



**DESIGNING EVIDENCE-BASED STRATEGIES AND ACTIONS TO FACE BULLYING BY  
CONSIDERING SOCIO-ETHNIC DIVERSITIES IN SCHOOL POPULATIONS AND  
EVALUATING THEIR EFFECTS**

**FINAL REPORT**

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## EXECUTIVE SUMMARY

Bullying is not an isolated aggressive action between a “bully” and a “victim”. It is rather a dynamic, social relationship problem which is, often, due to hectic human relations involving more participants. As such, it is influenced by peers, families, schools, and communities. Consequently, the phenomenon of bullying should concern the entire school population and all the factors that are responsible for the quality of education. In this context, the overall objective of this project was to develop an evidence-based and theory-driven approach to deal with bullying in schools by integrating research on bullying with a theoretical model which provides a dynamic perspective on the functioning and effects of education. This dynamic approach emphasizes the use of a whole-school approach to face bullying which is concerned with factors that contribute in the improvement of the quality of the school and the classroom environment such as student behaviour outside the classroom, the partnership policy, and collaboration between teachers. Research has shown that these factors have both direct and indirect effects on student achievement in different outcomes of schooling. School policy on opportunity to learn is also taken into account and it is stressed that the policy should refer to aims associated with bullying (e.g., understanding of social values, emotional recognition, developing positive attitudes towards the school). School policy should also include rules for handling and sanctioning bullying when it occurs. In this approach, emphasis is also given to the development of school self-evaluation mechanisms which help schools identify priorities for improvement and develop their strategies and action plans to face and reduce bullying.

During the first phase of the project, a pre-measure with respect to the bullying and the factors included in the proposed framework was conducted in each participating country (i.e., Belgium, Cyprus, England, Greece, and the Netherlands). Analysis of the data collected during this phase revealed the existing anti-bullying techniques in different schools and the functioning of schools in relation to the factors related to the school and classroom learning environment included in the framework. In the second phase, we established a network of schools within each country which were willing to establish strategies and actions to face and reduce bullying by using the proposed dynamic approach. Training and provision of guidelines by considering the different national contexts was provided to the participating schools within each country. A handbook was also produced presenting the theoretical framework and providing suggestions to schools on how to build school self-evaluation mechanisms aiming to prevent bullying and improve the educational practices at school and classroom level. The research team provided feedback to each school on its priorities for improvement that could be considered in establishing their strategies and actions to face bullying. Support was also provided to the schools in order to establish their school self-evaluation mechanisms and develop and implement their strategies and actions to face bullying. This phase lasted for approximately 13 months and researchers provided support to the schools by acting as critical friends. This was achieved by providing school based in-service training to the staff of each school to help them face difficulties in implementing their action plans. Moreover, schools established continuous formative evaluation mechanisms which helped them modify their strategies and plans according to the circumstances and specific needs of different groups of the school population. In addition, in each country, the research team provided feedback to a second group of schools about the results emerged from the pre-measure and these schools developed their own strategies and actions to face bullying without using the proposed dynamic approach (control group). In order to evaluate the impact of the dynamic approach, the Revised Olweus Bully/Victim Questionnaire (OBVQ) and a questionnaire measuring the quality of school life as perceived by students were administered to each group of schools both at the beginning and at the end of the intervention. Since in most countries schools were randomly allocated at the experimental and control groups, at the end of the intervention, we administered a social cognition test to students of each group of schools.

The main results of this project are as follows. First, the first phase of the study revealed that there was a significant variation among schools (within and across countries) on the extent to which students are being bullied or bully others and on the functioning of school factors included in the proposed framework. Second, data emerged from this phase provided support to the validity of the OBVQ and of the questionnaire measuring the functioning of school factors. During the second phase, we were in

a position to demonstrate the validity of: a) the social cognition test and b) the student questionnaire measuring the quality of school life. These instruments can be used for research and for improvement efforts by schools in the participating countries. Third, qualitative data collected during the second phase of the project revealed that schools did not face significant difficulties in developing their own school self evaluation mechanisms and generally supported the proposed dynamic approach to face and reduce bullying. Fourth, using multilevel modelling techniques, it was found out that there were significant differences among schools in their effectiveness status in terms of reducing bullying. The importance of school effect was demonstrated by using either data emerged from the scale A of OBVQ (which refers to the extent to which students are being victimised) or the scale B (which refers to the extent to which students bully others). Fifth, the multilevel analysis revealed that schools which made use of the dynamic approach were able to reduce bullying at a significantly higher level than the schools of the control group. The use of the dynamic approach to face bullying had also a significant effect in the development of positive attitudes towards schooling but this effect was smaller than the effect that the dynamic approach had on reduction of bullying. Sixth, the use of the dynamic approach to reduce bullying had almost no effect on students' social cognition. This finding could be attributed to the fact that most schools developed strategies and actions which were concerned with the improvement of the school learning environment rather than with the provision of further learning opportunities. Finally, in some countries it was possible to collect data on the functioning of school factors both at the beginning and at the end of the intervention. In these countries, it is demonstrated that schools which made use of the dynamic approach managed to improve the functioning of school factors at a higher level than the schools of the control group. Moreover, those schools which managed to improve their school factors were found to be more effective in terms of reducing bullying.

Implications of the positive findings of this project for the development of effective policies and practices in reducing bullying can be drawn. First, the major evidence in this project is that there is scope to be given to school self evaluation in order to develop effective strategies and actions to face and reduce bullying. School self-evaluation promotes the importance of collecting and analyzing data at different stages of a school improvement project and thereby a continuous evaluation model is used. Moreover, schools are expected through reflections to adapt their strategies and actions in order to improve them and thereby the formative purpose of evaluation is achieved. By offering a theoretical framework to schools, it was also possible to help them identify their priorities for improvement (through SSE) and understand why and how by dealing with a school factor reduction of bullying can be achieved. In this way, the use of an evidence-based and theory-driven approach can help schools develop effective strategies and action plans which address important school factors and can contribute in the improvement of the learning environment of schools and classrooms and through that to the reduction of bullying. Support provided by researchers to schools in order to implement their strategies and actions is also critical in reducing bullying since researchers should not only provide schools with the knowledge-base for dealing with the problems that they may face during the implementation but should also help them with their technical expertise to continuously evaluate their strategies and actions to face bullying. In this context, suggestions for further research are drawn in order to investigate the long term effect of the dynamic approach to face bullying and identify contributory and inhibitory factors to the sustainability of this approach.

CHAPTER 1:  
THE THEORETICAL BACKGROUND OF THE PROJECT: USING THE DYNAMIC MODEL TO  
DESIGN STRATEGIES AND ACTIONS TO FACE BULLYING

Bullying is not a contemporary phenomenon in the educational setting. A quick glance at the old records of schools would reveal the longitudinal character of the problem. However, in many countries it is only in the early 70s and since then that it has been receiving substantial research attention (e.g., Alsaker & Brunner, 1999; Besag, 1989; Charach et al., 1995; Olweus, 1978; Smith et al., 1999). A possible reason for this delay could be the multidimensional character of the problem that raised a variety of constraints in its definition and measurement.

Definition: What is bullying?

In an incident of bullying behaviour there are many persons involved, either as bystanders or as participants. Each one of them experiences and regards bullying in a different way and, consequently, defines it according to his/her perceptions. In addition, bullying behaviour can take different forms in different environments according to the factors that determine the bully's relationships with others. However, a definition of bullying behaviour based on the common characteristics that are acknowledged by both the participants and the bystanders is provided below. Specifically, for the purposes of this project, the following definition of bullying was taken into account since it helps school stakeholders to identify the special characteristics of bullying behaviour and distinguish bullying from other types of student misbehaviour.

A student is being bullied or victimized when he or she is exposed, repeatedly and over time to negative actions on the part of one or more other students. It is a negative action when someone intentionally inflicts, or attempts to inflict, injury or discomfort upon another. There should also be an imbalance in strength: the student who is exposed to negative actions has difficulty in

defending him/herself and is somewhat helpless against the student or students who harass” (Olweus, 1994).

Based on the above definition, one can see that bullying is a form of aggressive behaviour that is done intentionally by the bully over a long period of time (sometimes continuing for weeks, months or even years). Moreover, victims of bullying have difficulties to defend themselves. Thus, bullying behaviour is seen as an abuse of power and a desire to intimidate (Sharp & Smith, 1994). Bullying is not simply an isolated, aggressive action between a “bully” and a “victim”. It is rather a dynamic, social relationship problem (Swearer et al., 2009) which is, often, due to hectic human relations involving more participants. As such, it is influenced by peers, families, schools, and communities. Consequently, the phenomenon of bullying should concern the entire school population and all the factors that are responsible for the quality of education (Espelage & Swearer, 2004). This argument is supported by the fact that bullying was found to affect the quality of the school and its learning environment (Osterman et al., 1998). Bullying is therefore an issue that concerns all the school stakeholders. Moreover, research has shown that victims of aggressive behaviour feel useless, experience depression, and this fact has a negative effect on their learning and on their academic achievement (Kochenderfer & Ladd, 1996; Slee, 1994)

#### Using whole-school approaches to face bullying

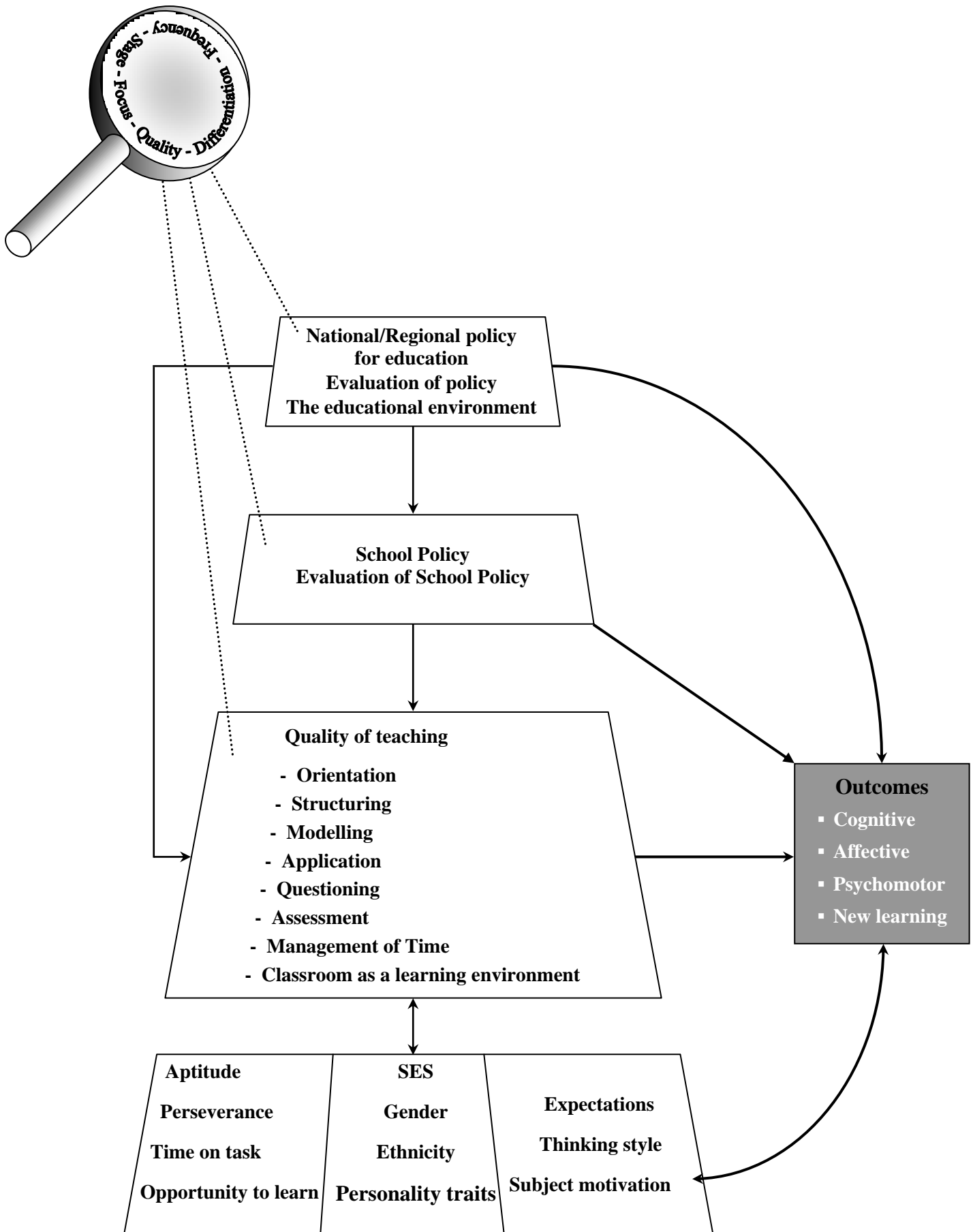
Bullying is often viewed as irrelevant to teaching and the learning processes. However, teaching and learning take place within a social context and bullying is part of it. Moreover, bullying is very likely to affect negatively the learning opportunities of students and to increase teachers’ stress (Byrne, 1992; Charlot & Emin, 1997; Nakou, 2000). Since bullying has negative implications on the functioning and the role of various school stakeholders, whole-school approaches should be used to face it. Programs preventing school bullying should have multiple components that operate simultaneously at different levels in the school community such as the student, the teacher and the school level. During the last five years, various research syntheses of the effectiveness of this approach have been conducted (e.g., Smith et al., 2004; Wilson et al., 2003). These syntheses of studies did not simply provide empirical support to the

whole-school approaches but also recommended that theoretically grounded interventions which are able to disentangle the effectiveness of the different program components should be developed in order to increase the effects of comprehensive school based programs (Baldry & Farrington, 2007; Rigby et al, 2005).

#### Integrating research on bullying with EER to develop strategies and actions to reduce bullying

This project is based on the assumption that theoretical foundation for developing whole-school approaches to face bullying can emerge through integrating research on bullying with Educational Effectiveness Research (EER) which refers to factors that operate at different levels and need to be considered in order to improve practice (Teddlie & Reynolds, 2000). As previous research has shown programs aiming to reduce bullying which attempt to establish a positive and safe school learning environment are successful (Rigby et al., 2005). This finding provides support to the assumption that a framework based on research on bullying and on the dynamic model of educational effectiveness (Creemers & Kyriakides, 2008) should be offered to schools in order to help them identify what can be achieved and how, in order to deal with and prevent bullying. Figure 1.1 illustrates the dynamic model which refers to factors operating at different levels which are associated with not only cognitive but also affective outcomes of schooling.

The proposed framework emphasizes the use of a whole-school approach to face bullying which is concerned with factors that contribute in the improvement of the quality of the school learning environment such as student behaviour outside the classroom, the partnership policy, and collaboration between teachers (Creemers & Kyriakides, 2008). Research has shown that these factors have both direct and indirect effects on student achievement in different outcomes of schooling (Creemers & Kyriakides, 2010a; Kyriakides et al., 2010). School policy on opportunity to learn is also taken into account and it is stressed that the policy should refer to aims associated with bullying (e.g., understanding of social values, emotional recognition, developing positive attitudes towards the school).



**Figure 1.1: The dynamic model of educational effectiveness**



School policy should also include rules for handling and sanctioning bullying when it occurs. In this approach, emphasis is, finally, given to the development of school self-evaluation mechanisms which help schools identify priorities for improvement and develop their strategies and action plans to face and reduce bullying.

Some empirical support to this approach has been provided through a longitudinal study investigating school effectiveness in facing and reducing bullying, which has been conducted in one of the participating countries (Kyriakides, Creemers & Charalambous, 2008). The study revealed that school factors included in the dynamic model can be used to describe and explain why some schools are more effective in dealing with bullying. Thus, one of the main theoretical assumptions of the project is that support should be provided to schools in order to help them identify factors of the dynamic model which contribute to explaining and/or facing bullying. Furthermore, schools should be encouraged to treat bullying as a challenge for introducing and achieving relevant affective and cognitive aims (i.e., social cognition, understanding of social values, emotional recognition, and positive attitudes towards peers) beyond those included in the formal curriculum. Finally, School Self-Evaluation (SSE) is treated as a starting point for developing strategies and actions aiming to face bullying.

