latent construct was fixed at one. From an interpersonal perspective on teaching (den Brok, Brekelmans, & Wubbels, 2004) an item regarding the relationship between the students and the teacher was chosen.

The first step taken to reduce the amount of items was to eliminate the items with a regression coefficient that was not significant at the 0.01 level. However, based on this criterion no items could be deleted, which is possibly due to the large sample size. In a second step, all pairs with significant error correlates were examined more closely. It was decided that error correlates would not be tolerated because they refer to unexplained correlations, which have nothing to do with the latent factor. Indeed, these error correlates are often the result of content overlap. When the modification index of the Amos output (Arbuckle, 2005) appeared larger than 20, only one of the two items was selected to remain in the model. This selection procedure was based on reasons related to content; the item that is most generally formulated remained in the model. Based on these modification indices a reduction of items was executed in a systematic way, starting with the highest indices.

Based on this procedure, nine items were retained. Below, items are listed in the order of regression weight estimates from the highest to the lowest:

ITEM 81: Are you satisfied with teachers' attitudes towards the students? ($\lambda = .72$)

ITEM 116: Are you satisfied with the way the school board directs the school? ($\lambda = .69$)

ITEM 84: Are you satisfied with the support staff's attitude towards students? ($\lambda = .67$)

ITEM 113: Can you participate enough at school? ($\lambda = .60$)

ITEM 49: Do students with problems receive enough support? ($\lambda = .57$)

ITEM 18: Are you satisfied with the didactical materials used during the lessons? ($\lambda = .57$)

ITEM 83: Do you learn at school what you want to learn about? ($\lambda = .51$)

ITEM 71: Do you respect all school rules? ($\lambda = .45$)

ITEM 65: Are your teachers too strict? ($\lambda = .28$)

The goodness-of-fit statistics indicate whether a model fits the data. For this model a chi-square value (χ^2) of 81.985 (df = 27; p = .000) was found. In evaluating the model fit, we will supplement the model χ^2 statistic with both an absolute and an incremental fit index (Bollen, 1989; Hu & Bentler, 1999). Absolute fit indices evaluate how well an a priori model reproduces the sample data. We reported the Root Mean Square Error of Approximation (RMSEA; Brown & Cudeck, 1993) for which a value of 0.06 or lower indicates a good fit. Incremental fit indices evaluate model fit by comparing a target model to a baseline model. Typically, the null model in which all the observed variables are uncorrelated is used as a baseline model. We reported the Comparative Fit Index (CFI; Bentler, 1990). We also gauged model fit through the Goodness of Fit Index (GFI; Joreskog & Sorbom, 1996). For the CFI and GFI, values of 0.90 and 0.95 or higher indicated a reasonable and good fit respectively (Hu et al., 1999). The fit indices of this model were a RMSEA of 0.039, a CFI of 0.98, and a GFI value of .987. These values refer to an excellent fit of the model and indicate that student wellbeing can be calculated as a sum score of nine selected items.

An interpretation of these nine items suggests that different aspects of the school as a learning and living environment (van der Veen, 1989) are reflected in student wellbeing. Items 81, 84, 49, and 65 refer to students' relationships with teachers and supporting staff at school. Interpersonal relationships with significant others at school seem to be very important for students' wellbeing. Items 116, 113, and 71 are related to the school level, i.e., the way the school board leads the school and facilities for students determine students' wellbeing. Items 18 and 83 refer to the learning content and didactical aspects of school life that are crucial for students' wellbeing. Furthermore, a Cronbach's alpha of 0.8 indicates that, based on these nine items of the WISE, a reliable construct of student wellbeing can be calculated.

While the regression coefficients of all nine items were significant, the regression coefficient of item 65 was rather low ($\lambda = .28$). Starting from an interpersonal perspective on teaching, this item was selected as an identification of the model: the interpersonal relationship between the teacher and the students is considered as an important aspect of classroom climate (Fraser, 1994; Maslowski, 2001) and thus why the item was kept in the analysis, but as the results indicate it would have been better if a more general

item (one that refers to the interpersonal relationship between the teacher and the students) had been chosen. Item 65 describes the teacher's strict behaviour in relation to the students. The regression coefficient of item 81 is the largest ($\lambda = .72$) and also refers to the interpersonal relationship between the teacher and the students in the classroom. Since item 81 is formulated in a more general way in comparison with item 65, selecting item 81 to identify the model would have been a better choice. Another possible reason why the regression coefficient of item 65 was rather low is that it refers to an affective aspect (mood or emotion) of student wellbeing, while the items with the highest regression coefficients cover cognitive aspects (satisfaction).

2.7 Conclusion

The Wellbeing Inventory of Secondary Education (WISE) (Engels et al., 2004b) is a questionnaire that was developed for the education inspectorate and can be used by schools for self-evaluation purposes to examine student wellbeing as indicator of quality of education. This questionnaire is a practical instrument and action plans can be derived from the results. Nevertheless, the WISE is rather extensive, especially when only a simple measure of student wellbeing is needed for more complex analyses. In this section an exploratory factor analysis was performed on the items of the WISE to obtain a measure for student wellbeing at school. We believe that a reliable and simple measure has been derived from our analysis. Student wellbeing can now be calculated as a sum score of selected items of the WISE in order to be used in further analyses, described later in this dissertation. Our analyses indicate that students' relationships with teachers and supporting staff at school, the leading capacities of the school board and facilities for students, together with the learning content and didactical aspects of school life are crucial for student wellbeing. When these results are compared to other questionnaires that measure student wellbeing, we believe that we have succeeded in developing a condensed concept without loosing content value (Elchardus, 1999; De Fraine, 2003; Stoel, 1980). This section indicates that a valid and reliable concept has been developed and the WISE is an ideal instrument to collect this information. The measurement and operationalization of the student wellbeing construct can be considered as acceptable because the fit indices refer to an excellent fit and a Cronbach's alpha of 0.8 indicates that student wellbeing is a reliable construct. This analysis has to be considered as a starting point for further research to examine how psychosocial aspects of the classroom are related to student wellbeing.

III. PERCEPTIONS OF THE TEACHER'S INTERPERSONAL BEHAVIOUR IN THE CLASSROOM

3.1 Introduction

Teaching can be studied from an interpersonal perspective which means that teacher behaviour is described and measured in terms of the student-teacher relationship. Such interpersonal relationships are considered as an important aspect of the classroom climate (Fraser, 1994; den Brok, 2001; Tagiuri, 1968). These psycho-social characteristics of the classroom can be perceived by both participants, i.e., the teacher and students. Within classroom environment research, the relationship between perceptions of the teacher's interpersonal behaviour and student outcomes is examined (den Brok et al., 2004).

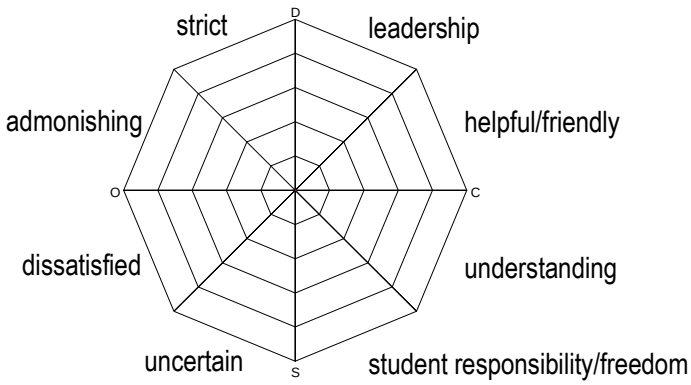
3.2 A model of interpersonal teacher behaviour

A model of interpersonal teacher behaviour has been developed by Wubbels, Créton, Brekelmans and Hooymayers (1987). This model is based on the systems approach to communication (Watzlawick, Beavin, & Jackson, 1967) and is inspired by the general model of interpersonal diagnosis of personality designed by Leary (1957). In the systems approach to communication, the effect of communication on the persons involved, i.e., the relationship between communication and behaviour is centralized. Leary suggests that interpersonal interactions are controlled by a desire to avoid anxiety while maintaining self-esteem. Successful interactions are repeated so that these interaction patterns are sufficiently established and recognized as a specific style of communication. Dimensions of interpersonal behaviour can be arranged to represent behavioural variation. This model is adapted to instructional settings such as the classroom.

Figure 1 illustrates the model of interpersonal teacher behaviour. Within this model two dimensions, represented as orthogonal axes, are distinguished. The influence dimension divides the model into a dominant pole (D), or upper part, and a submission pole (S), or lower part. The influence dimension represents the degree to which a teacher leads the communication in the classroom. Furthermore, a proximity dimension can be distinguished in the model by a cooperation pole (C), or right part, and an opposition pole (O), or left part. This dimension reflects the distance in the relationship between the teacher and students. Both dimensions have to be considered as a continuum upon which teachers can be situated. Combinations of the influence and proximity dimensions, as well as their four poles lead to the following eight sectors describing the teacher's interpersonal behaviour; *leadership* (DC),

helpful/friendly (CD), *understanding* (CS), *student responsibility and freedom* (SC), *uncertain* (SO), *dissatisfied* (OS), *admonishing* (OD), and *strict* (DO).

Figure 1. Model of interpersonal teacher behaviour.



The Questionnaire on Teacher Interaction (QTI) was designed in accordance with this two-dimensional model (Wubbels, Créton, Brekelmans, & Hooymayers, 1987). The original Dutch version of the questionnaire consists of 77 items to be rated on a 5-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree). Each item is assigned to one of the eight behaviour type sectors. A completed questionnaire yields a set of eight scale scores between 0 and 1. These scale scores can be outlined on the profile given in Figure 1. The higher the score appears on the scale the more a teacher shows behaviour from that sector. In Table 1 the eight sectors are represented with a typical item.

Table 1

Eight sectors of the QTI and a typical item for each sector

Quadrant		Sector	Typical item
1	DC	Leadership	The teacher is a good leader
1	CD	Helpful/friendly	The teacher is someone we can depend on
2	CS	Understanding	If we have something to say, the teacher will listen
2	SC	Student responsibility/freedom	The teacher gives us a lot of free time in class
3	SO	Uncertain	The teacher seems uncertain
3	OS	Dissatisfied	The teacher is suspicious
4	OD	Admonishing	The teacher gets angry
4	DO	Strict	The teacher is strict

This questionnaire is used to identify relationships within the classroom environment. The instrument can be completed by the teacher and the students. The information obtained includes perceptions of the teacher's behaviour towards the students as a class. Several studies have been conducted on the

reliability and validity of the QTI (Brekelmans, Wubbels, & Créton, 1990; den Brok, 2001). The scientific value and usefulness of this questionnaire has been established (Brekelmans, 1989; Wubbels & Levy, 1993). According to Wubbels, Brekelmans, den Brok, and Tartwijk (2006) the QTI does not need to be administered more than once per year, because the interpersonal style of a teacher remains relatively stable.

3.3 Simplification of the model

The model of interpersonal teacher behaviour of Wubbels, Créton, Brekelmans and Hooymayers (1987) can be considered as circumplex (den Brok, 2001; Kyriakides, 2005) in that it can be reduced to two dimensions: influence and proximity. These two dimensions are independent as indicated by the orthogonal relationship between both dimensions. The eight sectors of the typology are expected to be ordered with equal distances to each other on a circular structure and maintain equal distances to the middle of the circle. Within a circumplex model there is a strong interdependency between the eight sectors. If we want to create a more pragmatic and usable operationalization of the teacher's interpersonal behaviour to include as a variable within future research, a simplification of the entire model is necessary.

To do this, we started with an analysis (with Permap) to look for item clusters. The results showed that a simplification from eight sectors into four quadrants was indicated. Notwithstanding the fact that a detailed operationalization of the teacher's interpersonal behaviour in eight sectors gives the most truthful representation of practice, our simplification increases the usefulness of the model in other analyses. From a theoretical perspective, such simplification is more feasible.

The *first quadrant* includes leadership (DC) and helpful/friendly behaviour (CD). A teacher who is situated within this quadrant is typified as tolerant and authoritative. The tolerant/authoritative teacher type develops close relationships with students and is characterized by a strong cooperative component. Test results are important; however the physical and emotional needs and expectations of the students are also taken into account. Apart from being given a clear structure, students are given freedom and responsibility. In this environment, the teacher is enthusiastic and a variety of teaching methods are used. Discipline is present and students are task oriented because they view it as pleasant and interesting. This creates a positive classroom climate and a good learning environment. A Cronbach's alpha of .92 for student perceptions of the interpersonal behaviour of this type of teacher,

represented in Quadrant 1, indicates that it can be considered as very reliable. Further in this dissertation Quadrant 1 is also typified as the dominant-cooperative quadrant.

The *second quadrant* consists of the sectors understanding (CS) and student responsibility and freedom (SC). The interpersonal behaviour of this type of teacher is called uncertain and tolerant. This kind of teacher allows the student a lot of individual space with less leadership and guidance. Structure is lacking and the task orientation of the students is not very high. Not all students are attentive and they are often preoccupied with other matters. The more motivated students do pay attention and the teacher needs to address them loudly to overcome classroom noise. Appeals for attention have little or no effect. Even so, the teacher continues helping the students and will time and time again re-explain, all the while knowing that the students are simply not listening. Students often consider this type of teacher as too nice. A Cronbach's alpha of .86 for student perceptions of the interpersonal behaviour of this type of teacher, represented in Quadrant 2, indicates that this quadrant can be considered as reliable. Further in this dissertation Quadrant 2 is also typified as the submissive-cooperative quadrant.

The *third quadrant* represents the sectors uncertain (SO) and dissatisfied (OS) interpersonal behaviour of the teacher. In these chaotic classrooms the teacher often threatens punishment. The interactions between the teacher and the students can sometimes be quite aggressive. Students are not concentrating and behave disruptively. This type of teacher often reacts inconsequently. When the teacher gives punishments, students feel treated unfairly and react angrily, which leads to more disruptive behaviour. Aggression and noise tend to escalate. The teacher invests all his/her energy in attempting to create an orderly environment. The teacher expects that students first have to behave before he/she tries to teach in an engaging way. A Cronbach's alpha of .84 for student perceptions of the teacher's uncertain and dissatisfied interpersonal behaviour, as reflected in Quadrant 3, indicates that this quadrant can be considered as reliable. Further in this dissertation Quadrant 3 is also typified as the submissive-opposite quadrant.

The *fourth quadrant* is typified as authoritarian and includes admonishing (OD) and strict (DO) interpersonal behaviour. Learning material is offered clearly and in a structural manner. The students comply, but stop being involved. They know where to draw the line. At times authoritarian teachers adopt extreme disciplinary measures and create fear in the student body. Achievement and competition dominate classroom life. The teacher is the leader, student initiative is discouraged. Individual assignments receive little input from the teacher. All of this creates a void between teacher and students. A Cronbach's alpha of .87 for student perceptions of this type of teacher's interpersonal

behaviour indicates that Quadrant 4 is reliable. Further in this dissertation Quadrant 4 is also typified as the dominant-opposite quadrant.

We conclude that a simplification of the model from eight sectors into four quadrants is legitimate. At the beginning of Grade 9, perceptions of all 1701 students participating in this study are taken into account to calculate these reliability measures. Den Brok, Brekelmans, and Wubbels (2004) also state that only a few studies use the two underlying dimensions of influence and proximity when operationalizing teacher's interpersonal behaviour. They indicate that "the interpersonal dimensions are preferable from a research point of view, because they are (theoretically) independent and can be used separately (whereas the eight sectors are interrelated), and because they are less subject to reliability and validity problems" (den Brok et al., 2004, p. 416).

3.4 Different perceptions of the teacher's interpersonal behaviour

Beta press is defined as "the subject's own interpretation of the phenomena that he/she perceives" (Murray, 1938, p. 122) and is used to describe the environment as assessed by the participants. Beta press differs from alpha press, "which is the press that actually exists, as far as scientific inquiry can determine it" (Murray, 1938, p. 122). Our study is concerned with the personal perceptions of the participants, i.e., students and teachers. We are therefore concerned with beta press. An advantage of gathering information from students and teachers is that the setting is perceived through the eyes of the participants who note aspects of their environment that might be missed or not considered as important by external observers (Doppelt, 2006). Participants also have an advantage in judging classroom environments because they have encountered many different situations and contexts. Moreover, data concerning the perceptions of participants are more economical and efficient to gather than observational data. The experiences of students and teachers are often based on numerous lessons and not on one moment (den Brok, 2001). We are interested in gathering data concerning the perceptions evoked by what occurs in the classroom. At times student perceptions are chosen over teacher perceptions because the effect that teachers have on students is determined by students' psychological response to what the teacher does. Students' perceptions are linked with student behaviour, more than the real situation warrants. Furthermore, student perceptions consist of the composite judgement of all the students in a class, a shared experience. Student perceptions are gradually consolidated, and once they are determined, they are difficult to change (den Brok et al., 2004). Research also indicates that students of secondary education are capable of providing ratings of

the teacher's behaviour that are sufficiently stable, reliable, valid and predictive for teacher evaluation (den Brok et al., 2004; Fraser, 1994; de Jong & Westerhof, 2001; Brekelmans, 1989). The first impression seems to be important for student perceptions of the teacher's interpersonal behaviour. Furthermore, Fraser and Walberg (1991) state that perceptual measures of the classroom environment count for considerably more variance in student learning outcomes than directly observed variables. Perceptions are considered as crucial aspects in the learning process.

The Questionnaire on Teacher Interaction can be administered to students and teachers. Research indicates that teachers often perceive a more positive actual classroom environment than their students in the same classroom (Fraser, 1999; Wubbels, Brekelmans, & Hooymayers, 1991; Brekelmans, 1989). Table 2 indicates that in our study, at the beginning of Grade 9, the mean score of teachers' perceptions is the highest for Quadrant 1 (leading and helpful/friendly interpersonal behaviour of the teacher). The lowest score is found for Quadrant 3 (teacher perceptions of their own uncertain and dissatisfied interpersonal behaviour in the classroom). Doppelt (2006) states that teachers and students who have a shared perception of the learning environment can attain higher achievement in the affective and cognitive domains. When students are asked to give feedback on the classroom climate, they have the feeling of being heard, that their opinion is valuable, they feel important, which in itself contributes to the school and class climate (Muijs & Reynolds, 2005).

Table 2

Descriptive statistics of student and teacher perceptions for each quadrant of the interpersonal teacher behaviour (reduced) model, measured at the beginning of Grade 9

	Perception	Minimum	Maximum	Mean	Std. Deviation
Quadrant 1	student	.04	.97	.62	.17
	teacher	.58	.95	.75	.08
Quadrant 2	student	.05	.86	.51	.14
	teacher	.44	.71	.57	.06
Quadrant 3	student	.02	.87	.33	.13
	teacher	.09	.45	.26	.08
Quadrant 4	student	.03	.90	.46	.15
	teacher	.30	.68	.48	.08

3.5 Conclusion

The original model of interpersonal teacher behaviour (Wubbels et al., 1987) is described in this section. Based on this model the Questionnaire on Teacher Interaction (QTI) was designed (Wubbels et al., 1987). Research refers to the QTI as a reliable and valid instrument, and has established it as

scientifically valuable and useful (Brekelmans et al., 1990; den Brok, 2001; Wubbels & Levy, 1991; Brekelmans, 1989). The QTI is used in this study to measure the teachers' interpersonal behaviour in the classroom. We suggest a simplification of the model from eight sectors into four quadrants, because from a research point of view, this makes it easier to include the circumplex model in further analyses. Four reliable quadrants are derived. Perceptions of participants are crucial in our study and advantages of using teacher and student perceptions of the teacher's interpersonal behaviour are listed.

IV. MEASURING TEACHER WELLBEING AT SCHOOL

4.1 Introduction

It is important to consider teacher wellbeing due to its presumed relationship with teacher performance. The teacher's behaviour in the classroom can have a direct impact on student learning. It is expected that teacher wellbeing may be related to student outcomes. Teacher wellbeing and positive professional identity are fundamental to teachers' capacities to become and remain effective (Day, Sammons, Stobart, Kington, & Gu, 2007). As Osborn (1996) states "effective teaching and learning is necessarily affective, it involves human interaction, and the quality of teacher-pupil relationships is vitally important to the learning process" (p. 455). Shann (1998) indicates that teacher job satisfaction is a construct that is critical to school effectiveness, i.e., teacher satisfaction influences job performance and ultimately student performance. Similarly, Huberman and Vandenberghe (1999) indicate that the link between teacher burnout and student outcomes is of paramount importance. In order to perform analyses, these researchers call for a more precise conceptualization and operationalization of variables and appropriate measures. In this section we will attempt to respond to this need by developing a simple and useful measure for teacher wellbeing that can be used in further analyses.

4.2 Teacher wellbeing

In contrast with most previous studies and research traditions that focus on stress, depression, anxiety, and burnout in teachers, we start from a positive psychology movement (Seligman et al., 2000; Luthans, 2002; Schaufeli et al., 2001). Within this positive approach the focus is on human power and strengths, happiness and satisfaction, dynamism and optimal functioning, and not on remediating stress. Teacher wellbeing can be described as:

> "A positive emotional state, which is the result of a harmony between the sum of specific context factors on the one hand and personal needs and expectations of the teacher towards the school on the other hand" (Aelterman, Engels, Van Petegem, & Verhaeghe, 2007, p. 286).

The 'positive emotional state' has a positive connotation, unlike burnout or stress. The 'harmony between the context factors and the personal needs and expectations' relies on a person-environment fit model (Kristof, 1996). The expectations of the teacher have to fit with the work environment, but the work environment also has to take teachers' needs into account.
Similar to student wellbeing, a distinction has to be made between current and sustainable wellbeing (Eder, 1995). Current wellbeing refers to the immediate feelings related to situations at school and satisfaction with aspects of the situation. Sustainable wellbeing refers to the structurally anchored residue of experiences and feelings on various occasions, for which indicators as general self-confidence and self-image can be used. In our study the focus is on the measurement of current feelings and teacher satisfaction at school.

Factors explaining teacher wellbeing have to be identified to enable schools to act towards enhancing teacher wellbeing. These factors can be divided into three categories: factors related to the person, the profession or the workplace, and society (Huberman & Vandenberghe, 1999; Gaziel & Maslovaty, 1998; Woods, 1999). With reference to the person-environment fit model (Kristof, 1996), it can be stated that these factors are interrelated. Culver, Wolfle, and Cross (1990) indicate that background demographic variables, such as age and sex, are found to be of little importance compared to the more immediate variables of school climate. Similarly, Gaziel et al. (1998) state that secondary school teachers' job satisfaction is more affected by school contextual variables than by individual ones. Other studies yield inventories of workplace related factors which can positively influence job satisfaction and wellbeing (Huberman et al., 1999; Smylie, 1999). Job features, such as job description, role conflicts and role ambiguity, pressure of work and autonomy, working conditions, school management, school climate, interpersonal relationships, are amongst the most cited. The intensity and frequency of certain conditions have consequences for one's wellbeing. According to Karasek and Theorell's (1990) Job Demand-Control model, stressful jobs are characterized by high demands, low control and low support. Active jobs are typified by high demands, high control and high support, which lead to greater satisfaction and motivation. The Job Demand-Control model assumes that job characteristics affect people's health and wellbeing, so restructuring jobs or workplaces may be a useful starting point for effective interventions (de Jonge et al., 2001). Unreasonably high job demands seem to reduce motivation and capability to perform, while adequate expectations regarding performance are positive for achievement. Job satisfaction is found to be important for job performance (Karasek & Theorell, 1990).

In this context, it is found that the teacher's job satisfaction is affected by the organizational climate of the school, i.e., how well teachers cooperate with their colleagues. Philips (1997) breaks the school climate down into two different aspects. On the one hand, *academic school climate* refers to the push in the school for academic achievement. Satisfaction can be reached through student progress and achievement (Tschannen-Moran, Hoy, & Hoy, 1998). Teachers' job satisfaction is linked to teachers' expectations with respect to student achievement (Gaziel et al., 1998). The success of teachers is primarily measured through their ability to enhance student learning and achievement. The perceptions of teachers are often based on affective and subjective judgments of the degree to which they have successfully met instructional objectives. On the other hand, the *communitarian school climate* can be distinguished, i.e., the social climate of the school. In this climate, the focus is on the relationship between teacher and students, student feelings and behaviour are important aspects and can be linked to teacher wellbeing. The teacher feels responsible for the cognitive, affective, social, and societal elements in the student's education. Gaziel et al. (1998) state that the best predictors of job satisfaction are high expectations for student achievement and a sense of community at school. These researchers indicate that job characteristics reflecting the human side of the job (relationships) affect teacher satisfaction more than task characteristics (facilities, educational policy). In general, a positive organizational atmosphere has a powerful impact upon one's feeling of job satisfaction.

4.3 Interpersonal relationships

In interpersonally oriented professions, such as teaching, burnout is considered as an important stress-related problem. Most effective teachers place significant emphasis on student-teacher relationships, and it is ranked highest overall in terms of importance and satisfaction (Shann, 1998). Teacher wellbeing is considered from a social-psychological perspective (Maslach & Jackson, 1986; Lens & Neves de Jesus, 1999). Central to teachers' satisfaction with their work are the students themselves. Because students are emotional beings as well, teachers should be aware of their possible effects on students (Noddings, 1996). Students are key factors which affect teachers' work and lives. Teachers are motivated by their ability to create positive and rewarding relationships with students, so that they can make a difference to their lives (Day et al., 2007). Many teachers begin their careers with a sense that their work is socially meaningful and will yield great satisfactions. Indeed the majority of teachers indicate that the students in their class make a difference to their lives, raise their morale, and keep them motivated (Day, Stobart, Sammons, & Kington, 2006). Teachers find working with students both satisfying and rewarding (Moriarty, Edmonds, Blatchford, & Martin, 2001). Among the causes of frustration and dissatisfaction are activities and incidents which take teachers away from what they

define as their central purpose, helping students learn (Nias, 1996). Teachers who like working with students get intrinsic rewards from these relationships. This is very important in the teaching profession which does not have many extrinsic rewards such as high salaries, promotional opportunities etc. Teachers' sources of satisfaction are found to lie primarily within the domain of intrinsic rewards of teaching and centred on student and teacher achievement. Stimulating students to perform and increasing one's own professional skills or knowledge remain very satisfying for most teachers (Scott, Cox, & Dinham, 1999).

The quality of the relationship between a teacher and students can be very rewarding, but it can also be a source of discouraging experiences. Issues connected to classroom teaching and students are also important reasons for stress and dissatisfaction (Moriarty et al., 2001). There is concern about what is perceived to be an increase in difficult behaviour among students and the extra strain this can place on teachers. Furthermore, the increase in workload results in teachers having less time and opportunity to develop social and emotional bonds they feel are so important to the teaching process (Moriarty et al., 2001). According to Nias (1996) there is no doubt about the central place occupied by students in teacher emotions.

Not only are there many factors that influence teacher wellbeing, in itself, teacher wellbeing contributes both to teacher and student behaviour and experiences. Research indicates that teachers are likely to criticize students more as their levels of dissatisfaction increase (Lens et al., 1999). As a result, students change their perceptions of the teacher, their feelings toward the teacher, and their behaviour in the classroom. Likewise, teacher wellbeing is related to these student behaviours. Van Houtte (2006) states that teachers of lower tracks (technical and vocational training schools) deal with lower ability students which can have consequences for teacher satisfaction. On the other hand, Aelterman, Engels, Van Petegem, and Verhaeghe (2007) found that teachers of technical and practical subjects report their job as being more satisfying because of the nature of the subjects they teach. This might be because they can observe the concrete effects of their teaching more than teachers of general subjects. Furthermore, Van Houtte (2006) states that the student study culture affects teacher satisfaction by its influence on teacher trust. The issue of trust in teacher-student relationships is important to understand because it is also part of the learning process (Tschannen-Moran & Hoy, 2000). It is stated that teachers with high feelings of self-efficacy score high on wellbeing (Aelterman et al., 2007), and the more teachers trust their students, the more satisfied teachers are with their jobs. In sum, student behaviour is related to teacher behaviour. Negative school attitudes held by students of lower tracks can be linked to teachers' behaviour or attitudes towards the students (Van Houtte, 2006; 2007).

Apart from students affecting teachers' emotional and social experiences, colleagues, directors, or school principals are partners in intensified teacher wellbeing (Gaziel et al., 1998). Alliance, collaboration and support, promote satisfaction, feelings of professional involvement (Devos, Engels, Bouchenooghe, Hotton, & Aelterman, 2007; Karasek et al., 1990), and increased feelings of effectiveness (Shann, 1998). Harmonious and active teams not only have a positive influence on the classroom performance but also on teachers' self-esteem (Nias, 1996). Supportive relationships generally enhance outcomes such as job satisfaction and work motivation (de Jonge et al., 2001). The actions of the school principal involve the school setting and have significant effects on the teacher's job satisfaction (Culver, Wolfle, & Cross, 1990). Principals who are open and honest promote supportive climates for teachers (Bryk, Lee, & Holland, 1993). Ma and MacMillan (1999) indicate that school principals ought to have some understanding of the factors that influence teacher satisfaction and the impact this satisfaction has on teacher involvement in their schools. In general, it is difficult for educational managers, who are sensitive to increasing demands for public accountability, to create an ideal work environment for the professional teacher.

4.4 The Teacher Wellbeing Questionnaire

Research about wellbeing has a strong basis in survey research. The most common assessment technique is self-report where teachers are the central research participants. We are interested in teachers' perceptions and understanding of what contributes to their wellbeing. The Teacher Wellbeing Questionnaire is a self-report measure developed by Aelterman et al. (2002) and examines teacher wellbeing at school. The construction of the items of the questionnaire was the result of 35 panel discussions which were held with teachers and principals in a qualitative section (Aelterman et al., 2007). The core aims of the panel discussions were (1) to ascertain which aspects in the classroom, or school, teachers consider as relevant in relation to their professional wellbeing, (2) to check the results of the literature against the teachers' realm of perception, and (3) to ascertain how teachers express these perceptions and indicators, with the construction of the written questionnaire in mind. Qualitative research techniques (with Atlas.ti) were used to analyse these data. Based on teacher experiences, the definitive questionnaire was developed and consists of 79 items. First, specific personal characteristics such as gender, age, family situation, volume of assignments, and career development are included. Second, questions about diverse aspects that can be linked to teacher wellbeing at micro, meso, and macro level are formulated. The items are scored at a 7-point Likert scale ranging from 1 (totally disagree) to 7 (totally agree). The items refer to school and profession related issues and can be ascribed to different subscales, such as feelings of self-efficacy, support from colleagues and the

principal, relationships with students' parents, work pressure, professional development, and innovations. The items are derived from the literature, panel discussions and other questionnaires (Maslach et al., 1986; Prick, 1983; Van Damme, Van Landeghem, De Fraine, Opdenakker, & Onghena, 2001). Finally, an existing scale of Den Hertog (1990), reflecting beliefs about good teaching, is included at the end of the Teacher Wellbeing Questionnaire (Den Hertog, 1990). The Teacher Wellbeing Questionnaire is a reliable instrument (Aelterman et al., 2007) that supports the positive psychology movement (Seligman et al., 2000; Luthans, 2002; Schaufeli et al., 2001), and where job satisfaction is exclusively focused on the teaching profession.

Teacher wellbeing can be considered as an important aspect of classroom life. As the Teacher Wellbeing Questionnaire is a rather extensive measure, the goal of this section is to perform a psychometric analysis in order to develop a simple and useful measure for teacher wellbeing that can be used in further analyses. To do so we will calculate teacher wellbeing as a sum score of some items derived from the Teacher Wellbeing Questionnaire with the focus on current wellbeing, i.e., immediate feelings of satisfaction induced by the situation.

4.5 Sample

A sample of 271 teachers from a total group of 1701 Grade 9 students attending technical and vocational training schools in Flanders (Belgium) participated in this study. Of each student group, a mathematics, language (Dutch), and practical teacher was selected. After receiving informed consent from principals, teachers were approached to fill out the Teacher Wellbeing Questionnaire.

4.6 Results

To examine whether a wellbeing construct could be reduced to one measure, a principal axis factoring analysis with varimax rotation was performed on the data with SPSS. A scree plot of the analysis showed that one factor could be clearly distinguished. Following this, the skewness and kurtosis measures of all items were examined because the maximum likelihood method of estimation assumes multivariate normality. Furthermore, the expectation-maximization (EM) procedure was executed to overcome problems with missing data (Bunting et al., 2002). Third, a factor analysis with Amos (Arbuckle, 2005) was performed. One (wellbeing) factor was postulated a priori. In order to examine whether a simplification of the wellbeing construct could be derived from the Teacher Wellbeing

Questionnaire (Aelterman et al., 2002), the items with the highest significant factor loadings had to be determined.

All 79 items of the Teacher Wellbeing Questionnaire were included in the analysis. For identification reasons, the regression weight of one item is fixed at one with the latent construct (teacher wellbeing). An item concerning teacher's self-efficacy was chosen because of its relevance for teacher wellbeing (Aelterman et al., 2007; Conley & Muncey, 1999). To reduce the number of items, a strict procedure was followed. First, all items with a regression coefficient that was not significant at the 0.01 level were to be eliminated. Second, all pairs with significant error correlations were examined more thoroughly. Error correlates refer to unexplained correlations, i.e., they have nothing to do with the latent factor (teacher wellbeing) and are often the result of content overlap which is not tolerated. The modification indices of the Amos output (Arbuckle, 2005) indicated where the error correlates were situated and based on this information, one of the two items was selected to avoid overlap. This selection was made for reasons concerning content, i.e., the item that is most generally formulated stays in the model. The selection was executed in a systematic way, starting with the highest modification indices. This procedure of eliminating items finally resulted into a simple model. Seven items are held back and selected to measure teacher wellbeing.

These items are listed in order of estimated regression weights:

ITEM 47: I get a lot of appreciation from the students ($\lambda = .70$)

ITEM 3: I feel that I can manage the classroom ($\lambda = .69$)

ITEM 31: I succeed in stimulating the students to learn autonomously ($\lambda = .65$)

ITEM 61: I have the feeling that developing cognitive capacities in students is successful ($\lambda = .63$)

ITEM 46: I have good relationships with parents ($\lambda = .56$)

ITEM 78: The most satisfying aspect of teaching is the contact with young people ($\lambda = .28$)

ITEM 56: My head teacher knows what goes on amongst teachers ($\lambda = .19$)

Based on these seven items, teacher wellbeing can be calculated as a sum score, as all requirements for a good model fit are met. The regression coefficients are significant and chi-square (χ^2) equals 15.67 (df = 14; p = .33). We gauge model fit through the Comparative Fit Index (CFI; Bentler, 1990) and the Root Mean Square Error of Approximation (RMSEA; Brown et al., 1993). A CFI value of .99 and a RMSEA of 0.021 are considered indications of excellent model fit (Hu et al., 1999).

The seven items selected refer to school and profession related issues, such as feelings of self-efficacy and student orientation (items 47, 3, 31, 61, and 78), relationships with students' parents (item 46), and support from the school board (item 56). They are generally formulated and represent crucial aspects of teacher wellbeing, as derived from the Teacher Wellbeing Questionnaire. A Cronbach's alpha of 0.7 indicates that, based on these seven items, a reliable construct of teacher wellbeing can be calculated.

The highest regression coefficients are found for items about feelings of self-efficacy. Other research indicates that self-efficacy is one of the most important aspects of teacher wellbeing (Aelterman et al., 2007; Conley et al., 1999). The teacher's feeling of self-efficacy has been defined as judgment of their own ability to achieve something with their students, the point from which teachers get their intrinsic motivation for the teaching profession (Tschannen-Moran et al., 1998). Teachers must have some sense of efficacy in order to teach effectively. They must feel their work is bringing about positive change in students (Day et al., 2007). Conley and Muncey (1999) found that the more teachers say they see the result of their work, the more satisfied they are with their jobs. The study of Aelterman et al. (2007) confirms that teachers who experience high feelings of self-efficacy, report low job pressure. Self-efficacy bears reference not only to cognitive aspects of education, it also refers to the affiliation teachers have with their students, the appreciation they get from students, and the contribution they make to the more general personal and social development of students. Interpersonal relationships in the classroom and the way in which the teacher interacts with the students are essential issues. Teachers have to believe that they can exert a positive effect on their students' success. According to Day et al. (2006) teachers identify feedback from students, parents, and colleagues as important to their feelings of self-efficacy. Furthermore, our analysis indicates the importance of the parent-teacher relationship for teacher wellbeing. This finding is confirmed in other studies (Shann, 1998).

We are aware that the regression coefficients of some items are, although significant, not very high. To calculate teacher wellbeing as a sum score of relevant factors, we want to stay as close as possible to the content of the traditional subscales of the Teacher Wellbeing Questionnaire. The most general items that represent these subscales and fit into the model have been selected. Because support and interest from the school principal in teachers' work is a relevant aspect of teacher wellbeing, item 56 is kept into the analysis.

4.7 Conclusion

Teacher wellbeing is the key to sustaining a positive sense of effectiveness in relation to students, relationships, and outcomes. An operationalization of teacher wellbeing had to be developed in order to explore these links. The Teacher Wellbeing Questionnaire is a reliable instrument to gather information about diverse aspects of teacher wellbeing (Aelterman et al., 2007). Based on a factor analysis of this instrument, the present study succeeded to operationalize teacher wellbeing, and derive a simple and useful measure for teacher wellbeing that can be used in further analyses. This measure is calculated as a sum score of seven relevant items derived from the Teacher Wellbeing Questionnaire. As each item is derived from one of the subscales initially distinguished, this concept is considered valid. Feelings of self-efficacy, the relationship with parents and the school principal are crucial indicators of the wellbeing of the teacher. We believe that our measurement and operationalization of the teacher wellbeing construct can be considered as reliable and acceptable, making it possible to include this concept in more complex analyses.

V. CONCLUSION

This chapter focuses on three main variables: student wellbeing, perceptions of the teacher's interpersonal behaviour, and teacher wellbeing. The procedures used to derive simple and useful measures for student and teacher wellbeing were the same. Data were gathered from extensive questionnaires about student and teacher wellbeing. These questionnaires; the Wellbeing Inventory of Secondary Education and the Teacher Wellbeing Questionnaire, were developed in earlier research, and include the most relevant aspects of student and teacher wellbeing (Engels et al., 2004b; Aelterman et al., 2007). Based on an exploratory factor analysis, certain items have been selected for operationalization and measurement purposes of teacher and student wellbeing, which will be used in later, more complex analyses. The items that have been selected are formulated in a general way in the sense that they are most representative, and refer to the traditional subscales. This results in reliable and valid constructs of student and teacher wellbeing respectively.

To measure perceptions of the teacher's interpersonal behaviour, the Questionnaire on Teacher Interaction was used. This questionnaire is based on a model of interpersonal teacher behaviour developed by Wubbels, Créton, Brekelmans, and Hooymayers (1987). However for pragmatic reasons, and due to the complexity of including a circumplex model into further analyses, a simplification of the model of interpersonal teacher behaviour was performed. A reduction from eight sectors into four quadrants was found to be reliable.

Beta press (Murray, 1938) is commonly used when measuring all three variables. Students were asked to report about their own wellbeing. Similarly, teachers are administered the Teacher Wellbeing Questionnaire. Perceptions of students and teacher were taken into account to gain insight into the teacher's interpersonal behaviour in the classroom.

As these three main variables can now be measured in a simple way, it is possible to examine relationships between the different constructs. The entire research model of our study is built gradually as it integrates variables step by step. In Chapter 3, an analysis at the student level is performed and the focus is on the relationship between student perceptions of the teacher's interpersonal behaviour and student wellbeing. Chapter 4 investigates the link between student perceptions of the teacher's interpersonal behaviour, as well as pre-measurements and current measurements of student achievement and student wellbeing. An analysis at the teacher level is performed in Chapter 5, which focuses on the teacher's perception of his/her interpersonal behaviour in the classroom, and its relationship to teacher wellbeing. In Chapter 6, the entire research model is investigated, i.e., the link between student and teacher perceptions of the teacher's interpersonal behaviour, teacher wellbeing and student outcomes.

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CHAPTER 3

THE INFLUENCE OF STUDENT CHARACTERISTICS AND INTERPERSONAL TEACHER BEHAVIOUR IN THE CLASSROOM ON STUDENT'S WELLBEING

Based on:

Van Petegem, K., Aelterman, A., Van Keer, H., & Rosseel, Y. (2008). The influence of student characteristics and interpersonal teacher behaviour in the classroom on student's wellbeing. *Social Indicators Research, 85*, 279-291.

I. ABSTRACT

Student wellbeing can be considered a major output indicator for quality of education. A positive classroom climate can contribute to a higher sense of wellbeing. Interpersonal relationships between teachers and students are an important aspect of the classroom climate. This chapter investigates how student wellbeing is related to student characteristics, student perceptions of the teacher's interpersonal behaviour and academic achievement. From 55 classes in 13 technical and vocational secondary schools, 594 students took part in this study. The results indicate that those students who attend school because they are highly motivated learners report a higher sense of wellbeing than those who attend out of a sense of duty. It also appears that students' perception of the teacher's interpersonal behaviour is linked with student wellbeing. A positive relationship is found with student wellbeing when students view their language teacher as tolerant yet exacting discipline. Students also feel better when their mathematics teachers are less authoritarian, but the cooperative component is still important.

II. INTRODUCTION

A number of models exist to organize indicators within the educational framework. Scheerens' (1990) CIPO model describes relationships between input, process, and output in education within a certain context. School effectiveness research often considers student test results as the sole output factors. Various predictors are drawn into the analyses to investigate what promotes a particular school's efficacy in terms of student achievement. Numerous review studies show that student achievement has been attributed to a range of factors including leadership, effective teaching methods, and learning expectations (Levine & Lezotte, 1990). This chapter goes beyond these factors, and focuses on student wellbeing at the micro, or classroom level. The goal is to further our understanding of what contributes to an agreeable classroom environment, i.e., a pleasant place, a feel-good milieu for students (Fraser & Walberg, 1991).

2.1 Student wellbeing

For a number of years school effectiveness research has pointed its attention towards cognitive output, especially in the areas of language and mathematics. Recently, however, interest in non-cognitive factors is growing (Opdenakker & Van Damme, 2000; Samdal, Wold, & Bronis, 1999; Knuver & Brandsma, 1989; Engels, Aelterman, Schepens, & Van Petegem, 2004; Konu, Litonen, & Autio, 2002). The wellbeing of students seems to be gradually acquiring a niche as an output variable within the CIPO model (Scheerens, 1990) proving itself to be of distinct value. This shift indicates a movement towards an emancipatory view of education whereby harmonious student development and positive wellbeing take a central position (Verschelden, 2002; Vandenbroucke, 2004). It also implies the need for cognitive as well as affective indicators.

Earlier research describes the wellbeing of students as follows:

> "A positive emotional state that is the result of a harmony between the sum of specific context factors on the one hand and the personal needs and expectations towards the school on the other hand" (Engels et al., 2004, p. 128).

An analysis of this definition reveals several different components. First, it deals with a 'positive emotional state' thereby incorporating a positive connotation. The vision behind this definition is one of dynamism and positive change, and the emphasis no longer lies solely on a deficit model using indicators such as absenteeism, burnout, and stress (Schaufeli & Bakker, 2001; Seligman &

Csikszentmihalyi, 2000; Arthaud-Day, Rode, Mooney, & Near, 2005). Second, the 'harmony' between context and person refers to the construction of a person-environment fit model (Kristof, 1996). This definition implies that the capacity of adaptation to and by the school must be taken into account. Most students feel good about school when they are able to adjust to its expectations and demands. Likewise, the school itself must make every effort to meet the needs of its students.

2.2 Contributing factors

The central focus of this dissertation is the wellbeing of students. In the present chapter the link between student characteristics, motivation for attending school, and student wellbeing is examined. Furthermore, we examine the relationship between student wellbeing and their academic achievement. Finally, the impact of the classroom climate on student wellbeing is verified, i.e., the importance of interpersonal relationships between students and teachers to student wellbeing.

Input characteristics (i.e., student gender, age, education stream, language spoken at home) vary from school to school. In our analyses we attempt to statistically adjust for these variations making a comparison of schools in terms of student wellbeing possible (Goldstein, 1997). Student motivation for attending school is also taken into account: is the student really interested in learning, or is going to school considered as inevitable? In literature, a distinction between school as a learning and living environment is made (van der Veen, 1989). We believe that the student's motivation for attending school may be reflected in this distinction. In the present study students are asked to confirm or reject each one of the following options: I attend school (1) because my friends are there, (2) to learn, (3) to obtain a diploma, (4) because I find the courses interesting, and (5) because I have to.

The relationship between academic achievement and student wellbeing is also examined. The choice for achievement in language and mathematics is analogous to other studies within the domain of school effectiveness research (Knuver & Brandsma, 1993; Van Damme & Onghena, 2002).

Interpersonal relationships between teachers and students are an important aspect of classroom climate (Van Houtte, 2005; Fraser, 1994; Maslowski, 2001). Classroom climate has been described as the ambience resulting from rules and regulations, the manner in which teachers deal with students and the way a classroom's physical environment is experienced (Creemers & Reezigt, 1999). In a review study, Van Houtte (2005) refers to the generally accepted classification by Tagiuri (1968) who distinguishes four dimensions within an organizational climate, of which the interpersonal relationships amongst individuals is the most important. This classification assists us in our investigation of the teacher-student relationships within a classroom context. According to learning environment research, a pleasant

learning environment is important for academic achievement (Fraser et al., 1991). Muijs and Reynolds (2005) concur that teachers in effective schools create agreeable and positive learning environments.

2.3 Statement of the problem and research questions

In order to improve the quality of education it is important to examine student wellbeing. The wellbeing of students is an output indicator of educational quality. However, in traditional school effectiveness research the variables of choice strongly favour academic achievement as a tool of measurement. In this study the focus has been shifted to instruments measuring the learning environment (Fraser et al., 1991) so that classroom climate can be evaluated, more specifically the relationship between teachers and students. With this approach we are moving traditional research one step further. In our analyses student characteristics, motives for attending school, student perceptions of the teacher's interpersonal behaviour, and academic achievement are used as predictors of student wellbeing.
In the Flemish system of education, technical and vocational schools prepare students more directly for the workforce in comparison with general secondary schools. Since students attending these technical and vocational schools generally score the lowest on the wellbeing scale (Engels et al., 2004), this group of students is the focus of our study. The selection of these students also adheres to the Flemish Ministry of Education's recent encouragement to heighten interest in these streams of education.

The research questions and related hypotheses of this chapter are as follows:
(1) Which student characteristics are related to student wellbeing?
Hypothesis 1: Female students often feel better at school. At the age of 14 or 15, students of technical and vocational training have the lowest score on student wellbeing. No differences in student wellbeing can be found between native and ethnic resident students.
(2) Which aspects of student motivation to attend school have a bearing on student wellbeing?
Hypothesis 2: School is not only perceived by the students as a learning environment, but also as a living environment.
(3) Is there a relationship between academic achievement and student wellbeing?
Hypothesis 3: Academic achievement and student wellbeing are positively related.
(4) Which type of interpersonal teacher behaviour enhances student wellbeing?
Hypothesis 4: When students perceive their teachers' interpersonal behaviour as dominant-cooperative (Quadrant 1), student wellbeing will increase.

III. METHOD

3.1 Sample

During the 2003-04 school year 594 Grade 9 students with a mean age of 14.35 (SD = .573) filled in questionnaires and tests. Of these, 378 (63.6%) were male and 216 (36.4%) were female. Participants were selected from 55 technical and vocational classrooms attending one of the Flemish secondary schools participating in this dissertation. Of these students, 506 students (65.6% male and 34.4% female) of the technical stream were enrolled in either techno-scientific, socio-technical, or techno-mechanical courses; and 88 students (52.3% male and 47.7% female) attended vocational training which led to white collar jobs (office and sales, care/nutrition) or blue collar jobs (electrical installation, metal and woodworking).

3.2 Instruments

3.2.1 The Wellbeing Inventory of Secondary Education (WISE)

The Wellbeing Inventory of Secondary Education (WISE) is a questionnaire that evaluates the level of student wellbeing in a particular school. This questionnaire was developed and validated within the framework of other research (Engels, Aelterman, Deconinck, Schepens, & Van Petegem, 2000; Engels, Aelterman, Van Petegem, Schepens, & Deconinck, 2004; Engels et al., 2004) and was the result of qualitative and quantitative research. The qualitative research consisted of panel discussions with students relating to the different aspects of their wellbeing. The information gained from these discussions was complemented with a study of relevant literature. The WISE was developed on the basis of this initial research. A pilot version of the developed questionnaire was used in a pilot study. Once validated, a final version was developed.

The quantitative research used an exploratory factor analysis (with AMOS) retaining 9 items which would be evaluated with a 5-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree). The wellbeing scale was calculated as a sum total of these items with a lowest score of 9 (no sense of wellbeing) to a highest of 45 (a total sense of wellbeing).

The items that are included refer to students' relationships with teachers and supporting staff, the way the school board leads the school, facilities for students, the learning content and didactical aspects of school life. A Cronbach's alpha of 0.8 indicates that the scale is reliable. Student wellbeing is reported by the students themselves, each starting out with questions about individual characteristics such as

gender, age, education stream, language spoken at home, and their personal motivation for attending school.

3.2.2 Questionnaire on Teacher Interaction (QTI)

The teacher's interpersonal behaviour is extensively covered in the QTI as developed by Wubbels, Créton, Brekelmans, and Hooymayers (1987). This instrument uses a typology with eight sectors with *influence* and *proximity* as its base dimensions. *Influence* refers to the measure in which a teacher directs communication within the classroom. Within the influence sector there is a 'dominance-submission' continuum. 'Dominance', at one end of the continuum, refers to a leading and guiding manner of teaching, whereas 'submission' refers to a less dominant way of controlling communication in the classroom. Sometimes this teacher's behaviour is described as uncertain. *Proximity* refers to the distance in the personal teacher-student relationship. Within this dimension the 'cooperation-opposition' continuum is considered. 'Cooperation' refers to very close student-teacher contact, whereas 'opposition' implies distance in the student-teacher relationship.

Based on these two dimensions and four poles, four distinct quadrants representing four styles of teaching behaviour can be distinguished. These are dominant-cooperative (Quadrant 1), submissive-cooperative (Quadrant 2), submissive-opposite (Quadrant 3), and dominant-opposite (Quadrant 4). The two dimensions, influence and proximity, are independent of one another. This is reflected in the orthogonal axes of the typology. The quadrants are equal in size with an equal chance of being situated in any one of them.

In this chapter the teacher's interpersonal behaviour is queried from the student viewpoint. Students are a valued component in the educational process. They are capable of accurate judgement of the teacher's interpersonal behaviour from their varied viewpoints and experiences (Brekelmans, 1989). These variations allow a nuanced view of what is happening in a particular classroom. Teachers often view their own behaviour too favourably (Brekelmans, 1989). When students are questioned about their viewpoint, they feel appreciated which can lead to an even better classroom environment. The use of students' judgments of interpersonal behaviour for a mathematics and a language teacher is in accordance with other research on school effectiveness, as is data on academic achievement in these subjects (Wubbels, Brekelmans, & Hooymayers, 1991; Van Damme et al., 2002).

3.2.3 Tests on language and mathematics

The measurement of student achievement in mathematics and language uses benchmarks developed in the framework of the LOSO research (Van Damme & Van Landeghem, 2002). These are aimed at Grade 9 learning expectations. The benchmarks take the number of hours each subject is taught into account. This varies within each study area curriculum. The benchmark for mathematics contains number and geometrical knowledge. The benchmark for language includes knowledge of spelling, grammar, language usage, and reading comprehension.

3.3 Data analysis

A multilevel analysis (with MLwiN) is used to evaluate to what degree (1) student characteristics, (2) student perceptions of the teacher's interpersonal behaviour, and (3) academic achievement are related to student wellbeing. A multilevel analysis is necessary because students are grouped within classrooms (Goldstein, 1997). This approach also allows us to deduce the percentage of variance in wellbeing on all levels (i.e., student, classroom, and school). In Table 1 models are built up systematically from the basic model (Model 0), which includes no explanatory variables. Models 1, 2, and 3 apply student characteristics, student motivations for attending school, and academic achievement in the analyses as possible predictors of student wellbeing. Models 4a and 5a apply student perceptions of the interpersonal behaviour of mathematics and language teachers as independent variables. We attempt to simplify our model so that non-significant effects are eliminated. However, where a significant effect is noted, random variance at the class level is allowed. At that point complex variance is only reported if it is significant. The complete set of models allows us to deduce which variables are relevant to student wellbeing and at which level variance occurs.

Table 1

Summary of the model estimates for the two level analyses of the wellbeing of students

	Model								
Parameter	0	1	2	3	4a	4b	4c	5a	5b
Fixed									
Intercept	29.615 (0.233)	30.106 (0.391)	29.328 (0.533)	29.632 (0.564)	29.176 (0.394)	29.210 (0.394)	29.283 (0.379)	29.363 (0.342)	29.327 (0.343)
Student level									
gender		0.602 (0.384)							
age		-0.673 (0.248)	-0.706 (0.237)	-0.585 (0.309)					
stream		-1.071 (0.464)	-1.041 (0.432)	-0.538 (0.681)					
hlanguage		-0.464 (0.385)							
mfriends			0.068 (0.319)						
mlearn			1.603 (0.294)	1.742 (0.368)	1.081 (0.378)	1.093 (0.376)	1.139 (0.366)	0.992 (0.365)	1.019 (0.366)
mdipl			0.505 (0.379)						
minteres			1.075 (0.331)	1.405 (0.419)	1.088 (0.443)	1.045 (0.439)	0.993 (0.425)	1.064 (0.422)	1.106 (0.421)
moblig			-1.793 (0.302)	-2.455 (0.382)	-2.166 (0.409)	-2.181 (0.408)	-2.016 (0.401)	-1.989 (0.396)	-2.022 (0.396)
language				0.035 (0.017)	0.019 (0.016)	0.020 (0.016)	0.025 (0.015)	0.027 (0.014)	0.025 (0.014)
maths				0.000 (0.016)					
Q1 lang					0.138 (0.023)	0.127 (0.012)	0.120 (0.017)	0.112 (0.016)	0.114 (0.016)
Q2 lang					-0.034 (0.028)				
Q3 lang					0.007 (0.024)				
Q4 lang					-0.035 (0.020)				
Q1 maths								0.006 (0.023)	
Q2 maths								0.048 (0.027)	0.057 (0.017)
Q3 maths								-0.008 (0.021)	
Q4 maths								-0.036 (0.018)	-0.041 (0.015)
Random									
Class level									
$\tau_{\mu 0}$	3.433 (0.787)	3.064 (0.738)	2.457 (0.628)	3.136 (0.889)	3.187 (0.958)	3.227 (0.966)	2.604 (0.867)	1.281 (0.604)	1.303 (0.608)
$\tau_{\mu 0 \mu Q1lang}$							0.082 (0.036)	0.036 (0.026)	0.000 (0.000)
$\tau_{\mu Q1lang}$							0.007 (0.003)	0.005 (0.002)	0.005 (0.002)
Student level									
σ^2 e0	27.256 (1.088)	27.234 (1.090)	25.477 (1.016)	22.970 (1.203)	18.646 (1.123)	18.645 (1.122)	17.189 (1.072)	16.866 (1.061)	16.827 (1.061)
Deviance	8453	8391	8338	4841	3535	3544	3522	3415	3417
χ^2		61.59	53.689	3496.761	1306.484	9.223	21.944	106.705	2.291
df		4	7	4	7	3	2	4	3
p		0.000	0.000	0.000	0.000	0.026	0.000	0.000	0.514

Note. hlanguage=language spoken at home; mfriends=motive friends; mlearn=motive learn; mdipl=motive diploma; minteres=motive interest; moblig=motive obligatory; language=language achievement; maths=mathematics achievement; Q1 lang=dominant-cooperative language teacher; Q2 lang=submissive-cooperative language teacher; Q3 lang=submissive-opposite language teacher; Q4 lang=dominant-opposite language teacher; Q1 maths=dominant-cooperative mathematics teacher; Q2 maths=submissive-cooperative mathematics teacher; Q3 maths=submissive-opposite mathematics teacher; Q4 maths=dominant-opposite mathematics teacher.

IV. RESULTS

In an initial three-level model, variance at the school level is found to be non-significant and subsequent analyses are conducted at two levels. The null-model is the base model without any explanatory variables (Model 0). Variances at classroom (χ^2 = 19.039, df = 1, p = .000) and at student level (χ^2 = 628.096, df = 1, p = .000) are significantly different from zero. More specifically it appears that 11% of the total variance in wellbeing is at the classroom level (between class differences), while 89% of the total appears at the individual level (within class differences). Model 0 also allows us to deduce that the average sense of student wellbeing is 29.6 (SD = 5.3).

Starting from the null-model, student characteristics (gender, age, education stream, and home language) are added in Model 1. Gender is dummy coded with 0 for male and 1 for female but has no significant link with student wellbeing. Age and education stream (0=vocational, 1=technical) seems to be linked with student wellbeing. However, no significant results are found when allowing random variance at the classroom level. Interaction-effects between gender, age, education stream, and home language (0=Flemish, 1=non-Flemish) are checked, but these are not significant.

In Model 2 student motivations (reasons for school attendance) are added, next to age and education stream. From these results it appears that those students who declare that they are at school because they want to learn or because they find their courses interesting score significantly higher on the wellbeing scale. This agrees with earlier research (Engels et al., 2004). Those students who declare that they are at school because they have no choice in the matter (it is compulsory) score significantly lower on the wellbeing scale. Again interaction effects are found to be non-significant.

Model 3 retains the significant results from Model 2, and language and mathematics scores are included as possible explanations for student wellbeing. The results indicate that only achievement in language is positively related to student wellbeing. There is no significant random variance for learning achievement. As a consequence of including achievement into the analysis, student characteristics, such as age and education stream, are found to be no longer significant.

Analyses used in Model 4a include students' perception of the language teacher's interpersonal behaviour. The only significant relationship of interpersonal behaviour is found when the language teacher is seen as dominant-cooperative (Quadrant 1). However, the effect of achievement in language

on student's wellbeing disappears. Considering that the relationship between achievement and wellbeing is important to our research and that the fit of the model improves substantially when language achievement is taken into account, we retain language achievement as a possible useful variable for further analyses. For Model 4b only significant results from the questionnaire regarding the language teacher's interpersonal behaviour are included. This model can be considered as a stepping stone for which random variance at the classroom level is allowed in Model 4c. There is indeed complex variance present on the classroom level. This variance in wellbeing at classroom level increases as students view the interpersonal behaviour of their language teacher as more dominant-cooperative (Quadrant 1).

In Model 5a students' perception of the interpersonal behaviour of mathematics teachers is added as a predictor variable. As mentioned earlier, non-significant results are removed one by one through a reverse elimination process. This allows us to verify and evaluate the significance of remaining variables. In the full Model 5b, the interpersonal behaviour of mathematics teachers who are perceived by the students as submissive-cooperative (Quadrant 2) and as dominant-opposite (Quadrant 4), gives significant results. The covariance on classroom level is non-significant and is fixed at zero.

V. DISCUSSION

In this study, most of the variance in wellbeing (89%) occurred at the student level, with a much smaller amount (11%) at the classroom level. This finding concurs with earlier research (Opdenakker et al., 2000). Student characteristics, motivation for attending school, academic achievement, and student perception of the teacher's interpersonal behaviour are related to student wellbeing.

At first, the educational stream and student's age appeared to be related to student wellbeing, but when achievement and student perception of the teacher's interpersonal behaviour were taken into account, this relationship disappeared. This indicates that achievement and student perceptions have a stronger relationship with student wellbeing.

The results of our study suggest that the student's motivation to learn is related to their level of wellbeing. We needed to differentiate between the desire to learn and learning achievement. Student achievement in language and mathematics was not significantly related to wellbeing when taken into account separately. However, students reporting a desire to learn had higher scores in wellbeing. The motivation to learn appears to be of prime importance, and it is not necessarily just high achievers who score high on wellbeing. Linked to this, scores for wellbeing were also high for those students who attend school because they like their course content. We deduce that students who have made premeditated and conscientious choices with regard to the courses they follow have a more positive learning experience. Our sample consists of students of technical and vocational training. Some of them failed in general secondary education and are therefore attending courses which are either their second or third choices. Their sense of purpose has cascaded to a level where wellbeing can be reduced. Furthermore, students whose motivation derives from compulsory school attendance have low wellbeing scores. At times they express their dissatisfaction through dysfunctional behaviours, such as missing classes, disruptive behaviour, or dropping out (van der Veen, 1989; Eccles, Lord, & Midgley, 1991; Anderson, Hamilton, & Hattie, 2004).

In addition to student characteristics and student achievement, the relationship between student wellbeing and student perceptions of the teacher's interpersonal behaviour was investigated. Language teachers who are viewed by students as dominant-cooperative (Quadrant 1) appear to exert a positive influence on student wellbeing. Brekelmans (1989) typifies these teachers as tolerant/authoritative. This type of teacher offers the students structure while allowing students a degree of freedom. This teacher is enthusiastic, creates a stimulating environment, and uses a variety of teaching methods, mostly task oriented. Test results are important; however, the physical and emotional needs of the students are also

taken into account. This creates a positive classroom climate and a good learning environment. Students perform their assigned tasks because it is fun, in a structured yet relaxed atmosphere.