In this project, emphasis on evidence stemming from theory and research is given. Consequently, the knowledge-base of EER is expected to be taken into account in developing SSE mechanisms (Creemers & Kyriakides, 2011). More specifically, the dynamic model of educational effectiveness is used as a framework for establishing SSE mechanisms. This framework is expected to help schools collect data, through school self-evaluation mechanisms, and take decisions about priorities for improvement and for developing appropriate policies and action plans. In addition, the dynamic model can help schools establish school improvement strategies not only by establishing clarity and consensus about the aims of school improvement but also by collecting evaluation data and identifying priorities for improvement. In this way, a developmental evaluation strategy is expected to be established and schools are encouraged to collect data to monitor the implementation of their strategies and action plans for reducing bullying. Finally, it is assumed that teachers may become aware of both the empirical support

for the factors involved in their project and the way these factors operate within a conceptual framework. This assumption is based on the fact that the dynamic model does not only refer to factors that are important for explaining variation in educational effectiveness but it also attempts to explain why these factors are important by integrating different theoretical orientations to effectiveness (Sammons, 2009). In addition, school stakeholders are offered the opportunity to use in a flexible way this knowledge-base, adapt it to their specific needs, and develop their own strategies for school improvement.

### Research aims

Thus, the main aim of this project was to help schools in the five participating countries use an *evidence-based and theory-driven approach* to face bullying among students of diverse socio-ethnic backgrounds. Furthermore, the impact of the implementation of these strategies and actions is evaluated. In this way, we will be able to find out whether schools in different countries can make use of the proposed framework and establish effective strategies and action plans to face and reduce bullying.

In this context, the next chapter provides a description of the methodology of this project whereas its main findings measuring the impact of the proposed approach upon the reduction of bullying are presented in chapter 3. Finally, in the last chapter, we draw implications of findings for theory, policy and practice. Suggestions for further research are also provided.

## CHAPTER 2:

### DESCRIPTION OF THE PROJECT

In this chapter, we present the different phases of this international project and refer to the processes which were used in order to analyse data emerged from each research instrument administered to our student and teacher sample. In the last part of this chapter, we provide information about the type of intervention that took place in each country which may help readers see how the proposed approach was adopted in each country.

#### **A) The international project**

After the preparation and the organisation of the project, which lasted for a month, the first phase of the project took place. During this phase, a sample of approximately 40 primary schools from each country (n=200) was selected by using purposive sampling procedures which enabled us to increase variation in respect to the problems the schools of our sample had to face and the differences in their student body in terms of their socio-ethnic background. By administering the Revised Olweus Bully/Victim Questionnaire (OBVQ, Olweus, 1996) to the students of our school sample, we managed to obtain a pre-measure with respect to the bullying incidents that occurred in each school. Our student sample was also asked to complete the questionnaire measuring their perceptions towards the quality of their school life (Kyriakides, 2005). In addition, teachers of our school sample (n=956) completed the teacher questionnaire measuring the functioning of school level factors included in the proposed framework. Analysis of the data emerged from the teacher questionnaire revealed the existing anti-bullying techniques used by our school sample and the functioning of each school in relation to the factors included in our theoretical framework. Throughout the first phase of our study, at least 10 schools from each country were encouraged to act towards the improvement of their anti-bullying techniques using the proposed theoretical framework as basis for conducting school-based self evaluation and developing their own strategies and actions to face and reduce bullying.

During the second phase of the study, within each country, a network of at least 10 schools which were willing to participate in the programme was established. Training and provision of guidelines by considering the different national contexts was provided to various stakeholders of the participating schools within each country (i.e., the school coordinator and members of the management team of the school). A handbook was also produced presenting the theoretical framework and providing suggestions to school stakeholders on how to build school self-evaluation mechanisms aiming to prevent bullying and improve the educational practices at school and classroom level. Copies of the handbook were sent to all schools in the second phase of the study and an electronic version of the handbook was available at the web page of our project (<http://www.ucy.ac.cy/goto/jls/en-US/WelcomeMessage.aspx>).

Finally, members of the research team provided feedback to each school about its priorities of improvement, as these emerged through the analysis of the pre-measure data. Schools were invited to develop strategies and action plans for dealing with bullying in a way that at least one of their three main priorities for improvement could be addressed. The research team provided support to the schools to develop their strategies and action plans by sharing with them their knowledge-base in dealing with factors included in the dynamic approach. In addition, in each country, the research team provided feedback to a second group of schools (control group) about the results emerged from the pre-measure but these schools developed their own strategies and actions to face bullying without using the proposed dynamic approach.

Participating schools implemented their strategies and actions in preventing and facing bullying and consequently in improving their learning environment. Researchers in each country provided support to the schools by acting as critical friends. This was achieved by providing school based in-service training to the staff of each school to help them face difficulties in implementing their action plans. In addition, the research team helped the schools to establish continuous formative evaluation mechanisms which helped schools modify their strategies and action plans according to the circumstances and specific needs of different groups of the school population. In order to facilitate the implementation of a theory-driven and evidence-based approach, seminars and workshops between the schools involved took place

throughout the implementation phase. On the other hand, the research team was available to provide any support to the schools which did not make any use of the dynamic approach in their attempt to develop their action plans and strategies to face bullying (control group).

At the end of the intervention period (i.e., June 2010), we collected data on: a) bullying incidents, b) the quality of school life (as perceived by students), and c) social cognition. For this reason, the OBVQ, the questionnaire measuring the quality of school life, and a social cognition test were administered to all grade 6 students of each of the two groups of schools (i.e., experimental and control group). During the implementation face, qualitative data were collected by conducting: a) interviews with the school coordinators and members of the management team, b) content analysis of the reflective diaries that each coordinator had to keep in order to inform us about the implementation of the dynamic approach in reducing bullying, and c) observations of the efforts that school stakeholders put in order to implement their strategies and action plans to face and reduce bullying.

Finally, separate multilevel analyses were conducted in order to identify the impact of this approach upon each of our dependent variables (i.e., reduction of bullying, improvement of student attitudes towards the quality of their school life, student achievement in social cognition). Background variables were also taken into account in order to find out whether this approach was more effective with specific socio-ethnic groups of students. Thus, the next section of this chapter refers to the processes used to analyse data emerged from each instrument as well as the process used to measure the effectiveness of the proposed approach to face and reduce bullying in each of our dependent variable.

## **B) Main variables of the study and analysis of data**

Since this study does not only attempt to develop an evidence-based and theory-driven approach to face and reduce bullying but also to evaluate its impact on reducing bullying and achieving relevant learning goals, we present below the instruments used to measure the dependent variables of the study measuring the reduction of bullying, the development of positive attitudes towards schooling, and social cognition. We also refer to the processes which were used in order to test the validity of each instrument and

generate scores for each student. Finally, we refer to the teacher questionnaire which was used in order to measure the school factors included in our theoretical framework and explain the process which was used in order to generate school factor scores and identify the improvement priorities of each school.

B.1) Using the OBVQ to measure the extent to which each student is being victimised (scale A) or bully others (scale B).

The OBVQ is a revised version of an earlier instrument developed by Olweus (1978). It was based on the definition of bullying, proposed by Olweus (1993), and consists of 40 questions for the measurement of aspects of bully/victim problems: physical, verbal, indirect, racial, sexual forms of bullying harassment; initiation of various forms of bullying other students; where the bullying occurs; pro-bullying and pro-victim attitudes; and the extent to which teachers, peers and parents are informed about and react to the bullying (Olweus, 1997). The questionnaire content derives from the main findings of studies conducted on bullying in several countries (e.g., Garcia & Perez, 1989; Genta, Menesini, Fonzi, Costabile & Smith, 1996; Mellor, 1990; Monbusho, 1994). More specifically, three forms of bullying are consistently identified: physical, verbal and indirect bullying (Besag, 1989; Morita, 1985; Olweus, 1993; Sharp & Smith, 1994). It has also been shown that the bullies and victims are important sources of data for investigating this phenomenon (Olweus, 1978, 1993; Salmivalli, Lagerspetz, Bjorkqvist, Ostermann & Kaukianen, 1996; Sharp & Smith, 1994; Smith & Sharp, 1994). The OBVQ is divided into two parts. Part I (questions 5-24) refers to the initiation of an act of bullying against the child who is answering the questionnaire, whereas Part II (questions 25-40) refers to the expression of bullying behaviour against others by this child. The duration and frequency of the problem are also examined as these dimensions distinguish a bullying act from an accidental incident. Moreover, pupils are prompted to refer to the place where the problem occurs more often, who is informed about the bullying incidents, and the role of their teachers, parents and peers in addressing the problem.

The wide range of variables included in the OBVQ enabled its use in an international study of bullying. Two English versions of the questionnaire, for grades 1 – 4 and grades 5 – 9 and higher

respectively (Olweus, 1993), have been translated and adapted in Spain (Ruiz, 1992), the Netherlands (Haeselager & Van Lieshout, 1992), Japan (Hirano, 1992), Canada (Ziegler & Rosenstein-Manner, 1991), the USA (Perry, Kusel & Perry, 1988), Australia (Rigby & Slee, 1991), Finland (Lagerspetz, Bjorkqvist, Berts & King, 1982), Cyprus (Kyriakides et al., 2006) as well as England (Smith, 1991; Whitney & Smith, 1993). Internal consistency and test-retest reliability of the questionnaire from large representative samples (more than 5000 students) were found to be satisfactory (e.g., Genta et al., 1996; Olweus, 1997). More specifically, at the individual level, combinations of items for being victimized or bullying others have yielded satisfactory internal consistency reliabilities with values of Cronbach Alpha higher than .80.

However, only a few studies have investigated validity and these have been mainly concerned with the concurrent validity of the earlier versions of the OBVQ. In the early Swedish studies (e.g., Olweus, 1978) composites of 3 to 5 self-report items on being bullied or bullying and attacking others, respectively, correlated in the .40 - .60 range with reliable peer ratings on related dimensions (Olweus, 1994). Similarly, Perry, Kusel and Perry (1988) reported a significant correlation coefficient of .42 between a self report scale of three victimization items and a reliable measure of peer nominations of victimization in elementary school children (Olweus, 1994). In addition, Bendixen and Olweus (1999) provided some evidence for the construct validity of the two main dimensions of the questionnaire (being victimised and bullying others). Specifically, they reported fairly strong linear relations between degree of victimization and variables such as depression, poor self-esteem and peer rejection, on the one hand, and even stronger linear relations between degree of bullying others and various dimensions of antisocial behaviour and several aspects of aggressive behaviour, on the other.

While there is no denying that the OBVQ has proven useful to teachers, researchers as well as educational authorities, this instrument only provides data at the nominal or ordinal level but not at the interval level. For this reason, a powerful measurement model such as Rasch was applied to our data to construct interval level measures of the two main constructs (being victimised and bullying others) measured by the questionnaire. By using the Rasch model to analyse our data, it was possible to

investigate the conceptual structure of the OBVQ (its meaning and validity) and test whether it is targeted correctly (that is, if the pupils' measures and the item difficulties can be represented on the same scale). In this way, the construct validity of the OBVQ in five different countries was systematically tested.

### Measurement and Measurement model

Taken individually eight items of the OBVQ can be used to interpret the responses with respect to the extent to which pupils are victims of bullying (items 6-13) whereas a second set of eight items refers to the extent to which pupils initiate an act of bullying against other children (items 26-33). It is, however, important to examine whether performance on each of these two sets of items could be reducible to a scale which enables the specification of a hierarchy of item difficulty. The Rasch model is appropriate for the specification of this scale because it enables researchers to test the extent to which the data meet the requirement that both students' performances on each set of items of OBVQ and the difficulties of the relevant items form a stable sequence (within probabilistic constraints) along a single continuum (Bond & Fox, 2001). Because the Rasch model converts ordinal data into interval data, it also makes it possible to make statements about the relative difficulty of OBVQ items and investigate its construct validity.

### Data Analysis

For each measurement occasion, data emerged from OBVQ were analysed by using the computer program Quest (Adams & Khoo, 1996) to create two relevant scales, based on the log odds of students' opinions about the extent to which they are either being bullied (scale A) or they bully other children (scale B). The items are ordered along each scale at interval measurement level from those which refer to acts of bullying which often happen in schools (negative logit values) to those which rarely occur (positive logit values). The latter are most likely to be answered as happening often in the school only by pupils who are most likely to being victimised (scale A) or bully others (scale B). For each scale, analysis of data on student responses to the items of each scale of OBVQ revealed that each scale had relatively satisfactory psychometric properties (see table 2.1).



**Table 2.1: Statistics relating to each of the two scales of OBVQ emerged from analysing separately the data of the first and the second phase of the study**

Statistic	PHASE I (BEFORE)		PHASE II (AFTER)	
	Scale A (n=6052)	Scale B (n=6052)	Scale A (n=3326)	Scale B (n=3326)
Mean (items)	0.00	0.00	0.00	0.00
(persons)	-1.19	-2.23	-1.73	-2.71
Standard deviation (items)	2.01	1.98	2.03	1.94
(persons)	1.62	1.51	1.56	1.44
Separability (items)	0.99	0.98	0.99	0.99
(persons)	0.82	0.76	0.83	0.75
Mean Infit mean square (items)	0.99	1.00	0.99	1.02
(persons)	0.99	1.00	1.00	1.01
Mean Outfit mean square (items)	1.05	1.07	1.03	1.03
(persons)	1.07	1.02	1.02	1.04
Infit t (items)	-0.07	-0.09	-0.01	-0.03
(persons)	0.05	-0.07	-0.03	0.02
Outfit t (items)	0.04	0.02	0.03	-0.03
(persons)	0.06	0.05	0.04	0.02

Specifically, for each scale, the indices of cases (i.e., students) and item separation were higher than 0.75, indicating that the separability of each scale was relatively satisfactory (Wright, 1985). Moreover, the infit mean squares and the outfit mean squares of each scale were near one and the values of the infit t scores and the outfit t scores were approximately zero (see table 2.1). Furthermore, each analysis revealed that all items had item infit with the range 0.84 to 1.19. It can, therefore, be claimed that each analysis revealed that there was a good fit to the model (Keeves & Alagumalai, 1999). It is finally important to note that the items are well targeted against the students' measures since students' scores range from – 2.16 to 3.09 logits whereas the item difficulties range from –2.08 to 3.04 logits. Thus, for each student participating in the intervention, it was possible to generate two different scores for each of the two scales of OBVQ, by calculating the relevant Rasch person estimates emerged by the two measurement periods

(i.e., before and after the intervention). These Rasch person estimates were taken into account in measuring the impact of intervention upon reduction of bullying.

### B.2) Quality of school life (as perceived by students)

Affective objectives deal mainly with learners' interests, attitudes, and values (Knuver & Brandsma, 1993; Krathwohl, Bloom & Masia, 1964) and are usually seen as a measure of students' overall happiness, well-being, or satisfaction with respect to their school life (Creemers & Kyriakides, 2006; Williams & Batten, 1981). Although there is lack of consensus regarding the goals of education, students' attitudes towards peers, teachers, school, and learning are generally seen as appropriate measures of affective outcomes of schooling (Cheng, 1993; Teddlie & Reynolds, 2000). It is important to note that attitudes incorporate an affective component related to the extent to which someone likes the object. Thus, affective outcomes of schooling were measured through asking students to answer a questionnaire which included 13 items with Likert statements concerning the extent to which pupils like their school life, teacher, peers, and learning. Using structural equation modelling techniques, the construct validity of the Greek version of the questionnaire was demonstrated (see Kyriakides, 2005).

The questionnaire measuring quality of school life was administered both before and after the intervention to our student sample. The reliability of the data from the administration of the student questionnaire was measured by calculating the relevant values of Cronbach Alpha. Analysis of data revealed that three items of the questionnaire (i.e., 4, 9, and 12) had to be removed in order to reach a satisfactory level of reliability for each of the two measures. By dropping these three items the value of Cronbach Alpha for each measurement period became higher than 0.72, and can be considered as satisfactory. The predictive validity of each of the remaining 10 items was investigated. For each item, statistically significant correlations between the responses of students at the two measurement periods were identified and the values of the relevant correlation coefficients were higher than 0.62 indicating a satisfactory level of predictive validity (Cronbach, 1990).

Thus, the Extended Logistic Model of Rasch (Andrich, 1988) was used to analyse student responses in the remaining 10 items of the questionnaire in each measurement period separately and two scales, which refer to student attitudes towards the quality of their school life before and after the intervention, were created and analyzed for reliability, fit to the model, meaning and validity. Analysis of the data revealed that each scale had relatively satisfactory psychometric properties. Specifically, for each scale the indices of cases (i.e., students) and item separation were higher than 0.80 indicating that the separability of each scale was satisfactory (Wright, 1985). Moreover, the infit mean squares and the outfit mean squares of each scale were near one and the values of the infit t-scores and the outfit t-scores were approximately zero. Furthermore, each analysis revealed that all items had item infit with the range 0.81 to 1.19. Thus, each analysis revealed that there was a good fit to the model. In addition, all items of the questionnaire were found to have difficulties which could be considered invariant across the two measurement periods, within measurement error. This implies that the Rasch model can be used to measure the extent to which a change in students' perceptions towards the quality of school life can be observed during the implementation of the intervention. It is finally important to note that a statistically significant correlation between the student estimates in the two Rasch scales was identified (i.e.,  $r=0.61$ ,  $n=2726$ ,  $p<.001$ ) implying that the pre-measure of quality of school life had a very good predictive validity (Cronbach, 1990). Thus, for each student, two different scores for his/her attitudes towards the quality of school life at the beginning and at the end of the intervention were generated, by calculating the relevant Rasch person estimate in each scale.