Mathematics teachers, however, have a positive outcome on student wellbeing when they are viewed as submissive-cooperative (Quadrant 2). An explanation for this can be given by Brekelmans (1989) who typifies this behaviour as uncertain and tolerant. This kind of teacher allows the student a lot of individual space combined with less leadership and guidance. A definite sense of structure and task orientation is lacking. The students are not always attentive and are often preoccupied with other matters. The more motivated students do pay attention, but the teacher needs to address them loudly to overcome classroom noise. Appeals for attention have little or no effect. Even so, the teacher continues helping the students and will time and time again re-explain, all the while knowing that the students are simply not listening. Students often consider this type of teacher as 'too nice'. This behaviour can be explained by taking the general student attitude towards mathematics into consideration (Midgley, Feldlaufer, & Eccles, 1989; Wilkins & Ma, 2003; Van Den Broeck, Opdenakker, & Van Damme, 2005). This is also linked to predominantly abstract learning contents. Students get a lot of individual space, knowing that the teacher will be available for help when they need it. This helps their sense of wellbeing. When the mathematics teacher adapts a more leading role, becomes less tolerant and less helpful, the students' sense of wellbeing is lowered. Dominant-opposite behaviour (Quadrant 4) is typified as authoritarian (Brekelmans, 1989). Learning material is presented clearly and in a structured manner. The students comply, but stop being involved. They know where to draw the line. At times authoritarian teachers adopt extreme discipline measures and create fear in the student body. Achievement and competition dominate classroom life. The teacher is the leader, student initiative is discouraged. Individual assignments receive little input from the teacher. All of this creates a void between the teacher and the students. This particular interpersonal behaviour is negatively related to student wellbeing.

These findings should encourage teachers to be aware of their students' perceptions of teachers' behaviour and how they are related to students' wellbeing. Teachers need to be informed about this because all too often self-perception is more favourable than the reality experienced by students. Self-reflection offers insight and improvement. The teacher's interpersonal behaviour is connected with their personal character and is usually a stable trait (Brekelmans, 1989). This makes it difficult to expect a change of personal style in interpersonal relationships in the classroom. However, the ideal view of a good teacher implies that the competent teacher has the natural ability to slide into any of the four behaviour quadrants as the situation demands.

Student wellbeing is not just dependent on student perceptions of the teacher's interpersonal behaviour; course content is also very important. Language teachers who are dominant-cooperative (Quadrant 1) are more effective in enhancing student wellbeing. Mathematics teachers who are effective in enhancing student wellbeing are perceived as submissive-cooperative (Quadrant 2). Student's attitude towards these two subjects can be an explanation for this difference (Wilkins et al., 2003; Van Den Broeck et al., 2005). What appears as most important here is that cooperation is the common desirable characteristic in the teacher-student relationship. We can conclude that all students, independent of course content, feel good in the presence of an understanding, tolerant teacher who is there when help is needed.

These findings are based on an interpersonal perspective on teaching. This perspective was the deciding factor in our choice of variables for analysis. Only the relationship between student characteristics, their academic achievement, student's perception of the teacher's interpersonal behaviour, and the wellbeing of students is examined in this chapter. Involving other process variables that correspond to a learning perspective on teaching is recommended for future research. The teachers' perspective of their own behaviour would add to this study so that a comparison between two perspectives of the same learning environment could be made. Other classroom and teacher variables might be included in further analyses, as these can possibly explain variances of student wellbeing at the classroom level.

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CHAPTER 4

EXPLAINING STUDENT WELLBEING BY PRE-MEASUREMENTS OF WELLBEING AND ACHIEVEMENT

Based on:

Van Petegem, K., Creemers, B., Aelterman, A., & Rosseel, Y. (resubmitted after revision). Explaining student wellbeing by pre-measurements of wellbeing and achievement. *School Effectiveness and School Improvement.*

I. ABSTRACT

Educational effectiveness research focuses not only on cognitive output but also on affective student outcomes. Student wellbeing has to be addressed as an important output variable of the educational process. The focus of this study is on student wellbeing at the end of Grade 10 and its relationship to current achievement, and pre-measurements of student wellbeing and achievement. Student characteristics and motives for attending school are taken into account. Moreover, within classroom environment research, student perceptions of psychosocial characteristics within the classroom are considered as an important factor in the explanation of student wellbeing. Data from 429 students at 13 different secondary technical and vocational training schools in Flanders (Belgium) are used. The results indicate that pre-measurements of student wellbeing and achievement are positively related to student wellbeing at the end of Grade 10. No relationship is found between student wellbeing and achievement when both are measured at the end of Grade 10. Furthermore, students feel better when they perceive their teacher's interpersonal behaviour in the classroom as tolerant/authoritative and not as authoritarian.

II. INTRODUCTION

For many years traditional educational effectiveness research considered academic achievement as the sole output factor in the assessment of educational processes (Reynolds & Teddlie, 2000). An increase in student achievement was considered the main goal, while factors including time on task, the opportunity to learn, and instruction functioned as explanatory variables. Within the last few decades, the importance of affective output factors has been integrated into educational effectiveness research, alongside the original cognitive factors (Knuver & Brandsma, 1993; Samdal, Wold, & Bronis, 1999; Konu, Litonen, & Autio, 2002; Opdenakker & Van Damme, 2000). Scheerens' (1990) CIPO model is an example of this integration, as it includes both cognitive and affective factors as part of the output component. Attention to the more subtle, but important aspects of school life, such as student wellbeing, has also emerged within classroom environment research (Fraser & Walberg, 1991; den Brok, 2001). In this approach, the relationship between student perceptions of psychosocial characteristics of the classroom and student outcomes is examined (Fraser et al., 1991; Fraser, 1994; Wubbels, Brekelmans, den Brok, & Tartwijk, 2006). More specifically, by taking into account the student's perceptions of the teacher's interpersonal behaviour, the educational process can be studied from an interpersonal perspective (den Brok, 2001).

In current educational effectiveness research, as well as classroom environment research, there is a need for multiple measures of schooling outcomes. Since a harmonious development of students' cognitive, affective, and social outcomes is the ideal, it is important to include these variables into the analysis and evaluation of schooling outcomes. However, the operationalization of non-cognitive outcomes (i.e., affective outcomes) is quite diverse. According to Knuver and Brandsma (1993) affective outcomes refer to attitudes the student has towards school and learning. Several research studies use student wellbeing as an affective outcome (Knuver & Brandsma, 1989; Samdal et al., 1999; Opdenakker et al., 2000). Explaining student wellbeing is not as straightforward as it may seem; such non-cognitive output factors are difficult to measure. Findings and their significance often depend on the precise way affective components have been defined (Knuver et al., 1993; Samdal et al., 1999; Tymms, 2001). Engels, Aelterman, Schepens, and Van Petegem (2004a) define student wellbeing as "a positive emotional state that is the result of a harmony between the sum of specific context factors on the one hand and the personal needs and expectations towards the school on the other hand" (p.128). This definition reflects dynamic involvement and positive change (Seligman & Csikszentmihalyi, 2000; Arthaud-Day, Rode, Mooney, & Near, 2005; Schaufeli & Bakker, 2001), and also refers to a person-environment fit condition (Kristof, 1996).

We believe that including affective variables such as student wellbeing into educational research can further our understanding of student outcomes. Numerous studies report a lack of motivation, or decrease in positive school related attitudes, of students in secondary education (Eccles, Lord, & Midgley, 1991; Anderman & Maehr, 1994). This decline has been attributed to psychological changes associated with puberty and the school environment (Anderman et al., 1994; Eccles et al., 1991; Midgley, Feldlaufer, & Eccles, 1989). According to the differentiation-polarization theory, low-stream students, or students of technical and vocational training schools, develop an anti-school culture in comparison with high-stream students who develop a positive school culture (Hargreaves, 1967; Van Houtte, 2006; Van de gaer, Pustjens, Van Damme, & De Munter, 2006). As a consequence, students from low streams are less motivated and drop out of school more frequently.

The relationship between wellbeing and academic achievement is often studied as a component of educational quality. The ideal is to strive for high achievement (cognitive output) and student wellbeing (affective output), which would then start a positive cycle enhancing each realized output. Indeed, such a reciprocal relationship between student wellbeing and achievement is assumed in other research (Knuver et al., 1993; Samdal et al., 1999; Tymms, 2001): satisfaction at school can be a result of successful academic experiences, and can also stimulate further achievement. In literature, this is described as 'the good circle'; high achievement scores increase student wellbeing, which helps create better student motivation which again leads to higher achievement scores (Samdal et al., 1999).

Schools can be effective on both cognitive and affective levels (Knuver et al., 1993). Opdenakker et al. (2000) state that wellbeing and achievement are two separate output factors and are relatively independent. We believe that it is essential to maintain a balanced focus on both components. The relationship found between student's affective and cognitive experience varies significantly depending on the level of analyses. Context characteristics rarely have the same effect on both affective and cognitive output factors; some characteristics appear to correlate with the cognitive component, while having no effect on the affective component, and vice versa (Opdenakker et al., 2000).

The present study will take into account the student's perceptions of psychosocial classroom characteristics when explaining student wellbeing. These perceptions describe the type of interpersonal relationship that has emerged between teachers and students, and are an important factor in determining classroom climate (Van Houtte, 2005; Fraser, 1994; Maslowski, 2001). Climate factors, such as the social system in the classroom, have been incorporated in other effectiveness models and have been shown to exert a direct influence on student outcomes (Creemers & Reezigt, 1999; Creemers, 1994). For students to classify their perceptions, we use Wubbels, Brekelmans and Hooymayers' (1991) typology of the teacher's interpersonal behaviour, which was developed on the basis of the systems approach to communication (Watzlawick, Beavin, & Jackson, 1967) and Leary's

(1957) study of interpersonal diagnosis of personality. Within this typology two orthogonal dimensions can be distinguished: influence and proximity. The degree to which a teacher leads classroom communication distinguishes dominant teachers from submissive teachers (influence dimension). The distance in the relationship between teacher and students is characterized by cooperation or opposition (proximity dimension). As such, four quadrants can be distinguished, i.e., dominant-cooperative (Quadrant 1), submissive-cooperative (Quadrant 2), submissive-opposite (Quadrant 3), and dominant-opposite (Quadrant 4). Each quadrant is related to the teacher's specific interpersonal behaviour.

In this study we investigate whether student wellbeing (at the end of Grade 10) can be explained by current achievement as well as pre-measurements of wellbeing and achievement. We specifically focus on students of the lower streams, i.e., students attending vocational and technical secondary schools. We chose this group of students since previous research suggests that they have a lower wellbeing score in comparison with students enrolled in academic schools (Engels, Aelterman, Schepens, & Van Petegem, 2004a). Since the student-teacher relationship is an important dimension of the classroom environment and climate (Tagiuri, 1968; Maslowski, 2001), we have operationalized climate factors as students' perceptions of the teacher's interpersonal behaviour (Anderson, Hamilton, & Hattie, 2004). These are measured at the beginning of Grade 9, and their relationship with student wellbeing is examined. This can be done because these students have the same teachers during Grades 9 and 10. Furthermore, in this study a distinction is made between student perceptions of interpersonal behaviour for practical and academic teachers because attitudes regarding these subjects can differ (Van de gaer et al., 2006; Doppelt, 2006; Van Den Broeck, Opdenakker, & Van Damme, 2005). Moreover, technical and vocational training focuses on learning by doing, which often leads to these students being more interested in practical courses than in theoretical ones (De Maeyer, Rymenans, Daems, Van Petegem, & Van den Bergh, 2003).

III. METHOD

3.1 Sample

The participants in this study were 429 students of 13 technical and vocational training schools in Flanders (Belgium). A four-stage sampling strategy was used. First, a sample of 20 schools in Flanders (Belgium) was drawn from a database of the inspectorate that consists of all technical and vocational training schools inspected in the school year 2003-2004. Second, within all these schools, 129 classes of the 10 most common study options were selected. Third, data of all 1701 students in those classes within technical and vocational training schools was gathered. Fourth, only those students (N=429) who could participate at both measuring moments were selected. Of this sample, 334 (78%) were male; the mean age was 14.5 years; and 386 (90%) were native Belgian.

3.2 Instruments

Student wellbeing was measured at the beginning of Grade 9 and at the end of Grade 10. Wellbeing is calculated as the sum score of 9 items derived from the Wellbeing Inventory of Secondary Education (WISE) (Engels, Aelterman, Van Petegem, Schepens, & Deconinck, 2004b). The reliability and validity of this instrument is satisfactory, and described in an earlier study of Engels et al. (2004b). This extensive questionnaire contains items such as: *'Are you satisfied with teachers' attitude towards the students?', 'Are you satisfied with the way the school board directs the school?', 'Do students with problems receive enough support?', 'Do you learn at school what you want to learn about?'.* Each item is scored on a 5-point Likert scale, from 1 (totally disagree) to 5 (totally agree). By means of an exploratory factor analysis, 9 items with the highest factor loadings were selected out of the original WISE. These 9 items provide a simple measure for student wellbeing. Furthermore, construct validity is met, as the items still reflect the multidimensional character of wellbeing. Items about satisfaction, feelings, and behaviour are included. A Cronbach's alpha of .74 for student wellbeing represents a reliable scale. Questions regarding student demographics, such as gender, nationality, and student motivation for attending school are included in the introduction of the Wellbeing Inventory of Secondary Education. Student motivation is measured by five separate questions. Students are asked to confirm or deny each question: (1) I attend school because my friends are there; (2) I attend school to learn; (3) I attend school to obtain a diploma; (4) I attend school because I find the courses interesting; (5) I attend school because I have to.

Academic achievement is measured by administering language and mathematics tests at the beginning of Grade 9 and at the end of Grade 10 and calculating the mean scores on the tests. The tests administered were specifically constructed for the Longitudinal Research in Secondary Education Project (Van Damme & Onghena, 2002) and are composed of curriculum relevant multiple-choice items, approved by a board of inspectors and teachers. Different versions of the tests were constructed to address the differences in curricula for Dutch and mathematics (Van Damme & Van Landeghem, 2002). Because of a partial overlap in items between the different versions, the scores on the different versions were made comparable using IRT analysis (Van Damme & Onghena, 2002). This was done for the different versions used at one measuring moment, as well as for different versions used at different measuring moments (i.e., at the beginning of Grade 9, and the end of Grade 10). The mathematics tests consist of numeric and geometrical knowledge. The language tests measure spelling, grammar, language usage, and reading comprehension. An extensive description of the construction, validity and reliability of these tests is included in Van Damme, De Troy, Meyer, Minnaert, Lorent, Opdenakker et al. (1997).

The Questionnaire on Teacher Interaction (QTI; Wubbels, Créton, Brekelmans and Hooymayers, 1987) is used to measure student perceptions of the teacher's interpersonal behaviour. This questionnaire consists of 77 items and distinguishes between different types of teachers. Items are scored on a 5-point Likert scale ranging from 1 (never) to 5 (always). A sum score of specific items can be calculated for each quadrant and set out on the dimensions. The minimum equals 0 and the maximum is 1. The use of this questionnaire is linked with a typology of the teacher's interpersonal behaviour and teachers can be situated within four quadrants based on the results of the questionnaire. Items from each quadrant include: *'This teacher explains things clearly'* (Quadrant 1), *'We can influence this teacher'* (Quadrant 2), *'This teacher thinks that we don't know anything'* (Quadrant 3) and *'This teacher is impatient'* (Quadrant 4). The reliability and validity of the QTI has been confirmed in several studies (Brekelmans, Wubbels, & Créton, 1990; Fisher, Fraser, & Wubbels, 1993; Wubbels & Levy, 1991).

3.3 Procedure

Students were approached at the beginning of Grade 9 and again at the end of Grade 10. At the beginning of Grade 9 each student filled out the WISE, the QTI, and a language and a mathematics test. The WISE, the language and mathematics tests are administered once, and the QTI is filled out three times; once for their practical teacher, once for their mathematics teacher, and once for their language teacher. At the end of Grade 10, the WISE and a language and mathematics test were

administered again. Since the interpersonal style of a teacher remains relatively stable (Wubbels et al., 2006), the QTI is not administered again at the end of Grade 10.

3.4 Variables

Questions about student characteristics, such as gender, nationality, and motives for attending school are included in the introduction of the Wellbeing Inventory of Secondary Education. Only the information gathered at the beginning of Grade 9 is used in the analysis. Gender is taken into account because other studies have found differences between boys and girls in wellbeing or achievement (Engels et al., 2004a; Knuver et al., 1993; Van de gaer et al., 2006; Konu et al., 2002). According to these studies the wellbeing of girls is significantly higher than the wellbeing of boys. Achievement scores also seem to differ for boys and girls, and are often related to the subject (Bosker, Kremers, & Lugthart, 1990; Van de gaer et al., 2006; Knuver et al., 1993; Sally & Sammons, 1997; De Maeyer et al., 2003). Students' nationality is taken into account because other studies have found differences in achievement based on ethnicity (Sally et al., 1997). Students' nationality is sometimes replaced by language spoken at home to examine the relationship with achievement on language tests (Van de gaer et al., 2006; Knuver et al., 1993). Student motivation has been taken into account as a control variable. Student motivation seems to be related with not only aspects of classroom climate (i.e., student wellbeing), but also with student achievement (Anderson et al., 2004; Van Den Broeck et al., 2005). Related to this, school can be considered as a learning and living environment, or a place where students want to feel good (van der Veen, 1989). Motivation and demographic variables are dummy coded.

3.5 Data Analysis

Student wellbeing and achievement are measured at the beginning of Grade 9 and at the end of Grade 10. For all other variables, i.e., demographics, motives, and perceptions of the teacher's interpersonal behaviour, measurements at the beginning of Grade 9 are used. A regression analysis is executed to examine which variables can explain student wellbeing at the end of Grade 10. The model is built hierarchically. In step 1 student demographics such as gender and nationality are introduced. In step 2 student motives for attending school are added to the model. In step 3 student perceptions of the teacher's interpersonal behaviour are included next to the motives that are shown to be significant in step 2. In step 4 the relationship with other student outcomes are the focus. Student wellbeing and achievement at the beginning of Grade 9 and student achievement at the end of Grade 10 are added to the model next to student motives and perceptions that are significant. In step 5 we examine if the

relationship between student wellbeing and achievement at the end of Grade 10 is disguised by the pre-measurement of student achievement. In step 6 interaction effects between student wellbeing and achievement are explored.

IV. RESULTS

Table 1 shows the descriptive statistics regarding student wellbeing for categorical variables; gender, nationality, and motivation taken at the beginning of Grade 9. Results indicate that most students report 'obtaining a diploma' as their strongest motive for attending school. The student's interest in the courses seems to be the least important motive for attending school. Furthermore, Table 1 shows the mean wellbeing scores of students according to their gender, nationality, and motives to come to school. When students indicate that they come to school to learn, their wellbeing score is the highest (M=30.78: SD=5.2). When they feel obliged to come to school, their wellbeing score is the lowest (M=28.74: SD=5.4). The mean wellbeing score of all students is approximately 30 (SD = 5) on a scale from 9 to 45.

Table 1

Mean scores and standard deviations of student wellbeing for the different categorical variables at the beginning of Grade 9

Student charact.	Categories	N	Mean wellbeing	SD
sex	boys	334	29.80	5.4
	girls	95	30.42	4.8
nationality	Belgian	386	29.94	5.3
	non-Belgian	43	29.92	5.1
motive friends	no	134	30.02	5.6
	yes	295	29.89	5.1
motive learn	no	216	29.10	5.2
	yes	213	30.78	5.2
motive diploma	no	65	29.36	5.2
	yes	364	30.04	5.3
motive interest	no	307	29.71	5.4
	yes	122	30.51	5.0
motive obliged	no	290	30.51	5.1
	yes	139	28.74	5.4

Table 2 shows statistics of each quadrant of the typology of interpersonal teacher behaviour for both the practical and academic teachers. Results indicate that most of the students perceive their teachers as dominant-cooperative (Quadrant 1), while the lowest score can be found for submissive-opposite teacher behaviour (Quadrant 3). Student perceptions of the teacher's interpersonal behaviour seem to be quite similar for both practical and academic teachers, however, we want to examine the relationship between student's perceptions and wellbeing. Based on other studies (Midgley et al., 1989; Doppelt, 2006; Van Den Broeck et al., 2005), we expect that the relationships between the four quadrants and student wellbeing will differ for practical and academic courses; this is because students tend to harbour different attitudes towards different courses. Such attitudes can be reflected in their perceptions of the

teachers' interpersonal behaviour in the classroom, and determine the relationship with student wellbeing.

Table 2

The minimum and maximum value, mean and standard deviation of each quadrant of the typology of interpersonal teacher behaviour for the practical and the academic teacher

	Quadrant	Minimum	Maximum	Mean	Std. Deviation
Practical teacher	1	0.08	0.94	0.62	0.11
	2	0.13	0.77	0.52	0.07
	3	0.07	0.79	0.35	0.08
	4	0.08	0.82	0.47	0.08
Academic teacher	1	0.23	0.94	0.63	0.11
	2	0.15	0.86	0.51	0.08
	3	0.07	0.57	0.31	0.08
	4	0.19	0.76	0.46	0.09

Note. Quadrant 1 = dominant-cooperative; Quadrant 2 = submissive-cooperative; Quadrant 3 = submissive-opposite; Quadrant 4 = dominant-opposite.

Table 3 shows the results of the hierarchical regression analysis, with student wellbeing at the end of Grade 10 as the dependent variable. In the first step in the analysis, no significant relationship is found between student wellbeing at the end of Grade 10 and student gender or nationality. This means that there is no difference in student wellbeing between males and females or between Belgian and non-Belgian students.

Student motives for attending school are added to the model in step 2 and there is a significant relationship between some student motives, and student wellbeing at the end of Grade 10: when students indicate that they are interested in their courses, their wellbeing increases. A significant but negative relationship is found between the motive 'obliged' and student wellbeing: when students feel obliged to come to school, their wellbeing decreases.

In step 3 student perceptions of the teacher's interpersonal behaviour are introduced into the model. A distinction is made between student perceptions of the practical and academic teacher. Each teacher is situated within the four quadrants of the typology of the teacher's interpersonal behaviour. The results indicate that when students perceive the interpersonal behaviour of their practical teacher as dominant-cooperative (Quadrant 1), student wellbeing increases. When the practical teacher's interpersonal behaviour is perceived as submissive-cooperative (Quadrant 2) by the students, a negative relationship with student wellbeing at the end of Grade 10 is found. However, this relationship is no longer significant when, in the next step, other student outcomes are included in the model. Students who perceive the teacher's interpersonal behaviour of their academic teacher as submissive-cooperative (Quadrant 2) also score higher on the wellbeing scale, but when they perceive the interpersonal behaviour of their academic teacher as dominant-opposite (Quadrant 4) their wellbeing decreases at the end of Grade 10.

In step 4, pre-measurements (taken at the beginning of Grade 9) of student wellbeing and achievement, and current measurements (at the end of Grade 10) of student achievement, are included into the model. The results indicate significant positive relationships between student wellbeing at the end of Grade 10, and pre-measurements of student wellbeing and achievement. No significant relationship is found between student wellbeing and achievement at the end of Grade 10. This indicates that student wellbeing is based on previous experiences.

To examine whether the relationship between student wellbeing and achievement at the end of Grade 10 is disguised by the pre-measurement of student achievement, this last variable is deleted in step 5 of the model represented in Table 3. Still no significant result is found for the relationship between student wellbeing and achievement at the end of Grade 10. This suggests that student wellbeing can be explained by pre-measurements of student wellbeing and achievement but not by current achievement.

In step 6 the relationships between student wellbeing at the end of Grade 10 and interaction effects of student wellbeing and achievement are examined. The results indicate that the relationship between student achievement at the beginning of Grade 9, and student wellbeing at the end of Grade 10, are moderated by student wellbeing at the beginning of Grade 9. However, the model represented in step 6 of Table 3 is not significantly better than the previous ones, which means that including these interaction terms is not meaningful.

When the same analysis is performed, but the two values of achievement (one at the beginning of Grade 9 and one at the end of Grade 10) are replaced by their difference score, no significant relationship is found with student wellbeing. This means that there is no relationship between differences in achievement and student wellbeing at the end of Grade 10. Interaction terms of student outcomes and gender are also not significant when included in the analyses.

Table 3

Hierarchical regression analysis with student wellbeing at the end of Grade 10 as the dependent variable

Model				
Predictor	*B*	SE	β	p-value
Step 1 of the hierarchical regression. $F(2,426) = .363$, $p > 0.01$; $R^2 = .002$				
Sex	.498	.586	.041	.396
Nationality	.007	.810	.000	.993
Step 2 of the hierarchical regression. $F(7,421) = 3.208$, $p < 0.01$; $R^2 = .051$				
Sex	.660	.587	.055	.261
Nationality	-.016	.805	-.001	.985
Motive friends	.093	.533	.009	.862
Motive learn	.303	.246	.060	.218
Motive diploma	-.015	.224	-.003	.948
Motive interest	.346	.135	.125	.011*
Motive obliged	-.304	.104	-.142	.004**
F Change = $F(5,421) = 4.341$, $p < 0.01$; $\Delta R^2 = .049$				
Step 3 of the hierarchical regression. $F(12,416) = 14.187$, $p < 0.01$; $R^2 = .290$				
Sex	-.325	.514	-.027	.528
Nationality	.133	.699	.008	.849
Motive interest	.328	.119	.118	.006**
Motive obliged	-.243	.091	-.113	.008**
Q1 practical	18.227	4.150	.397	.000**
Q2 practical	-10.636	5.121	-.157	.038*
Q3 practical	1.135	4.340	.018	.794
Q4 practical	-3.123	3.552	-.052	.380
Q1 academic	-.030	4.193	-.001	.994
Q2 academic	11.260	4.991	.189	.025*
Q3 academic	1.391	3.993	.023	.728
Q4 academic	-16.689	3.366	-.297	.000**
F Change = $F(8,416) = 17.827$, $p < 0.01$; $\Delta R^2 = .239$				
Step 4 of the hierarchical regression. $F(11,417) = 17.043$, $p < 0.01$; $R^2 = .310$				
Sex	-.336	.505	-.028	.506
Nationality	.064	.681	.004	.926
Motive interest	.316	.118	.114	.007**
Motive obliged	-.218	.090	-.102	.016*
Q1 practical	14.089	3.680	.307	.000**
Q2 practical	-4.989	5.240	-.074	.342
Q2 academic	6.406	3.209	.107	.047*
Q4 academic	-14.354	2.797	-.256	.000**
Wellbeing Grade 9	.112	.051	.118	.027*
Achievement Grade 9	.053	.021	.121	.010*
Achievement Grade 10	.015	.022	.031	.491
F Change = $F(3,417) = 4.333$, $p < 0.01$; $\Delta R^2 = .020$				

(Table 3 continued)

Model				
Predictor	*B*	SE	β	p-value
Step 5 of the hierarchical regression. $F(10,418) = 17.831$, $p < 0.01$; $R^2 = .299$				
Sex	-.328	.508	-.027	.519
Nationality	.083	.686	.005	.904
Motive interest	.312	.118	.112	.009**
Motive obliged	-.216	.091	-.101	.017*
Q1 practical	15.098	3.684	.329	.000**
Q2 practical	-8.891	5.054	-.131	.079
Q2 theoretical	7.801	3.186	.131	.015*
Q4 theoretical	-15.418	2.785	-.274	.000**
Wellbeing Grade 9	.114	.051	.120	.026*
Achievement Grade 10	.027	.022	.056	.206
F Change = $F(2,418) = 3.095$, $p < 0.05$; $\Delta R^2 = .011$ (step 4 – step 5)				
Step 6 of the hierarchical regression. $F(13,415) = 14.803$, $p < 0.01$; $R^2 = .317$				
Sex	-.343	.505	-.028	.497
Nationality	.137	.683	.008	.842
Motive interest	.318	.118	.115	.007**
Motive obliged	-.218	.090	-.102	.016*
Q1 practical	10.851	2.261	.236	.000**
Q2 theoretical	6.379	3.197	.107	.047*
Q4 theoretical	-14.002	2.801	-.249	.000**
Wellbeing Grade 9	.121	.050	.127	.017*
Achievement Grade 9	.063	.020	.142	.002**
Achievement Grade 10	.015	.022	.030	.507
Wellb. Grade 9 x Achiev. Grade 9	.007	.004	.086	.048*
Wellb. Grade 9 x Achiev. Grade 10	-.005	.004	-.055	.194
Achiev. Grade 9 x Achiev. Grade 10	-.001	.002	-.032	.476
F Change = $F(3,415) = 1.651$, $p > 0.05$; $\Delta R^2 = .007$ (step 4 – step 6)				

Note. Q = Quadrant

** sign at .01 level

* sign at .05 level

V. DISCUSSION

The present study investigated whether student wellbeing (at the end of Grade 10) can be explained by current achievement as well as pre-measurements of wellbeing and achievement. In our analysis student demographics, motives for attending school, and student perceptions of the teacher's interpersonal behaviour were taken into account. A positive correlation between student wellbeing at the beginning of Grade 9, and student wellbeing at the end of Grade 10 was found. A positive correlation between student achievement at the beginning of Grade 9, and student wellbeing at the end of Grade 10 was also found. There was no significant relationship between student wellbeing and student achievement at the end of Grade 10. This suggests that student wellbeing is not affected by current cognitive outcomes. Similarly, the results of Opdenakker et al. (2000) indicate that student wellbeing and achievement, measured at the same time, can be considered as relatively independent constructs. This means that an increase in one of the outcomes is not necessarily at the expense of the other. This is in contrast with the assumptions of Leune (1993), who states that an increase in affective outcomes is associated with a decrease in cognitive outcomes, and vice versa. In general, the positive relationship between student wellbeing at the end of Grade 10 and pre-measurements of student wellbeing and achievement fits the idea that wellbeing can be considered as a trait, and not only as a state (Costa, McCrae, & Zonderman, 1987). Pre-measurements of affective as well as cognitive student outcomes are important in explaining later wellbeing.

When explaining student wellbeing at the end of Grade 10, the motive 'interest in the courses', has a positive relationship with wellbeing. This result is important because, as shown in Table 1, 'interest in the courses' is the least popular motive for students to come to school when asked at the beginning of Grade 9. A possible reason for this is the cascade system, whereby many students have former failing experiences before they end up in technical and vocational training. Based on these findings it is crucial that students be allowed to choose their own stream and study option at the beginning of Grade 9 based on their interest as it motivates them. Anderson, Hamilton, and Hattie (2004) also found a relationship between student motivation and various aspects of classroom climate. They found a positive relationship with student wellbeing, and that motivation can be considered as an important prerequisite for learning (Opdenakker et al., 2000; Van Damme & Van Landeghem, 2002). Related to motivation, we find that students' wellbeing increases when school is not experienced as an obligation. A positive attitude towards school is crucial for their wellbeing. This condition is also reflected in the definition of student wellbeing where the focus is on 'a positive emotional state' (Engels et al., 2004a).

Our results indicate a positive relationship between student perceptions of the teacher's interpersonal behaviour and student wellbeing: that is, the proximity dimension of the typology of the teacher's

interpersonal behaviour correlates with wellbeing, which offers support to the findings of Brekelmans (1989). Students feel better when they perceive their practical teacher's behaviour as dominant-cooperative (Quadrant 1). The dominant-cooperative behaviour corresponds, in Brekelmans' typology of the teacher's interpersonal behaviour (Brekelmans, 1989), with the tolerant/authoritative type of teacher. This teacher develops close relationships with students, which are characterized by a strong cooperative component. A lot of attention is paid to the needs and expectations of the students. Apart from clearly structured teaching, students get much freedom and responsibility; discipline is present, and students work on their task because they view it as pleasant and interesting. Students of technical and vocational training are positively oriented towards this type of practical teacher. Other research (Van Petegem, Aelterman, Rosseel, & Creemers, 2007) indicates that students feel good when the teacher directs the communication in the classroom, and when the teacher and students are cooperating.

For academic teachers, interpersonal behaviour that is perceived by the students as the submissive-cooperative type (Quadrant 2) is positively related with student wellbeing, while there is a negative relationship between student perceptions of the dominant-opposite teacher (Quadrant 4) and student wellbeing. Within the typology of interpersonal teacher behaviour, this means that students like the tolerant type and do not like the authoritarian type. The tolerant academic teacher allows students to participate a lot. The teacher is less leading, but very cooperative, and there is an agreeable classroom climate. The aims and needs of the students are taken into account; students can participate and feel responsible. The personal involvement of the teacher motivates students, in comparison with the authoritarian type of teacher who dominates the whole class. The main focus of the authoritarian type of teacher is on cognitive output, and thus the classroom climate is less friendly. Student initiative has no place here, and the distance in the relationship between the teacher and students is large.

The differences in student perceptions can be attributed to either the fact that students of technical and vocational training have a different relationship with their practical teacher than with their academic teacher, or that student attitudes simply differ towards certain courses or subjects (Midgley et al., 1989; Van Den Broeck et al., 2005). In practical courses the subject matter is approached far less theoretically or academically. In technical and vocational training, student motivation for practical courses is often higher than for academic courses. The choice for a certain subject or direction can be an important determinant, and practical teachers can interact differently with their students to better succeed in stimulating student motivation. The importance of motivation to increase student wellbeing has already been indicated in this discussion. These findings make us conclude that the classroom climate is not only important in its own right, but it also determines student perceptions of the classroom environment.

The added value of this study for educational effectiveness research is that student wellbeing has been considered as a valuable goal next to achievement. Cognitive and affective outcomes seem to be relatively independent constructs when measured at the same time but a relationship of these outcomes is found with later wellbeing at school. In general, attention should be given to factors that increase student achievement as well as creating an agreeable classroom climate where students feel good.

The importance of student wellbeing as indicator of educational quality is reflected in the education inspectorate's interest in it. In our study we focused on students attending vocational and technical secondary schools, since previous research suggests that they have a lower wellbeing score in comparison with students enrolled in academic schools (Engels et al., 2004a). Overall our results suggest that even in technical and vocational training schools, student wellbeing is not very problematic, with a mean score of about 30 on a scale from 9 to 45.

VI. CONCLUSION

The purpose of this study was to examine whether student wellbeing can be explained by current achievement and pre-measurements of affective as well as cognitive outcomes. Pre-measurements of student wellbeing and achievement are positively related to student wellbeing at the end of Grade 10, but no relationship is found between student wellbeing and achievement at the end of Grade 10. Based on these results, we conclude that working on high cognitive as well as high affective outcomes is important for students' later affective outcomes, i.e., student wellbeing can be considered as a trait and not only as a state. Furthermore, the results indicate that students' interest in their courses is crucial for their wellbeing. When students experience school as an obligation, a negative relationship with student wellbeing is found. Students' perceptions of the teacher's interpersonal behaviour are also related to student wellbeing.

Further research should examine factors, other than pre-measurements, that may be relevant to the stimulation of student wellbeing. Student achievement and wellbeing seem to be relatively independent constructs when measured at the same time. Because characteristics can align themselves differently with the affective component than with the cognitive component it is important to integrate diverse research approaches to further our understanding of student outcomes in general. Educational effectiveness research is an important knowledge base, but findings from classroom environment research can also be useful, specifically when investigating student wellbeing. The present study has certain limitations. Firstly, only variables at the student level were included in the analyses. It would be interesting for future research to examine the relationship between student wellbeing and variables at the teacher/classroom or the school level. Such research would give more insight into the complexity of educational processes. Secondly, our sample consisted of mostly males. A replication of this study should attempt to use a sample with more equal representation of males and females to further examine whether differences in wellbeing or achievement are found between boys and girls.

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CHAPTER 5

RELATIONSHIPS BETWEEN TEACHER CHARACTERISTICS, INTERPERSONAL TEACHER BEHAVIOUR AND TEACHER WELLBEING

Based on:

Van Petegem, K., Creemers, B., Rosseel, Y., Aelterman, A. (2005). Relationships between teacher characteristics, interpersonal teacher behaviour and teacher wellbeing. *Journal of Classroom Interaction*, *40*, 34-43.

I. ABSTRACT

The classroom as a micro system is characterized by many interpersonal relationships. These relationships are perceived differently by the teacher than they are by the students. In our research we examine the relationship between formal teacher characteristics, the teacher's interpersonal behaviour as perceived by the teacher, and teacher wellbeing. Results show that the teacher's gender has an influence on how he/she perceives his/her submissive-opposite interpersonal behaviour in the classroom. Male teachers with children can be situated closer to the cooperating pole of the teacher's interpersonal behaviour typology. Male teachers without job security and teachers without job security who have children perceive themselves more as leaders with helpful/friendly behaviour, in comparison with colleagues who do have job security. The years of experience have an impact on teacher wellbeing. Furthermore, the wellbeing of teachers with a high score on the dominant-cooperative quadrant increases, whereas the wellbeing of teachers with a high score on the submissive-opposite quadrant decreases.

II. INTRODUCTION

Teaching is a very complex activity that is affected by numerous variables, such as the subject matter being taught, the time available, the character of the teacher, the disposition of the learners, resources, etc. A distinction can be made between on the one hand the pedagogical, methodological perspective of teaching, which includes the selection and organization of teaching materials, methods of instruction, and assessment, and on the other hand the interpersonal perspective, which focuses on the interpersonal relationship between teacher and student (Wubbels & Levy, 1993; Van Tartwijk, Brekelmans, Wubbels, Fisher, & Fraser, 1998). The teacher needs to feel comfortable in the work place, which is the school, and more specifically the classroom. There are essential interpersonal relationships between the teacher and the students. Different teachers advocate different levels of control over their students: some teachers prefer a disciplined environment for learning, whereas others want to create a pleasant classroom atmosphere where students feel safe to take risks and be creative. It is expected that teachers' interpersonal relationships and preferences are to a large extent determined by their background characteristics such as gender and experience.

The purpose of this study is to examine whether there is a link between formal teacher characteristics, the interpersonal relationships experienced by the teacher within a classroom, and the way the teacher perceives his/her own wellbeing. As interpersonal relationships are brought about by affective factors, which are principal components of emotional states like wellbeing, this study will focus on these relationships.

2.1 Interpersonal perspective on teaching

This study examines the classroom environment from an interpersonal perspective on teaching, which concerns creating and maintaining a positive, warm classroom atmosphere conducive to learning (Fraser, 1994; Anderson, Hamilton, & Hattie, 2004). We focus on the relationship between students and teachers. Teachers have both a direct and an indirect influence on students, and thus contribute to the learning environment of the students. For example, teaching behaviours, teaching styles, and student 's perception of the learning environment have been studied and found to be related to student learning (Fraser & Walberg, 1991; Muijs & Reynolds, 2005). According to Moos (1979) the relationship between students and teachers is an important dimension of the classroom climate. Moos distinguishes three dimensions of classroom atmosphere: (1) relationships within the classroom; (2) personal development and goal orientation; and (3) maintenance and changes within the system. From an interpersonal

perspective, it is the first dimension that interests us. This dimension represents the nature of personal relationships within the classroom, particularly the support a teacher offers his/her students. Involvement and affiliation are also classified under this dimension. Based on these three dimensions, Maslowski (2001) describes classroom climate as the collective perceptions of students with respect to the mutual relationships within the classroom, the organization of the lessons and the learning tasks of the students.

Within the systems approach to communication, it is assumed that the behaviours of participants mutually influence each other. The behaviour of the teacher influences that of the students, and vice versa. In the classroom, the effects of this circular communication process can be seen in the creation and maintenance of a good classroom climate, and the behaviours that determine the quality of relationships and feelings. The link between teacher behaviour and student behaviour suggests that teachers can benefit directly from knowing how their interpersonal behaviour affects student behaviour (den Brok, Brekelmans, & Wubbels, 2004). This mutual relationship is therefore an essential topic in this study. The complex character of classroom environment implies that multiple perceptions are necessary to get a comprehensive image of the educational process. Because perceptions are the result of an interaction between the person and his/her environment, they reveal how someone experiences a classroom situation.

Considering the teacher as an actor in the interpersonal relationship, this study focuses on his/her perception of the situation. Most teachers perceive the classroom environment more positively than their students (Brekelmans, 1989). This may be because, upon being given self-report questionnaires, teachers report a more idealistic perception of the context than students do. This may be caused by differential power relationships or the fact that students' classroom attendance is essentially involuntary. Furthermore, their answers may be affected by what they perceive to be socially desirable. In relation to this, Brekelmans (1989) points out the difference between actual and ideal perceptions. Our study will concentrate on actual perceptions, whereby teachers are asked to describe how they experience the actual educational situation.

2.2 The teacher's wellbeing

We are interested in how the teacher experiences teaching and how this affects his/her wellbeing. In an earlier study, teacher wellbeing is defined as "a positive emotional state, which is the result of a harmony between the sum of specific context factors on the one hand and personal needs and expectations of the teacher towards the school on the other hand" (Aelterman, Engels, Van Petegem, & Verhaeghe, 2007, p. 286).

This definition can be broken down into different components. First, it mentions 'a positive emotional state' which incorporates a positive connotation. Compared to other studies we focus on the positive emotional state and not on deficiency, absenteeism, burnout, or stress. The vision behind this definition is one of dynamic involvement, positive change and corresponds with a direction in positive psychology. Secondly, the 'harmony' between context and person refers to the attempt to create a person-environment fit model (Kristof, 1996). Teachers have to be capable of attuning their own needs and expectations to specific context factors and demands of the school, and vice versa. It is important that there is a 'fit'. The teacher's qualities that allow for the development of authentic human relationships with the students and his/her capacity to create a democratic and agreeable classroom are important attributes for effective teaching. Entwistle (1987) affirms that "there are emotional and moral, as well as cognitive sources of satisfaction in schooling" (p 21). Thus the affective domain is an important factor in successful interactions between teachers and students.

2.3 Research questions

Students of technical and vocational training schools are the focus of our study, due to the present educational policy of reappraising this type of school. We are interested in how interpersonal relationships are perceived by these teachers, how they are influenced by personal characteristics, and how this relates to the teacher's wellbeing. The two research questions of this chapter are as follows:

1) Which teacher characteristics are related to the teacher's interpersonal behaviour as perceived by the teacher?
2) What is the relationship between teacher characteristics and the teacher's interpersonal behaviour on the one hand and the teacher's wellbeing on the other hand?

III. METHOD

3.1 Sample

In educational processes macro, meso, and micro levels can be distinguished. This study focuses on the micro or classroom level. Twenty technical and vocational training schools participated, with approximately 260 teachers (41% male and 59% female). For each group of students, a mathematics teacher, a language teacher, and a teacher of a practical course were asked to fill in questionnaires.

In the Flemish secondary education system technical and vocational training streams exist next to general and artistic education streams. Technical education focuses on general subjects as well as technical-theoretical subjects. Vocational training however, teaches students a specific occupation, while they are also taking some general courses. On completion of a technical or vocational training, students can either look for employment or continue their studies in higher education. Within technical and vocational training we deal with hard and soft sectors of instruction. Hard sectors (blue collar jobs) include mechanical subjects, such as electrical, metal, and woodworking. Soft sectors (white collar jobs) include instruction associated with office and sales, care/nutrition, etc.

3.2 Instruments

Different instruments were used to understand the complex dynamics of interpersonal relationships and the wellbeing of the teacher within a classroom. The teacher's interpersonal behaviour was measured as perceived by the teacher. Also the information about the teacher's wellbeing was gauged by the teacher him/herself. Teacher characteristics were taken into account to explain certain findings. Two questionnaires were used;

The Questionnaire on Teacher Interaction (QTI; Wubbels, Créton, Brekelmans, & Hooymayers, 1987) uses the systems approach to communication developed by Watzlawick, Beavin and Jackson (1967). The authors assume that in the classroom circular communications develop which not only consist of certain behaviours, but also determine them. The QTI is also based on Leary's (1957) study of interpersonal diagnosis of personality (Wubbels, Créton, & Hooymayers, 1992). Leary suggests that interpersonal interaction is controlled by a desire to avoid anxiety while maintaining self-esteem. Successful interactions are repeated and eventually these interaction patterns are sufficiently established to be recognized as a specific style of communication. Dimensions of interpersonal behaviour can be arranged to represent behavioural variation. This model is adapted to instructional settings such as the classroom.

We are using the QTI to pinpoint relationships within the classroom environment. This questionnaire is completed by the teacher. The information thus obtained includes the teacher's perceptions of his/her behaviour towards the students as a class. This makes it possible to measure the perceptions relating to in-class teacher behaviour. The scientific value and usefulness of this questionnaire has been established (Brekelmans, 1989; Wubbels et al., 1993).

The Teacher Wellbeing Questionnaire was developed within an earlier study (Aelterman et al., 2007). In the qualitative part of the study, teachers were asked to mention all possible indicators of their wellbeing at school. This inventory was combined with theoretical models from the literature, which resulted in a definitive version of the questionnaire. Following this, an exploratory factor analysis (with Amos) was performed and a more simplified model was derived. The major components or indicators of the latent variable 'teacher's wellbeing' concern teacher efficacy and student orientation, relationships with students' parents, and support from the school board. The most important factor is teacher efficacy, which includes the feeling of being successful in his/her profession and of being appreciated. Furthermore, teachers feel that they can control the class; that students listen to them; that they have a good relationship with the students; and that they succeed in motivating the students to study independently. The questions asked reflect the importance of this crucial factor. Teachers who are student oriented consider dealing with students the most satisfying aspect of their job. Having good relationships with students' parents is another important aspect of teacher wellbeing. Finally, the indicator 'support from the school board' denotes having an employer who is interested in the teachers at a personal level.

Teachers who also completed the questionnaire on teacher interaction were asked to fill in this questionnaire about their wellbeing.

3.3 Establishing a relationship between the various components of the research questions

Questionnaires are used to measure the teacher's interpersonal behaviour and wellbeing. In this study we also want to verify the influence of teacher characteristics on interpersonal behaviour and wellbeing. We are especially interested in four criteria; gender, job security, parental status, and years of experience. All too often these variables are indicated as being static in nature. Nevertheless, we expect that these personal traits can have a considerable influence on the socio-emotional and affective aspects of a teacher's professional life.

The gender of the teacher stands out as being important when considering interpersonal relationships within a classroom. We want to establish whether male teachers approach their students in a different way than female teachers. If we were to accept stereotypes, we would be inclined to believe that male

teachers tend more toward the dominance pole within the influence dimension, whereas female teachers would tend more toward submissive behaviour. Considering the proximity dimension, we would then also expect that male teachers tend more toward the opposition pole, whereas female teachers promote greater cooperation amongst students. The latter would be explained by the greater affective involvement or the greater ability of women to identify with their students. The results of our study will show whether these expectations are valid.
We are also examining the relationship between teacher gender and wellbeing in order to establish if there is a gap in wellbeing between male and female teachers. Are both male and female teachers equally satisfied with their profession? It is interesting to note that our focus group teaches in the vocational and technical streams of secondary education. To avoid skewed results we have included questionnaire results from both the hard and soft sectors.

Job security is the second teacher characteristic that we have analysed. In our sample, 63% of the teachers have job security, while the remaining 37% have not. Assuming that teachers without job security strive to obtain a permanent position, we expect these teachers to make a special effort to establish positive interpersonal relationships. This would lead to positive evaluations that would help their cause. Control of classroom communication together with student cooperation are usually viewed as ideal. This would suggest that teachers without job security most likely belong within the dominant-cooperative quadrant (Quadrant 1). It follows then that teachers with job security are more at liberty to move across the various poles, as they can operate without fearing that their job security may be threatened. This may result in a positive link between a teacher's job security and his/her general wellbeing.

A third characteristic that could possibly influence the teacher’s interpersonal behaviour is parental status. In this study 54% of the teachers have children, 46% have no children of their own. Teachers who have children build interpersonal relationships with children on two levels, professional (at work) and parental (at home). We assume that teachers who are parents are more likely to operate within the dominant-cooperative quadrant (Quadrant 1). It is evident, however, that each group of students presents a new and different challenge and that the teacher will have to find a new equilibrium between the poles within each new group.
Because we assume that teachers with children are better equipped to establish positive interpersonal relationships with their students, we expect to find a higher measure of wellbeing amongst this group of teachers. We can then deduce that a parent who is employed as a teacher will find it easier to rise to the challenge of being a successful professional.

The final teacher characteristic considered in our analyses is years of experience. The teachers participating in this study have between 1 and 39 years of experience. Almost 15% have held their profession for between 10 and 12 years, and 17.2% of the teachers have less than 3 years experience. We consider this relevant because we believe that it is directly related to positive interpersonal behaviour. Teachers with many years of experience will have encountered various scenarios that have forced them to move within the different quadrants of the typology. This enables them to compare and use a variety of experiences to enhance interpersonal relationships. We expect that experienced teachers are more likely situated within the dominant-cooperative quadrant (Quadrant 1).

This expectation leads us to suggest that experienced teachers have a better developed sense of professional wellbeing than their less experienced colleagues. Experience leads to a feeling of competence in building positive interpersonal relationships, which in turn results in a higher sense of professional wellbeing. Had we left aside the mediating role of interpersonal behaviour, we would have been inclined to suggest that more experienced teachers have a lower sense of wellbeing as a result of other consequences of long-term experiences, such as burnout or boredom. Our analyses will need to shed more light on this expectation.

Aside from the influence of teacher characteristics, such as gender, job security, parental status, and years of experience on the teacher's interpersonal behaviour and wellbeing, we also suggest a direct link between the teacher's interpersonal behaviour and wellbeing. Based on our belief that students need structure and leadership from their teachers, we expect that teachers who have a higher control of classroom communication and student cooperation will also score higher in professional wellbeing. This expectation is also supported by the fact that teachers who encourage cooperation amongst and with their students will engage their students more actively and positively, thus satisfying their students' desire to feel actively involved in the learning process.

Once an equilibrium is established between the influence and proximity dimensions, positive interpersonal relationships will develop between teacher and students. This will result in positive feelings of wellbeing. The analyses have to demonstrate whether all the assumptions will hold.

3.4 Data analysis

First, we want to find out which teacher characteristics influence the teacher's interpersonal behaviour within a classroom. Teacher's gender, job security, and parental status are the independent categorical variables taken into account. Years of experience is defined as the continuous independent variable. All four quadrants of the teacher's interpersonal behaviour are considered as dependent variables. Thus, a

multivariate analysis of covariance is performed (Mancova).

Secondly, we are interested in the relationship between teacher characteristics and the teacher's interpersonal behaviour (as independent variables), and teacher's wellbeing (as a dependent variable). To measure this we use an analysis of covariance (Ancova).

IV. RESULTS

4.1 Relationships between teacher characteristics and the teacher's interpersonal behaviour

One of the main topics of the analysis is the teacher's interpersonal behaviour. Four quadrants are distinguished within the typology of interpersonal teacher behaviour; the dominant-cooperative (Quadrant 1), the submissive-cooperative (Quadrant 2), the submissive-opposite (Quadrant 3), and the dominant-opposite (Quadrant 4) quadrants. The scores on these quadrants are between 0 and 1. The mean score of each quadrant can be found in Table 1. We examine differences in the teacher's interpersonal behaviour and link these differences to teacher characteristics.

Table 1

Descriptive statistics of the four interpersonal behaviour quadrants and teacher wellbeing

Quadrant	N	Minimum	Maximum	Mean	Std. Deviation
1	208	.56	.98	.75	.08
2	208	.38	.74	.58	.06
3	208	.06	.51	.27	.08
4	208	.22	.75	.48	.09
teacher wellbeing	271	22	47	35.82	4.17
valid N (listwise)	208				

Table 2

Effects of teacher characteristics for the four interpersonal behaviour quadrants

Teacher characteristics	Interpersonal teacher behaviour (Quadrant)	F	Sig.
sex	1	2.31	.130
	2	1.48	.226
	3	6.23	.013
	4	1.10	.295
parental status	1	8.42	.004
	2	.71	.402
	3	.12	.732
	4	1.71	.193
sex * parental status	1	8.02	.005
	2	5.26	.023
	3	1.91	.169
	4	1.61	.206

(Table 2 continued)

Teacher characteristics	Interpersonal teacher behaviour (Quadrant)	F	Sig.
sex * job security	1	5.71	.018
	2	.12	.730
	3	.15	.697
	4	.40	.530
parental stat. * job security	1	8.82	.003
	2	2.22	.138
	3	.99	.320
	4	.92	.338

A mancova analysis indicates that there is a significant difference between the way teachers of different gender (Wilks' Lambda = .923, p = .003**) perceive their submissive-opposite (Quadrant 3) interpersonal behaviour (Table 2). Male teachers mention more dissatisfied and uncertain behaviour than their female colleagues.

An interaction effect is found between gender and parental status (Wilks' Lambda = .947, p = .030**). This effect is found for dominant-cooperative (Quadrant 1) and submissive-cooperative (Quadrant 2) teaching styles (Table 2). For these two types of interpersonal behaviour we find that male teachers with children score significantly higher. The score for the dominant-cooperative (Quadrant 1) style is the same for female teachers with and without children, and approaches the score for male teachers without children (Figure 1). The submissive-cooperative (Quadrant 2) style for female teachers is also very similar to those of their childless male colleagues (Figure 2).

An interaction effect between gender and job security (Wilks' Lambda = .943, p = .021**) is also found for the dominant-cooperative (Quadrant 1) teaching style (Table 2). Compared to colleagues with job security, male teachers without job security perceive themselves more as a leader with helpful and friendly interpersonal behaviour (Figure 3).

Finally, an interaction effect between gender and job security is found, as well as between parental status and job security (Wilks' Lambda = .949, p = .034**) for the dominant-cooperative quadrant (Quadrant 1) (Table 2). For a teacher with job security, having children does not affect his/her perception of how dominant-cooperative he/she is. However, when he/she has no job security, but does have children, he/she observes a more leading and helpful/friendly interpersonal behaviour than the teacher who has no children (Figure 4).

** significant at .05 level

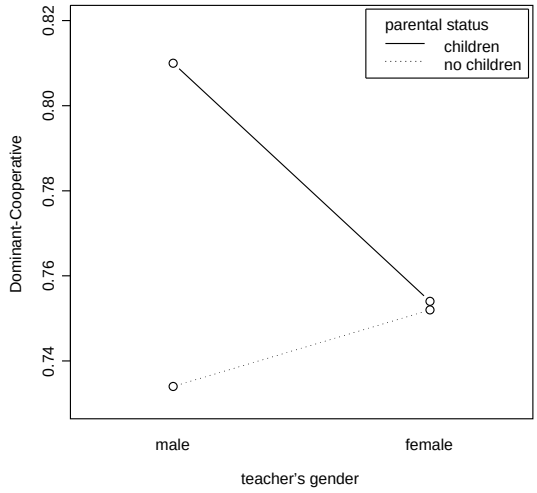

Figure 1. Interaction effect of teacher's gender and parental status on his/her dominant-cooperative interpersonal behaviour (Quadrant 1).

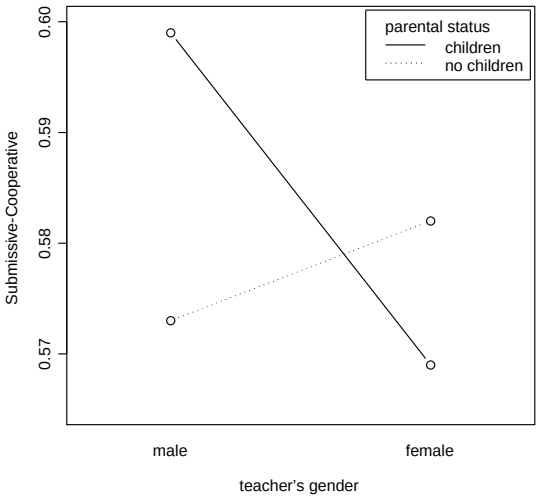

Figure 2. Interaction effect of teacher's gender and parental status on his/her submissive-cooperative interpersonal behaviour (Quadrant 2).

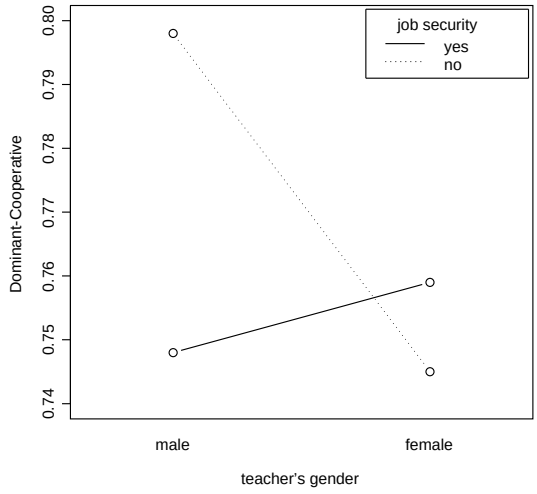

Figure 3. Interaction effect of teacher's gender and job security on his/her dominant-cooperative interpersonal behaviour (Quadrant 1).

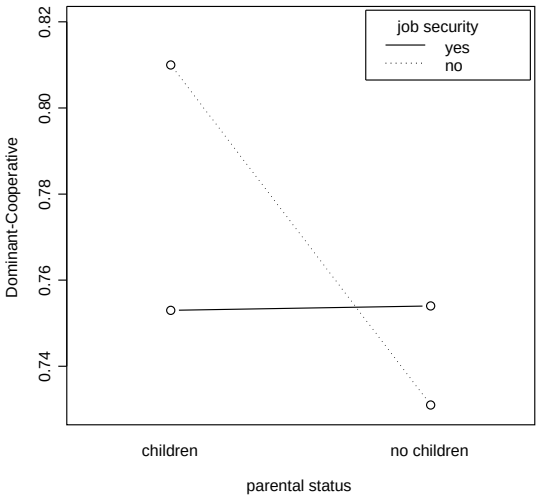

Figure 4. Interaction effect of teacher's parental status and job security on his/her dominant-cooperative interpersonal behaviour (Quadrant 1).

4.2 The influence of teacher characteristics and the teacher's interpersonal behaviour on teacher wellbeing

The other main topic of the analysis is teacher wellbeing. Teacher wellbeing is scored on a scale from 7 to 47 with a mean score of 35.82 (Table 1). We examine the relationship between teacher characteristics, the teacher's interpersonal behaviour and teacher wellbeing: Does the wellbeing of a teacher differ according to his/her personal characteristics and interpersonal behaviour? Here again gender, parental status, job security, and years of experience are the teacher characteristics that are taken into account.

Firstly, the results of the ancova (analysis of covariance) show that the wellbeing of a teacher does depend on years of teaching experience (Table 3). There is a positive relationship, which means that teachers with many years of experience have a higher score on wellbeing (Table 4).

Secondly, a significant relationship is found between dominant-cooperative (Quadrant 1) interpersonal behaviour and the wellbeing of the teacher (Table 3). A teacher who perceives him/herself as leading and helpful/friendly scores higher on wellbeing (Table 4).

Finally, the degree to which a teacher's interpersonal behaviour is considered as submissive-opposite (Quadrant 3), has a significant influence on his/her wellbeing (Table 3). A negative relationship indicates that teachers with a high score in the submissive-opposite quadrant (Quadrant 3) have a low score on wellbeing (Table 4).

Table 3

Relationships between teacher characteristics, interpersonal behaviour, and teacher wellbeing
Dependent variable: teacher wellbeing

Teacher characteristic/ The teacher's interpersonal behaviour	F	Sig.
experience	7.70	.006
Quadrant 1	21.24	.000
Quadrant 2	1.60	.208
Quadrant 3	15.08	.000
Quadrant 4	.27	.603
sex	.27	.607
parental status	2.60	.109
job security	.14	.714
sex * parental status	.16	.691
sex * job security	2.46	.119
parental status * job security	1.20	.275
sex * parental status * job security	.67	.414

Table 4

Regression coefficients between teacher characteristics, interpersonal behaviour, and wellbeing
Dependent variable: teacher wellbeing

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower bound	Upper Bound
Intercept	25.58	3.63	6.50	.000	16.43	30.74
experience	.08	.03	2.77	.006	.02	.13
Quadrant 1	15.91	3.45	4.61	.000	9.10	22.72
Quadrant 2	6.43	5.09	1.26	.208	-3.61	16.47
Quadrant 3	-13.13	3.38	-3.88	.000	-19.80	-6.46
Quadrant 4	-1.60	3.08	-.52	.603	-7.67	4.47

V. DISCUSSION

The focal point of this chapter is the teacher, and more precisely the way in which the teacher's characteristics influence his/her interpersonal behaviour within a classroom setting. Furthermore, we have examined the relationship between the teacher's interpersonal behaviour and the teacher's wellbeing. Results of the analyses indicate that the gender of the teacher is related to his/her perception of his/her own interpersonal behaviour. Male teachers appear to score higher within the submissive-opposite quadrant (Quadrant 3) than do their female counterparts. A reason for this could be that female teachers are more likely to take into consideration what is expected of them on a social level when it comes to submissive-opposite behaviour. It is self-evident that teachers will not automatically declare that they feel uncertain or dissatisfied within the classroom, even when they are. It also seems that some questions regarding the submissive-opposite quadrant (Quadrant 3) are closer to measuring personal characteristics rather than interpersonal relationships.