### B.3) Social Cognition

The third outcome measure of this project is the social cognition test score of the students of our sample. During the final measurement occasion (June 2010), students from each country filled out a social cognition test. The test consisted of 90 questions about 6 short picture story's representing rather difficult social situations.

The test was originally developed as a video test in which the same stories were played by young performers. The test content was based on a conceptual framework, consisting of a combination of five developmental levels of social cognition (comparing, perspective taking, relating, coordinating and coping) and three emotional content domains (feelings, thoughts and intentions). The original test consisted of 26 multiple choice questions with three answer alternatives. The students had to choose the best and the worst answer. The Cronbach's alpha of the video test was 0.76, based on 22,000 Dutch students of grade 4 and 6 (Westerhof, Jansen & van der Werf, 1993).

As a video test administration is hardly workable in a large scale international study, the video test was transformed into a picture story test. The stories in the picture book were accompanied by 90 items about what happened or might happen in the situation. For each item of the test the students had to choose between three possible answering categories: true, partly true and not true. The answering key of the test was developed by 4 experts from the Dutch research team. Starting from the answering key of the original video test it was decided which answer(s) of the picture book test was (were) the most correct (coded as 2), partly correct (coded as 1) or incorrect (coded as 0).

The social cognition test was filled out by 2537 students: 531 from Belgium, 739 from Cyprus, 148 from Greece and 1119 from the Netherlands. In all countries the internal consistency of the test was good. More specifically, the Cronbach's alpha hardly differed across countries, being 0.82 for Cyprus and Belgium, 0.84 for Greece and 0.85 for the Netherlands. The Extended Logistic Model of Rasch (Andrich, 1988) was used to analyse student responses to the items of the social cognition test and a scale, which refers to student achievement in social cognition was created and analyzed for reliability, fit to the model, meaning and validity. Table 2.2 reveals that there was a good fit to the model when data across the four countries were used. Separate analyses for each country were also conducted and the figures of the last four columns of table 2.2 revealed that in each country a good fit to the model was obtained. It is also important to note that all the items of the test have difficulties which could be considered invariant across the four groups, within measurement error. This implies that there is no differential item functioning by

country of any of the items of the social cognition test. Thus, person estimates emerged from Rasch model were treated as indicators of student achievement in social cognition.

**Table 2.2: Statistics relating to the scale of the social cognition test emerged from analysing the responses of the whole sample and the responses of each country separately**

Statistic	Whole sample (n=2537)	Netherlands (n=1119)	Cyprus (n=739)	Greece (n=148)	Belgium (n=531)
Mean (items*)	0.00	0.00	0.00	0.00	0.00
(persons)	0.10	0.31	-0.25	-0.41	0.28
Standard deviation (items)	1.04	1.12	1.15	1.04	1.09
(persons)	1.02	0.86	0.83	0.79	0.95
Separability (items)	0.99	0.98	0.99	0.99	0.99
(persons)	0.92	0.89	0.89	1.00	0.93
Mean Infit mean square (items)	0.99	1.00	0.99	1.02	0.99
(persons)	0.99	1.00	1.00	1.02	0.99
Mean Outfit mean square (items)	1.07	1.07	1.03	1.05	1.08
(persons)	1.07	1.07	1.03	1.07	1.08
Infit t (items)	-0.11	-0.09	-0.01	-0.03	-0.12
(persons)	-0.05	-0.07	-0.03	-0.04	-0.06
Outfit t (items)	0.11	0.10	0.13	0.10	0.12
(persons)	0.06	0.05	0.04	0.03	0.09

\* L = 90 items

#### B.4) Using a teacher questionnaire to measure school factors

The explanatory variables which refer to the school level factors of the dynamic model were measured by asking the teachers of the school sample to complete a questionnaire. The questionnaire was designed in such a way that information about the five dimensions of the school-level factors of the dynamic model could be collected. A Likert scale was used to collect data on teachers' perceptions of the school level factors. Since it is expected that teachers within a school view the policy of their school and the

evaluation mechanisms of their school similarly, but differently from teachers in other schools, a Generalisability study was initially conducted. It was found that for all the questionnaire items, the object of measurement was the school. Then, reliability was computed for each of the dimensions of the school factors by calculating multilevel  $\lambda$  (Snidjers & Bosker, 1999) and Cronbach alpha for data aggregated at the school level. The value of Cronbach alpha represents consistency across items whereas multilevel  $\lambda$  represents consistency across groups of teachers. The results are presented in Table 2.3. We can observe that for most factors and their dimensions their reliability coefficients were high (around .80). However, for the frequency dimension of the evaluation of the school learning environment factor the value of Cronbach alpha was initially low (0.35) but by dropping out item C14 we managed to obtain a relatively good value (0.69). Similarly, for the frequency dimension of the school learning environment factor concerned with the use of resources the value of Cronbach alpha was 0.41 but by dropping out item B11 we managed to reach a satisfactory value of Cronbach alpha (0.72). Using the Mplus (Muthén & Muthén, 1999) the intra-class correlations of the scales were also computed. The intra-class correlations, which indicate what amount of variance of the teacher questionnaire is located at the between level, are also illustrated in Table 2.3. We can observe that the percentages of variance at the between level (school level) were between 37 and 48. These percentages are rather high compared to other instruments that measure perceptions of people or objects in clustered or interdependent situations (den Brok et al., 2002). By using SEM techniques the construct validity of the teacher questionnaire was demonstrated (see Creemers & Kyriakides, 2010b).

Having established the validity and reliability of the relevant measures, it was decided to generate the factor scores by taking into account teacher responses to the relevant questionnaire items. For each school, separate analysis of the factor scores (based on their teacher responses) was conducted by using the Kendall Coefficient of Concordance test. This test revealed a significant level of agreement among teachers on the performance of their school across the school factors. By looking at the values of the mean ranks of the school factors we were in a position to identify those factors of each school which had the lowest values and can be considered as the improvement priorities of the school.



**Table 2.3: Cronbach alpha (reliability), Multilevel Lambda (consistency), and intra-class correlations (ICC) of scales emerged from teacher questionnaire concerned with each dimension of each school factor**

School factors	Cronbach alpha					Multilevel Lambda (consistency)					Intra-class correlations (ICC)				
	Freq	Focus	Stage	Quality	Diff	Freq	Focus	Stage	Quality	Diff	Freq	Focus	Stage	Quality	Diff
<b>School Policy for teaching</b>															
Teaching Quantity	.90	.82	.93	.95	.92	.90	.80	.92	.91	.90	.41	.42	.46	.42	.45
Learning opportunities	.91	.82	.87	.90	.88	.88	.81	.88	.87	.89	.39	.37	.45	.45	.41
Quality of teaching	.89	.83	.85	.87	.83	.85	.82	.83	.82	.80	.44	.40	.44	.43	.40
<b>Policy on the School as a Learning Environment (SLE)</b>															
Student behaviour outside the class	.88	.85	.89	.88	.86	.87	.86	.88	.90	.89	.38	.36	.36	.39	.43
Collaboration between teachers	.87	.84	.88	.87	.84	.85	.83	.84	.85	.87	.37	.36	.39	.38	.41
Partnership policy	.86	.87	.84	.88	.86	.89	.82	.84	.88	.86	.39	.37	.37	.41	.36
Providing resources	.72	.83	.84	.89	.85	.77	.83	.84	.89	.85	.35	.38	.43	.40	.37
<b>Policy for dealing with bullying</b>	.83	.82	.84	.85	.83	.81	.82	.84	.85	.86	.37	.38	.36	.40	.38
<b>Evaluation of policy for teaching</b>	.94	.87	.90	.91	.88	.93	.85	.86	.90	.88	.46	.39	.39	.38	.38
<b>Evaluation of SLE</b>	.69	.82	.88	.90	.89	.68	.80	.84	.87	.89	.33	.35	.40	.40	.40

Note: The five dimensions for each school factor are as follows: frequency (Freq), focus, stage, quality and differentiation (Diff)



The results emerged from the use of Kendall test were reported to each school and stakeholders of the experimental group were encouraged to develop their strategies and action plans in order to improve the functioning of those factors for which lower mean rank values were estimated, implying that the teachers supported that their school performed less well in relation to these factor(s) than any other factor.

### **C) Description of National Projects**

In the last part of this chapter, we provide information on how the project was implemented in each country. It is important to note that in two countries (Cyprus and the Netherlands) a group randomisation study was conducted in order to measure the impact of the proposed dynamic approach to face and reduce bullying. In the other three countries it was possible to conduct a pre-post quasi-experimental intervention-comparison group design. The description of the national projects also shows that in the five participating countries the schools which made use of the dynamic integrated approach to face and reduce bullying were in a position to follow very similar steps in developing and implementing their strategies and action plans.

#### C.1) Cyprus

During the first phase of the study, a sample of 52 primary schools was selected by using purposive sampling procedures which enabled us to increase variation in respect to the bullying problems they face and the differences in student body in terms of their socio-ethnic background. In May 2009, a pre-measure with respect to the bullying and the factors included in the proposed framework was conducted. Specifically, the OBVQ and the questionnaire measuring quality of school life were administered to all grade 5 students of our school sample and almost all students (i.e., 1816 out of 1912) completed both instruments. In addition, all teachers of our school sample had to complete the teacher questionnaire (n=416) measuring the functioning of school level factors included in the proposed framework and a relatively high response rate (73%) was obtained. Analysis of the data collected during this phase revealed the existing anti-bullying techniques in different schools and the functioning of the schools in

relation to the factors related to the school and classroom learning environment included in the dynamic model.

During the second phase of the study, 30 out of the 52 schools which participated in the first phase were randomly split into the experimental and the control group. Table 2.4 provides information about the background characteristics of the experimental and control group and shows that there is no statistically significant difference between these two groups of schools in relation to the background characteristics of their grade 6 students.

The experimental group was asked to use the dynamic integrated approach in order to develop strategies and action plans to reduce bullying. For this reason, training and provision of guidelines was provided to the schools of the experimental group. A handbook was also produced presenting the theoretical framework and providing suggestions to schools on how to build school self-evaluation mechanisms aiming to prevent bullying and improve the educational practices at school and classroom level. In this handbook, the rationale of the project was described and the role of our research team was clarified. It was stressed that the research team will provide support to school stakeholders in order to carefully set up plans and form a strategy and action plans which will aim to:

- Raise the awareness of pupils, teachers, parents and supervisors.
- Encourage the students, the parents and the teachers to report any bullying incident and also take appropriate actions for all students when bullying happens.
- Take actions to improve the School Learning Environment.

Moreover, it was mentioned that the research team was responsible to help schools identify what can be achieved easier, as well as when and how, it can be achieved, in order to deal with and prevent bullying. It was, therefore, made explicit that the aim of the handbook was mainly to help schools develop and implement their strategies and action plans by providing concrete and specific guidelines to the teachers and the school management team (i.e., the principal, deputy heads, coordinator) on how to develop and implement their action plans. Specifically, the research team provided suggestions about the aims, content, target groups and, most importantly, activities and actions that schools may carry out in order to

**Table 2.4: Descriptive statistics for the dataset of the control and the experimental group and statistical figures of tests used to compare the background characteristics of the two groups**

Characteristics of sample	Control	Dynamic Approach	Statistical figures emerged from comparing the two samples
<b>Original Sample</b>			
Number of pupils	388	351	Non Applicable
Percentage of girls	180 (46.4%)	176 (50.1%)	Chi-square test: ( $X^2=1.04$ , $df=1$ , $p=0.31$ )
Percentage of Greek Cypriots	296 (76.3%)	278 (79.2%)	Chi-square test: ( $X^2=0.90$ , $df=1$ , $p=0.34$ )
<u>Educational background of father</u>			
Graduate of a primary school	136 (35%)	119 (34%)	Kolmogorov-Smirnov two sample test (K-S Z=0.364, $p=0.999$ )
Graduate of secondary school	147 (38%)	140 (40%)	
Graduate of a college/university	105 (27%)	92 (26%)	
<u>Educational background of mother</u>			
Graduate of a primary school	132 (34%)	119 (34%)	Kolmogorov-Smirnov two sample test (K-S Z= 0.341, $p=0.999$ )
Graduate of secondary school	163 (42%)	144 (41%)	
Graduate of a college/university	93 (24%)	88 (25%)	
<u>Father occupation</u>			
occupations held by working class	128 (33%)	123 (35%)	Kolmogorov-Smirnov two sample test (K-S Z=0.710, $p=0.695$ )
occupations held by middle class	144 (37%)	126 (36%)	
occupations held by upper-middle class	116 (30%)	102 (29%)	
<u>Mother occupation</u>			
occupations held by working class	144 (37%)	123 (35%)	Kolmogorov-Smirnov two sample test (K-S Z=0.682, $p=0.740$ )
occupations held by middle class	144 (37%)	140 (40%)	
occupations held by upper-middle class	100 (26%)	88 (25%)	
<u>Financial situation of the family</u>	Mean=2.02 SD=1.12	Mean=1.98 SD=1.09	t-test for independent samples ( $t=1.28$ , $df=738$ , $p=0.20$ )

face school bullying effectively. These guidelines were expected to help school stakeholders to develop specific strategies and actions to face bullying among students. In this handbook specific suggestions for handling and sanctioning bullying when it occurs were also included. In addition, this handbook provided suggestions on how to build school self-evaluation mechanisms, including the collection of relevant data and the use of this information aiming to prevent bullying and improve the educational practices both at the school and the classroom level.

At the next step of this phase, the research team analysed the data of the pre-measure and provided feedback to each school indicating its priorities for improvement (see section B.4). School stakeholders had the chance to discuss the findings of the pre-measure and take decision on whether their action plans could address one or a combination of priorities that had to do with the factors included in the dynamic model. It was strongly recommended that decisions about their priorities for improvement are taken not only by the teachers and the school management team. Students and parents should not only support this decision but should be actively involved in the decision making itself. For this reason, schools were encouraged to establish a committee with representatives of parents, students and teachers to discuss the results and gradually reach consensus about the school priorities and how to deal with them. The final decision was announced to the whole school community and feedback was provided which helped them to clearly define their priority of improvement.

Then, school stakeholders (in cooperation with the research team) had to develop their strategies and action plans (Mid October – Mid November 2009) that address specific aspects of the domains that they are focusing on. It was made explicit that in the action plan, it is important not only to *specify activities* that can be taken but also to indicate *who is supposed to do it*, what the *time-schedule* is, and what *resources* are needed. At this point, the schools were also reminded that in order to specify the activities which had to take place, they had to make use of the suggestions provided in the handbook and also identify further suggestions by looking at additional reading sources provided in the handbook. Obviously schools could divide the work for developing action plans by appointing different groups or

committees to design action plans for specific areas. At all stages and especially in developing action plans, members of our research team supported schools in developing their action plans.

Beyond designing action plans, schools were also asked to develop mechanisms to monitor the implementation of their strategies and action plans. For example, some schools decided that the coordinator of the improvement effort and/or the stakeholders which were expected to implement parts of the action plans had to keep a log-book and share from time to time their experience/views with the management team of the school and other stakeholders. Whenever a problem in implementing some aspects of the action plans was observed, school stakeholders (in cooperation with the research team) had to find ways to improve their action plans and/or provide support to those stakeholders who were not in a position to implement some tasks of the action plans.

The implementation phase lasted for approximately seven months (Mid November 2009 – end of May 2010) and the research team provided support to the school stakeholders by helping them overcome difficulties and problems that emerged during the implementation of their action plans. In some cases, the research team provided school based in-service training to the staff of some schools to help them face difficulties in implementing their action plans. Moreover, schools established continuous formative evaluation mechanisms which helped them modify their strategies and action plans according to the circumstances and specific needs of different groups of the school population.

By the end of the intervention (i.e., June 2010), the OBVQ, the questionnaire measuring quality of school life (as perceived by students), and the social cognition test were administered to our student sample of both the experimental and control group who were at the end of grade 6. All teachers of both groups were also asked to complete the questionnaire measuring the functioning of school factors. A relatively high response rate was obtained from teachers of each group of schools (i.e., experimental: 216 out of 278, control: 208 out of 282). Moreover, logbooks were collected from each school in the intervention group and semi-structured interviews with school coordinators were conducted. The constant comparative method was used in order to analyse the qualitative data emerged from the logbooks and the

interviews. Analysis of data helped us to construct the following variables which were concerned with the implementation of the intervention at each school and measure the:

- a) effort that each school put in implementing the intervention,
- b) extent to which their strategies and action plans were in line with the theoretical background of our proposed approach in facing bullying,
- c) extent to which teachers had (expressed) concerns about the effectiveness of the programme (especially during the first months of the intervention),
- d) number of actions the schools undertook {It was found out that this measure was closely related with the variable measuring the effort that schools put in implementing the intervention ( $r=0.56$ ,  $n=14$ ,  $p=0.03$ )},
- e) number of stakeholders actively involved in the project, and
- f) number of problems that each school had to face during the implementation of the project.