Male teachers obtain the higher scores within the submissive-opposite quadrant (Quadrant 3) and simultaneously score significantly higher within the dominant-cooperative quadrant (Quadrant 1) when parental status and job security are taken into account. This seeming contradiction could confirm the suggestion of extreme position taking of male teachers. Male teachers with children evaluate themselves significantly higher on leadership qualities and on helpful/friendly interpersonal behaviour than their childless male colleagues and all their female colleagues. The result for women is not just significantly lower overall, parental status appears not to be a factor. When it comes to dominant-cooperative (Quadrant 1) relationships with their students, female teachers consider it irrelevant whether or not they have children of their own.

Male teachers with children not only score higher in this dominant-cooperative quadrant (Quadrant 1), but they also score significantly higher in the submissive-cooperative quadrant (Quadrant 2). These two observations lead us to the conclusion that male teachers with children will be typically located near the cooperative pole of the proximity dimension, or the right half of the typology of interpersonal behaviour. It is important to mention the flexibility factor as it relates to the influence dimension. Male teachers with children not only score high on the dominance pole of the influence dimension, they also achieve a more relaxed communication with their students than their childless male colleagues and their female colleagues. This allows them to score significantly higher on student responsibility, freedom, and understanding.

With regard to the teacher's perception of his/her own dominant-cooperative interpersonal behaviour (Quadrant 1), we have found two interaction effects: one between teacher gender and job security, and another between parental status and job security. Male teachers who have no job security score significantly higher in the domains of leadership and helpful/friendly interpersonal behaviour. Moreover, teachers with children who do not have job security score significantly higher in the dominant-cooperative quadrant (Quadrant 1). These results confirm our expectation that control of classroom communication, together with student cooperation, is usually viewed as ideal. To obtain a permanent position, teachers without job security make a special effort to establish these ideal, positive interpersonal relationships. Having children could then be important in finding the right balance between a cooperative style of teaching and one where the teacher retains control.

While examining the relationship between teacher characteristics, the teacher's interpersonal behaviour, and teacher wellbeing, we can immediately note a positive connection between the number of years of teaching experience and wellbeing. Since experienced teachers appear to feel a higher degree of wellbeing than those with less experience, we conclude that a rather flat teaching career does not necessarily imply a diminishing job satisfaction. This finding, however, is not consistent with the results of other research (Aelterman et al., 2007).

Secondly, the analyses show that teachers who have a higher score in the dominant-cooperative quadrant (Quadrant 1) also have a higher wellbeing score. Teachers who are able to deal with their students in a helpful/friendly manner stand a better chance of feeling good about themselves and their profession.

Our third conclusion is linked to the second in that there is a negative link between dissatisfied and uncertain teaching behaviour and the wellbeing of the teacher. Teacher wellbeing decreases significantly when they have a high score in the submissive-opposite quadrant (Quadrant 3).

The results of this study should be interpreted with caution. Teachers may give answers that they feel are socially acceptable, especially with regard to their dominant-cooperative interpersonal behaviour (Quadrant 1). We measure how teachers see their own interpersonal attitudes within the classroom and we cannot exclude the possibility that teachers want to present us with an ideal image of their own performance. In general, it seems that competence means that teachers find a balance within the influence and proximity dimensions that will lead to a higher degree of wellbeing.

We conclude that the teacher's interpersonal behaviour and the teacher's wellbeing are important aspects of the classroom environment. Teachers have to endeavour to optimize circumstances so that a powerful learning environment will develop. In this sense the information gathered by the QTI should

be used as a basis for reflective practice both by teachers individually and with colleagues. This would make reflective practice and action research in the professional development of teachers effective, and increase the teacher's ability to adapt to or fit into a variety of situations. Based on this information, teachers might be capable of creating a more desirable classroom environment. An agreeable environment is characterized by positive interpersonal relationships and a place where everyone feels good.

The results of this study underline the need for more extensive research in this domain. It would be interesting to examine variables at different levels. As mentioned earlier, when we take into account student perceptions, it would appear that teachers often overestimate the positive aspects of their interpersonal behaviour in the classroom. It would therefore be interesting to continue this investigation with the inclusion of student views. Other student variables, such as their wellbeing and their achievement, would permit a more profound examination of classroom processes. This would give research into relationships between different perspectives on the teacher's interpersonal behaviour, teacher wellbeing, and the cognitive and affective outcomes of the students a new impulse. Linking the findings to information regarding school and educational policy levels could lead to more accurate interpretations.

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CHAPTER 6

STUDENT PERCEPTION AS MODERATOR FOR STUDENT WELLBEING

Based on:

Van Petegem, K., Aelterman, A., Rosseel, Y., Creemers, B. (2007). Student perception as moderator for student wellbeing. *Social Indicators Research*, *83*, 447-463.

I. ABSTRACT

Student motivation as well as student perception of the teacher's interpersonal behaviour are linked to the sense of wellbeing at the student level. However, while most of the variance in the measurement of student wellbeing is situated at student level, 11% of variance is found at classroom level. From an interpersonal perspective on teaching, the relationship between teacher wellbeing, perceptions of the teacher's interpersonal behaviour, and student wellbeing is examined. Grade 9 students of technical and vocational training schools are participating. In the analyses a distinction is made between teaching academic subjects and teaching vocational subjects. There appears to be a direct link between the wellbeing of teachers of academic subjects and the wellbeing of their students. Students who perceive their academic teacher as leading, helpful and friendly score higher on wellbeing, while wellbeing decreases when an academic teacher is perceived as strict and admonishing. The relationship between the teacher of vocational subjects who typifies him/herself as strict and admonishing, and the wellbeing of his/her students, is moderated by students' perceptions of the teacher's interpersonal behaviour. A direct relationship between the wellbeing of the practical teacher and the wellbeing of students is not found. Only when the practical teacher's wellbeing is high and student perceptions of uncertain or dissatisfied teaching style is low, does student wellbeing increase. We conclude that for vocational subjects, student perceptions of the teacher's interpersonal behaviour are crucial moderators. Finally, students who are highly motivated to learn, have a higher score on student wellbeing. By contrast, the fact that education is inherently obligatory has a negative influence on student wellbeing.

II. INTRODUCTION

Classroom environment research measures the association between student cognitive and affective learning outcomes and student perception of the psychosocial characteristics of the classroom. Student perceptions often account for a significant amount of variance in the measurement of learning outcomes, beyond what could be attributable to background student characteristics. The classroom environment is often described in terms of atmosphere, climate, etc. The perceptions of students are key components and valuable indicators of that classroom climate (Freiberg & Stein, 1999; Fraser, 1999).

School effectiveness research has long concentrated on assessing and enhancing academic achievement. The field of classroom environment research provides an opportunity to become sensitized to other important, albeit subtle aspects of school life. According to Creemers (1994) climate factors have their own niche next to effectiveness factors. Tagiuri (1968) distinguishes four dimensions within the organizational climate (1) the physical environment, (2) the characteristics of individuals and groups participating in the organization, (3) culture, or beliefs and values, and (4) relationships between individuals and groups in the organization. In this study we will focus on this last dimension of the classroom climate, i.e., the relationship between teacher and students. We believe that successful changes in effectiveness factors would be accompanied by changes in climate.

According to Kaplan and Maehr (1999) the perception of the school and classroom environment should be considered as a modifier for the general wellbeing of students. It can contribute to good behaviour and facilitate a positive orientation toward life in general. Furthermore, the wellbeing of the teacher can be considered as an important component of the classroom atmosphere. In this study we want to examine whether there is a link between the wellbeing of students, the wellbeing of teachers, and the perceptions of the teacher's interpersonal behaviour in the classroom. To do so we use a person-environment interactional framework within classroom environment research.

2.1 Student wellbeing

In the last few decades, student wellbeing has become an important output factor of the educational process (Knuver & Brandsma, 1993; Samdal, Wold, & Bronis, 1999; Brekelmans, 1989; Van Damme & Van Landeghem, 2002). A distinction can be made between current and sustainable wellbeing (Eder, 1995). To delineate indicators of a current, circumstantially oriented state of wellbeing, Eder (1995) refers to the immediate experience of feeling good at school, satisfaction with aspects of a situation, school related feelings of fear, and various psychological and psychosomatic factors induced by the school situation. Indicators of sustainable wellbeing can be understood as general self-esteem, the view of one's own capabilities, the academic concept of self, and the social and emotional self image of students. We focus on current wellbeing which is defined as "a positive emotional state that is the result of a harmony between the sum of specific context factors on the one hand and the personal needs and expectations towards the school on the other hand" (Engels, Aelterman, Schepens, & Van Petegem, 2004, p. 128). From this definition, various components can be distinguished. First, a positive connotation is present; it concentrates on the positive emotional state rather than deficiency, absenteeism, illness, or stress. The view behind this definition is one of dynamic involvement and positive change and corresponds with a movement towards positive psychology (Schaufeli & Bakker, 2001; Seligman & Csikszentmihalyi, 2000). Secondly, the harmony between context and person refers to a person-environment fit model (Kristof, 1996). Students have to be capable of attuning their own needs and expectations to specific context factors and demands of the school and vice versa. Consequently this is an important precondition for students to feel good in schools. We also have to keep in mind that the wellbeing of students is individual and as a consequence most flexible.

Previous research shows that most of the variance in wellbeing is situated at student level (Samdal et al., 1999; Knuver et al., 1993; Opdenakker & Van Damme, 2000; De Fraine, 2003). The impact of school and classroom characteristics on non-cognitive factors such as wellbeing is limited in comparison with the impact on cognitive factors (De Fraine, 2003). Nevertheless it is interesting to investigate specific classroom, teacher, and school characteristics in order to examine their impact on student wellbeing. When students are asked what increases their wellbeing at school, they report variables related to the educational situation, and to a lesser extent social or familial conditions. In relation to this, factors such as teaching behaviour, subject content, etc. are also listed (Engels et al., 2004). In this chapter we focus on the micro or classroom level of the educational process.

2.2 Perceptions of the teacher's interpersonal behaviour

The classroom environment is thought to make a major contribution to the effectiveness of a school (Creemers, Peters, & Reynolds, 1989) and influences student achievement and attitude (Fraser, 1999). Indeed, Eccles, Lord and Midgley (1991) state that the decline in motivation and attitude of students can often be associated with school or classroom environment. Interpersonal relationships between teachers and students are an important aspect of classroom climate (Tagiuri, 1968). Climate factors have frequently been operationalized as perceptions of people (Anderson, Hamilton, & Hattie, 2004). The perceptions of students are key components in creating an agreeable atmosphere (Stevens & Sanchez, 1999).

Wubbels, Créton, Brekelmans, and Hooymayers (1987) developed a model of interpersonal teacher behaviour, which is based on the systems approach to communication (Watzlawick, Beavin, & Jackson, 1967) and inspired by the general model of interpersonal diagnosis of personality designed by Leary (1957). In this model the teacher's interpersonal behaviour is situated within orthogonal axes representing an influence and a proximity dimension. The degree to which a teacher leads classroom communication distinguishes dominant teachers from submissive teachers (influence dimension). The distance in the relationship between the teacher and students is characterized by cooperation or opposition (proximity dimension). As such, four quadrants can be distinguished: dominant-cooperative or Quadrant 1; submissive-cooperative or Quadrant 2; submissive-opposite or Quadrant 3; and dominant-opposite or Quadrant 4. The dominant-cooperative quadrant typifies leadership and helpful/friendly teacher behaviour. The understanding teacher, who gives the student a lot of freedom, is situated in the submissive-cooperative quadrant. The submissive-opposite quadrant contains uncertain and dissatisfied teachers, while strict and admonishing teachers are situated within the dominant-opposite quadrant. Teacher profiles can be situated within these four quadrants. We expect that student wellbeing will increase when students perceive the interpersonal relationship with their teacher as positive.

2.3 Teacher wellbeing

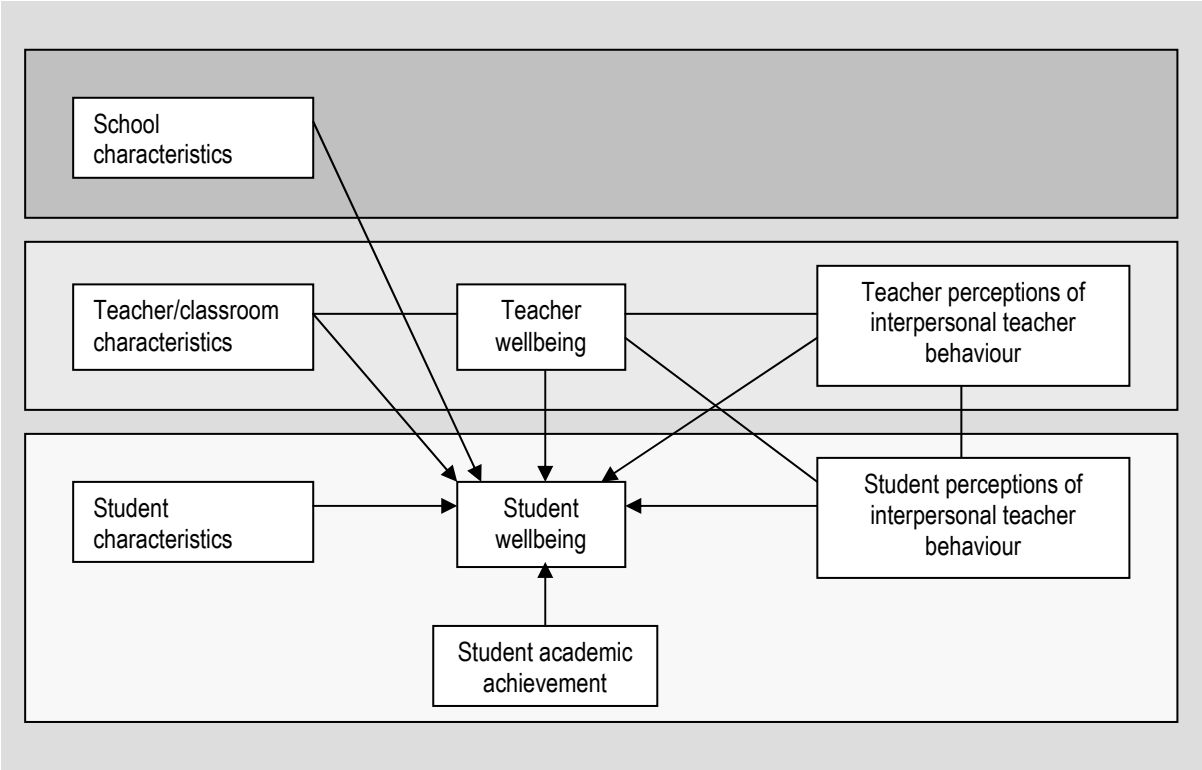
Contrary to other research, teacher stress and burnout are not our central focus. We concentrate on the wellbeing of the teacher from a positive psychological perspective (Schaufeli et al., 2001; Seligman et al., 2000). In Creemers' work (1996) the wellbeing of the teacher is considered a goal for the school as an organization. It stimulates stability in the organization which increases output and results in a higher

quality of education. In school effectiveness research the ultimate goal is to increase output. This type of research situates the teacher as a decisive factor in the educational process (Reynolds & Teddlie, (2001), whereby the wellbeing of teachers can greatly influence this final goal, i.e., an increased sense of student wellbeing and thus achievement. As mentioned above, we consider the wellbeing of the teacher and the interpersonal relationships in the classroom as important components of the classroom atmosphere. Opdenakker et al. (2000) and Aelterman, Engels, Van Petegem, and Verhaeghe (2007) found that teachers with high feelings of self-efficacy, are more satisfied. In this chapter we examine the relationship between the wellbeing of the teacher and that of the students. We expect to find a positive relationship between teacher and student wellbeing.

2.4 Statement of the problem

This study concentrates on the affective output of students, and investigates how student wellbeing is related to diverse psychosocial aspects of the classroom (Figure 1). As mentioned before, most of the variance in student wellbeing is situated at student level (Samdal et al., 1999; Knuver et al., 1993; Opdenakker et al., 2000; De Fraine, 2003). However, some variance is situated at classroom level, with a lesser part at school level. We do not take into account the more traditional effectiveness factors, such as quality of instruction, time on task, and opportunity to learn. We study the educational process from an interpersonal perspective (den Brok, 2001) and focus on student perceptions of the teacher's interpersonal behaviour. We expect that student perceptions are crucial and moderate the relationship between classroom/teacher level variables and the wellbeing of students. Therefore teacher wellbeing and teacher perceptions of interpersonal behaviour in the classroom should be indirectly related to student wellbeing. It is a relatively recent trend to look simultaneously at methods for classroom interactions (that is, teacher behaviour aimed at student wellbeing) and teacher wellbeing. The main field of inquiry is how students perceive the teacher's interpersonal behaviour in the classroom. According to Brekelmans (1989) student and teacher perceptions of the teacher's interpersonal behaviour can differ strongly. We assume that student perceptions are key issues in their wellbeing and that this moderating factor needs to be taken into account. This also means that teacher behaviour is important to both cognitive and non-cognitive output. When teachers succeed in translating their feelings and intentions into concrete behaviour, this needs to be perceived by the students as accommodating their needs and expectations. This is an essential ingredient within the totality of wellbeing.

Figure 1. Hypothetical model of variables related to student wellbeing.



III. METHOD

3.1 Sample

The sample consisted of 1701 Grade 9 students attending technical and vocational training schools in Flanders (Belgium). The students were sampled using a three-stage sampling strategy. First, a sample of 20 schools was drawn from a database of the inspectorate that consists of all technical and vocational training schools inspected in the school year 2003-2004. Second, within these schools, 129 classes of the most commonly taught subjects were selected. Third, all 1701 students in those classes made up the final sample. Forty percent of these students attend vocational training while 60% receive technical training. More female students (63%) than male students (37%) participated. The teacher sample of 271 teachers consisted of two academic teachers (mathematics and language) and one practical teacher of each selected group of students that participated. Thirty percent of the theoretical teachers are male and 70% are female. However, more male teachers (57%) teach practical courses in comparison with their female colleagues (43%). We were interested in this group of students because the climate in elementary schools is said to be more favourable than that of secondary schools (Freiberg et al., 1999). Specifically, students report less favourable interpersonal relationships with their teachers after the transition from elementary school to secondary school (Eccles, Lord, & Midgley, 1991). This corresponds with the findings of earlier research which states that the wellbeing of Grade 9 students is lower than the wellbeing of students of other grades (Engels et al., 2004). Because we assume that the wellbeing of students in technical and vocational training can vary depending on the subject, the analyses for academic and vocational subjects have been separated. Concerning the academic subjects, data of 433 students were available. These students belong to 40 classrooms within 14 different schools. To execute the analyses for vocational subjects, data of 167 students were available. These students were part of 15 classrooms at 8 different schools.

3.2 Instruments

The wellbeing of students is measured by the Wellbeing Inventory of Secondary Education (WISE). This questionnaire was developed by Engels, Aelterman, Deconinck, Schepens, and Van Petegem (2000). Based on an exploratory factor analysis (with Amos) 9 items are selected and form the wellbeing scale ranging from 9 to 45 with an overall mean of 29.6. Factor analysis enables the study of the composition and meaning of constructs thereby validating them. Various aspects related to students' relationships

with teachers and supporting staff, the way the school board leads the school and facilities for students, learning content and didactical aspects of school life are crucial for students' wellbeing. This scale of 9 items has an internal consistency (Cronbach's alpha) of 0.8.

The Questionnaire on Teacher Interaction (QTI; Wubbels, Créton, Brekelmans, & Hooymayers, 1987), consists of 77 items and distinguishes between different types of teachers based on student perceptions of the teacher's interpersonal behaviour. The perception of the teacher concerning his/her own interpersonal behaviour in the classroom is also investigated with the QTI. The advantage of asking all participants (students and teachers) for their perception is that data can be gathered that might otherwise be missed by an external observer. The students are part of different learning environments. They spend a lot of time in the classroom which makes their opinion complete. Student perceptions are based on experiences over an extended period of time and involve the pooled judgments of numerous students.

The measurement of the perceptions of the participants is called beta press. Murray (1938) defines beta press as "the subject's own interpretation of the phenomena that he/she perceives" which differs from alpha press, "which is the press that actually exists, as far as scientific inquiry can determine it" (p. 122). This study is concerned with the personal perceptions of students and teachers, i.e., beta press. A further distinction is made between private beta press and consensual beta press. Private beta press means the subjective or idiosyncratic view of a person of his environment. Consensual beta press stands for the shared view of all the members of a group concerning their environment. Both idiosyncratic and consensual views are taken into account in these analyses. More specifically, the difference between the consensual view of the teacher's interpersonal behaviour as perceived by the students, counted by the global class mean, and the idiosyncratic view of the teacher of his own interpersonal behaviour, is calculated. Based on the different quadrants, certain profiles can be distinguished, and linked to different types of teachers (Brekelmans, 1989).

The Teacher Wellbeing Questionnaire measures teacher satisfaction (Aelterman et al., 2002). Seven items are considered, based on an exploratory factor analysis (with Amos). These items deal with self-efficacy and student orientation, relationships with students' parents and support from the school board. The wellbeing scale of teachers reflects the total score of these items ranging from 7 to 35. Cronbach's alpha of this scale equals 0.7.

The measurement of student achievement uses mathematics and language tests developed in the framework of the LOSO research (Van Damme et al., 2002). These are aimed at Grade 9 learning

expectations. The benchmarks take into account the number of hours each subject is taught. This varies within each study area curriculum. The benchmark for mathematics contains number and geometrical knowledge. Language benchmarks evaluate knowledge of spelling, grammar, language usage, and reading comprehension. Student achievement is calculated as the general mean of a language and mathematics test.

3.3 Data analysis

A classroom can be considered as a unit within a school and within each classroom a strong relationship can be found amongst the students. Because of this hierarchical structure, multilevel analyses are used (Goldstein, 1997). The application of hierarchical models results in efficient regression coefficients estimates, correct standard errors and significance tests, which generally will be more conservative than the traditional ones which ignore the presence of clustering (Goldstein, 1997). The advantage of these techniques is that not only variables at student level, but also contextual effects can be taken into account, such as variables at teacher/classroom as well as school level. These variables are measured at different levels and multilevel techniques can deal with these hierarchical structures. Apart from this, with multilevel analyses it is also possible to examine interaction effects between variables at different levels (Goldstein, 1997).
Student characteristics and student perceptions of the teacher's interpersonal behaviour are included in the model which examines the link with student wellbeing. Beyond this basic concept a number of other aspects are introduced into the analysis. These are variables at school and classroom/teacher level.

The best fitting model is designed to be as simple as possible and contains only significant results. This model is gradually constructed. Firstly, student characteristics are added to the null model to correct for intake differences between schools. As such, the measurement of variance in wellbeing reflects the quality of the institution and of the classroom rather than that of the student population. These student characteristics are gender, motivation, language spoken at home, and achievement. Secondly, the relationship between student perceptions of the teacher's interpersonal behaviour and their wellbeing is examined. The four quadrants of the typology are added to the model. Thirdly, the link between teacher and classroom characteristics on the one hand and student wellbeing on the other hand is verified. Teacher characteristics such as gender, age, job security, parental status, and subjects taught are added to the model one by one. As for classroom characteristics, not only size, but also student variables aggregated at classroom level are taken into account. These aggregated variables relate to the composition of the classroom (homogeneous/heterogeneous and proportion boys/girls), the

academic strength of the classroom (high/low achievers) and the difference between students' and teacher's perceptions of the teacher's interpersonal behaviour.

Fourthly, the teacher's perception of his/her own interpersonal behaviour in the classroom is added to the model. We want to examine the link between how teachers perceive themselves and the wellbeing of their students. Fifth, the relationship between the wellbeing of the teacher and the wellbeing of students is studied. Sixth, the following variables are successively included into the analyses (1) the interaction effect between the wellbeing of the teacher and the teacher's interpersonal behaviour from student perceptions, and (2) the interaction effect between the teacher's interpersonal behaviour as perceived by the teacher and the students. We expect that certain relationships are moderated by students' perception of the teacher's interpersonal behaviour. Note that for these interaction effects, centred values are used at level 1. Finally, school characteristics such as the denomination of the school and school size are taken into account as valuable factors.

IV. RESULTS

Students perceive the interpersonal behaviour of both their academic and practical teachers mainly as authoritative. Teachers typify their own behaviour primarily as tolerant and authoritative. The authoritative type of teacher can be characterized as one who insists on structure within the classroom. Rules and regulations are clear and hardly ever have to be repeated. The teacher is enthusiastic and knows how to inspire the students. Moreover lessons are task oriented; not only is achievement important, but also the needs and expectations of the students are attended to. School can be considered as a learning and living environment. The teacher is very involved and operates in a relaxing atmosphere.

The tolerant/authoritative type of teacher (Quadrant 1) develops close relationships with students and is characterized by a strong cooperative component. In comparison with the authoritative teacher, more attention is paid to the needs and expectations of the students. Apart from a clear structure, students get a lot of freedom and responsibility. In this stimulating environment, a variety of didactical methods is used. Discipline is present and students work on their task because they view it as pleasant and interesting.

Since it is presumed that student wellbeing can strongly differ for academic subjects, when compared to vocational subjects, two models are fitted: one model for the academic (theoretical) subjects, and one for the vocational (practical) subjects. Due to missing data it is impossible to include both types of data in one model, which should be considered as a limitation of this study. Our conclusions are based on separated equations. Related to this we find that only 167 students are participating for the vocational subjects, therefore we need to be cautious when interpreting the results.

Table 1

Estimates for the two best fitting multilevel models: one for academic and one for vocational subjects

Parameter	Academic subjects		Parameter	Vocational subjects	
	Estimate	*SE*		*Estimate*	*SE*
Fixed			*Fixed*		
Intercept	30.090	0.330	Intercept	42.801	5.077
Student variables			Student variables		
obliged	-1.789	0.455	obliged	-2.140	0.764
			learn	2.040	0.764
			Q3student	0.466	0.238
Q4student	-0.087	0.022	Q4student	0.483	0.167
Q1student	0.174	0.020			
Teacher variables			Teacher variables		
			Q3teacher	-0.192	0.053
			Q4teacher	-0.012	0.041
wellbeing teacher	-0.208	0.099	wellbeing teacher	-0.142	0.098
			wellbeing teacher*Q3student	-0.016	0.007
			Q4teacher*Q4student	-0.010	0.003
Random			*Random*		
Class level	1.773	0.766	Class level	0.000	0.000
Student level	16.896	1.204	Student level	23.446	2.571
Deviance	2477.604		*Deviance*	990.737	

Note. Q = Quadrant

4.1 Teaching academic subjects

Table 1 indicates that in the best fitting model for the academic subjects (theoretical model), when students report 'school is compulsory' as their motive for attending school, a significant difference in student wellbeing is found. For these students, wellbeing decreases. Other motives to come to school, the gender of the students, the language spoken at home, and academic achievement have no influence on student wellbeing in this particular model. Of all the various student perceptions of the academic teacher's interpersonal behaviour, only the dominant-cooperative (Quadrant 1) and dominant-opposite quadrant (Quadrant 4) are related to the wellbeing of students. Student wellbeing increases when the teacher's interpersonal behaviour is characterized as leading, helpful and friendly. Moreover, when students report strict and admonishing interpersonal behaviour of the teacher, students' wellbeing

decreases. A teacher's perception of his/her own interpersonal behaviour in the classroom is not linked to student wellbeing. A negative relationship is found between the wellbeing of the teacher and the wellbeing of students. For academic subjects, the teacher's interpersonal behaviour, as perceived by the students, has no moderating role. It is found that the variance in student wellbeing is significantly different from zero at the classroom level. This suggests that teachers indeed have an impact on students. No variance in wellbeing is found at school level. School characteristics such as the denomination of the school and school size appear to have no influence on student wellbeing.

4.2 Teaching vocational subjects

In Table 1 the best fitting model for the vocational subjects (practical model) indicates that when 'learning' is a motive for students to come to school, the wellbeing of these students increases. However, the compulsory aspect of education has a negative impact on student wellbeing. Other student motives and characteristics show no significant relationship with student wellbeing. In this model a direct relationship is found between the teacher's perception of his/her own interpersonal behaviour in the submissive-opposite quadrant (Quadrant 3) and student wellbeing. The wellbeing of students decreases when the teacher reports uncertain and dissatisfied behaviour. As for vocational subjects, the students' perceptions of the teacher's interpersonal behaviour seem to have a moderating function. An interaction effect is found of students' and teacher's perceptions of the teacher's dominant-opposite behaviour (Quadrant 4) on the wellbeing of students. When the teacher's interpersonal behaviour is scored as very strict and admonishing by students and teachers themselves, or when the lowest score is ascribed by both participants, then student wellbeing is very low. Another interaction effect is found of the wellbeing of the teacher and students' perception of the teacher's submissive-opposite behaviour (Quadrant 3) on the wellbeing of students. A remarkably low score of student wellbeing is found when students perceive their teacher as uncertain and dissatisfied, even when the teacher reports a high sense of wellbeing. This finding indicates that the influence of the teacher's wellbeing on student wellbeing is moderated by the perceptions of the students. Both interaction effects are rather low, but significant and meaningful. No relationship is found between other school, classroom/teacher characteristics and student wellbeing. In the full vocational subjects model as presented in Table 1, the variance in student wellbeing at the classroom level is not significantly different from zero. This means that the variance between different classrooms can be explained by the predictors included in the model. We succeed to explain differences in wellbeing between classrooms. These differences can be attributed to perceptions of the teacher's interpersonal behaviour and the wellbeing of the teacher. No variance is found in wellbeing at school level.

V. DISCUSSION

5.1 Teaching academic subjects

According to other research a positive relationship is established between a teacher perceived as leading, helpful/friendly, and the wellbeing of students (Wubbels, Brekelmans, den Brok, & Tartwijk, 2006). Students like a teacher who gives direction to in-class communication and cooperates with the students. Brekelmans (1989) situates the authoritative and tolerant/authoritative type within the dominant-cooperative quadrant (Quadrant 1). The teacher creates a pleasant learning environment. The finding that the dominant-cooperative teaching style has an influence on student wellbeing corresponds with results of effective school studies. These studies establish that a safe and orderly environment, with clear and consistent rules, is the most frequently mentioned climate variable within effective schools (Stevens et al., 1999). Furthermore, this description of interpersonal behaviour corresponds with that of the communitarian school climate of De Fraine (2003). She states that teacher-student interactions are positive and warm in a communitarian school climate; students feel that they are respected, valued, and cared for by the other members. There is also a link with the findings of Opdenakker et al. (2000) who establish that students have a higher sense of wellbeing when their teachers care for them, are attuned to their needs, and are willing to help. Thus, as expected, we conclude that student wellbeing increases when students experience the interpersonal relationship with their teacher as positive.

When students perceive their teacher as strict and admonishing, there is a decrease in student wellbeing. This negative relationship is confirmed by the research of Wubbels et al. (2006). According to Brekelmans (1989) the authoritarian type of teacher is situated within the dominant-opposite quadrant (Quadrant 4) of the typology of interpersonal teacher behaviour. This type of teacher has a negative influence on student wellbeing because a pleasant and cooperative relationship between teacher and students is missing. The teacher is very authoritarian and students are sometimes afraid of the teacher. Also the competitive aspect has a negative influence because students are very sensitive toward social comparison at that age (Eccles et al., 1991).

In the academic subjects model, a direct, negative relationship is found between the wellbeing of the teacher and the wellbeing of students. Various explanations can be given for this finding. Firstly, the wellbeing of students increases when their teacher is leading, helpful, and friendly. Students expect dominant-cooperative behaviour (Quadrant 1) from their teacher. A tolerant/authoritative teaching style

is situated within the dominant-cooperative quadrant (Quadrant 1). Such a teaching style requires a serious effort and a lot of energy from the teacher. High demands can be an important source of stress and decrease a teacher's wellbeing. This finding not only corresponds with the person-environment fit idea at teacher level (Van Petegem, Creemers, Rosseel, & Aelterman, 2005) but also with the results of Opdenakker et al. (2000) and Aelterman, Engels, Van Petegem, and Verhaeghe (2007) who recognize the importance of feelings of self-efficacy to be satisfied. Secondly, some teachers are not situated in the dominant-cooperative quadrant (Quadrant 1) but have another style they are most comfortable with. These teachers are satisfied but the wellbeing of students is low. Thirdly, the wellbeing of students can be low when they view their teacher as authoritarian. A difference in perception can also occur in this situation. What a teacher considers as leading is at times, experienced as authoritarian by students. This confusion is confirmed in other research (Brekelmans, 1989; Wubbels et al., 2006). Teachers often perceive the classroom environment more positively than their students (Wubbels, Brekelmans, & Hooymayers, 1991; Fraser & Fisher, 1982). Fourthly, when discipline is lacking, the wellbeing of students is high, because they get a lot of freedom. The attempt of the teacher to take control over the situation fails, so the wellbeing of the teacher decreases. Notwithstanding the teacher's effort, lessons fail because of a lack of interest from the students. Hence the teacher's motivation is reduced (van der Veen, 1989).

We conclude that a negative relationship is found between the wellbeing of the academic teacher and student wellbeing. This relationship has to be considered as mutual because no causality is presumed.

5.2 Teaching vocational subjects

There is a negative relationship between practical teachers who perceive themselves as uncertain and dissatisfied and their students' wellbeing. This means that student wellbeing increases when teachers report low scores on uncertain or dissatisfied behaviour. This is the only direct relationship between a variable at the teacher level and the wellbeing of students. This finding corresponds with the results of Fraser (1994) who states that "teachers who are effective in terms of the psycho-social learning environment dimension actively encourage positive interpersonal relationships within a classroom environment in which students feel comfortable and accepted. The teacher, through verbal and non-verbal behaviours, models enthusiasm and interest in learning, includes all students in learning activities and encourages active involvement" (p. 530).

The other relationships are moderated by student perceptions of the teacher's interpersonal behaviour. First, we notice that when the teacher's interpersonal behaviour is perceived by students and teachers as very strict and admonishing, the wellbeing of students decreases. The same effect is found when

both participants perceive that strict and admonishing teacher behaviour is totally lacking. This makes us conclude that a moderate amount of strict and admonishing teaching behaviour is necessary to increase student wellbeing.

Furthermore, an interaction effect is found which shows that the influence of teacher wellbeing on the wellbeing of their students is moderated by their students' perceptions of submissive-opposite interpersonal behaviour (Quadrant 3). Based on these results we conclude that the wellbeing of students is remarkably low when students perceive their teacher as uncertain and dissatisfied, despite the teacher reporting a high score on wellbeing. Only when the wellbeing of the teacher is perceived as enthusiastic behaviour does student wellbeing increase.

VI. CONCLUSION

These results indicate that for academic subjects, a direct link can be found between teacher and student wellbeing. There is also a relationship between how students perceive the teacher's interpersonal behaviour and their wellbeing. For vocational subjects, the relationships between teacher wellbeing, the teacher's perception of interpersonal behaviour in the classroom, and student wellbeing are mainly moderated by the students' perceptions of the teacher's interpersonal behaviour.

For academic as well as vocational subjects, no variance in student wellbeing is situated at the school level. Other researchers found that schools have a larger impact on student achievement than on student wellbeing (Opdenakker et al., 2000). According to De Fraine (2003) an explanation can be found in the fact that wellbeing has no explicit place in the curriculum.

It is important to note that, like most prior classroom environment research, our results are correlational in nature. As a consequence no conclusions can be made in terms of cause or effect. We simply have a model which confirms various (mutual) relationships. From a theoretical perspective, certain directions are presumed. Therefore no alternative explanations are rejected. To meet our interest in student wellbeing, certain variables at student and classroom/teacher level have been included in this model. We expected a moderating effect of students' perceptions of the teacher's interpersonal behaviour. This effect is confirmed by the interaction effects that are found, however this is only evident for vocational subjects. Further research should examine whether there is a difference in interpersonal relationships and perceptions between teachers and students, depending on subjects taught. A recent study of Marsh, Oliver Lüdtke, Köller, and Baumer (2006) examines the relationship between surface (multiple dimensions of self-concept) and core (Big Five factors) personality characteristics and their relations with wellbeing and academic success. It would be interesting for further research to include these more sustaining aspects into our model.

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CHAPTER 7

DISCUSSION AND CONCLUSIONS

I. INTRODUCTION

Effective school characteristics that are traditionally linked with academic achievement can be found in the following categories; orderly environment/school climate, consensus and cooperation between teachers, focus on basic skills/learning time, monitoring of student progress/evaluation, school educational/administrative leadership, policy on parental involvement and high expectations (Hofman, Hofman, & Guldemond, 1999; Creemers & Reezigt, 1996; Mortimore, Sammons, Stoll, Lewis, & Ecob, 1988; Levine & Lezotte, 1990). According to Hill (1998) "… most school effectiveness research has been top-down … it has failed to make meaningful connections with the place where most school learning takes place, namely the classroom…" (p. 427). Literature on teaching effectiveness often recites teacher instructional behaviour variables only, such as learning time, academic emphasis, structured lessons, clarity of purpose, monitoring progress, reinforcement, opportunity to learn and feedback (Creemers, 1994; Muijs & Reynolds, 2005). While these variables are necessary, they are not sufficient conditions for effective schooling. Next to student cognitive outcomes, attention must be given to affective outcomes, such as student wellbeing. Consequently, the classroom environment should be studied as it may affect student learning attitudes, feelings about school, and behaviour. Many researchers are interested in collecting data about educational conditions and processes to explain how environmental factors affect student outcomes. The quality of education lies not only in exam results, but also in the teaching-learning process itself. The measurement of school and classroom climate should be used more often as indicators for evaluating the quality of education. Research needs to be completed by micro level inquiries on student-teacher interactions and the link with student outcomes.

This study focused on the wellbeing of Grade 9 and 10 students of technical and vocational training schools in Flanders. Student wellbeing has been considered as output of the educational process and had to be evaluated as an indicator of quality of education. From an interpersonal perspective on education, we examined at micro level which student, teacher, and classroom variables were related to student wellbeing. We have been looking for factors that enhanced student wellbeing, i.e., we wanted to know how affective student outcomes could be fostered.
In this final chapter we place our research and results within a broader context.

II. OVERVIEW OF THE RESULTS

In this dissertation we examined how diverse psychosocial aspects of the classroom are related to student wellbeing. In Chapter 1 the theoretical framework was outlined and this was followed by an operationalization of the main concepts in Chapter 2. The remaining chapters contain the diverse analyses that attempt to answer these sub-questions that were derived from our main research question. Below we recapitulate the questions that were put forward in each of the remaining chapters and discuss our results.

In Chapter 3 the link between student characteristics, achievement, student perceptions of the teacher's interpersonal behaviour, and student wellbeing was examined. The following questions were explored:

(1) Which student characteristics are related to student wellbeing?
(2) Which aspects of student motivation to attend school have a bearing on student wellbeing?
(3) Is there a relationship between academic achievement and student wellbeing?
(4) Which type of interpersonal teacher behaviour enhances student wellbeing?

We took into consideration previous research which indicates that students of technical and vocational training aged between 14 and 15 years (Grades 9 and 10) have a lower score on student wellbeing (Engels, Aelterman, Schepens, & Van Petegem, 2004; De Fraine, 2003). We also noted that girls report feeling better at school than boys (Knuver & Brandsma, 1993; Engels et al., 2004). In our study this gender difference was not confirmed, which is in agreement with other studies (Van de gaer, Pustjens, Van Damme, & De Munter, 2006; De Maeyer, Rymenans, Daems, Van Petegem, & Van den Bergh, 2003). No difference in student wellbeing was found between students of different ethnicities which is also a similar finding to previous research (Knuver et al., 1993; Engels et al., 2004). Furthermore, we expected that school is not only perceived by the students as a learning environment, but also as a living environment (van der Veen, 1989). This would indicate that cognitive achievement is not the only important aspect of school life. Our expectation was confirmed as we found that both the motivation to learn and interest in the courses are crucial for student wellbeing. This finding is similar to Ainley (2006), who conceptualized student interest as an affective state that represents students' subjective experience of learning, i.e., it is the key variable in the motivation of learning. Related to this, Anderson, Hamilton, and Hattie (2004) examined how aspects of the social environment stimulate motivation in

students in the classroom. We found that, when students experience school as compulsory, they score lower on the wellbeing scale.

We also expected that academic achievement and student wellbeing would be positively related (Knuver et al., 1993; Samdal, Wold, & Bronis, 1999; Tymms, 2001). In our study, academic achievement was measured as a mean score on a language and a mathematics test. The results indicate that the relationship between student achievement and wellbeing disappears when student perceptions of the teacher's interpersonal behaviour are brought into the analysis. This highlights the importance of student perceptions of the teacher's interpersonal behaviour on student wellbeing (den Brok, Brekelmans, & Wubbels, 2004). Finally, based on other studies, we expected that student wellbeing increases when students perceive their teachers' interpersonal behaviour in the classroom as dominant-cooperative (Quadrant 1) (Brekelmans, 1989; Wubbels, Brekelmans, den Brok, & Tartwijk, 2006). We found that students who perceive their language teacher as tolerant/authoritative (Quadrant 1) have a higher wellbeing score. When their mathematics teacher has been perceived as tolerant/uncertain (Quadrant 2) student wellbeing also increases, but authoritarian interpersonal behaviour (Quadrant 4) of the mathematics teacher decreases student wellbeing. These findings are similar to Brekelmans (1989) and den Brok (2001), who also found that a cooperative teaching style, characteristic for tolerant/authoritative and tolerant/uncertain teacher behaviour increases student wellbeing. Furthermore, Wubbels et al. (2006) stated that student wellbeing decreases when the teacher's interpersonal behaviour is perceived by the students as authoritarian.

A limitation of the analysis performed in Chapter 3 was that only student perceptions of interpersonal behaviour of the academic teachers (language and mathematics) were taken into account. Our choice for academic courses was due to the educational effectiveness research tradition that initially focused on student achievement in language and mathematics. In our study, however, students of technical and vocational training schools participated. These are streams which prepare students more directly for the workforce, which leads to more interest in practical courses (De Maeyer et al., 2003). As a result, we included perceptions of the practical teacher's interpersonal behaviour in the analyses of the next chapters.

In Chapter 4 the following question was examined:

(5) Can student wellbeing be explained by current achievement as well as pre-measurements of wellbeing and achievement, taking some student characteristics and student perceptions of the teacher's interpersonal behaviour into account?

Student demographics, such as gender and ethnicity, were once again taken into account to examine their relevance for student wellbeing. Similar to the results of Chapter 3, no relationship was found.

Furthermore, the results of our study confirmed that when students are interested in the courses, student wellbeing increases (Ainley, 2006). In line with these results, we also found that students who experience school as an obligation score lower on the wellbeing scale.

Although earlier studies found a positive relationship between student wellbeing and achievement (Samdal et al., 1999; Knuver, 1993; Tymms, 2001), in our study no relationship was found when wellbeing and achievement are measured at the same time. However, our results did indicate that student wellbeing is related to pre-measurements of wellbeing and achievement. Based on these results, and in correspondence with Diener, Suh, Lucas and Smith (1999), we assumed that student wellbeing should be considered not only as a state, but also as a trait. Furthermore, our results indicate that tolerant/uncertain interpersonal behaviour (Quadrant 2) of the theoretical teacher, as perceived by the students, has a positive effect on student wellbeing. As a complementary result, we found that student perceptions of authoritarian interpersonal behaviour (Quadrant 4) of the theoretical teacher decreases student wellbeing. Finally, and similar to den Brok (2001), and Brekelmans (1989) and Wubbels et al. (2006), we found that tolerant/authoritative behaviour (Quadrant 1) of the practical teacher, as perceived by the students, increases student wellbeing.

In Chapter 5, we focused on teacher wellbeing. The questions put forward were as follows:

(6) Which teacher characteristics are related to the teacher's interpersonal behaviour as perceived by the teacher?
(7) What is the relationship between teacher characteristics and the teacher's interpersonal behaviour on the one hand and the teacher's wellbeing on the other hand?

We took four teacher characteristics into account: gender, job security, parental status, and years of experience. Van Tartwijk, Brekelmans, Wubbels, Fisher and Fraser (1998) found that the teacher's interpersonal behaviour is different for beginner teachers and more experienced teachers. The behaviour of an experienced teacher related strongly to the dominance pole of the model of interpersonal teacher behaviour (Van Tartwijk, Brekelmans, Wubbels, Fisher, & Fraser, 1998). However, this difference in interpersonal behaviour based on experience was not found in our study. Nevertheless, we did find a positive relationship between the teacher's experience and teacher wellbeing. This was not in line with earlier findings of Aelterman et al. (2002), and Aelterman, Engels, Van Petegem, and Verhaeghe (2007), and Vandenberghe and Huberman (1999) who stated that older teachers report a higher workload, less support from colleagues, and a more negative attitude towards innovations, which slightly decreases teacher wellbeing.

According to Brekelmans (1989), the relationship between teachers' perceptions of their own interpersonal behaviour and teacher wellbeing is found to be stronger than the relationship between

students' perceptions of the teacher's interpersonal behaviour and teacher wellbeing. The results of our study indicate that male teachers report feeling more dissatisfied and uncertain than their female colleagues. Furthermore, having children is important for male teachers to display cooperative behaviour. Assuming that teachers without job security strive to obtain a permanent position, we expected these teachers to make a special effort to establish positive interpersonal relationships. We found that male teachers without job security perceive themselves more as a leader with helpful and friendly interpersonal behaviour. A teacher without job security but with children also perceives him/herself as having more leading and helpful/friendly interpersonal behaviour in the classroom. In the study of Shann (1998), job security also received the second highest rating in terms of importance to teachers, after the student-teacher relationship. Furthermore, Vandenberghe and Huberman (1999) stated that findings related to the family status variable are quite inconsistent. Similar to other studies, we found that teachers who perceive their own interpersonal behaviour in the classroom as tolerant/authoritative (Quadrant 1) score higher on the wellbeing scale (Huberman & Vandenberghe, 1999; Conley & Muncey, 1999). On the other hand, teachers who perceive themselves as dissatisfied and uncertain (Quadrant 3), have the lowest score on the wellbeing scale. Because the model of interpersonal teacher behaviour is a circumplex model, these results were complementary (Kyriakides, 2005; den Brok, 2001).

Finally, in Chapter 6, we tried to answer the main research question:

How are diverse psychosocial aspects of the classroom related to student wellbeing?

The importance of student characteristics, achievement, and students' perceptions of the teacher's interpersonal behaviour on student wellbeing has already been indicated. Next to variables at the student level, variables at the school, as well as the classroom/teacher level have been included in a theoretical and a practical model to examine the link with student wellbeing. Similarly, in the study of Konu, Litonen, and Autio (2002) multilevel models were used to examine these relationships. As indicated in the other chapters, we found that students who experience school as compulsory score lower on the wellbeing scale. This underlines the importance of student motivation for their wellbeing (Anderman & Maehr, 1994; Anderson, Hamilton, & Hattie, 2004; Ainley, 2006). For academic subjects (in the theoretical model), student wellbeing increased when students perceive the teacher's interpersonal behaviour as tolerant/authoritative (Quadrant 1). This corresponds with the findings of Brekelmans (1989) and den Brok (2001). Furthermore, we found that student wellbeing decreases when the teacher's interpersonal behaviour is perceived by the students as authoritarian (Quadrant 4). Wubbels et al. (2006) also found this negative relationship between student perceptions of authoritarian teacher behaviour and student wellbeing. Moreover, our results indicate a negative link between the

theoretical teacher's wellbeing and student wellbeing in technical and vocational training schools. This finding is not in line with a study of Day, Sammons, Stobart, Kington, and Gu (2007) who referred to the importance of teacher wellbeing for student wellbeing. For vocational subjects (in the practical model), we stated that when students are motivated to learn their wellbeing increases; alternatively students that report feeling obliged to come to school score low on the wellbeing scale. The importance of student interest and motivation to learn for their wellbeing has been a general finding of this study and corresponds with other studies (Anderson et al., 2004; Anderman et al., 1994; Ainley, 2006). Furthermore, student wellbeing increased when practical teachers have low scores on uncertain or dissatisfied behaviour (Quadrant 3). Indeed, student wellbeing was found to be low when students perceive their teacher as uncertain and dissatisfied, despite the teacher reporting a high score on wellbeing. This finding indicates that, for vocational subjects, the influence of teacher wellbeing on student wellbeing is moderated by the perceptions of the students of the teacher's interpersonal behaviour. Moreover, when the teacher's interpersonal behaviour has been perceived by students and teachers as very authoritarian, or when both parties perceive that authoritarian behaviour is totally lacking, the wellbeing of students decreases. The negative relationship between authoritarian teacher behaviour (Quadrant 4) and student wellbeing corresponds with a study of Wubbels et al. (2006). Our findings lead us to conclude that a moderate amount of strict and admonishing teacher behaviour is necessary to increase student wellbeing. The results also indicate that the relationship between the teacher's perception of his/her own interpersonal behaviour in the classroom and student wellbeing is moderated by student perceptions of the teacher's interpersonal behaviour. The importance of student perceptions for student outcomes corresponds with earlier studies (Samdal et al., 1999; Van Tartwijk et al., 1998; den Brok et al., 2004).

In summary, it can be stated that student wellbeing is not only a state, but also a trait. Because the influence of school or education in general on trait-like properties is rather limited, we have to examine which factors are related to student wellbeing as a state. In all chapters that focus on this topic, we found a positive relationship between student motivation and/or interest in the courses, and student wellbeing. This means that when these factors are stimulated, student wellbeing increases. Furthermore, the results of our study indicated that perceptions of the teacher's interpersonal behaviour in the classroom are crucial for student's motivation and interest, as they are related to students' wellbeing. We found a positive relationship between cooperative interpersonal teacher behaviour of both theoretical and practical teachers, and students' wellbeing. However, we have to be aware of the fact that cooperative behaviour can differ depending on the subject taught. To conclude, cooperative

interpersonal teacher behaviour is positively related to student wellbeing as it increases student motivation and interest. Because student motivation and interest are also strongly related to student achievement (Opdenakker & Van Damme, 2000; Van Damme & Onghena, 2002; Creemers, 1994), an indirect link between student wellbeing and achievement is assumed.

III. GENERAL DISCUSSION

3.1 Student wellbeing as state and trait

In this study, student wellbeing was initially considered as a state. Similar to other research, we expected that the environment plays an important role in student wellbeing (Kozma, Stone, & Stones, 2000; Konu, Litonen, & Autio, 2002; Anderson et al., 2004). We focused on current wellbeing (*aktueller [wohl]befinden*) which was defined by Eder (1995) as the 'here and now' circumstantially determined state of wellbeing. More sustainable aspects of student wellbeing such as self-esteem or self-concept were not taken into account, although it was found in other studies that they are moderately related to achievement (Muijs, Campbell, Kyriakides, & Robinson, 2005).

In our study no relationship was found between current wellbeing and achievement when measured at the same time. This corresponds with the results of Mortimore et al. (1988) and Opdenakker and Van Damme (2000) who indicate that student wellbeing and achievement relate only weakly or are even relatively independent. This means that an increase in one of the outcomes is not necessarily at the expense of the other. This is in contrast with the assumptions of Leune (1993) who stated that an increase in affective outcomes is associated with a decrease in cognitive outcomes, and vice versa. Moreover, we found that the relationship between student wellbeing and achievement was not disguised by pre-measurements of student achievement. A positive relationship was found between pre-measurements (of wellbeing and achievement) and wellbeing at the end of Grade 10. Next to pre-measurements of student wellbeing and achievement, perceptions of the teacher's interpersonal behaviour also showed to be an important factor for student wellbeing. This suggests that not only current classroom environment situations determine student wellbeing, substantial stability was also found in pre-measurements of wellbeing and achievement, and student perceptions of the teacher's interpersonal behaviour (den Brok, 2001). In other words, how students feel at the beginning of Grade 9 was important for how they feel at the end of Grade 10. This was also true for their achievement scores and perceptions of the teacher's interpersonal behaviour.

The state/trait distinction is important for educational research as it acknowledges that what students bring to their learning in the form of traits plays an important role in their response to specific tasks, the state perspective. As a result, we reconsidered how we initially defined student wellbeing, as a state, and further examine it as both, a state and trait (Costa, McCrae, & Zonderman, 1987; Diener, Suh,

Lucas, & Smith, 1999). This suggests that next to efforts at school and classroom level, also more stable aspects, such as earlier experiences, are important for student wellbeing.

3.2 Student interest and motivation to learn as crucial predictors

Motivation has been considered as an important prerequisite for learning (Opdenakker et al., 2000; Creemers, 1994; Van Damme et al., 2002). Research suggests that there is a general decline in motivation within secondary school, which is often associated with underachievement, truancy, and dropping out (Anderman et al., 1994; Eccles, Lord, & Midgley, 1991; Engels et al., 2004). It is found to be particularly critical during the middle grade years. According to Loukas and Murphy (2007) this is due to some typical middle grade school environments, characterized by excessive rules and discipline as well as poor student-teacher relationships, where students in early adolescence are in a period of socio-cognitive development that is best nurtured by a strong sense of autonomy, independence, self-determination, and social interaction. Furthermore, early adolescence is associated with a heightened self-consciousness and sensitivity, but most schools do not attend to the psychological needs of their students. A decline in motivation has often been the result of this mismatch between the person and his/her environment. Changes in young adolescents' attitudes and beliefs are due in part to differences in the school environment (Anderson et al., 2004; Ainley, 2006). In order to motivate and engage students, schools need to adapt themselves to some of students' needs and interests, i.e., a person-environment fit (Kristof, 1996). Similarly, student wellbeing has been defined in this study as a harmony between specific context factors on the one hand and personal needs and expectations towards the school on the other hand (Engels et al., 2004).

In our study, we found that student wellbeing increases when students are interested and motivated to learn. This indicates that students' subject-specific motivation and attitude towards the courses are important for student outcomes, which corresponds with other research (Engels et al., 2004; den Brok et al., 2004; De Maeyer et al., 2003). Enjoyment of the subject being taught stimulates learning, while lack of interest in the subject has a negative influence on the learning (Van Den Broeck, Opdenakker, & Van Damme, 2005). In this context, it was important for us to make a distinction between the desire to learn and learning achievement. We found that it is not necessarily just high achievers who score high on wellbeing. In accordance with other research (Ainley, 2006; Anderson et al., 2004), being motivated to learn is also important. Furthermore, when students are motivated, their teachers will get more response from these students. This makes teachers more enthusiastic, but differences between teachers within schools are found to be quite large (Luyten & de Jong, 1998). Our study took place in technical and

vocational training schools. The differences between teachers can be partly explained by the nature of their educational assignment, i.e., teachers have different relationships with their students, depending on the subjects they teach. As a result of the organization of the courses, teacher behaviour can have a large impact on students. A close relationship with the teacher stimulates students to cooperate, students feel more addressed, which in turn increases interest in the subject. When teachers give direct feedback based on shared experiences, student commitment increases. Some teachers succeed in stimulating student motivation by the way lessons are organized. De Maeyer et al. (2003) found that, because technical and vocational training focuses on learning by doing, this often leads to students being more interested in practical courses as the subject matter is approached in a far less theoretical or abstract manner. In line with these results, Weiner's attribution theory must be mentioned. In this theory students are asked to bestow meaning to task situations in terms of causal attributions. Once students have decided on the cause of an event, this will affect both their emotional reaction to success and failure, and their expectations regarding future outcomes. Marsh, Walker, and Debus (1991) showed that students use different attributions for different school subjects, and that these attributions are often consistent with their sense of ability. Cultivating an intrinsic interest in learning is ultimately desired.

Based on our results, we believe that within technical and vocational training schools, practical courses have a positive influence on the student-teacher relationship, the mutual assistance and interest in the learned discipline, self-confidence, and motivation. This suggests that the teacher's behaviour towards the students is crucial for the student's attitude towards the subject. A good relationship between students and teacher is important (den Brok et al., 2004). They have to get along at personal level and there has to be a willingness of the students to perform well. Students' and teachers' personal characteristics, goals, expectations, norms and values determine how students and teachers interact. For many students, the personality of the teacher and his/her style of interaction with the classroom is essential for their motivation, commitment, and interest in the course (Van Tartwijk et al., 1998). In line with these results, Van Houtte (2004) found that teachers have different attitudes and expectations towards students of technical and vocational training schools. Teachers in lower streams are less academically oriented than those in higher streams because they have a lower expectation of their students. This is reflected in the study culture, where facts and basic skills are emphasized. The danger exists that teachers behave in correspondence with their expectations, and students respond to this behaviour in a way that corresponds to the expectations. This could be linked to the fact that the chance of failing is higher in technical and vocational schools than in general schools (Van Houtte, 2004). Similarly, Opdenakker and Van Damme (2006) and Brusselmans-Dehairs et al. (2003) found that in technical and vocational training schools a significantly lower mathematics achievement level is

reached, compared to the level in general secondary schools, where students have a more positive attitude towards mathematics.

We conclude that teacher behaviour towards the students can strongly differ and student attitudes incorporate an affective component related to the extent to which they like the subject (Kyriakides, 2005). Teacher behaviour and student attitudes are reflected in the teacher's interpersonal behaviour and student perceptions of the teacher's interpersonal behaviour in the classroom, which determines student wellbeing.

3.3 The importance of cooperative teacher behaviour in the classroom

Caldwell and Spinks (1992) suggest that, while the organizational aspects of schools are necessary for effective teaching, they are not sufficient; qualities in student-teacher interactions weigh heavily in advancing student achievement levels. For the last three decades, researchers have turned to teacher behaviours as predictors of student achievement in order to build up a knowledge base on effective teaching (Muijs et al., 2005). This has led to the identification of a range of behaviours which are positively related to student achievement. Effective teachers are expected to organize and manage the classroom environment as an efficient learning environment as well as maximize engagement rates (Anderson et al., 2004). Important aspects of the psychological environment are the perceptions and feelings about interpersonal relationships between students and teachers (Cheng, 1994). The relationship between the teacher's interpersonal behaviour and student wellbeing has already been examined (Wubbels et al., 2006; Brekelmans, 1989; den Brok et al., 2004). Similar to Wubbels et al. (2006), we found that student wellbeing is strongly related to the proximity dimension in the model of interpersonal teacher behaviour. Furthermore, den Brok (2001) and Brekelmans (1989) found that the effect of the proximity dimension on affective student outcomes is somewhat stronger than the effect of the influence dimension, i.e., the measure in which the teacher leads communication in the classroom. However, the degree to which the teacher leads communication in the classroom is also determining for the classroom climate and a link with student outcomes was found (Cheng, 1994).

Below we describe how the different quadrants of the model of interpersonal teacher behaviour were related to student wellbeing. References to other studies have been made.

First, we found that the *dominant-cooperative* quadrant (Quadrant 1) was positively related to student wellbeing. This teacher behaviour is indicated as tolerant/authoritative (Brekelmans, 1989) and is characterized as tolerant yet exacting discipline. A positive relationship between student perceptions of teacher's leading, helpful/friendly behaviour and student wellbeing was also found in the study of Wubbels, Brekelmans, den Brok and Tartwijk (2006). This type of teacher offers the students structure while allowing them a degree of freedom. The teacher develops close relationships with students. These relationships are characterized by a strong cooperative component. A lot of attention is paid to the needs and expectations of students. Students need to maintain a relationship with teachers that enable them to seek and receive help and support when they require it (Beresford, 2003). This type of teacher is enthusiastic, creates a stimulating environment and uses a variety of teaching methods, mostly task oriented. Test results are important; however the physical and emotional needs of the students are also taken into account. This creates a positive classroom climate, indicated as cooperative by Muijs and Reynolds (2005) and as communitarian by Phillips (1997). Discipline is present and students perform their assigned tasks because it is fun in a structured yet relaxed atmosphere. Next to clear structure, students get a lot of freedom and responsibility. According to Loukas and Murphy (2007) these characteristics are protective functions on subsequent adjustment problems. Students of technical and vocational training are positively oriented towards this tolerant/authoritative type of teacher. The finding that the dominant-cooperative teacher behaviour has a positive influence on student wellbeing corresponds with results of effectiveness studies (Muijs et al., 2005). It has been stated that a safe and orderly environment, with clear and consistent rules is the most frequently mentioned climate variable within effective schools (Stevens & Sanchez, 1999). This relationship is found for practical teachers as well as for theoretical teachers. Moreover, when teachers perceive their own interpersonal behaviour in the classroom as dominant-cooperative, their own wellbeing also increases.

Second, we found that the *submissive-cooperative* quadrant (Quadrant 2) is also positively related to student wellbeing. This teacher is typified as uncertain and tolerant (Brekelmans, 1989). Students get a lot of individual space, in combination with less leadership and guidance. A definite sense of structure and of task orientation is lacking. This is in contrast with the clear and consistent rules, described as an important characteristic of effective teaching (Muijs et al., 2005). Students are not always attentive and are often preoccupied with other matters when their teachers are uncertain and tolerant. Only the more motivated students pay attention. Even so, the teacher continues helping students and will time and time again re-explain, all the while knowing that some students simply were not listening. Students often consider this type of teacher as too nice. Students get a lot of freedom and in spite of those who are not attentive, the teacher stays available. Because students can always count on their teacher when they need him/her, this makes them feel good (Beresford, 2003). This relationship

has been found for theoretical courses, more specifically for mathematics. Students' attitudes towards the courses can be a possible explanation for this result (cf. supra).