Analysis of quantitative data helped us not only to measure the impact of the proposed approach to the dependent variables of the study but also to find out whether any of the above variables could explain variation in the effectiveness of the proposed approach to face and reduce bullying.

### C.2) the Netherlands

In June 2009 we invited 76 Dutch primary schools to participate in our project. These schools were rated by the Dutch Inspectorate as having a lower than average level of social security for students and teachers. This would imply that they might, among other things, experience bullying problems. They could benefit from our project and would be probably interested to participate. Nevertheless low response levels were obtained. Therefore another 149 schools located in the Northern and Eastern part of the Netherlands<sup>1</sup> were randomly selected from a database containing all Dutch primary schools and invited. The response appeared to be low: only 24 schools decided to participate at that moment. Schools were not interested starting up a new project right before the summer holidays. They were busy conducting

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<sup>1</sup> This made it easier for the research team to visit the schools.

compulsory tasks and extra-curricular activities to finish the school year. In September 2009, the non-responding schools were re-invited, leading to a total of 55 participating schools. The schools were randomly assigned to one of three groups in our experimental study<sup>2</sup>: group 1 (Dynamic Model intervention, n=18), group 2 (Control group, n=19) and group 3 (Social Network intervention, n=18).

Table 2.5 shows the response number of schools, teachers and students during the actual research period. The pre-measurement was performed in autumn 2009. Teachers of grade 3, 4 and 6 filled out a questionnaire about the general policy of their school (n=144), teachers of grade 4, 5 and 6 about their school policy on bullying (n=133), and students of grade 5 and 6 about bullying (OBVQ) and the quality of school life (n=2031). Additionally, grade 5 students completed a social network questionnaire, being part of the intervention procedure of group 3. By means of nominating classmates the social network of a classroom with respect to bullying could be depicted.

**Table 2.5: Response in the Dutch part of the study at time of the randomization, pre and post measurement**

Occasion		Total	Group 1: Dynamic approach	Group 2: Control	Group 3: social network
Randomization	Schools	55	18	19	18
Pre-measurement	Schools	50	14	18	18
	Teachers:				
	- general school policy	144	47	48	49
	- policy on bullying	133	43	42	48
Post-measurement	Students grade 4, 5 and 6: OBVQ & Quality School Life	2031	519	714	798
	Schools	44	13	15	16
	Teacher grade 5: - implementation	37	10	13	14
	Students grade 4-5, 5 and 5-6: OBVQ & Quality School Life	863	219	314	330

<sup>2</sup> For the random assignment we used the order of entrance in the study; the 1<sup>st</sup> school agreeing to participate was assigned to group 1, the 2<sup>nd</sup> school to group 2, the 3<sup>rd</sup> school to group 3, the 4<sup>th</sup> school again to group 3, the 5<sup>th</sup> school to group 2, the 6<sup>th</sup> school to group 1, and so on.

In December 2009 the intervention period started. The schools in group 1 and 3 received a school specific report and were visited individually by the research team. The school reports showed the extent, severity and location of bullying according to the grade 5 and 6 students. For group 1 schools this was extended with the data about the general school policy, for group 3 schools with the data about the school policy on bullying and the social network data on bullying in grade 5.

During the visit to the group 1 schools, the school specific report was discussed with the management team. A Dutch version of the project's handbook "*Guidelines for designing Strategies and Actions to face Bullying*" was explained and handed over, together with a summarizing brochure. By means of the guidelines in the handbook and the points for improvement suggested by the research team, the schools described in an action plan their strategies for dealing with and preventing bullying at the *school level*. Suggestions were also provided to schools on how to build mechanisms to monitor the implementation of their strategies and action plans.

During the visits to the group 3 schools the school specific report and the results of the social network analyses of grade 5 students were discussed with the grade 5 teacher. Based on the points for improvement suggested by the research team, the grade 5 teacher developed an action plan with strategies how to deal with and prevent bullying - in this case - focusing on the *classroom level*. All action plans were collected and analysed. Schools in group 1 and 3 executed their plans until the end of the school year 2009-2010. They were contacted regularly in order to ensure the progress of the strategies and to give support if necessary.

The schools in group 2 (control group) received a report and were encouraged to develop their own strategies and action plans to face and reduce bullying by following any approach but the dynamic integrated approach or the social network approach. The research team promised to provide any support to the control group which until the end of the school year 2009-2010 continued executing their existing school policy on bullying.

In June 2010 the post measurement of the project was carried out. This time, only grade 5 students were asked to complete a questionnaire. They filled out the OBVQ and the quality of school life



questionnaire for second time. In addition, they completed the social cognition test (n=1119). The management team (group 1 and 2 schools) and the grade 5 teacher (group 3 schools) were asked to fill out an implementation questionnaire. They were asked about what actually happened in their school in relation to bullying, what was changed in the school policy and which point(s) of the action plan were carried out during the second half of the school year.

The data collection at the post measurement occasion was not successful in six schools. Two schools showed minimal interest in and dedication to the project; their participation ended during the intervention period. Student questionnaires of one school were lost in the mail, and filled out by the wrong students in another school. Two schools were shutdown before the end of the school year and were not able to execute the plans of action. As a consequence, 13 schools with 219 students remained in group 1, 15 schools with 314 students in group 2 and 16 schools with 330 students group 3 (see also Table 2.5). These students were all grade 5 students with a pre and post-measurement.

### C.3) Greece

The first phase of the project took place in May 2009, during which a sample of 28 (comprising  $n = 44$  classes) primary schools in Athens, Greece was drawn. All schools were located in downtown Athens (urban areas / inner city schools), as the goal was to study multicultural schools, where students were both of Greek and non-Greek origin. Ethical approval was sought and obtained by the Pedagogical Institute and the Greek Ministry of Education. Moreover, information pertinent to the project was communicated to the education councillors in primary education by members of our research team in meetings that were arranged for this purpose. During Phase I the following questionnaires were administered:

1. The *Junior Revised Olweus Bully-Victim Questionnaire (OBVQ)* administered to Grade 5 & 6 students ( $n = 712$ ;  $n = 348$  male;  $n = 472$  Greek).
2. The *School Policy Questionnaire* administered to all the teachers and headmasters of the schools ( $n = 28$  headmasters,  $n = 54$  teachers).

Analysis of data emerged from the first phase served as a basis for the selection of schools, which were included in the second phase of the project. Phase II of the study followed a pre-post quasi-experimental intervention-comparison group design and was further broken down in two measurement occasions: pre-intervention (October-November 2009) and post-intervention (May-June 2010). During the second phase, schools were split into an intervention and a control group (intervention group  $n = 11$  schools,  $n = 305$  students grouped in  $n = 17$  classrooms; control group  $n = 10$  schools,  $n = 269$  students grouped in  $n = 13$  classrooms), following a convenience sampling procedure, whereby the schools run by headmasters who showed interest in participating in the project were included in the intervention group.

During phase II the following questionnaires were administered:

1. The *Junior Revised Olweus Bully/Victim Questionnaire (OBVQ)* (pre- and post-intervention) administered to all the students of all the schools of both the intervention and the control group.
2. The questionnaire measuring the *Quality of School life* (pre- and post-intervention) administered to all the students of all the schools of both the intervention and the control group.
3. The *School Policy Questionnaire* (pre- and post-intervention) to all the teachers and headmasters of all the schools of both the intervention and the control group (intervention group  $n = 11$  headmasters,  $n = 72$  teachers; control group  $n = 8$  headmasters,  $n = 58$  teachers).
4. The *Social Cognition Test* (post-intervention) administered to the students of 8 schools of the intervention group ( $n = 148$ ).

Furthermore logbooks were collected from each of the schools in the intervention group and semi-structured interviews with school coordinators were conducted. Analysis of data helped us identify the effort each school put in implementing the intervention and the extent to which their strategies and action plans were in line with the theoretical background of the dynamic integrated approach in facing and reducing bullying,

As far as the intervention is concerned, it is important to note that the experimental group was asked to use the dynamic integrated approach in order to develop strategies and action plans to face and reduce bullying. For this reason, a 20 hour initial training (14-15/11/2009) was provided to the schools of

the experimental group. A handbook was also produced presenting the theoretical framework and providing suggestions to schools on how to build school self-evaluation mechanisms aiming to prevent bullying and improve the educational practices at school and classroom level. During a second meeting with the teachers and headmasters, the guidelines were explained and discussed (20/12). We also clarified the teachers' concerns for the intervention. Furthermore, we discussed about actions that can be undertaken.

Feedback based on the teacher questionnaire was also given individually to each school. School stakeholders had the chance to discuss the findings of the pre-measure and take decision on whether their action plans could address one or a combination of priorities that had to do with the factors included in the dynamic model. For this reason, schools were encouraged to establish a committee with representatives of parents, students and teachers to discuss the results and gradually reach consensus about the school priorities and how to deal with them. The final decision was announced to the whole school community and feedback was provided which helped them to clearly define their priority of improvement. The research team also helped the schools to design and develop their strategies and action plans.

Beyond designing their action plans to face and reduce bullying, schools were asked to develop mechanisms to monitor the implementation of their strategies and action plans. Whenever a problem in implementing some aspects of the action plans was observed, school stakeholders (in cooperation with the research team) had to find ways to improve their action plans and/or provide support to those stakeholders who were not in a position to implement some parts of the action plans.

The implementation phase lasted for approximately five months (Mid January 2010 – end of May 2010) and the research team provided support to the school stakeholders by helping them overcome difficulties and problems that emerged during the implementation of their action plans. In this context, additional meetings took place on 23/1/2010, 20/3/2010 and 16/6/2010, during which any problems/concerns that teachers encountered were discussed. On the other hand, the control group received no support from the research team but school stakeholders were encouraged to develop their

strategies and action plans to face and reduce bullying by following any approach they like but the dynamic integrated approach.

#### C.4) Belgium

The main aim of this project is to help schools to use an evidence-based and theory-driven approach in order to develop specific strategies and actions to face bullying. During the first phase of the project (March-June 2009), we selected 45 primary schools to participate in this project by using purposive sampling procedures. This sample represents the three educational networks in Flanders (the Flemish Community of Belgium) and consists of 27 schools providing 'free subsidized education', 11 schools providing 'official subsidized education' and 7 schools providing what is called 'official education'. Initially, all schools agreed to participate in the project. But, at the start or during data collection in June 2009, some of those pulled out. All of the data have been collected by means of online questionnaires. In each of the schools we collected specific data (pre-measure):

1. The *Junior Revised Olweus Bully-Victim Questionnaire (OBVQ)* administered to Grade 5 students ( $n = 790$ ) in 28 schools.
2. The *School Policy Questionnaire* administered to all the teachers ( $n=210$ ) of the 28 schools.

All these data, together with the response rates, served as a basis for the establishment of a network of nine schools which were asked to use the proposed dynamic approach in order to face and reduce bullying. We provided feedback to both the control schools ( $n=19$ ) and the intervention schools based on the data collected from the teacher questionnaire on school policy. The intervention was concerned with the use of the dynamic integrated approach to face and reduce bullying (see chapter 2). More specifically, the following tasks were undertaken in order to help schools of the experimental group develop their own strategies and action plans for facing and reducing bullying:

On October, 14 we organised an opening conference for the intervention schools in which background about the intervention was explained and a 'network' between the schools was established. All coordinators of the intervention schools were invited, together with 2 other colleagues. During this

seminar, we introduced the schools into the theoretical framework of the project, we further introduced and explained the guidelines of the handbook, and ended with presenting (the format/content of) their feedback reports. Schools were also encouraged to establish a committee with representatives of parents, students and teachers to discuss the results of the pre-measure and gradually reach consensus about the school priorities and how to deal with them. The final decision was announced to the whole school community and feedback was provided which helped them to clearly define their priority of improvement. Then, school stakeholders (in cooperation with the research team) had to develop their strategies and action plans (End of October 2009) that address specific aspects of the domains that they are focusing on. Beyond designing action plans, schools were also asked to develop mechanisms to monitor the implementation of their strategies and action plans. Whenever a problem in implementing some aspects of the action plans was observed, school stakeholders (in cooperation with the research team) had to find ways to improve their action plans and/or provide support to those stakeholders who were not in a position to implement some tasks of the action plans.

The implementation phase lasted for approximately six months (Mid November 2009 – end of April 2010) and the research team provided support to the school stakeholders by helping them overcome difficulties and problems that emerged during the implementation of their action plans.

Finally, a seminar (April, 28 2010) was organised and school stakeholders were asked to exchange experiences and suggestions were discussed to keep working on the quality of the learning environment at school and class level in order to reduce/prevent bullying.

On the other hand, the control group received no support from the research team but was encouraged to develop their own strategies and action plans for facing and reducing bullying but without using the dynamic integrated approach.

In May 2010, at the end of Phase II, the following questionnaires were administered (post measure):

1. The *Junior Revised Olweus Bully/Victim Questionnaire*: all students of Grade 6 (n=600) in the intervention and control schools.

2. The questionnaire measuring the *Quality of School life* (as perceived by students): all students of Grade 6 (n=600) in the intervention and control schools.
3. The *Social Cognition Test* (paper-and-pencil): all students of Grade 6 (n=531 in the intervention and control schools (n=15).

By the end of the school year, we collected log books, 'monitoring instruments' for the implementation of the school intervention, from each intervention schools. We additionally conducted semi-structured interviews with coordinators of the intervention schools. These interviews were also conducted in 16 control schools, in order to collect additional (qualitative) data for the quasi-experimental design and have a measure of the effort that schools put in implementing the intervention.

#### C.5) England

During the first phase of the project (summer term of 2009) we contacted 20 Local Authorities in the North West of England and Europe with a request to participate in the project. Of these, 12 agreed to do so. Local Authority staff identified schools that could be interested. These were contacted leading us to a final sample of 42 schools. During Phase I the following questionnaires were administered:

1. The *Junior Revised Olweus Bully-Victim Questionnaire (OBVQ)* administered to Grade 5 students ( $n = 703$ ;  $n = 348$  male)
2. The *School Policy Questionnaire* administered to teachers and headmasters of the school sample ( $n = 42$  headmasters,  $n = 42$  teachers).

Surveys were analysed, and the data fed back to schools, who received their data and a comparison to the national norms, the latter as an inducement to take part. The survey data served as a basis for the selection of schools, which were included in the second phase of the project (see table 2.6). Specifically, 18 schools participated in the proposed dynamic integrated intervention. An initial visit was conducted to each school to discuss the project and appoint a school coordinator. A meeting with the headteacher was arranged in each school. A handbook was also provided to the schools presenting the theoretical framework and explaining how they could build school self-evaluation mechanisms aiming to prevent

bullying and improve the educational practices at school and classroom level. It was also stressed that the research team was responsible to help schools identify what can be achieved easier, as well as when and how, it can be achieved, in order to deal with and prevent bullying. In addition, schools were encouraged to establish a committee to discuss the results emerged from the pre-measure and gradually reach consensus about the school priorities and how to deal with them. During a second meeting with the Daphne coordinator and representatives of teachers and parents, school stakeholders (in cooperation with the research team) managed to develop their strategies and action plans (Mid October – Mid November 2009) that address specific aspects of the domains that they are focusing on. Beyond designing action plans, schools were also asked to develop mechanisms to monitor the implementation of their strategies and action plans. Whenever a problem in implementing some aspects of the action plans was observed, school stakeholders (in cooperation with the research team) had to find ways to improve their action plans and/or provide support to those stakeholders who were not in a position to implement some tasks of the action plans.

**Table 2.6: Number of participants in England in each phase of the study**

	<b>N (boys: girls)</b>	<b>N Schools</b>	<b>N Classes</b>	<b>N Teachers</b>	<b>N Headmasters</b>
<b>PHASE I</b>	703 (348:364)	42	42	42	42
<b>PHASE II Intervention Group</b>	289 (150:139)	18	18	18	18
<b>PHASE II Comparison Groups</b>	267 (121:146)	17	17	17	17

The implementation phase lasted for approximately six months (December 2009 – May 2010) and the research team provided support to the school stakeholders by helping them overcome difficulties and problems that emerged during the implementation of their action plans. Additional meetings were held with the coordinators of the schools were requested.

During phase II the following questionnaires were administered:

1. The *Junior Revised Olweus Bully/Victim Questionnaire* (pre- and post-intervention) administered to all the students of year 6 of all the schools.
2. The questionnaire measuring the *Quality of School life* (pre- and post-intervention) administered to all the students in year 6 of all the schools.
3. The *School Policy Questionnaire* (pre- and post-intervention) to all the teachers and headmasters of all the schools.
4. The *Social Cognition Test* (post-intervention) administered to the students of 7 schools who expressed an interest in participating in this part of the study.

Logbooks were also collected from all the schools, and an implementation interview with each school coordinator was undertaken. Finally, we collected data from national inspections of the schools through the OFSTED database, and pupil background and performance data from the National Pupil Database, to provide us with further contextual information to search for any differential effect of the proposed dynamic integrated approach.

In this chapter, the different phases of this project and the type of intervention that took place in each country are described. It is also demonstrated that the proposed dynamic integrated approach to face and reduce bullying was adopted in each of the five participating countries and very similar steps were followed by the schools in order to develop their strategies and action plans to face and reduce bullying. We now turn to the description of the main findings of the project which are presented in the next chapter and help us identify the impact that the proposed approach had on the reduction of bullying and on the improvement of the quality of school life.



## CHAPTER 3:

### MAIN RESULTS

In this chapter, the main results of this study are presented. In the first section of the chapter, we refer to findings of data emerged from all five participating countries during the first phase. We also investigate the overall impact of the dynamic integrated approach upon each dependent variable. In the final section of this chapter, results emerged from within country analyses are presented.

#### **A) Main results of the first phase of the study: across country analysis**

During the first phase of the study, all teachers of our school sample had to complete the teacher questionnaire measuring the functioning of school level factors included in the proposed framework. Analysis of data enabled us to construct scores for each factor and its dimension (see section B.4). One way analysis of variance was conducted and revealed that teachers within a school view the policy of their school and the evaluation mechanisms of their school similarly, but differently from teachers in other schools. Table 3.1 provides descriptive statistical figures for all the factors and their dimensions. These results provide a picture of the functioning of the 200 schools in the five participating countries in terms of the factors included in the proposed theoretical framework of this approach. The scale of the factors and dimensions ranges from 1 (*to a very low extent*) to 5 (*to a very high extent*). The following observations arise from table 3.1. First, the values of standard deviations are relatively high and the minimum and maximum values of each factor show that there is a high range among the schools in relation to the functioning of each school factor and its dimension. This implies that there is a lot of variation among schools about the functioning of school factors and for this reason different priorities for improvement can be identified in each school. Second, we can observe that the schools of these five countries score relatively higher on the frequency dimension of the factor ‘school policy on teaching’ (mean =3.41), and lowest on the quality dimension of evaluating the school policy on school learning environment (2.39). Also and overall, the mean factor scores are higher for school policy on teaching than for policy on the school learning environment. It is finally important to note that among the factors

concerned with the school learning environment, the policy on student behaviour outside the classroom has the lowest mean value. Its mean value is much lower than the mid point of the Likert scale, implying that a relatively large number of schools should develop strategies and action plans to improve the functioning of these factors.

**Table 3.1: Descriptive statistics for each school factor (and dimensions)**

School factors and their dimensions	N	Mean	S.D.	Minimum	Maximum
<u>School Policy for teaching</u>					
1) Quantity of teaching	200	3.19	1.20	1.46	4.80
2) Provision of learning opportunities	200	3.16	1.18	1.79	4.62
3) Quality of teaching	200	3.15	1.22	1.49	4.58
<u>Policy on school learning environment (SLE)</u>					
1) Student behaviour outside the classroom	200	2.45	1.11	1.39	4.09
2) Teacher Collaboration	200	2.95	1.12	1.49	4.37
3) Partnership	200	2.99	1.09	1.66	4.32
4) Provision of resources	200	3.08	1.07	1.49	4.09
Policy for dealing with bullying	200	2.88	1.12	1.26	4.32
Evaluation of policy on teaching	200	3.05	1.01	1.49	3.99
Evaluation of policy on SLE	200	2.88	1.07	1.45	5.00
Policy on teaching: frequency	200	3.41	1.16	1.36	5.00
Policy on teaching: stage	200	3.11	1.10	1.66	5.00
Policy on teaching: focus	200	2.95	1.09	1.59	4.55
Policy on teaching: quality	200	3.06	1.08	1.58	4.42
Policy on SLE: frequency	200	2.95	1.09	1.66	4.09
Policy on SLE: stage	200	2.85	1.14	1.56	5.00
Policy on SLE: focus	200	2.74	1.10	1.46	4.22
Policy on SLE: quality	200	2.39	1.11	1.42	4.25

During the first phase of the study, the Revised Olweus Bully/Victim Questionnaire was administered to the students of our school sample (n=6052). Taken individually eight items of the OBVQ can be used to interpret the responses with respect to the extent to which pupils are victims of bullying (scale A) whereas a second set of eight items refers to the extent to which pupils initiate an act of bullying against other children (scale B). Data emerged from OBVQ were analysed by using the Rasch model to create two relevant scales, based on the log odds of students' opinions about the extent to which they are either being bullied (scale A) or they bully other children (scale B). Analysis of data provided support for the construct validity of the OBVQ (see section B.1) and thereby the Rasch person estimates were used to investigate whether there is variation among schools in the extent to which bullying incidents can be identified. Specifically, one way analysis of variance was initially conducted and revealed that the Rasch scores of students within a school for each scale are similar, but different from students in other schools (scale A:  $F=3.4$ ,  $p=.001$  scale B:  $F=4.6$ ,  $p=.001$ ). This implies that we can generate scores at school level and for this reason we calculated the aggregated scores of Rasch person estimates of each scale at the school level. By looking at the descriptive figures of the school scores of each scale, it was found out that there was a lot of variance in levels of bullying between schools since the standard deviations of each scale is relatively high (scale A: 1.45 and scale B: 1.52) and the range of the school scores for each scale is higher than 5 (scale A: from -4.00 to 1.61 and scale B: from -4.00 to 1.74). These values help us to identify those schools where bullying incidents were reported often whereas in some other schools there was almost no student who reported any bullying incidents and thereby zero scores from each scale were obtained (see part C.4).

## **B) Measuring the impact of the dynamic approach to bullying: across-country analysis**

This part refers to the results of the study investigating the impact of using the dynamic integrated approach upon reduction of bullying, development of positive attitudes towards the quality of school life and student achievement in social cognition. In order to measure the impact of the dynamic approach on reduction of bullying, we conducted two separate multilevel analyses of student estimates emerged from

using the Rasch model to analyse data of each of the two scales of the OBVQ. The OBVQ was administered to the student sample at the beginning and at the end of the intervention and thereby the prior measure was also taken into account (see chapter 2).

Since the number of countries involved in this project is relatively small, it was decided to model the country effects by adding into the empty model relevant dummy variables and not consider the country as an extra level of our data. Thus, the first step in the analysis was to determine which levels had to be considered in order to reflect the hierarchical structure of the data. Empty models with all possible combinations of the levels of analysis (i.e., student, class, and school) were established and the likelihood statistics of each model were compared (Snijders & Bosker, 1999). It was found that an empty model consisting of student and school level represented the best solution. This was a common finding emerged from analyzing student final Rasch scores in each of the two scales of OBVQ and implies that school effect is more important than classroom effect in bullying. These findings can be attributed to the fact that bullying incidents are very likely to occur outside the classroom so the school rather than the classroom effect is more important. These findings are also in line with the results of a recent longitudinal study investigating teacher and school effectiveness in reduction of bullying (Kyriakides et al., 2008).

Table 3.2 illustrates the parameter estimates and the standard errors derived from the multi-level analysis of student scores in each scale of the OBVQ. The first model presents the variance at individual, and school level without explanatory variables (empty model or model 0). The variance at each level reached statistical significance ( $p < .05$ ), which revealed that MLwiN could be used to identify the explanatory variables, which were associated with student scores in each scale. We can observe that more than 20% of the variance in the extent to which students either are being bullied (scale A) or they bully others (scale B) was at the school level. In model 1 the three dummy variables measuring the impact of the country (with England as a reference group) and two background factors (prior score and gender) were added to the empty model measuring achievement in each scale of OBVQ. The likelihood statistic ( $X^2$ ) shows a significant change between the empty model and model 1 ( $p < .001$ ) for both scales.

Moreover, more than 50% of the variance of student achievement in each scale was explained. We can also observe that the effect of prior measure was statistically significant and relatively high whereas

**Table 3.2: Parameter Estimates and (Standard Errors) for the analysis of Scales A and B (Students within schools)**

Factors	SCALE A			SCALE B		
	Model 0	Model 1	Model 2	Model 0	Model 1	Model 2
<b>Fixed part (Intercept)</b>	-2.77 (.07)	-1.21 (.09)	-1.01 (.09)	-3.31 (.05)	-1.21 (.09)	-1.01 (.09)
<b>Student Level</b>						
<u>Context</u>						
Prior Measure		0.65 (.01)*	0.65 (.02)*		0.56 (.01)*	0.65 (.02)*
Sex (0=boys, 1=girls)		0.02 (.04)	0.02 (.04)		-0.01 (.03)	-0.01 (.03)
<b>School Level</b>						
<u>Type of intervention</u>						
Daphne			-0.41 (.07)*			-0.18(.05)*
Network			-0.13 (0.13)			-0.12(0.09)
<u>Country</u>						
the Netherlands		0.05 (.10)	0.01 (.10)		0.25(.07)*	0.25(.08)*
Cyprus		0.36 (.11)*	0.36 (.10)*		0.34 (.07)*	0.34(.07)*
Greece		-0.73 (.10)*	-0.71 (.10)*		-0.45(.08)*	-0.45(.08)*
<b>Variance components</b>						
School	24%	4.9%	3.2%	21.9%	5.5%	4.4%
Student	76%	41.2%	41.2%	78.1%	43.0%	42.9%
Explained		53.9%	55.6%		51.5%	52.7%
<b>Significance test</b>						
X <sup>2</sup>	9559.6	7534.8	7503.4	8031.4	6120.2	6107.1
Reduction		2024.8	31.4		1911.2	13.1
Degrees of freedom		3	1		3	1
p-value		.001	.001		.001	.001

\* Statistically significant effect at level .05.

gender did not have any effect on the extent to which students either are being bullied or they bully others. Country effects were also reported but we should interpret these results carefully since none of the samples was nationally representative. For example, the highest scores were reported in Cyprus but this might be attributed to the sampling procedure which was used in Cyprus in selecting the school sample (see chapter 2 section C.1). In model 2, the impact of the two different types of interventions (the

dynamic integrated approach and the network approach) were measured by entering two relevant dummy variables into the model 1 and treating the control group as a reference group. The figures of table 3.2 reveal that both the extent to which students are being bullied and the extent to which students bully others were reduced at a significantly higher level at schools which made use of the dynamic integrated approach. These findings provide support to the use of the dynamic integrated approach to face and reduce bullying.

**Table 3.3: Parameter Estimates and (Standard Errors) for the analysis of student attitudes towards the quality of school life (Students within schools)**

Factors	Model 0	Model 1	Model 2
<b>Fixed part (Intercept)</b>	1.26 (0.05)	0.75 (0.07)	-1.01 (0.09)
<b>Student Level</b>			
<u>Context</u>			
Prior Measure		0.43 (0.02)*	0.43 (0.02)*
Sex (0=boys, 1=girls)		0.01 (0.04)	-0.01 (0.03)
<b>School Level</b>			
<u>Type of intervention</u>			
Daphne			0.26 (0.08)*
Network			0.02 (0.18)
<u>Country</u>			
the Netherlands		0.08 (0.07)	0.07 (0.08)
Cyprus		-0.12 (0.10)	-0.17 (0.11)
Greece		-0.02 (0.10)	-0.10 (0.10)
<b>Variance components</b>			
School	15.2%	14.5%	8.4%
Student	84.8%	48.9%	48.6%
Explained		36.6%	43.0%
<b>Significance test</b>			
X <sup>2</sup>	6328.2	5816.3	5776.1
Reduction		511.9	40.2
Degrees of freedom		1	1
p-value		.001	.001

\*Statistically significant effect at level .05.

Table 3.3 illustrates the parameter estimates and the standard errors derived from the multi-level analysis of student attitudes towards the quality of their school life. The first model presents the variance at individual, and school levels without any explanatory variable (empty model). We can observe that 15.2% of the variance was at the school level and this finding is in line with results of studies measuring school effectiveness in relation to the achievement of affective outcomes (e.g., Kyriakides, 2005; Knuver, & Brandsma, 1993; Opdenakker & Van Damme, 2000). In model 1, the three dummy variables measuring the impact of the country (with England as a reference group) and the two student background factors (prior attitude and gender) were added to the empty model. The following observations arise from the figures in the third column of Table 3.3. First, model 1 explained 36.6% of the total variance and the likelihood statistic ( $X^2$ ) revealed a significant change between the empty model and model 1 ( $p < .001$ ). Second, the variable measuring prior attitudes towards the quality of school life was the only variable that is associated with the final attitudes of students towards the quality of school life. This implies that there is no country effect or a gender effect on student attitudes towards the quality of school life. Model 2 is concerned with the impact of two different types of interventions to face and reduce bullying upon student attitudes towards the quality of the school life. The figures of the last column of table 3.3 reveal that students of schools which made use of the dynamic integrated approach improved their attitudes towards school life at a higher level than students of all the other schools. This implies that the proposed approach did not have only an effect on reducing bullying but also on the achievement of a relevant affective outcome of schooling.

Finally, we attempted to analyse student achievement in social cognition and examine whether students of schools which made use of the dynamic integrated approach had better results in social cognition than all the other schools. Since a group randomisation study was conducted only in Cyprus and the Netherlands, we cannot claim that any differences in final student achievement could be attributed to the use of the dynamic integrated approach. However, table 3.4 illustrates the parameter estimates and the standard errors derived from the multi-level analysis of student achievement at the social cognition test. The empty model reveals that a relatively high percentage of the variance of student achievement is

situated at the school level. This finding is not in line with the results of effectiveness studies investigating the impact of teachers and schools upon student achievement in cognitive outcomes (Teddlie & Reynolds, 2000) but the relatively large school effect could be attributed to the fact that most studies measuring educational effectiveness in cognitive outcomes were conducted in a single country whereas data on social cognition were drawn from four different countries.

**Table 3.4: Parameter Estimates and (Standard Errors) for the analysis of student achievement in the social cognition test (students within schools)**

<b>Factors</b>	<b>Model 0</b>	<b>Model 1</b>	<b>Model 2</b>
<b>Fixed part (Intercept)</b>	0.34 (0.03)	0.26 (0.04)	0.14 (0.04)
<b>Student Level</b>			
<u>Context</u>			
Sex (0=boys, 1=girls)		0.06 (0.01)*	0.06 (0.01)*
<b>School Level</b>			
<u>Type of intervention</u>			
Daphne			0.07 (0.03)*
Network			0.05 (0.04)
<u>Country</u>			
the Netherlands		0.02 (0.03)	0.01 (0.04)
Cyprus		-0.42 (0.03)*	-0.44 (0.11)*
Greece		-0.50 (0.06)*	-0.55 (0.06)*
<b>Variance components</b>			
School	40.5%	12.5%	10.9%
Student	59.5%	57.1%	57.1%
Explained		30.4%	32.0%
<b>Significance test</b>			
X <sup>2</sup>	1285.1	1104.0	1095.1
Reduction		171.1	7.9
Degrees of freedom		3	1
p-value		.001	.001

\*Statistically significant effect at level .05.

In model 1, we added three dummy variables searching for the impact of the four countries from which data on social cognition were obtained and analysed by using the Rasch model. The impact of gender was also examined. The figures of the third column of table 3.4 reveal that girls had better results than boys.



Country effects were also identified. Specifically, Greek and Cypriot students were found to obtain lower scores than students in the Netherlands and Belgium but these statistically significant differences should be not misinterpreted especially since none of our sample is nationally representative. It is also important to note that model 1 explained approximately 30% of the total variance but most of the explained variance was situated at the school level. The fact that model 1 helped us to explain more than 65% of the variance situated at the school level (i.e., 28% out of 40.5%) might be attributed to the fact that differences in the achievement of students from different countries were identified. On the other hand, we were not in a position to explain most of the variance situated in the student level. This can be attributed to the fact that only one student background factor was taken into account and no measure of prior achievement was available. Finally, the figures of the last column of table 3.4 reveal that students of the schools which made use of the dynamic integrated approach had statistically significant better results than students of any other schools. However, the effect size is extremely low and by adding the dummy variables concerned with the different types of interventions we managed to explain only 1.6% of total variance. Nevertheless, the likelihood statistic ( $X^2$ ) shows a significant change between model 1 and model 2 ( $p < .05$ ) and this finding justifies our approach to treat the use of the dynamic integrated approach as an exploratory variable associated with student achievement in social cognition.