When the practical teacher perceives his/her own interpersonal behaviour in the classroom as *submissive-opposite* (Quadrant 3), we found it had a negative relationship with student wellbeing. This is similar to Fraser (1994) who found that the wellbeing of students decreases when the teacher reports uncertain and dissatisfied behaviour. On the other hand, when the students perceive their practical teacher as uncertain and dissatisfied, student wellbeing also decreases, even when the teacher reports a high sense of wellbeing. As the submissive-opposite quadrant is the complementary quadrant of the dominant-cooperative quadrant (circumplex model), these findings correspond with the positive relationship found between the tolerant/authoritative teacher and student wellbeing (Wubbels et al., 2006). Furthermore, student perceptions of the teacher's interpersonal behaviour remain crucial as they are moderators for student wellbeing.

The dominant-opposite interpersonal behaviour of the academic teacher (Quadrant 4), typified as authoritarian teacher behaviour (Brekelmans, 1989), is found to be negatively related to student wellbeing. This suggests that student wellbeing decreases when the academic teacher strongly leads the communication in the classroom and when the distance in the relationship with the students is large. The importance of a positive student-teacher relationship for student outcomes was indicated in other research (den Brok et al., 2004). Students who perceive strict and admonishing interpersonal teacher behaviour, score low on the student wellbeing scale. The teacher dominates the whole class, adapts a more leading role, and becomes less tolerant and less helpful. The main focus of this authoritarian type of teacher is on cognitive output. This corresponds with the academic climate and can be distinguished from a communitarian climate as described by Phillips (1997). An academic classroom climate is characterized as less friendly and student initiative has little or no place. Learning material is offered clearly and in a structured way. This negative relationship between authoritarian teacher behaviour and student wellbeing was confirmed by Wubbels, Brekelmans, den Brok, and Tartwijk (2006). An important reason for this negative influence on student wellbeing is that a pleasant and cooperative relationship between teacher and students is missing. Also the competitive aspect has a negative impact because students are very sensitive towards social comparison at that age (Loukas & Murphy, 2007; Eccles et al., 1991).

Notwithstanding the negative relationship for the theoretical teacher, we find that a moderate amount of authoritarian behaviour in the practical teacher, as perceived by both the teacher and the students, can increase student wellbeing. On the other hand, when the teacher's interpersonal behaviour is scored as very strict and admonishing by students and teachers themselves, or when the lowest score is ascribed by both participants, then student wellbeing decreases. These results correspond with the curvilinear

relationship found between teacher management and effectiveness: a minimal level of discipline is necessary for teachers to be effective, but beyond a certain point a negative relationship occurs (Creemers & Kyriakides, 2006).

In this section, the relationship between the teacher's interpersonal behaviour and student wellbeing was examined. In accordance with earlier research (den Brok et al., 2004), we conclude that cooperative teacher behaviour is crucial for student wellbeing and motivation. The distance in the relationship between the teacher and the students has to be small. This counts for practical and academic courses. Student wellbeing increases when the teacher is understanding, tolerant, and helpful. This allows students to participate when their needs and expectations are met. Within an agreeable classroom climate, teachers have to shape the social environment so student outcomes can increase (Cheng, 1994).

3.4 Teacher wellbeing as psychosocial aspect of the classroom

Our study indicates that years of experience and the teacher's interpersonal behaviour are crucial for teacher wellbeing. A positive relationship has been found between the teacher's years of experience and his/her wellbeing, i.e., teachers with many years of experience have a higher score on wellbeing. This is in contrast with other studies that found a negative relationship between years of experience and teacher wellbeing (Vandenberghe & Huberman, 1999; Aelterman, Engels, Van Petegem, & Verhaeghe, 2007). Furthermore, tolerant/authoritative teacher behaviour (Quadrant 1) has been considered as ideal and increases the teacher's wellbeing. This means that the teacher leads the communication in the classroom and that the distance between teacher and students is small. We found that teacher wellbeing increases as he/she perceives him/herself as leading and helpful/friendly. In line with this result, we found a negative link between dissatisfied and uncertain teacher behaviour and teacher wellbeing. In other words, teacher wellbeing seems to decrease when the teacher perceives his/her own interpersonal behaviour in the classroom as submissive-opposite (Quadrant 3). These results indicate that self-efficacy is an important aspect of teacher wellbeing (Aelterman et al., 2007; Vandenberghe et al., 1999). Teachers must feel that they are in control of the class, that students listen to them, that they have a good relationship with the students, and that they succeed in motivating the students (cf. supra). It seems that competence means finding a balance within the influence and proximity dimension, which leads to a higher degree of wellbeing. Furthermore, engaged teachers are found to be likely to work harder to make classroom activities meaningful by introducing new ways of learning and altering the presentation of materials so that they are more relevant and of greater intrinsic interest to students. A

study of Fisher and Grady (1998) indicates that there is a strong relationship between the images teachers have of their school and the perceptions they have of their work environment. A mismatch between personal characteristics, such as attitudes and job demands, can be very stressful (de Jonge et al., 2001; Conley et al., 1999). Similar to student wellbeing, it is also important for teachers to have a person-environment fit (Kristof, 1996), as it can potentially make a difference in level of job satisfaction. This fit condition is reflected in our definition of teacher wellbeing (Aelterman et al., 2007).

The importance of teacher wellbeing for student wellbeing was indicated in a study of Day, Sammons, Stobart, Kington, and Gu (2007) who stated that "effective teachers will strive to engage with all of their students and this requires that they are able to bring reserves of emotional energy to their work. The more such emotional energy is depleted – through adverse effects of personal, workplace or policy experiences – the less will be their capacities for sustaining effectiveness. This is why reformers from outside the school and those who seek to improve from within, need to acknowledge the connection between attending to the wellbeing of the students and attending to the wellbeing, also, of the adults in the school" (p. 244).

In our study, we found a direct negative link between teacher wellbeing and student wellbeing for the academic subjects in technical and vocational training schools. This suggests that student wellbeing can be high while teacher wellbeing is low. Various explanations can be given for this finding. First, the teaching profession requires a serious effort and a lot of energy from the teacher. High demands can be an important source of stress and decrease teacher wellbeing and feelings of self-efficacy (Aelterman et al., 2007; Opdenakker et al., 2000; Vandenberghe et al., 1999). This mismatch between high demands (from the environment) and low feelings of self-efficacy (of the teacher) would indicate a low person-environment fit at the teacher level (Aelterman et al., 2007). Second, some teachers are not situated in the dominant-cooperative quadrant (Quadrant 1), as students prefer, but have another style they are most comfortable with. These teachers are satisfied but the wellbeing of students is low. Third, a different perception of the teacher's interpersonal behaviour can cause different feelings of wellbeing for both teachers and students: what a teacher considers as leading at times may be experienced as authoritarian by students. This has been found in other research (Brekelmans, 1989; Wubbels et al., 2006). Related to this, it is important to mention that teachers often perceive the classroom environment more positively than their students (Fraser & Fisher, 1982; Wubbels, Brekelmans, & Hooymayers, 1991). Fourth, when discipline is lacking the wellbeing of students is high because they get a lot of freedom and the teacher is there when help is needed. When the teacher's attempt to take control over the situation fails, teacher wellbeing decreases. Hence teacher's motivation is reduced.

For the vocational subjects, we found an interaction effect of the wellbeing of the teacher and students' perceptions of the teacher's interpersonal behaviour on students' wellbeing. We found that the wellbeing of students is remarkably low when students perceive their teacher as uncertain and dissatisfied (Quadrant 3), despite the teacher reporting a high score on wellbeing. Only when the wellbeing of the teacher is also perceived by the students as enthusiastic behaviour, does student wellbeing increase. This result underlines the importance of teacher behaviour for student motivation and wellbeing (cf. supra).

3.5 Relevant school, teacher/classroom and student characteristics

Research indicates that most of the variance in student wellbeing is situated at the student level (De Fraine, 2003; Knuver et al., 1993; Opdenakker et al., 2000; Samdal et al., 1999). In our study, we found that variances at classroom and at student level are significantly different from zero. More specifically, it appears that 11% of the total variance in student wellbeing is at the classroom level (between class differences), while 89% of the total appears at the individual level (within class differences). This finding concurs with earlier research which indicates that the combined school and class level portion of the variance of non-cognitive outcomes varies between 1% and 12% (Opdenakker et al., 2000; Van Landeghem, Van Damme, Opdenakker, De Fraine, & Onghena, 2002).

In our study, no variance in student wellbeing has been found at the school level. This could be due to the limited amount of school level variables included in our analyses (i.e., the denomination of the school and school size). Other studies found that learning environment and learning climate differences between schools are small, and that differences are more likely situated within schools (Opdenakker & Van Damme, 2006). In a study of Opdenakker and Van Damme (2007), the influence of the school on the effort and achievement of students was examined thoroughly and many school characteristics were included. In that study, different categories were distinguished, including the composition of schools, the school practice, and context characteristics (Opdenakker & Van Damme, 2007). A curvilinear relationship was found between achievement gain and school size, suggesting that neither small nor large schools are best for students' success. In contrast with our results, Opdenakker et al. (2007) found a positive connection between school size, school practice, and school outcomes. Nevertheless, school size and student composition could not explain all the differences between schools with respect to school practice. Their main finding was that schools have opportunities to affect the outcomes (effort and achievement) of their students especially with respect to the climate and the learning environment. Further research indicates that the impact of school and classroom characteristics on non-cognitive

factors, such as wellbeing, is limited in comparison to the impact on cognitive factors (De Fraine, 2003; Opdenakker et al., 2000). Nevertheless, it is interesting to investigate specific student and classroom/teacher characteristics in order to increase student wellbeing.

In general, the classroom level component has been found to account for a larger part of the total variance in student output than the school level component. As indicated in our study, 11% of the total variance in student wellbeing has been found at classroom level. Similarly, Kyriakides, Campbell, and Gagatsis (2000) found that the net effect of classrooms is higher than the effect of schools. In our study, teacher characteristics such as gender, age, job security, parental status, and teaching subjects have been added to the model one by one, but no significant relationship with student wellbeing was found. Not only classroom characteristics such as size, but also student variables aggregated at classroom level have been taken into account. These aggregated variables included the composition of the classroom (homogeneous/heterogeneous and proportion boys/girls), the academic strength of the classroom (high/low achievers), and the difference between students' and teacher's perceptions of the teacher's interpersonal behaviour. None of these variables were related to student wellbeing. At teacher/classroom level, teacher wellbeing and teacher perceptions of interpersonal behaviour in the classroom were found to be related to student wellbeing.

Finally, at the student level no significant relationship was found between student demographics, such as gender, age, motivation, education stream, language spoken at home, and student wellbeing. When student motives for attending school were included in the model, we found that students that are interested in the courses and motivated to learn score higher on the wellbeing scale. When students indicate that they feel obliged to come to school, there wellbeing decreases. The link between student perceptions of the teacher's interpersonal behaviour and student wellbeing has already been described (cf. supra). Current achievement is also a variable at the student level that has been included into the analyses, but no significant relationship was found with student wellbeing when measured at the same time. This corresponds with our earlier findings. A positive link to student wellbeing was only found with pre-measurements of wellbeing and achievement. This indicates that student wellbeing is based on previous experiences. Similarly, the results of Opdenakker et al. (2000) indicate that student wellbeing and achievement, measured at the same time, can be considered as relatively independent constructs.

We conclude that in our study no variance in student wellbeing was found at the school level. Some of the variance in student wellbeing can be explained by characteristics at teacher/classroom level. Teacher wellbeing and teacher perceptions of interpersonal teacher behaviour are related to student wellbeing. Finally, most of the variance in student wellbeing appears at the student level. Student motives for attending school, student perceptions of the teacher's interpersonal behaviour and pre-measurements of wellbeing and achievement are related to student wellbeing.

IV. LIMITATIONS OF THIS STUDY AND DIRECTIONS FOR FURTHER RESEARCH

4.1 Wellbeing as an outcome measure of the actual classroom environment

First, only current wellbeing was taken into account in this study and student wellbeing was considered as a state. As we found that student wellbeing has both state- and trait-like properties, it is advisable to include aspects of sustainable wellbeing (i.e., wellbeing as a trait) in further analyses. Indeed, the integration of current and sustainable aspects of student wellbeing would be a conceptual improvement for further research.

Second, perceptions have been limited to the actual classroom environment. In further research, information about both actual and preferred perceptions, would permit explorations of whether students achieve better when there is a higher similarity between the actual classroom environment and that preferred by students (Brekelmans, 1989; den Brok et al., 2004). This would be an example of what is referred to as person-environment fit research (Kristof, 1996). In general, teachers perceive the classroom environment more favourably than do their students in the same classroom (Fraser et al., 1982). However, according to Doppelt (2006) teachers and students that have a shared perception of the learning environment attain higher achievement in the affective and cognitive domains. For these reasons, comparing perceptions of the actual classroom environment with the preferred environment would be progressive.

Third, it was a conscious choice to consider student wellbeing as an output indicator of the CIPO model because student wellbeing is evaluated as a performance indicator by the education inspectorate. Nevertheless, in some research student wellbeing is considered as process indicator, as it concerns a cyclic model. The position of the wellbeing indicator depends on the choice of attainment goals and processes that can foster these goals.

Finally, student wellbeing has been the outcome variable included in our final research model, but this is not the only criterion for school effectiveness. Schools that are effective for the non-cognitive outcomes of their students are not necessarily effective regarding their students' achievement (Knuver et al., 1993) and vice versa (Opdenakker et al., 2000). There is some evidence that the results of effectiveness studies are heavily dependent upon the choice of outcome measures used (Opdenakker et al., 2000; Teddlie & Reynolds, 2000; Kyriakides, Campbell, & Gagatsis, 2000). Furthermore, since research indicates that there is no single attitudinal non-cognitive outcome (Van Landeghem et al., 2002; Knuver et al., 1993), there is also a need for multiple outcome measures. In this context it is important to mention that in our study student achievement only refers to student scores on language and

mathematics tests. This choice has been made because language and mathematics are of particular interest, being recognized in most effectiveness studies as the best predictors of academic success (Teddlie, Reynolds, & Sammons, 2000). We recommend that future research include diverse cognitive and non-cognitive outcomes in the research model together with multivariate analyses.

4.2 The limited number of school, teacher/classroom and student characteristics used

In this study, we focused on the educational process at the micro level and the effect on student wellbeing. Almost no input and context variables have been taken into account. For pragmatic reasons, only a limited number of school, teacher/classroom, and student characteristics were included in the analyses. No variance in student wellbeing was found at the school level. A greater emphasis on school level characteristics would be interesting for further research. Integrating school climate variables could mean a step forward in explaining variance in student wellbeing at the school level (De Fraine, 2003).
Since teacher characteristics, commonly studied in educational effectiveness research, relate more to student achievement than to student psychosocial functioning (e.g., instructional time, differentiation practices, structuring of new material), it can be argued that a different set of teacher (or classroom) characteristics may be particularly related to non-cognitive student outcomes. As student wellbeing contributes next to cognitive outcomes in effectiveness studies, interpersonal behaviour deserves a place next to the (instructional) behaviour component of the teacher. Different work activities of teachers have been neglected and should therefore be included in a broader and multidimensional conception of teacher effectiveness. This integration would be innovative for further research.
After taking school and teacher/classroom characteristics into account, still some variance in student wellbeing remained unexplained in our study. Thus, further research is needed in an attempt to identify variables which can explain the variance at student level. Student attributes such as abilities, motivation, and primarily personal characteristics have to be taken into account, next to student demographics and perceptions of the teacher's interpersonal behaviour.

4.3 Quantitative nature of the analyses

The analyses performed in this study have been quantitative in nature, while most of the instruments used were developed in earlier studies using qualitative research techniques as well (Engels, Aelterman, Van Petegem, Schepens, & Deconinck, 2004; Aelterman et al., 2002; Wubbels, Créton, Brekelmans, & Hooymayers, 1987). Results from qualitative research can help interpret the results of

quantitative analyses. To date, however, only limited progress has been made towards the desirable goal of combining quantitative and qualitative methods within the same study on classroom environments. It is recommended that further research combine these methodologies. In addition to the call for more qualitative methods, authors working within the field of educational effectiveness recommend the adoption of even more advanced quantitative methods or data analysis (Goldstein, 1997). In our study, the relationships found are correlational in nature and thus causal conclusions cannot be drawn. From a theoretical perspective certain directions are presumed, but this also means that other alternative explanations are not rejected. In further research it would be interesting if structural equation models are used, thereby establishing the strength and directions of relationships between variables at different levels.

In this study multilevel analyses were performed at three levels, the school, classroom/teacher, and student level. Research indicates that when the classroom level is taken into account the influence of the school shrinks to very small levels (Scheerens & Creemers, 1989). Moreover, Opdenakker, Van Damme, De Fraine, Van Landeghem, and Onghena (2002) found that schools and classes are important, although most of the variance in student outcomes is due to individual student characteristics. Studies often differ from each other with regard to the levels that are modelled. This may be for parsimonious reasons, or because not enough data are available to distinguish all levels. Not only should classification variables be available (to make division into groups possible), but also the number of units at each level must be sufficient for identification purposes in the multilevel analysis. Omitting important levels results in overestimation of the amount of student level variance (Van den Noortgate, Opdenakker, & Onghena, 2005). In further research, sufficient information at all levels should be available to perform valuable statistical analyses.

Furthermore, a longitudinal design has not been used in our study. Student attrition during the research period was a problem. As a result, the amount of measuring moments was fixed at two. Similarly, to fit the final research model, two models have been developed, one for vocational and one for academic subjects. Due to missing values, only a part of the student sample participated in the final research model for vocational subjects. We have therefore been cautious when interpreting these results. The short time-span between the two testing moments is a further reason for caution with respect to these findings. In future research, data should be collected more frequently to perform growth curves over time. The need for longitudinal studies has widely been recognized (Reynolds & Teddlie, 2000; De Fraine, Van Landeghem, Van Damme, & Onghena, 2005).

4.4 Social desirability of the answers and generalizability of the results

An aim of this study was to facilitate input from students about what, for them, constitutes wellbeing and the factors they identify as contributing to their wellbeing. The outcome we envisaged was that students could point out the domains that are more relevant to them than those previously constructed by others (Fattore, Mason, & Watson, 2007). As perceptions of the participants were used, we had to consider the effect of social desirability in the answers. Nevertheless, research indicates that the effect of social desirability does not invalidate the subjective wellbeing measures (Myers & Diener, 1995). Social desirability scores correlate modestly with self-reported subjective wellbeing scores, but they predict non-self-report subjective wellbeing measures equally well, suggesting that social desirability is a substantive characteristic that enhances wellbeing (Myers et al., 1995).

Our study was conducted within 20 technical and vocational secondary training schools in Flanders. The selected schools organize the most popular study options. As the study options are geared more towards blue collar jobs than white collar jobs, more male students are participating. When data is missing and only a limited number of students are included in the analyses, we have to be cautions with the interpretation and generalizability of the results.

V. PRACTICAL IMPLICATIONS

5.1 A caring relationship within a positive climate: cooperative teacher behaviour

An important finding of this study is that student perceptions of the teacher's interpersonal behaviour are crucial for student wellbeing. Within a positive classroom climate, cooperative teacher behaviour increases student wellbeing. This suggests that the distance in the relationship between the students and the teacher should be small. Teachers who use cooperative teaching strategies achieve more learning gain than those who teach in a dominant manner (Creemers, 1994; Westerhof, 1992). Moreover, Moriarty, Douglas, Punch, and Hattie (1995) found that cooperative environments lead to higher feelings of self-efficacy and achievement as well as more appropriate behaviour. Cooperative reward structures have positive effects on students' motivation and interest in the courses. Furthermore, students are more likely to regard learning as a pleasurable and satisfying experience when the learning environment is predisposed towards student participation. Students experience higher outcomes in cooperative learning conditions than in competitive or individualistic learning conditions. In general, cooperative behaviour between student and teacher is an important environmental condition for student wellbeing.

In line with our results, it is stated that when interacting with students, teacher behaviour, has a considerable impact on the learning environment. Positive teacher-student relationships and a positive learning environment are very important (Koul & Fisher, 2005). This is reflected in tolerant/authoritative teacher behaviour (Brekelmans, 1989). A crucial factor in the relationship between the teacher and the students is that students believe that teachers care about them and their performance (Swaminathan, 2004). If students believe that their teachers are attuned to their needs and are willing to help, they will be more engaged in school and learn more. The relationship between students and the teacher has to be authentic and characterized by respect and warmth (Van Houtte, 2006; Swaminathan, 2004). Teacher friendliness is immensely important to students. When teachers trust and respect young people as learners and thinkers, they are much more likely to receive trust and respect in turn (Beresford, 2003; Van Houtte, 2007). This means that the effect of 'caring' is important for students' appreciation of the teacher as a person as well. Similarly, Noddings (1996) talks about an ethic of caring and assumes that student academic achievement and attachment to school are contingent on first satisfying teachers' and students' social an personal needs. Make sure that there is a person-environment fit (Kristof, 1996), for both teachers and students. According to Jamieson and Wikeley (2000), one guiding principle of an effective school is respect for the values of students, and respect for their dignity as individuals. In

general, qualities of trust, respect and care are necessary for an effective positive climate (Anderson, 1982; Cheng, 1994). If a relationship of trust can be built over the years, this is important for student wellbeing, as the results of our study indicate that earlier experiences have a large impact on later wellbeing.

To conclude, student motivation and interest are crucial factors of the educational process because they are positively related to student wellbeing. Perceptions of cooperative interpersonal behaviour of both the practical and theoretical teacher increase students' wellbeing, and stimulate students' motivation and interest in the courses. Notwithstanding that fact that cooperative behaviour can differ for a practical or a theoretical course, we are interested in the common characteristics which have to lead to a school policy of how to interact with students at school to increase their wellbeing.

5.2 Input for teacher training and support within the teaching profession

The results of our study indicate that student outcomes might be improved by creating a positive classroom environment. This is important information for teacher training. As part of the 'teacher as researcher' movement, teachers have to reflect upon, discuss, and question their own classroom practice as a basis for improving their teaching. Similar to our study, the Questionnaire on Teacher Interaction can be used to reflect upon teachers' own practice, i.e., interpersonal behaviour in the classroom. Given the potential usefulness of incorporating classroom environment topics into teacher training programmes, it is advisable that aspects of the classroom climate are a point of interest. The information gathered by the questionnaire, not only has to be used as a basis for reflection, but can also stimulate professional development or feelings of self-efficacy. Self-efficacy seems to be the best predictor of teacher wellbeing (Aelterman et al., 2007). Teachers have to be aware of student perceptions of the teacher's interpersonal behaviour and the impact on student wellbeing. They need to be informed because self-perception is often more favourable than the reality experienced by students. Teachers have to endeavour to optimize circumstances so that a powerful learning environment is created. A competent teacher has the natural ability to slide into any of the four behaviour quadrants as the situation demands. Teachers have to be capable of creating a desirable classroom environment that is characterized by positive interpersonal relationships and a place where everyone feels good. Furthermore, the opportunity to receive feedback about one's work and behaviour is strongly related to commitment and efficacy (Louis, 1998). In this respect, feedback from classroom climate instruments is meaningful to teachers. It increases their ability to adapt to or fit into a variety of situations, which can

increase teacher wellbeing. Gaining respect from relevant others may also affect this (Louis & Smith, 1991). To conclude, an important task is granted to teacher trainers, colleague teachers, and principals in supporting teachers in their professional development (Devos, Engels, Bouchenooghe, Hotton, & Aelterman, 2007).

5.3 Revaluation of technical and vocational training: a challenge for educational policy

Based on the finding of this study that the wellbeing of students is higher when they are motivated to learn and interested in the courses, we conclude that students who can make a conscientious choice of stream, study option, or courses contribute largely to their own positive learning experience. It is advisable to invest in helping students making the right choices and to inform them about all possible study options. This is certainly true for students of technical and vocational training, as a lot of these students are not coming to school out of interest. Within public opinion, a negative image has been developed over the years about technical and vocational training. Moreover, Van Houtte (2004) found that even teachers have different attitudes and expectations towards these students. However, the Flemish Ministry of Education has recently encouraged a heightening of respect for and interest in these streams (Vandenbroucke, 2004; De Maeyer et al., 2003; Vanderpoorten, 2000). From an equal opportunities policy, it is a challenge for teachers to hold high expectations for students in these lower streams. To meet this problem, thinking in hierarchically ordered streams has to be avoided. While abolishing streams is not a solution, Van Houtte (2004) suggests making the segregation between students of different streams less complete. The author states that until now, students of different streams seldom have lessons together and are situated within different buildings or even different schools. Only those subjects that are specific to a certain stream should be taught separately: other courses can be taught together with students of other streams. According to us, these interventions can lead to a revaluation of technical and vocational training.

While empirical findings are a necessary starting point for classroom interventions, they are not, however, sufficient to bring about change in educational practice on a large scale. There is a need for policy level interventions to ensure effective practices. The real challenge for educational policy is a greater understanding as to how research knowledge can be used in schools to enhance student outcomes. Educational policy has to be directed towards effectiveness. Since the education inspectorate is interested in student wellbeing, effective curricula have to integrate cognitive and non-cognitive student outcomes. More attention for general attainment targets, such as learning to learn and

social skills fits this idea. Furthermore, it is crucial to work with a system of indicators that reflect variables relevant for a harmonious development of the student. This system of indicators is needed to guarantee the quality of education. These quality measures have to be imposed by administrative bodies to ensure that education meets an acceptable standard.

VI. FINAL CONCLUSIONS

This study starts from an educational effectiveness approach where, next to cognitive outcomes, student wellbeing is considered as an attainment goal. This choice is in line with the current emancipatory vision of education, which is the context in which this study has been executed. The knowledge base of classroom environment research has been used to determine variables that can enhance students' affective outcomes. Classroom environment research is, in comparison with traditional effectiveness research, concerned with the more psychosocial aspects of the educational process. Examining relationships between variables of different research approaches has added value to this study.

This study has focused on student wellbeing as affective outcome of the educational process. The relationship between psychosocial aspects of the classroom, such as perceptions of the teacher's interpersonal behaviour and teacher wellbeing, on the one hand, and student wellbeing on the other hand has been examined. Furthermore, the link between student wellbeing and achievement has been explored.

The main results of this study indicated that:

1. The wellbeing of students increases when students are interested and motivated to learn.
2. Student wellbeing increases when students perceive the interpersonal behaviour of their teacher as cooperative.
3. Pre-measurements of student wellbeing and achievement are positively related to student wellbeing, but a positive relationship between current achievement and wellbeing is not found.
4. The wellbeing of the academic teacher is negatively related to student wellbeing.
5. The relationship between the wellbeing of the practical teacher and his/her perception of interpersonal behaviour in the classroom on the one hand and student wellbeing on the other hand is moderated by student perceptions of the teacher's interpersonal behaviour.

This study should be considered as a guide for further research. The results indicate that student perceptions of the teacher's interpersonal behaviour account for a substantial amount of variance in student wellbeing. These perceptions are crucial moderators for student wellbeing. In further research, it would be interesting to include more student, teacher/classroom, and school characteristics in the analyses in order to explain more variance in student wellbeing at all these levels. Furthermore, not only

current wellbeing, but also aspects of sustainable wellbeing have to be taken into account to get a better understanding of certain relationships. Including other affective and cognitive student outcomes next to student wellbeing would further enable us to evaluate effectiveness. Moreover, if these multivariate analyses could be performed within a longitudinal design, complex relationships concerning how student outcomes can be fostered, would appear.

The most important and practical implication of this study is that teachers must strive to create a positive classroom climate, as it increases student wellbeing. Within a positive classroom climate, the teacher cares about the students and the teacher's interpersonal behaviour is characterized as cooperative. When student learning takes place within an agreeable environment, students' and teachers' aims and needs are met. To stimulate a positive classroom climate, the teacher's understanding of his/her interpersonal behaviour in the classroom, together with the effects of this behaviour, should be a point of interest within teacher training. Following that, within the teaching profession itself, self-reflection and feedback from colleagues and the principal will be important for the teacher's professional development. At the policy level, a system of indicators, that takes the findings of this study into account, should be used to facilitate future evaluations of educational quality.

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SUMMARY IN DUTCH

NEDERLANDSTALIGE SAMENVATTING

I. PROBLEEMSTELLING

Gedurende de laatste decennia hebben zich maatschappelijke verschuivingen voorgedaan die bepalend zijn voor het onderwijsbeleid en de visie op onderwijs (Standaert, 1990). Het is nuttig na te gaan hoe deze verschuivingen zich weerspiegelen in de keuze van de onderwijsdoelen. Een kwaliteitsuitspraak is namelijk gebaseerd op doelstellingen waaruit effectvariabelen afgeleid worden. In het traditioneel effectiviteitsonderzoek wordt het bevorderen van de leerprestaties van leerlingen als doel vooropgesteld (Teddlie & Reynolds, 2000). Een literatuuroverzicht geeft aan dat gedurende de laatste jaren meer aandacht gaat naar affectieve componenten zoals het welbevinden van leerlingen op school naast de cognitieve output (De Fraine, Van Landeghem, Van Damme, & Onghena, 2005; Knuver & Brandsma, 1993; Samdal, Wold, & Bronis, 1999; Konu, Litonen, & Autio, 2002; Opdenakker & Van Damme, 2000). Enerzijds is de keuze voor het welbevinden van leerlingen als kwaliteitscriterium van onderwijs gestuurd vanuit de samenhang met de leerprestaties (Samdal e.a., 1999; Tymms, 2001). Er wordt namelijk verondersteld dat het bevorderen van het welbevinden van leerlingen een positief effect heeft op de leerprestaties. Anderzijds vindt de keuze voor het welbevinden van leerlingen als onderwijsdoel aansluiting bij de huidige emancipatorische onderwijsvisie waarbij aandacht is voor een harmonische vorming. Hierbij staat een integratie van denken, handelen en zijn op cognitief, psychomotorisch, dynamisch-affectief en sociaal vlak centraal.

Onderwijskwaliteit verwijst enerzijds naar de realisatie en beoordeling van cognitieve prestaties (weerspiegeld in taal- en wiskundetoetsen), anderzijds gaan we ervan uit dat ook andere resultaten van onderwijs belangrijk zijn. De focus ligt niet langer uitsluitend op prestaties, ook affectieve output verdient onze aandacht. In dit proefschrift wordt het welbevinden van leerlingen centraal gesteld en beschouwd als een waardevolle indicator in het bepalen van onderwijskwaliteit. Zoals eerder aangegeven, wordt een positief verband met prestaties verondersteld. Factoren die de prestaties beïnvloeden, zoals kwaliteit van instructie, gelegenheid tot leren en actieve leertijd, zijn reeds uitvoerig beschreven in ander onderzoek (Levine & Lezotte, 1990; Sammons, Hillman, & Mortimore, 1995) en behoren niet tot het opzet van deze studie.