### **C) Country reports**

The results of the across-country analyses reveal that the dynamic integrated approach had a positive impact on each of our dependent variable (i.e., reduction of bullying, achievement of a relevant affective and relevant cognitive outcome of schooling). In this section, the main results of the within country analyses are presented which help us to identify the extent to which the proposed approach has any differential country effect as well as to search for the effect of other contextual factors upon the impact of the proposed approach to face and reduce bullying.

## C.1) Cyprus

### *C.1.1) The functioning of school factors in Cypriot primary schools*

The first part of this section refers to the results emerged by analysing the data of the first phase of the study concerned with the functioning of school factors in 52 primary schools and the extent to which bullying incidents occurred in these schools. Table 3.5 refers to the main results emerged from descriptive analysis concerned with the functioning of school factors in the 52 Cypriot primary schools. The following observations arise from table 3.5. First, the values of standard deviations are relatively high and the minimum and maximum values of each factor show that there is a high range among the schools in relation to the functioning of each school factor and its dimension. This implies that there is a lot of variation among schools about the functioning of school. Second, these 52 schools managed to obtain relatively higher scores on the frequency dimensions of each factor and lowest on the quality and differentiation dimensions. This finding is in line with the results emerged from the across-country analysis. It also provides support to one major assumption of the dynamic model about the use of the five dimensions to measure the functioning of effectiveness factors (see Creemers & Kyriakides, 2006). Third, among the factors concerned with the school learning environment, the policy on student behaviour outside the classroom has the lowest mean value. Its mean value is much lower than the mid point of the Likert scale, implying that a relatively large number of schools should develop strategies and action plans to improve the functioning of the school factors. It is finally important to note the relatively small mean values of the two evaluation factors which are also much smaller than the ones reported in the across-country analysis implying that there is a need in Cyprus to give more emphasis on establishing should evaluation mechanisms for formative reasons.

During the first phase of the study, the Revised Olweus Bully/Victim Questionnaire was administered to all grade 5 students of our school sample (n=1816). Data emerged from OBVQ were analysed by using the Rasch model to create the two relevant scales concerned with the extent to which students are either being bullied (scale A) or they bully other children (scale B).

**Table 3.5: Descriptive statistics for the functioning of each school factor (and its dimensions) of the primary schools in Cyprus**

<b>School factors and their dimensions</b>	<b>N</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
<u>School Policy for Teaching</u>					
1) Quantity of teaching	52	2.98	0.88	2.66	3.59
2) Provision of learning opportunities	52	3.06	1.08	2.79	3.62
3) Quality of teaching	52	3.05	1.02	2.69	3.38
<u>Policy on school learning environment (SLE)</u>					
1) Student behaviour outside the classroom	52	2.85	0.99	2.39	3.28
2) Teacher Collaboration	52	3.03	1.06	2.56	3.62
3) Partnership	52	3.19	1.09	2.46	3.82
4) Provision of resources	52	3.08	1.07	1.98	3.79
School policy for dealing with bullying	52	3.16	1.02	1.86	3.77
Evaluation of policy on teaching	52	2.85	1.11	2.09	3.48
Evaluation of policy on SLE	52	2.83	1.02	1.85	3.57
Policy on Teaching: frequency	52	3.41	1.09	1.56	3.85
Policy on teaching: stage	52	3.21	1.08	1.76	3.82
Policy on teaching: focus	52	3.15	1.13	1.89	3.96
Policy on teaching: quality	52	3.06	1.08	1.88	3.92
Policy on teaching: differentiation	52	2.86	1.11	1.58	3.82
Policy on SLE: frequency	52	2.88	1.09	1.76	3.49
Policy on SLE: stage	52	2.85	1.04	1.56	3.42
Policy on SLE: focus	52	2.74	1.10	1.66	3.92
Policy on SLE: quality	52	2.59	1.11	1.62	3.95
Policy on SLE: differentiation	52	2.44	1.06	1.24	3.15

One way analysis of variance revealed that the Rasch person (student) estimates within a school for each scale are similar, but different from students in other schools (scale A:  $F=3.2$ ,  $p=.001$  scale B:  $F=3.4$ ,  $p=.001$ ). This implies that we can generate scores at school level and for this reason we calculated the aggregated scores of Rasch person estimates of each scale at the school level. By looking at the descriptive figures of the school scores of each scale, it was found out that there was a lot of variance in levels of bullying between schools since the standard deviations of each person scale is relatively high (scale A: 1.32 and scale B: 1.22). These values helped us to identify those schools where bullying incidents were reported very often and encouraged them to participate in the second phase of the project.

### *C.1.2) Investigating the impact of the dynamic approach*

This part refers to the main results concerned with the impact of using the dynamic integrated approach upon: a) the reduction of bullying, b) the development of positive attitudes towards the quality of school life and c) student achievement in social cognition.

In order to measure the impact of the dynamic approach on reduction of bullying, we conducted two separate multilevel analyses of student estimates emerged from using the Rasch model to analyse data of each of the two scales of the OBVQ. Table 3.6 illustrates the parameter estimates and the standard errors derived from the multi-level analysis of student scores in each scale of the OBVQ. The first model presents the variance at individual, and school level without explanatory variables (empty model or model 0). The figures of model 0 reveal that approximately 10% of the variance in the extent to which students are either being bullied (scale A) or they bully others (scale B) was at the school level. In model 1, background factors at student and school level were added to the empty model. The likelihood statistic ( $X^2$ ) shows a significant change between the empty model and model 1 ( $p<.001$ ) for both scales. We can also observe that only the effect of prior measure was statistically significant whereas gender, SES, and ethnicity did not have any effect on the extent to which students either are being bullied or they bully others. In model 2, the impact of the three overarching school factors was added to model 1. For each scale, school factors were found to be associated with the reduction of bullying providing support to the

assumptions of the proposed theoretical framework. Finally, the impact of using the dynamic approach to reduction of bullying was measured by entering a relevant dummy variable (with schools in the control group as the reference group). The figures of table 3.6 reveal that the schools of the experimental group managed to reduce bullying at a much higher level than the schools of the control group. Moreover, the effect size of the intervention upon the extent to which students are being bullied (scale A) is high and this implies that schools which made use of the dynamic approach managed to reduce at a very high level the number of students who were being bullied by others.

At the next stage of the analysis of data, we decided to conduct multilevel analysis of final scores on each scale of OBVQ by using the data emerged from schools of the experimental schools only and see whether variables associated with the process of implementing the proposed approach could explain variation in the effectiveness of this approach. Table 3.7 illustrates the results of the multilevel analyses which were conducted in order to see whether these variables are associated with student Rasch estimates in each scale of OBVQ. First, the figures of the first two models of table 3.7 are very similar to those reported in table 3.6 and provide further support to the internal validity of the study. Specifically, it is shown that none of the contextual factors but prior measure is associated with the extent to which students are either being bullied or they bully others. On the contrary, school factors were found to be associated with reduction of bullying. In model 3, five explanatory variables concerned with the implementation of the intervention were added to model 2. These five variables were based on analysis of the logbooks and the structured interviews with the coordinators of the project (see section C.1). For each scale, we can observe that schools which put more effort to use the dynamic approach to reduce bullying were more effective than others. On the other hand, variation in the impact of this approach cannot be attributed to the number of school stakeholders involved in the project or to the fact that schools had to modify their action plans. This finding provides support to our assumption that a monitoring system should be developed in order to help schools modify their action plans since schools should not be expected to develop perfect action plans. Moreover, this approach is not based on the assumption that all stakeholders

**Table 3.6: Parameter Estimates and (Standard Errors) for the analysis of Cypriot student scores in each scale of OBVQ (Cypriot Students within schools)**

Factors	SCALE A				SCALE B			
	Model 0	Model 1	Model 2	Model 3	Model 0	Model 1	Model 2	Model 3
<b>Fixed part (Intercept)</b>	-1.62 (.12)	-0.72 (.15)	-0.34 (.10)	-0.14 (.06)	-2.67 (.07)	-1.82 (.15)	-1.34 (.10)	-0.74 (.06)
<b>Student Level</b>								
<u>Context</u>								
Prior Measure		0.84 (.02)*	0.84 (.02)*	0.84 (.02)*		0.80 (.02)*	0.80 (.02)*	0.80 (.02)*
Sex (0=boys, 1=girls)		-0.06 (.06)	-0.05 (.06)	-0.06 (.06)		-0.02 (.05)	-0.02 (.05)	-0.02 (.05)
Ethnicity (0=Greek, 1=other)		0.09 (.06)	0.08 (.06)	0.09 (.06)		0.04 (.06)	0.04 (.06)	0.03 (.05)
SES		-0.15 (.12)	-0.16 (.12)	-0.14 (.12)		-0.08 (.09)	-0.08 (.10)	-0.08 (.10)
<b>School Level</b>								
<u>Context</u>								
Average prior measure		0.19 (.03)*	0.19 (.03)*	0.19 (.03)		0.11 (.03)*	0.11 (.03)*	0.11 (.03)*
Average SES		-0.04 (.04)	-0.04 (.04)	-0.05 (.04)		-0.03 (.06)	-0.03 (.06)	-0.03 (.06)
Percentage of boys		0.08 (.07)	0.08 (.07)	0.08 (.07)		0.08 (.07)	0.08 (.07)	0.08 (.07)
Percentage of Cypriots		-0.05 (.03)	-0.04 (.03)	-0.05 (.03)		-0.04 (.05)	-0.04 (.05)	-0.04 (.05)
<u>School factors</u>								
Policy on SLE			-0.14 (.04)*	-0.14 (.03)*			-0.17 (.06)*	-0.17 (.06)*
Policy on Teaching			-0.08 (.03)*	-0.09 (.03)*			-0.08 (.05)	-0.08 (.05)
School Evaluation			-0.11 (.03)*	-0.10 (.03)*			-0.11 (.03)*	-0.12 (.03)*
<u>Daphne Intervention</u>				-0.94 (.17)*				-0.53 (.06)*
<b>Variance components</b>								
School	11.4%	11.0%	9.5%	6.1%	8.4%	8.4%	7.0%	6.1%
Student	88.6%	36.1%	36.0%	35.9%	91.6%	49.1%	49.0%	48.9%
Explained		52.9%	54.5%	58.0%		42.5%	44.0%	45.0%
<b>Significance test</b>								
X <sup>2</sup>	2769.1	1038.0	922.1	702.1	2592.4	1438.0	1322.0	1281.1
Reduction		1731.1	115.9	220.0		1154.4	116.0	40.9
Degrees of freedom		2	3	1		2	2	1
p-value		.001	.001	.001		.001	.001	.001

\*Statistically significant effect at level .05.

**Table 3.7: Parameter Estimates and (Standard Errors) for the analysis of scores in each scale of OBVQ of Cypriot students in the experimental group only**

Factors	SCALE A				SCALE B			
	Model 0	Model 1	Model 2	Model 3	Model 0	Model 1	Model 2	Model 3
<b>Fixed part (Intercept)</b>	-0.92 (.09)	-0.42 (.08)	-0.35 (.07)	-0.11 (.05)	-1.82 (.07)	-0.92 (.11)	-0.42 (.11)	-0.21 (.09)
<b>Student Level</b>								
<u>Context</u>								
Prior Measure		0.84 (.02)*	0.84 (.02)*	0.84 (.02)*		0.81 (.02)*	0.81 (.02)*	0.81 (.02)*
Sex (0=boys, 1=girls)		-0.07 (.06)	-0.07 (.06)	-0.06 (.06)		-0.02 (.05)	-0.02 (.05)	-0.02 (.05)
Ethnicity (0=Greek)		0.10 (.06)	0.09 (.06)	0.08 (.06)		0.04 (.06)	0.04 (.06)	0.03 (.05)
SES		-0.17 (.12)	-0.17 (.12)	-0.16 (.12)		-0.07 (.05)	-0.07 (.05)	-0.07 (.05)
<b>School Level</b>								
<u>Context</u>								
Average prior measure		0.17 (.03)*	0.17 (.03)*	0.17 (.03) *		0.10 (.03)*	0.11 (.03)*	0.10 (.03)*
Average SES		0.04 (.04)	0.04 (.04)	0.05 (.04)		-0.07 (.06)	-0.07 (.06)	-0.06 (.06)
Percentage of boys		-0.09 (.07)	-0.09 (.07)	-0.09 (.07)		0.08 (.07)	0.08 (.07)	0.08 (.07)
Percentage of Cypriots		0.05 (.03)	0.05 (.03)	0.05 (.03)		-0.05 (.05)	-0.05 (.05)	-0.05 (.05)
<u>School factors</u>								
Policy on SLE			-0.19 (.06)*	-0.19 (.07)*			-0.14 (.06)*	-0.14 (.06)*
Policy on Teaching			-0.11(.03)*	-0.12(.03)*			-0.09 (.04)*	-0.09 (.04)*
School Evaluation			-0.09 (.03)*	-0.08 (.03)*			-0.11 (.03)*	-0.12 (.03)*
<u>Elements of the intervention</u>								
Effort				-0.09 (.02)*				-0.12 (.04)*
Concerns				0.05 (.05)				-0.06 (.05)
Number of stakeholders involved				-0.06 (.05)				0.04 (.05)
Number of areas addressed				0.04 (.06)				-0.03 (.06)
Number of problems				0.07 (.10)				0.05 (.07)

**Variance components**

School	10.7%	10.5%	9.2%	7.1%	9.1%	9.0%	7.5%	6.0%
Student	89.3%	36.4%	36.3%	36.2%	90.9%	50.1%	49.9%	49.9%
Explained		53.1%	54.5%	56.7%		40.9%	42.6%	44.1%

**Significance test**

X <sup>2</sup>	1571.1	930.0	822.1	702.1	1271.1	830.0	729.1	642.1
Reduction		641.1	107.9	120.0		441.1	100.9	87.0
Degrees of freedom		2	3	1		2	3	1
p-value		.001	.001	.001		.001	.001	.001

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\*Statistically significant effect at level .05.





must be involved in a project and thereby does not attempt first to develop a climate of openness and trust in the schools and then to deal with bullying or any other challenges that the schools are facing. On the contrary, the improvement of the school climate might be a welcome effect of the intervention.

**Table 3.8: Parameter Estimates and (Standard Errors) for the analysis of student attitudes towards the quality of school life (Students within schools)**

Factors	Model 0	Model 1	Model 2	Model 3
<b>Fixed part (Intercept)</b>	1.04 (0.11)	0.62 (0.11)	0.41 (0.11)	0.25 (0.11)
<b>Student Level</b>				
<u>Context</u>				
Prior Measure		0.51 (.04)*	0.51 (.04)*	0.51 (.04)*
Sex (0=Girls, 1=Boys)		-0.15 (.07)*	-0.15 (.07)*	-0.15 (.07)*
Ethnicity (0=Greek, 1=other)		-0.10 (.05)*	-0.10 (.05)*	-0.10 (.05)*
SES		0.10 (.12)	0.10 (.12)	0.10 (.12)
<b>School Level</b>				
<u>Context</u>				
Average prior measure		0.10 (.02)*	0.10 (.02)*	0.10 (.02)*
Average SES		0.06 (.04)	0.06 (.04)	0.06 (.04)
Percentage of boys		-0.08 (.07)	-0.08 (.07)	-0.08 (.07)
Percentage of Cypriots		0.05 (.03)	0.05 (.03)	0.05 (.03)
<u>School factors</u>				
Policy on SLE			0.11 (.03)*	0.11 (.03)*
Policy on Teaching			0.18 (.04)*	0.18 (.04)*
School Evaluation			0.08 (.03)*	0.08 (.03)*
<u>Daphne Intervention</u>				0.74 (.14)*
<b>Variance components</b>				
School	20.5%	19.4%	12.5%	8.1%
Student	79.5%	38.4%	37.4%	37.4%
Explained		42.2%	50.1%	54.5%
<b>Significance test</b>				
$X^2$	2144.8	1034.7	902.3	772.0
Reduction		1110.1	132.4	130.3
Degrees of freedom		4	3	1
p-value		.001	.001	.001

\*Statistically significant effect at level .05.