De probleemstelling van dit onderzoek is beschreven in hoofdstuk 1, gevolgd door het theoretisch kader waarbinnen onderzoek naar de kwaliteit van onderwijs kan gesitueerd worden. De kennisbasis van onderwijseffectiviteitsonderzoek is eveneens in het eerste hoofdstuk opgenomen. Er wordt tevens een conceptueel model gepresenteerd dat afgeleid is uit deze onderzoeksstroming en bruikbaar is voor

deze studie. Bovendien worden aspecten van het klasomgevingsonderzoek besproken, waarvan de link met het welbevinden van leerlingen verder in dit proefschrift wordt onderzocht. De hoofdonderzoeksvraag van deze studie is: Hoe zijn psychosociale aspecten van het klasgebeuren gerelateerd aan het welbevinden van leerlingen? Dit onderzoeksdoel, een hypothetisch onderzoeksmodel en een overzicht van de hoofdstukken sluiten hoofdstuk 1 af samen met een beschrijving van de steekproef en enkele methodologische keuzes.

II. ONDERZOEKSDESIGN

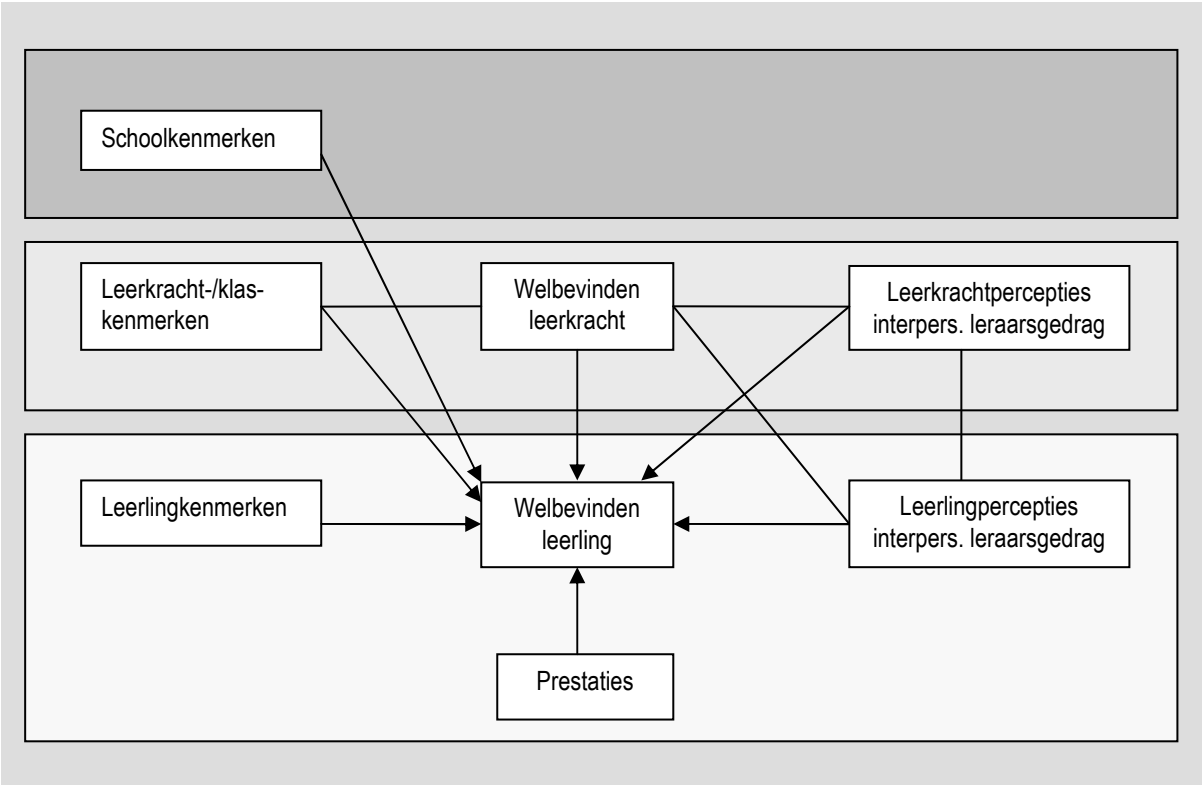
In deze studie gaat de aandacht uit naar leerlingen van het technisch en beroepssecundair onderwijs, en meer specifiek naar leerlingen van de tweede graad, omwille van de daling in leerlingmotivatie en welbevinden die bij deze groep is vastgesteld (Engels, Aelterman, Schepens, & Van Petegem, 2004). Redenen voor deze daling in welbevinden en motivatie worden toegeschreven aan de ontwikkelingsfase waarin deze leerlingen zich bevinden en de mismatch tussen de behoeften en verwachtingen van de leerlingen enerzijds en aspecten uit de schoolomgeving anderzijds (Anderman & Maehr, 1994; Eccles, Lord, & Midgley, 1991). Ook in ander onderzoek zijn bij leerlingen van het technisch en beroepssecundair onderwijs negatieve attitudes ten aanzien van de school vastgesteld (Hargreaves, 1967; Van de gaer, Pustjens, Van Damme, & De Munter, 2006; Van Houtte, 2006). Dikwijls komen leerlingen in het technisch of beroepssecundair onderwijs terecht vanuit een tweede keuze ten gevolge van het watervalsysteem. Door de jaren heen is een negatieve beeldvorming gegroeid, maar recentelijk is er vanuit het Vlaamse onderwijsbeleid een positieve tendens merkbaar met toenemende aandacht en herwaardering voor het technisch en beroepssecundair onderwijs (Vanderpoorten, 2000; De Maeyer, Rymenans, Daems, Van Petegem, & Van den Bergh, 2003; Vandenbroucke, 2004). Onze studie moet eveneens binnen deze context worden geplaatst.

De steekproef is getrokken uit een databestand, verkregen via de onderwijsinspectie. Het databestand geeft een overzicht van technische en beroepssecundaire scholen die gedurende het schooljaar 2003-2004 zouden worden doorgelicht. 20 scholen zijn geselecteerd op basis van de studierichtingen die ze aanbieden in de tweede graad. De betrokken studierichtingen zijn: industriële wetenschappen, techniek-wetenschappen, sociale en technische wetenschappen, mechanische technieken, elektromechanica, elektrotechnieken, verkoop, kantoor, verzorging-voeding, elektrische installaties, metaal en hout.

Data zijn verzameld op twee meetmomenten. Het eerste meetmoment vond plaats aan het begin van het derde leerjaar technisch en beroepssecundair onderwijs. Een tweede moment van dataverzameling is uitgevoerd bij dezelfde leerlingen, op het einde van het vierde leerjaar technisch en beroepssecundair onderwijs. 1701 leerlingen, verdeeld over 129 klassen namen bij aanvang deel aan het onderzoek. Per studierichting is een leerkracht Nederlands, een leerkracht wiskunde en een praktijkleerkracht bevraagd.

De data bevatten een hiërarchische structuur waardoor analyses op verschillende niveaus zijn uitgevoerd. Eerst worden in onze analyses de niveaus afzonderlijk bestudeerd, nadien is gezocht naar verbanden tussen variabelen op verschillende niveaus en is een multilevel analyse uitgevoerd. Een overzicht van de diverse variabelen die zich op de verschillende niveaus situeren binnen het hypothetisch onderzoeksmodel van deze studie wordt weergegeven in Figuur 1. De variabelen die in het hypothetisch onderzoeksmodel zijn opgenomen, zijn te situeren op drie niveaus: variabelen op leerlingniveau, variabelen op leerkracht/klasniveau en een beperkt aantal variabelen op schoolniveau. In dit model worden geen causale verbanden verondersteld, de pijlen geven enkel aan dat het welbevinden van leerlingen in de analyses beschouwd wordt als afhankelijke variabele. Het gaat hier dus enkel om correlationele verbanden zonder uitspraken te doen over oorzaak-gevolg. Nieuw aan deze studie is dat verbanden tussen variabelen uit diverse onderzoeksbenaderingen worden onderzocht binnen één onderzoeksmodel.

Figuur 1. Overzicht van diverse variabelen gesitueerd binnen het hypothetisch onderzoeksmodel.



Uit Figuur 1 kan worden afgeleid dat het welbevinden van leerlingen op school het centrale concept vormt in het onderzoeksmodel van deze studie. Er wordt gezocht naar psychosociale aspecten van het klasgebeuren die gerelateerd zijn aan het welbevinden van leerlingen. Het welbevinden van leerlingen wordt beschouwd als performance indicator van onderwijskwaliteit. Een positief verband met de leerprestaties wordt verondersteld vanuit effectiviteitsonderzoek (Samdal e.a., 1999). Op basis van het leeromgevingsonderzoek worden verbanden tussen leerling- en leerkrachtpercepties van interpersoonlijk leraarsgedrag in de klas en het welbevinden van leerlingen onderzocht. Interpersoonlijke relaties tussen de leerkracht en de leerlingen in de klas vormen een belangrijke dimensie van het klasklimaat (Tagiuri, 1968). De leerkracht is een cruciale figuur in het onderwijsleerproces. We gaan ervan uit dat leerkrachtpercepties van interpersoonlijk leraarsgedrag in de klas gerelateerd zijn aan het welbevinden van de leerkracht. Deze veronderstelling sluit aan bij eerdere bevindingen die aangeven dat leerkrachten een belangrijke waarde toekennen aan de relatie met de leerlingen in de klas (Shann, 1998; Scott, Cox, & Dinham, 1999). Bovendien wordt het verband tussen het welbevinden van de leerkracht en de leerlingen nader onderzocht. We veronderstellen dat de percepties van leerlingen van het interpersoonlijk leraarsgedrag in de klas cruciaal zijn voor hun eigen welbevinden en dat ze het verband tussen leerkracht-, klasvariabelen en het welbevinden van leerlingen modereren.

III. OVERZICHT VAN DE RESULTATEN

De belangrijkste variabelen van het onderzoeksmodel worden in drie afzonderlijke secties in hoofdstuk 2 geoperationaliseerd. In de eerste sectie wordt het welbevinden van leerlingen op school gedefinieerd als “een positieve toestand van het gevoelsleven, die het resultaat is van een harmonie tussen een geheel van specifieke omgevingsfactoren enerzijds en de persoonlijke behoeften en verwachtingen van leerlingen ten aanzien van de school anderzijds” (Engels e.a., 2004, p. 128). In de beschrijving gaat de aandacht uit naar het actuele welbevinden en niet naar duurzame aspecten van het welbevindenconcept. Na het uitvoeren van een exploratieve factoranalyse kan op basis van de Welbevinden Inventaris van het Secundair Onderwijs (Engels, Aelterman, Van Petegem, Schepens, & Deconinck, 2004) een eenvoudige maat voor het welbevinden van leerlingen worden afgeleid die in verdere analyses kan worden gebruikt.

In de tweede sectie van hoofdstuk 2 wordt het model van interpersoonlijk leraarsgedrag beschreven. Interpersoonlijke relaties tussen de leerkracht en leerlingen in de klas zijn een belangrijke dimensie van het klasklimaat en zijn een weerspiegeling van psychosociale aspecten in de klas. Op basis van twee

dimensies en vier polen worden in het oorspronkelijk model acht types van interpersoonlijk leraarsgedrag onderscheiden (Brekelmans, 1989). De nabijheidsdimensie geeft de afstand in de relatie tussen de leerkracht en de leerlingen aan. De machtsdimensie geeft aan in welke mate de leerkracht de communicatie in de klas leidt. Om pragmatische reden wordt een vereenvoudiging van dit model uitgevoerd. Op basis van de twee dimensies wordt een structuur van vier kwadranten bevestigd. Volgende types worden onderscheiden: (1) de tolerant/authoritatieve leerkracht; (2) de tolerant/onzekere leerkracht; (3) de onzeker/ontevreden leerkracht; en (4) de autoritaire leerkracht. De types 1 en 2 situeren zich aan de coöperatieve pool (kleine afstand) van de nabijheidsdimensie, terwijl de types 3 en 4 zich nabij de tegen pool (grote afstand) bevinden. Met betrekking tot de machtsdimensie kunnen we stellen dat de leerkracht voornamelijk de communicatie leidt in de klas (bovenhelft), bij de types 1 en 4 terwijl de types 2 en 3 eerder in de onderhelft van de typologie te situeren zijn. In dit onderzoek worden aan de hand van de Vragenlijst Interpersoonlijk Leraarsgedrag (Wubbels, Créton, Brekelmans, & Hooymayers, 1987) niet alleen de percepties van leerkrachten over hun eigen interpersoonlijk gedrag, maar ook de percepties van de leerlingen over het interpersoonlijk gedrag van hun leerkracht in de klas in de analyses opgenomen.

In de derde sectie van hoofdstuk 2 wordt een maat gezocht om het welbevinden van de leerkracht te meten. In overeenstemming met de eerste sectie wordt op basis van een bestaande vragenlijst die peilt naar het welbevinden van de leerkracht (Aelterman, Engels, Verhaeghe, Panagiotou, Sys, & Van Petegem, 2002), een exploratieve factoranalyse uitgevoerd waaruit een eenvoudige maat voor het welbevinden van de leerkracht is afgeleid. Deze vereenvoudiging is een belangrijke tussenstap naar complexere analyses.

Het verband tussen leerlingkenmerken, leerlingpercepties van het interpersoonlijk leraarsgedrag in de klas, leerprestaties en het welbevinden van leerlingen als outputfactor wordt in hoofdstuk 3 onderzocht. Volgende deelonderzoeksvragen worden beantwoord:

(1) Welke leerlingkenmerken zijn gerelateerd aan het welbevinden van de leerling?
(2) Welke motieven om naar school te komen, hangen samen met het welbevinden van leerlingen?
(3) Is er een verband tussen de prestaties van leerlingen en hun welbevinden?
(4) Welk interpersoonlijk gedrag van de leerkracht bevordert het welbevinden van de leerling?

Op basis van eerder onderzoek, wordt verondersteld dat meisjes zich beter voelen op school dan jongens (Knuver e.a., 1993; Engels e.a., 2004). Dit kon echter niet bevestigd worden in onze studie, maar onze resultaten stemmen overeen met de bevindingen van Van de gaer e.a. (2006) en De Maeyer e.a. (2003). Naar analogie met andere studies, wordt geen verschil in welbevinden gevonden bij autochtone en allochtone leerlingen (Knuver e.a., 1993; Engels e.a., 2004). Bovendien wordt

verondersteld dat de school door de leerlingen niet alleen ervaren wordt als een leeromgeving, maar ook als leefomgeving (van der Veen, 1989). Dit betekent dat niet alleen cognitieve prestaties van belang zijn. Deze veronderstelling wordt bevestigd in onze studie. We stellen vast dat de motivatie van leerlingen om te leren, en hun interesse in de vakken cruciaal zijn voor hun welbevinden. De interesse van de leerlingen wordt door Ainley (2006) geconceptualiseerd als een affectieve toestand die de subjectieve leerervaring van de leerlingen weerspiegelt, m.a.w. het is een belangrijke variabele voor de leermotivatie. Anderson, Hamilton, en Hattie (2004) onderzochten hoe aspecten van de sociale omgeving de motivatie van leerlingen in de klas kunnen bevorderen. We stellen vast dat leerlingen die de school als verplichtend ervaren, lager scoren op de welbevindenschaal.

We verwachten dat de leerprestaties en het welbevinden van leerlingen positief gerelateerd zijn (Knuver e.a., 1993; Samdal e.a., 1999; Tymms, 2001). In onze studie zijn de leerprestaties gemeten als de gemiddelde score op een taal- en wiskundetoets. In de huidige maatschappij wordt het belang van deze basiscompetenties, om als actieve burger deel te nemen aan de socio-economische ontwikkeling van de samenleving, meermaals onderstreept (Creemers, 1996). De resultaten van ons onderzoek geven aan dat het verband tussen de leerprestaties en het welbevinden verdwijnt wanneer leerlingpercepties van interpersoonlijk leraarsgedrag in de analyses worden opgenomen. Dit verwijst naar het belang van leerlingpercepties van interpersoonlijk leraarsgedrag voor het welbevinden van de leerling (den Brok, Brekelmans, & Wubbels, 2004). Ten slotte verwachten we, op basis van andere onderzoeken, dat het welbevinden van leerlingen toeneemt wanneer de leerlingen het interpersoonlijk gedrag van hun leerkracht percipiëren als dominant-coöperatief (Brekelmans, 1989; Wubbels, Brekelmans, den Brok, & Tartwijk, 2006). De resultaten geven aan dat leerlingen die hun taalleerkracht als tolerant/authoritatief ervaren, een hogere mate van welbevinden noteren. Wanneer ze hun leerkracht wiskunde percipiëren als tolerant/onzeker, neemt het welbevinden van de leerling eveneens toe, maar autoritair interpersoonlijk gedrag van de wiskundeleerkracht doet het welbevinden van de leerling afnemen. Naar analogie geven Brekelmans (1989) en den Brok (2001) aan dat een coöperatieve leerkrachtstijl, die kenmerkend is voor tolerant/authoritatief en tolerant/onzeker leraarsgedrag, het welbevinden van leerlingen bevordert. Ook Wubbels e.a. (2006) stellen dat het welbevinden van leerlingen afneemt wanneer het interpersoonlijk leraarsgedrag door de leerlingen gepercipieerd wordt als autoritair.

De deelonderzoeksvraag die in hoofdstuk 4 onderzocht wordt is:

(5) Kan het welbevinden van leerlingen verklaard worden door huidige leerprestaties en premetingen van welbevinden en prestaties, rekening houdend met leerlingkenmerken en leerlingpercepties van interpersoonlijk leraarsgedrag?

Opnieuw worden leerlingkenmerken zoals geslacht en nationaliteit in rekening gebracht en wordt hun relevantie voor het welbevinden van de leerling onderzocht. Naar analogie met de resultaten van hoofdstuk 3 wordt geen verband vastgesteld tussen deze leerlingkenmerken en het welbevinden van de leerling. Wat betreft nationaliteit zijn er in ander onderzoek enkel verschillen in prestaties gevonden ten nadele van minderheidsgroepen, maar net zoals in ons onderzoek is er geen verband met affectieve output vastgesteld (Knuver e.a., 1993). Verder wordt in onze analyse opnieuw het belang van de interesse van leerlingen in de vakken voor het welbevinden bevestigd (Ainley, 2006). Hierbij aansluitend, stellen we opnieuw vast dat leerlingen die de school als verplichtend ervaren, lager scoren op de welbevindenschaal.

In dit hoofdstuk worden verbanden tussen de data van de twee meetmomenten onderzocht. Niettegenstaande studies een positief verband aangeven tussen het welbevinden van leerlingen en hun prestaties (Samdal e.a., 1999; Knuver, 1993; Tymms, 2001), vinden wij in ons onderzoek geen verband tussen welbevinden en prestaties wanneer ze gemeten zijn op hetzelfde moment. Onze resultaten geven daarentegen wel aan dat het welbevinden van leerlingen gerelateerd is aan premetingen van welbevinden en prestaties. Op basis van deze resultaten veronderstellen we, in overeenstemming met Diener, Suh, Lucas, en Smith (1999) dat het welbevinden van leerlingen niet alleen beschouwd moet worden als een toestand (state), maar ook als een trek (trait). Bovendien stellen we, naar analogie met eerdere bevindingen, vast dat wanneer het interpersoonlijk gedrag van de leerkracht theorie als tolerant/onzeker gepercipieerd wordt door de leerlingen, dit een positief effect heeft op het welbevinden van leerlingen. Complementair hieraan doen leerlingpercepties van autoritair interpersoonlijk gedrag van de leerkracht theorie, het welbevinden van leerlingen afnemen. In overeenstemming met den Brok (2001), Brekelmans (1989) en Wubbels e.a. (2006) geven onze resultaten aan dat tolerant/authoritatief gedrag van de praktijkleerkracht, zoals gepercipieerd door de leerlingen, het welbevinden van de leerling bevordert.

Een analyse op leerkrachtniveau is uitgevoerd in hoofdstuk 5 waar de focus ligt op het welbevinden van de leerkracht. De deelonderzoeksvragen zijn:

(6) Welke leerkrachtkenmerken zijn gerelateerd aan het interpersoonlijk leraarsgedrag, zoals gepercipieerd door de leerkracht?
(7) Is er een verband tussen leerkrachtkenmerken, interpersoonlijk leraarsgedrag en het welbevinden van de leerkracht?

De vier leerkrachtkenmerken die in rekening worden gebracht zijn het geslacht van de leerkracht, jobzekerheid (benoeming), ouderschap en aantal jaren ervaring in het onderwijs. Van Tartwijk, Brekelmans, Wubbels, Fisher, en Fraser (1998) stellen vast dat het interpersoonlijk gedrag van de

leerkracht verschilt tussen beginnende en meer ervaren leerkrachten. De interpersoonlijke boodschappen van een meer ervaren leerkracht zijn sterker gerelateerd aan de dominantiepool van de machtsdimensie (Van Tartwijk, Brekelmans, Wubbels, Fisher, & Fraser, 1998). Dit verschil in interpersoonlijk gedrag, gebaseerd op ervaring, blijkt niet uit ons onderzoek. We vinden daarentegen wel een positief verband tussen de ervaring en het welbevinden van de leerkracht. Dit resultaat stemt echter niet overeen met eerdere bevindingen van Aelterman e.a. (2002), Aelterman, Engels, Van Petegem, en Verhaeghe (2007) en Vandenberghe en Huberman (1999) die vaststellen dat oudere leerkrachten een hogere werklast ervaren, minder steun krijgen van collega's en een negatievere houding aannemen t.a.v. innovaties, wat het welbevinden van de leerkracht enigszins doet afnemen.
De resultaten van ons onderzoek geven aan dat mannelijke leerkrachten meer ontevreden en onzeker gedrag melden dan hun vrouwelijke collega's. Bovendien percipiëren leerlingen meer coöperatief gedrag bij mannelijke leerkrachten die zelf kinderen hebben. Uitgaande van de veronderstelling dat leerkrachten zonder jobzekerheid ernaar streven een vaste benoeming te verwerven, verwachten we dat deze leerkrachten een grotere inspanning doen om positieve interpersoonlijke relaties aan te gaan. Deze veronderstelling wordt bevestigd, we vinden dat mannelijke leerkrachten zonder jobzekerheid zichzelf meer als een leider, behulpzaam en vriendelijk percipiëren. Eveneens noteert een leerkracht zonder jobzekerheid en zonder kinderen, meer leidend en helpend, vriendelijk interpersoonlijk gedrag in de klas. Uit het onderzoek van Shann (1998) blijkt dat voor leerkrachten jobzekerheid, na de omgang met de leerlingen, het belangrijkste aspect is van het lerarenberoep. Bovendien stellen Vandenberghe en Huberman (1999) dat de bevindingen met betrekking tot familiale status heel inconsistent zijn. Naar analogie met andere onderzoeken, geven onze resultaten aan dat leerkrachten die hun eigen interpersoonlijk gedrag in de klas als tolerant/authoritatief percipiëren, hoger scoren op de welbevindenschaal (Huberman & Vandenberghe, 1999; Conley & Muncey, 1999). Anderzijds, leerkrachten die zichzelf als ontevreden en onzeker percipiëren, scoren het laagst op de welbevindenschaal. Omdat het model van interpersoonlijk leraarsgedrag een circumplex model is, kunnen deze resultaten als complementair worden beschouwd (Kyriakides, 2005; den Brok, 2001).

Tenslotte wordt in hoofdstuk 6 de hoofdonderzoeksvraag beantwoord:

> Hoe zijn psychosociale aspecten van het klasgebeuren gerelateerd aan het welbevinden van leerlingen?

Het belang van leerlingkenmerken, prestaties en leerlingpercepties van interpersoonlijk leraarsgedrag voor het welbevinden van leerlingen is reeds aangegeven. Naast de variabelen op leerlingniveau worden ook variabelen op school en klas-/leerkrachtniveau zowel in een model voor leerkrachten theorie als in een model voor leerkrachten praktijk opgenomen om het verband met het welbevinden

van de leerling te onderzoeken. In overeenstemming met het onderzoek van Konu, Litonen, en Autio (2002) wordt een multilevel analyse uitgevoerd. Zoals reeds eerder aangegeven, vinden we ook nu dat leerlingen die de school als verplichtend ervaren, lager scoren op de welbevindenschaal. Dit bevestigt het belang van de motivatie van leerlingen voor hun welbevinden (Anderman e.a., 1994; Anderson, Hamilton, & Hattie, 2004; Ainley, 2006).

Het model theoretische vakken geeft aan dat het welbevinden van leerlingen toeneemt als leerlingen het interpersoonlijk leraarsgedrag waarnemen als tolerant/authoritatief. Dit correspondeert met de bevindingen van Brekelmans (1989) en den Brok (2001). Bovendien stellen we, naar analogie met Wubbels e.a. (2006) vast dat het welbevinden van leerlingen afneemt als het interpersoonlijk leraarsgedrag door de leerlingen gepercipieerd wordt als autoritair. Er is een negatief verband gevonden tussen het welbevinden van de leerkracht theoretische vakken en het welbevinden van de leerlingen. Dit geeft aan dat een hoge mate van welbevinden bij de leerlingen niet inhoudt dat het welbevinden van de leerkracht theorie hoog is. De meest voor de hand liggende verklaring hiervoor is dat het van de leerkracht grote inspanningen vraagt het welbevinden van leerlingen te bevorderen. Dit kan een belangrijke bron van stress zijn en het welbevinden van de leerkracht negatief beïnvloeden. Dit negatief verband stemt niet overeen met de resultaten van Day, Sammons, Stobart, Kington, en Gu (2007) die verwijzen naar het belang van het welbevinden van de leerkracht voor het welbevinden van de leerling.

In het model praktijkgerichte vakken geldt dat het welbevinden van leerlingen toeneemt als ze gemotiveerd zijn om te leren. Leerlingen die de school als een verplichting ervaren, scoren laag op de welbevindenschaal. Het belang van leerlingmotivatie en –interesse voor het welbevinden is een algemene vaststelling van dit onderzoek en stemt overeen met de resultaten van andere studies (Anderson e.a., 2004; Anderman e.a., 1994; Ainley, 2006). Het welbevinden van leerlingen neemt toe wanneer praktijkgerichte leerkrachten zelf een lage score voor ontevreden en onzeker gedrag rapporteren. Wanneer de leerlingen het interpersoonlijk gedrag van hun praktijkleerkracht als onzeker en ontevreden percipiëren, daalt het welbevinden van de leerlingen, zelfs wanneer de leerkracht zichzelf een hoge score voor welbevinden toekent. Deze vaststelling geeft aan dat voor praktijkgerichte vakken, het verband tussen het welbevinden van de leerkracht en het welbevinden van de leerling gemodereerd wordt door leerlingpercepties van interpersoonlijk leraarsgedrag. Bovendien blijkt dat wanneer interpersoonlijk leraarsgedrag door de leerlingen en de leerkracht gepercipieerd wordt als uitermate autoritair, of wanneer beiden aangeven dat autoritair gedrag volledig ontbreekt, het welbevinden van leerlingen afneemt. Het negatief verband tussen autoritair leraarsgedrag en het welbevinden van leerlingen komt overeen met de bevindingen van Wubbels e.a. (2006). De resultaten van onze studie doen ons besluiten dat enkel matig streng en corrigerend leraarsgedrag het

welbevinden van leerlingen bevordert. De resultaten geven ook aan dat het verband tussen de leerkrachtpercepties van het eigen interpersoonlijk gedrag van de praktijkleerkracht en het welbevinden van de leerlingen, gemodereerd wordt door leerlingpercepties van het interpersoonlijk leraarsgedrag. Het belang van leerlingpercepties dat gevonden is voor de affectieve output van de leerlingen, stemt overeen met eerder onderzoek (Samdal e.a., 1999; Van Tartwijk e.a., 1998; den Brok e.a., 2004).

Samenvattend, de voornaamste bevindingen van dit onderzoek zijn:

1. Het welbevinden van leerlingen neemt toe als leerlingen geïnteresseerd en gemotiveerd zijn.
2. Het welbevinden van leerlingen neemt toe als leerlingen het interpersoonlijk gedrag van hun leerkracht als coöperatief percipiëren.
3. Premetingen van het welbevinden en de prestaties van leerlingen zijn positief gerelateerd aan het huidig welbevinden, maar een positief verband tussen huidige prestaties en welbevinden is niet vastgesteld.
4. Het welbevinden van de leerkracht theoretische vakken is negatief gerelateerd aan het welbevinden van leerlingen.
5. Het verband tussen het welbevinden van de praktijkleerkracht en zijn/haar perceptie van interpersoonlijk leraarsgedrag in de klas enerzijds en het welbevinden van leerlingen anderzijds is gemodereerd door leerlingpercepties van interpersoonlijk leraarsgedrag.

IV. CONCLUSIE

De resultaten van dit onderzoek moeten beschouwd worden als een aanzet tot verder onderzoek. Deze studie geeft aan dat leerlingpercepties van interpersoonlijk leraarsgedrag een groot deel van de variantie in het welbevinden van leerlingen op klas-/leerkrachtniveau verklaren. Leerlingpercepties zijn cruciale moderators voor het welbevinden van leerlingen. In toekomstig onderzoek zou het interessant zijn meer leerling-, leerkracht-/klas- en schoolkarakteristieken in de analyses op te nemen om zo, op al deze niveaus, meer variantie in het welbevinden van leerlingen te kunnen verklaren. Bovendien blijken niet alleen het actuele welbevinden maar ook aspecten van het duurzame welbevinden van belang. Het opnemen van andere affectieve uitkomsten, naast het welbevinden van leerlingen, alsook cognitieve output zou een betere evaluatie van onderwijseffectiviteit mogelijk maken. Daarenboven, wanneer deze multivariate analyses uitgevoerd zouden worden binnen een longitudinaal design, zouden complexe verbanden aangeven hoe diverse leerlinguitkomsten kunnen worden bevorderd.

De belangrijkste praktische implicatie van deze studie is dat leerkrachten er moeten naar streven om een positief klasklimaat te creëren, om zo het welbevinden van leerlingen te bevorderen. In een positief klasklimaat 'zorgt' de leerkracht voor de leerlingen en wordt het interpersoonlijk leraarsgedrag getypeerd als coöperatief. In een aangename leeromgeving wordt tegemoetgekomen aan de behoeften en verwachtingen van zowel leerlingen als leerkrachten. Een positief klasklimaat kan worden gestimuleerd wanneer leerkrachten inzicht hebben in hun eigen interpersoonlijk gedrag in de klas en de effecten van dit gedrag op de leerlingen. Hiervoor is binnen de lerarenopleiding een taak weggelegd. In het lerarenberoep zelf, blijven zelfreflectie, feedback van collega's en de directie belangrijk om de professionele ontwikkeling van de leerkracht op interpersoonlijk vlak te stimuleren. Op beleidsniveau zou het gebruik van een indicatorensysteem, dat rekening houdt met de resultaten van dit onderzoek, toekomstige evaluaties van onderwijskwaliteit kunnen bevorderen.

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