Table 3.8 is concerned with the impact of the dynamic approach upon the development of positive attitudes towards the quality of school life. The first model presents the variance at individual, and school levels without any explanatory variable (empty model). We can observe that 20.5% of the variance was at the school level and this finding is in line with results of studies measuring school effectiveness in relation to the achievement of affective outcomes in Cyprus (Kyriakides, 2005). In model 1, student background variables were added to the empty model. It was found out that model 1 explains more than 40% of the total variance of student achievement, and most of the explained variance is at the student level. However, more than 30% of the total variance remained unexplained at the student level. We can also observe that the likelihood statistic ( $X^2$ ) shows a significant change between the empty model and model 1 ( $p < .001$ ) which justifies the selection of model 1. Moreover, the effects of all contextual factors at student level (i.e., prior measure, sex, and ethnicity) are significant, but the SES was not found to be associated with final achievement in this affective aim. We can finally observe that prior measure has the strongest effect in predicting their attitudes towards the school life at the end of the intervention and this is the only contextual variable which had an effect when aggregated at the school level. At the next step of the analysis, the three school overarching factors were added to model 1. The three overarching factors were found to be associated with student attitudes towards the quality of their school life. This finding provides further support to the assumption of our theoretical framework claiming that the school factors should be addressed in order to improve school effectiveness in the achievement of affective outcomes of schooling. Finally, a dummy variable measuring the impact of using the dynamic approach to reduce bullying was added at model 2. The figures of the last column of table 3.8 reveal that students of schools which made use of the dynamic integrated approach managed to improve their attitudes towards school life at a higher level than students of the control group. This implies that the proposed approach did not have only an effect on reducing bullying in Cyprus but also on the achievement of affective outcomes of schooling.

**Table 3.9: Parameter Estimates and (Standard Errors) for the analysis of quality of school life as perceived by students in the experimental group only**

Factors	Model 0	Model 1	Model 2	Model 3
<b>Fixed part (Intercept)</b>	1.38 (0.11)	0.76 (0.11)	0.31 (0.11)	0.22 (0.09)
<b>Student Level</b>				
<u>Context</u>				
Prior Measure		0.50 (.04)*	0.50 (.04)*	0.50 (.04)*
Sex (0=Girls, 1=Boys)		-0.18 (.07)*	-0.18 (.08)*	-0.18 (.08)*
Ethnicity (0=Greek, 1=other)		-0.11 (.05)*	-0.11 (.05)*	-0.11 (.05)*
SES		0.14 (.06)*	0.14 (.07)*	0.14 (.07)*
<b>School Level</b>				
<u>Context</u>				
Average prior measure		0.08 (.02)*	0.08 (.02)*	0.08 (.02)*
Average SES		0.07 (.04)	0.07 (.04)	0.07 (.04)
Percentage of boys		-0.05 (.06)	-0.05 (.06)	-0.05 (.06)
Percentage of Cypriots		0.04 (.03)	0.04 (.03)	0.04 (.03)
<u>School factors</u>				
Policy on SLE			0.11 (.03)*	0.10 (.03)*
Policy on Teaching			0.15 (.04)*	0.14 (.04)*
School Evaluation			0.09 (.03)*	0.08 (.03)*
<u>Elements of the intervention</u>				
Effort				-0.12 (.03)*
Concerns				-0.05 (.05)
Number of stakeholders involved				0.02 (.07)
Number of areas addressed				-0.10 (.09)
Number of problems				-0.09 (.08)
<b>Variance components</b>				
School	19.5%	18.4%	10.5%	7.5%
Student	80.5%	39.0%	38.4%	38.4%
Explained		42.6%	51.1%	54.1%
<b>Significance test</b>				
X <sup>2</sup>	1904.8	1004.7	842.3	772.0
Reduction		900.1	162.4	70.3
Degrees of freedom		5	3	1
p-value		.001	.001	.001

\*Statistically significant effect at level .05.

At the next stage, we conducted multilevel analysis of student attitudes towards the quality of school life by drawing data from students of the experimental group only. Table 3.9 presents the parameter estimates

and the standard errors emerged from this analysis. By comparing the figures of models 1 and 2 of this table with those of table 3.8, we can observe that the same factors found to be associated with attitudes towards the quality of the school life of the whole sample of students were also found to be related with this outcome when only the data from the students of the experimental group were used. This finding provides further support to the internal validity of the study. In model 3, variables concerned with the implementation of the intervention were entered into model 2. The figures of the last column reveal that students of those schools which put effort to implement the intervention were those who developed more positive attitudes towards the quality of the school life. This finding is in line with the one reported in table 3.7 and reveals that the schools which put an effort to implement the proposed intervention did not only manage to reduce bullying at a higher level than any other schools but also to help their students develop positive attitudes towards the quality of school life. None of the other explanatory variables was found to be associated with the achievement of this affective outcome and this finding is in line with the figures of table 3.7 concerned with the impact of the intervention on reduction of bullying. The fact that very similar results emerged from analysing the impact of the dynamic approach to reduction of bullying and achievement of affective outcomes provides stronger support to our argument that the use of the dynamic approach had a positive impact on reduction of bullying and on the achievement of affective outcomes that are closely related with the phenomenon of bullying.

## C.2) Greece

### *C.2.1) The functioning of school factors in Greece*

Table 3.10 refers to the main results emerged from descriptive analysis of the Greek teacher responses to the questionnaire measuring the functioning of school factors in their primary schools. The following observations arise from table 3.10. First, by taking into account that the aggregated factor scores at the school level were used in conducting the descriptive statistical analysis, one could claim that the values of standard deviations are relatively high and the minimum and maximum values of each factor show that there is a high range among the schools in relation to the functioning of each school factor and its

dimension. Second, by comparing the mean values of the school factors with those reported in table 3.1, which is concerned with the functioning of school factors in the five participating countries, we could also claim that Greek teachers reported that their schools performed less well in relation to the school factors of the proposed approach. Most of the mean values are lower than the mid point of the Likert scale, implying that a relatively large number of Greek schools may have to develop strategies and action plans to improve the functioning of these factors. However, similar patterns about the functioning of school factors can be identified, as those reported from the across county analysis and in most country reports. For example, these 28 Greek schools managed to obtain relatively higher scores on the frequency dimension of each overarching school factor and lowest on the quality and differentiation dimensions. The same observation can also be drawn by looking at the figures of table 3.1 (across country analysis) and table 3.5 (Cypriot primary schools) mentioned above. Moreover, among the factors concerned with the school learning environment, the policy on student behaviour outside the classroom has the lowest mean value. It is also important to note that the mean values of the two evaluation factors are also much smaller than those reported in the across-country analysis implying that there is a need in Greece to give more emphasis on establishing school evaluation mechanisms for formative reasons.

During the first phase of the study, the Revised Olweus Bully/Victim Questionnaire was administered to our student sample (n=712). Data emerged from OBVQ were analysed by using the Rasch model to create the two relevant scales concerned with the extent to which students are either being bullied (scale A) or they bully other children (scale B). It is first of all important to note that for each scale the one way analysis of variance revealed that the Rasch student estimates within a school are similar, but different from students in other schools (scale A:  $F=3.1$ ,  $p=.001$  scale B:  $F=2.8$ ,  $p=.001$ ). This implies that we can generate scores at school level measuring the extent to which students of each school are being bullied and the extent to which they bully others and for this reason we calculated the aggregated scores of Rasch person estimates of each scale at the school level. By looking at the descriptive figures of the school scores of each scale, it was found out that there was a lot of variance in levels of bullying between schools since the standard deviations of each person scale is relatively high (scale A: 1.25 and scale B:

1.12). These values helped us to identify those schools where bullying incidents were reported very often and to encourage them to participate in the intervention phase of the project.

**Table 3.10: Descriptive statistics for the functioning of each school factor (and its dimensions) at the primary schools in Greece**

School factors and their dimensions	N	Mean	Standard Deviation	Minimum	Maximum
<u>School Policy for Teaching</u>					
1) Quantity of teaching	28	2.48	0.85	1.56	3.01
2) Provision of learning opportunities	28	2.36	0.78	1.79	2.92
3) Quality of teaching	28	2.31	0.82	1.49	2.88
<u>Policy on school learning environment (SLE)</u>					
1) Student behaviour outside the classroom	28	2.25	0.79	1.39	2.78
2) Teacher Collaboration	28	2.73	0.86	1.49	2.92
3) Partnership	28	2.91	0.99	1.76	3.02
4) Provision of resources	28	3.08	0.97	1.49	3.19
School policy for dealing with bullying	28	2.46	0.99	1.26	2.87
Evaluation of policy on teaching	28	2.45	0.91	1.49	2.68
Evaluation of policy on SLE	28	2.41	1.02	1.55	2.67
Policy on Teaching: frequency	28	2.89	0.99	1.66	3.05
Policy on teaching: stage	28	2.72	1.03	1.76	3.02
Policy on teaching: focus	28	2.75	1.05	1.89	3.36
Policy on teaching: quality	28	2.65	0.98	1.58	2.82
Policy on teaching: differentiation	28	2.36	0.91	1.48	2.32
Policy on SLE: frequency	28	2.78	1.09	1.66	2.97
Policy on SLE: stage	28	2.65	1.04	1.56	2.92
Policy on SLE: focus	28	2.64	1.06	1.46	2.82
Policy on SLE: quality	28	2.49	1.01	1.42	2.85
Policy on SLE: differentiation	28	2.40	1.03	1.24	2.75

### *C.1.2) Investigating the impact of the dynamic approach*

This part refers to the main results emerged from investigating the impact of using the dynamic integrated approach to face and reduce bullying upon: a) the reduction of students who are being bullied, b) the reduction of students who bully others, and c) the development of positive attitudes towards the quality of school life.

#### Being bullied

Table 3.11 illustrates the parameter estimates and the standard errors derived from the multi-level analysis of student scores in scale A of the OBVQ. The first model presents the variance at individual, and school level without explanatory variables (empty model or model 0). The figures of model 0 reveal that approximately 10% of the variance in the extent to which students are being bullied (scale A) was at the school level. In model 1, background factors at student and school level were added to the empty model. The likelihood statistic ( $X^2$ ) shows a significant change between the empty model and model 1 ( $p < .001$ ). We can also observe that the effect of prior measure was statistically significant at both the student and the school level whereas gender did not have any effect on the extent to which students are being bullied. In model 2, the impact of the three overarching school factors was added to model 1. The overarching factors concerned with the school learning environment and the school evaluation were found to be associated with the reduction of the extent to which students are being bullied. This finding provides further support to the assumption of our proposed theoretical framework (see chapter 2). Finally, the impact of using the dynamic approach to face and reduce bullying was measured by entering a relevant dummy variable (with schools in the control group as the reference group) to model 1. The figures of table 3.11 reveal that the extent to which students are being bullied was reduced at the schools of the experimental group at a statistically significant higher level than the schools of the control group. Moreover, a medium effect size of the intervention upon the extent to which students are being bullied (scale A) is reported in Greece and this implies that the implementation of the dynamic approach in the primary schools of Greece has a significant impact on reduction of being bullied.



**Table 3.11: Parameter Estimates and (Standard Errors) for the analysis of Greek students score in the scale A of OBVQ (Students within schools)**

Factors	Model 0	Model 1	Model 2	Model 3
<b>Fixed part (Intercept)</b>	-3.13 (.09)	-1.72 (.09)	-0.34 (.10)	-0.14 (.06)
<b>Student Level</b>				
<u>Context</u>				
Prior Measure		0.46 (.03)*	0.46 (.03)*	0.46 (.03)*
Sex (0=boys, 1=girls)		-0.13 (.09)	-0.13 (.09)	-0.13 (.09)
<b>School Level</b>				
<u>Context</u>				
Average prior measure		0.11 (.03)*	0.11 (.03)*	0.11 (.03) *
Percentage of boys		0.09 (.06)	0.09 (.06)	0.09 (.06)
<u>School factors</u>				
Policy on SLE			-0.10 (.04)*	-0.10 (.03)*
Policy on Teaching			-0.05 (.03)	-0.05 (.03)
School Evaluation			-0.09 (.03)*	-0.09 (.03)*
<u>Daphne Intervention</u>				
				-0.39 (.11)*
<b>Variance components</b>				
School	9.1%	8.4%	7.0%	5.3%
Student	90.9%	56.1%	56.0%	55.7%
Explained		35.5%	37.0%	39.0%
<b>Significance test</b>				
X <sup>2</sup>	1875.9	1234.0	1122.5	942.2
Reduction		641.9	111.5	180.3
Degrees of freedom		2	2	1
p-value		.001	.001	.001

\*Statistically significant effect at level .05.

### Bully others

Table 3.12 illustrates the parameter estimates and the standard errors derived from the multi-level analysis of student scores in scale B of the OBVQ. The first model presents the variance at individual, and school level without explanatory variables (empty model). The figures of model 0 reveal that less than 10% of the variance in the extent to which students bully others (scale A) was at the school level. In model 1, background factors at student and school level were added to the empty model. The likelihood statistic (X<sup>2</sup>) shows a significant change between the empty model and model 1 (p<.001). We can also observe

that the effect of both prior measure and gender was statistically significant but only at the student level. In model 2, the impact of the three overarching school factors was added to model 1. Only the overarching factor which is concerned with the school learning environment was found to be associated with the reduction of the extent to which students bully others. Finally, the impact of using the dynamic approach to face and reduce bullying was measured by entering a relevant dummy variable (with schools in the control group as the reference group) to model 1.

**Table 3.12: Parameter Estimates and (Standard Errors) for the analysis of Greek students score in the scale B of OBVQ (Students within schools)**

Factors	Model 0	Model 1	Model 2	Model 3
<b>Fixed part (Intercept)</b>	-3.74 (.04)	-2.12 (.04)	-1.34 (.05)	-0.84 (.05)
<b>Student Level</b>				
<u>Context</u>				
Prior Measure		0.28 (.02)*	0.28 (.02)*	0.28 (.02)*
Sex (0=boys, 1=girls)		-0.13 (.06)*	-0.13 (.06)*	-0.13 (.06)*
<b>School Level</b>				
<u>Context</u>				
Average prior measure		0.08 (.06)	0.11 (.06)	0.08 (.06)
Percentage of boys		0.06 (.05)	0.09 (.06)	0.09 (.06)
<u>School factors</u>				
Policy on SLE			-0.12 (.04)*	-0.12 (.03)*
Policy on Teaching			-0.05 (.03)	-0.05 (.03)
School Evaluation			-0.06 (.04)	-0.06 (.04)
<u>Daphne Intervention</u>				-0.30 (.07)*
<b>Variance components</b>				
Classroom	7.4%	7.3%	6.2%	5.3%
Student	92.6%	46.1%	46.0%	55.7%
Explained		46.6%	47.8%	39.0%
<b>Significance test</b>				
X <sup>2</sup>	1183.3	1031.0	952.5	842.2
Reduction		152.3	78.5	110.3
Degrees of freedom		2	1	1
p-value		.001	.001	.001

\*Statistically significant effect at level .05.

The figures of table 3.12 reveal that the extent to which students bully others was reduced at the schools of the experimental group at a statistically significant higher level than the schools of the control group. Although the effect size of the intervention upon the extent to which students bully others is smaller than the relevant effect size of the intervention on the reduction of victims (scale A), it is important to note here that both effect sizes are statistically significant and their values are higher than those reported in most school reform studies which take place for a short period. It can, therefore, be claimed that this project reports positive results about the effectiveness of using the dynamic approach in the primary schools of Greece in terms of reducing bullying incidents.

#### Quality of school life (as perceived by students)

Table 3.13 is concerned with the impact of the dynamic approach upon the student attitudes towards the quality of school life. The first model presents the variance at individual, and school levels without any explanatory variable (empty model). We can observe that approximately 12% of the variance was at the school level and this finding implies that there is significant variation in the effectiveness of Greek schools in relation to the achievement of relevant affective outcomes of schooling. In model 1, student background variables were added to the empty model and only prior attitudes were found to be associated with their final attitudes towards the quality of the school life. Moreover, it was found out that model 1 explains more than 40% of the total variance of student achievement, and almost all of the explained variance is at the student level. We can also observe that the likelihood statistic ( $X^2$ ) shows a significant change between the empty model and model 1 ( $p < .001$ ) which justifies the selection of model 1. At the next step of the analysis, the three school factors were added to model 1. The figures of the third column of table 3.13 reveal that the two overarching factors concerned with school policy on teaching and the school learning environment were associated with student attitudes towards the quality of their school life. This finding provides further support to the assumption of our theoretical framework claiming that the school factors should be addressed in order to help schools reduce bullying and improve the attitudes of their students towards the quality of the school life. Finally, a dummy variable measuring the impact of

using the dynamic approach to reduce bullying was added at model 2. The figures of the last model reveal that students of schools which made use of the dynamic integrated approach managed to improve their attitudes towards school life at a higher level than students of the control group. The effect size of using the dynamic approach to achieve relevant affective aims was found to be small but this finding is in line with results of effectiveness studies conducted in various countries showing that the school effect in the achievement of affective outcomes is much smaller than the school effect in the achievement of cognitive outcomes (Kyriakides, 2007; Teddlie & Reynolds, 2000). It can therefore be claimed that the implementation of the dynamic approach in the Greek schools did not only have a significant effect on reducing bullying but also on the achievement of a relevant affective outcome.

**Table 3.13: Parameter Estimates and (Standard Errors) for the analysis of quality of school life (Greek Students within schools)**

<b>Factors</b>	<b>Model 0</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
<b>Fixed part (Intercept)</b>	1.43 (.08)	0.47 (.08)	0.34 (.10)	0.14 (.05)
<b>Student Level</b>				
<u>Context</u>				
Prior Measure		0.60 (.04)*	0.61 (.04)*	0.61 (.04)*
Sex (0=boys, 1=girls)		0.06 (.08)	0.06 (.08)	0.06 (.08)
<b>School Level</b>				
<u>Context</u>				
Average prior measure		0.18 (.06)*	0.18 (.06)*	0.18 (.06)*
Percentage of girls		0.06 (.05)	0.06 (.06)	0.07 (.06)
<u>School factors</u>				
<i>Policy on SLE</i>			0.10 (.04)*	0.11 (.04)*
<i>Policy on Teaching</i>			0.15 (.06)*	0.15 (.06)*
<i>School Evaluation</i>			0.06 (.04)	0.06 (.04)
<u>Daphne Intervention</u>				0.24 (.11)*
<b>Variance components</b>				
School	11.9%	11.3%	8.2%	5.3%
Student	88.1%	46.1%	46.0%	45.7%
Explained		42.6%	45.8%	49.0%
<b>Significance test</b>				
X <sup>2</sup>	1700.9	1380.8	1322.5	1302.2
Reduction		320.1	58.3	20.3
Degrees of freedom		2	2	1
p-value		.001	.001	.001

\*Statistically significant effect at level .05

### C.3) the Netherlands

#### *C.3.1) Investigating the functioning of school factors in Dutch primary schools*

The first part of this section refers to the results emerged from the first phase of the study in the Netherlands. First, we investigate the extent to which there is variation in the functioning of school factors in the 50 Dutch participating primary schools. After construction of factors and dimensions based on the *Dynamic model of educational effectiveness*, the data were aggregated at school level (see chapter 2 section B.4). Table 3.14 presents the results of descriptive statistical analysis. The following observations arise from this table. First, Dutch primary schools paid more attention to their policy on teaching than on school learning environment (SLE). This can be deduced from both the school average factor and dimension scores presented in the last two columns of Table 3.14. The mean factor scores were higher for the three factors concerned with the policy on teaching (quantity of teaching: 3.33; provision of learning opportunities: 3.37; quality of teaching: 3.56) than for the factors concerned with the school policy on SLE (student behaviour outside the classroom: 2.70; collaboration among teachers: 3.46; partnership with stakeholders: 3.05; provision of learning resources: 3.23). Moreover, all dimension scores concerning the overarching factor concerned with policy on teaching were higher than those of the policy on SLE (respectively, frequency: 3.28 vs. 2.01; stage: 3.53 vs. 3.10; focus: 3.35 vs. 3.19 and quality: 3.23 vs. 2.99). However, the opposite applied for the evaluation policy of the Dutch schools. Evaluation of the school policy on teaching (3.20) occurred *less* often than evaluation of the school policy on SLE (3.30). Finally, the results show that Dutch schools pay less attention to the policy regarding bullying (3.07) than to the policy regarding SLE or teaching. The mean and standard deviations of school factors and dimensions are also presented separately for each intervention group. Testing the between-group differences revealed no statistically significant differences at .05 level.

**Table 3.14: Descriptive statistics for the functioning of school factors**

School factors and their dimensions	Group 1: Dynamic approach (n=14)		Group 2: Control (n=18)		Group 3: Social network (n=18)		Total (n=50)	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
<u>School Policy on teaching:</u>								
1) quantity of teaching	3.36	(.31)	3.38	(.43)	3.25	(.62)	3.33	(.48)
2) provision of learning opportunities	3.40	(.36)	3.42	(.40)	3.30	(.38)	3.37	(.38)
3) quality of teaching	3.59	(.27)	3.60	(.35)	3.50	(.39)	3.56	(.34)
<u>Policy on School Learning Environment (SLE)</u>								
1) student behaviour outside classroom	2.68	(.48)	2.79	(.34)	2.64	(.60)	2.70	(.48)
2) collaboration among teachers	3.41	(.43)	3.49	(.42)	3.45	(.43)	3.46	(.42)
3) partnership with stakeholders	2.95	(.46)	3.21	(.39)	2.96	(.51)	3.05	(.47)
4) provision of learning resources	3.31	(.41)	3.30	(.49)	3.09	(.37)	3.23	(.43)
evaluation of policy on teaching	3.15	(.36)	3.21	(.49)	3.23	(.46)	3.20	(.44)
evaluation of policy on SLE	3.22	(.36)	3.36	(.37)	3.30	(.39)	3.30	(.37)
school policy for dealing with bullying	3.06	(.36)	3.12	(.31)	3.02	(.28)	3.07	(.32)
school policy on teaching (frequency)	3.39	(.54)	3.30	(.65)	3.16	(.66)	3.28	(.62)
school policy on teaching (stage)	3.54	(.38)	3.50	(.56)	3.56	(.52)	3.53	(.49)
school policy on teaching (focus)	3.33	(.29)	3.46	(.36)	3.25	(.62)	3.35	(.46)
school policy on teaching (quality)	3.34	(.55)	3.24	(.52)	3.15	(.56)	3.23	(.54)
policy on SLE (frequency)	2.97	(.38)	3.17	(.45)	2.88	(.56)	3.01	(.48)
policy on SLE (stage)	3.10	(.51)	3.13	(.45)	3.07	(.61)	3.10	(.52)
policy on SLE (focus)	3.24	(.39)	3.26	(.40)	3.08	(.39)	3.19	(.40)
policy on SLE (quality)	2.83	(.49)	3.17	(.39)	2.93	(.45)	2.99	(.45)

*C.3.2) Investigating the impact of using the dynamic approach to face and reduce bullying*

Descriptive statistics of the student background characteristics of the control and the two intervention groups are presented in Table 3.15. The figures of this table show that the three intervention groups did not differ with respect to gender and the proportion students with divorced parents. However, the proportion of ethnic minority students in group 1 (28.3%) was significantly larger than in the other groups (19.1% and 19.7%;  $p=0.003$ ). Moreover, the average number of siblings in the control group was smaller than in group 1 ( $p=0.006$ ) and group 3 ( $p=0.002$ ).

**Table 3.15: Descriptive statistics of student background characteristics for each group**

	<b>Group 1: Dynamic Approach</b>	<b>Group 2: control</b>	<b>Group 3: Social network</b>
Number of students	219	314	330
Boys	49.5%	49.4%	50.9%
Ethnic minority	28.3%	19.1%	16.7%
Number of siblings	2.0 (1.3)	1.6 (1.3)	2.0 (1.5)
Parents divorced	16.4%	20.0%	19.0%

Table 3.16 refers to the mean and standard deviation values of the three groups in relation to each outcome measure. The following observations arise from this table. First, the three groups were not completely similar before the start of the intervention period (T1). At that occasion the students in group 3 reported the lowest average level of being bullied and bullying other students. The average level of being bullied was -2.71 logits in group 3, -2.23 in group 1 ( $p=.005$ ) and -2.27 in group 2 ( $p=.005$ ). The average tendency to bully other students was -3.55 in group 3. This was significantly lower than in group 1 (-3.07,  $p<.001$ ) and in group 2 (-3.32,  $p=.043$ ). The average appreciation of the quality of school life before the start of the intervention did not differ between the three groups.

**Table 3.16: Average (SD) of the outcome measures for Dutch grade 5 students at the pre (T1) and post intervention (T2) measurement occasion**

<b>Outcome*</b>	<b>Occasion</b>	<b>Group 1: Dynamic model</b>	<b>Group 2: Control</b>	<b>Group 3: Social network</b>
Being bullied (Scale A)	T1	-2.23 (1.60)	-2.27 (1.62)	-2.71 (1.44)
	T2	-2.84 (1.42)	-2.43 (1.62)	-2.84 (1.53)
Bully (Scale B)	T1	-3.07 (1.39)	-3.32 (1.10)	-3.55 (.89)
	T2	-3.36 (.89)	-3.21 (1.08)	-3.41 (.94)
Quality of school life	T1	1.28 (1.08)	1.29 (1.24)	1.30 (1.45)
	T2	1.15 (1.02)	1.37 (1.27)	1.34 (1.11)
Social cognition	T2	.49 (.33)	.53 (.29)	.53 (.34)

\* Rash person estimates (in logits) of the outcome variables are presented in the table. The logits emerged from across country analyses (see chapter 2 section B)

After the intervention phase (T2) the student's tendency to be bullied or to bully other students, and the quality of school life were determined among 863 Dutch grade 5 students for the second time. At that occasion the social cognition test was filled out by 93% of them. In Table 3.16 the results of the main outcome measures at the pre and post-intervention occasion are presented for the students who filled out the questionnaire at both occasions. The first raw analyses indicated that the Dynamic model intervention is more effective with respect to the reduction of bullying than the Social network intervention. In group 1 the students became less often victim of bullying: the average tendency of being bullied decreased from -2.23 to -2.84 (Student's paired t-test:  $p=.001$ ). In group 2 and 3 the tendency of being bullied was also decreased at the end of the intervention period, but the reduction in group 1 was significantly larger than



in group 2 ( $p=.010$ ) and group 3 ( $p=.005$ ). The corresponding effect sizes of the reduction of being bullied in group 1, 2 and 3 were respectively 0.40, 0.09 and 0.08.

With respect to the tendency to bully the situation improved only in group 1. In group 1 the average tendency to bully decreased from -3.07 to -3.36 (Student's paired t-test:  $p=.03$ ), whereas it slightly increased in group 2 (from -3.32 to -3.21) and group 3 (from -3.55 to -3.41). The change in group 1 was significantly larger than in group 2 ( $p<0.001$ ) and group 3 ( $p<0.001$ ). The effect sizes for the observed average changes were 0.24 in group 1, -0.10 in group 2, and -0.15 in group 3.

Finally, table 3.16 suggests that both the Dynamic model intervention and the Social network intervention did not have any effect on the quality of school life (as perceived by students) or the social cognition of the students. It was found that the change in quality of school life between the pre and post intervention occasion differed not significantly between the three groups. The student's social cognition was only measured at the post intervention occasion. At this occasion the average level of social cognition was almost similar for the three groups. Assuming that randomization of the schools at start had resulted in similar average social cognition scores for the three groups at the pre intervention occasion, it seems rather unlikely that the intervention programs had affected the average social cognition score of the students. In the next part of this section, the nested character of our data was taken into account and separate multi-level analyses were conducted (see Table 3.17).

### Being bullied

In Model 1 (Table 3.17) the student's background characteristics<sup>3</sup> were added to the empty model (Model 0), together with the school's average of the concerning outcome measure before the start of the intervention (T1). In case of the outcome measure 'being bullied' at T2 this is the school average of the tendency of being bullied at T1. The characteristics gender, ethnicity, and divorced parents were also

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<sup>3</sup> The number of siblings, a student background characteristic, appeared not to be related to the outcome variables of this study. Therefore it was not necessary to consider this variable as a covariate in the multi-level analyses.

added but removed again, as they were not significantly related to the tendency of being bullied at the post intervention occasion.

**Table 3.17: Results of the multi-level analyses for bullying behaviour, quality of school life and social cognition of Dutch grade 5 students at the post intervention measurement occasion (T2)**

Parameter		Being bullied (Scale A)	Bully (Scale B)	Quality of school life	Social cognition
<b>Model 0</b>	Intercept	-2.708 (.081)	-3.287 (.071)	1.332 (.068)	.519 (.019)
	<i>variance L1</i>	2.260 (.124)	.830 (.043)	1.277 (.069)	.090 (.005)
	<i>variance L2</i>	.122 (.058)	.160 (.046)	.096 (.040)	.010 (.003)
<b>Model 1</b>	Intercept	-1.441 (.299)	-2.441 (.277)	.592 (.215)	.567 (.022)
	Boys	--	.155 (.061)	--	-.047 (.021)
	ethnic minority	--	1.036 (.081)	--	-.109 (.030)
	divorced parents	--	--	.240 (.109)	--
	school average outcome T1	.518 (.119)	.354 (.081)	.531 (.158)	--
	<i>variance L1</i>	2.254 (.123)	.706 (.036)	1.265 (.068)	.088 (.005)
	<i>variance L2</i>	.044 (.039)	.028 (.015)	.059 (.030)	.009 (.003)
	Deviance	2589	1987	2245	372
	R <sup>2</sup> L1	3.5%	25.9%	3.6%	3.0%
	<b>Model 2</b>	Intercept	-1.277 (.299)	-2.182 (.272)	.596 (.225)
Boys		--	.155 (.060)	--	-.046 (.021)
Ethnicity		--	1.046 (.078)	--	-.107 (.030)
divorced parents		--	--	.237 (.109)	--
school average outcome T1		.498 (.121)	.419 (.074)	.528 (.154)	--
group 1		-.414 (.160)	-.246 (.089)	-.141 (.163)	-.050 (.046)
group 3		-.257 (.157)	.067 (.079)	.067 (.129)	-.025 (.043)
<i>variance L1</i>		2.246 (.123)	.711 (.037)	1.265 (.068)	.088 (.005)
<i>variance L2</i>		.027 (.034)	.006(.009)	.053 (.029)	.008 (.003)
Deviance		2582	1976	2243.2	371
R <sup>2</sup> L1	4.6%	27.6%	4.0%	4.0%	

Note: L1 is student level, L2 is school level. R<sup>2</sup> L1 is the percentage explained variance at the student level. Rash estimates of the outcome variables in logits are shown.

In model 2, the two dummy variables intervention group 1 and 3 (contrasted against the control group 2) were added to model 1. The figures of Model 2 show that only the Dynamic model intervention (*group 1*)

was effective in reducing the tendency of being bullied (one-tailed,  $p=.005$ ). The effectiveness of the social network intervention (*group 3*) was not convincing enough: the estimated effect did not reach significance (one-tailed,  $p=.051$ ). Thus, students in the Dynamic model intervention became less often victim of bullying behaviour by their classmates over time compared to the students in the control group.

### Bully others

From Model 1 for the tendency to bully at T2 it emerged that boys (.155,  $p=.006$ ) and ethnic minority students (1.036,  $p<.001$ ) have a significantly larger tendency to bully other students than respectively girls and native Dutch students (see Table 3.17). In Model 2 the intervention groups were added. Again, only the parameter estimate of group 1 (-.246,  $p=.003$ ) was statistically significant. Thus, the Dynamic model intervention was more effective in reducing the tendency to bully other students than continuation of the regular anti-bullying policy that was done by the control schools.

### Quality of school life

In the quality of school life models, like in the being bullied models, none of the student background characteristics were relevant covariates (see Table 3.17, Model 1). In Model 2 the intervention groups were added to Model 1. It was found that the effects of group 1 (-.141,  $SE=.163$ ) and group 3 (.067,  $SE=.129$ ) were not significantly different from that of the control group. Thus, the Dynamic model intervention and the Social network intervention had no impact on the development of positive student attitudes towards the quality of school life.

### Social cognition

As the student's social cognition was only measured at T2, it could not be determined whether the interventions in group 1 and 3 might have *changed* the social cognition test scoring of the students. Model 1 in table 3.17 shows that the social cognition test score of boys was on average lower than that of girls (-.047,  $p=0.012$ ). Besides, ethnic minority students had in general a lower social cognition test score than

Dutch native students ( $-.109$ ,  $p < .001$ ). From Model 2 one can deduce that the effects of group 1 ( $-.050$ ,  $SE = .046$ ) and group 3 ( $-.025$ ,  $SE = .043$ ) were not significantly different from that of the control group. Thus, taken into account the gender and ethnicity of the students, it was found that the Dynamic model intervention and the Social network intervention had not resulted in a difference in the average social cognition test score at T2.

In the last part of this section, we draw from the data emerged from the implementation questionnaire which was returned from 10 out of 13 schools of group 1, 14 out of 15 schools of group 2, and 12 out of the 16 schools of group 3. Schools of group 1 (the dynamic model intervention) reported that they have worked on at least one domain of the Dynamic model of Educational Effectiveness during the intervention period. These domains were the policy on teaching ( $n=4$ ), the policy on school learning environment ( $n=8$ ), and the school evaluation factor ( $n=3$ ). At least half of the schools made systematic use of the project's handbook "*Guidelines for designing Strategies and Actions to face Bullying*" to design their strategies. Popular sections to work on were: quality of teaching, student behaviour outside of the classroom, and evaluation of the learning environment. Almost all schools ( $n=8$ ) reported that they worked on the implementation of their strategies at a moderate to intensive manner. Looking at the realization of the action plans, it appeared that schools implemented some of the strategies at the school management level: they arranged closer cooperation between staff, and created a 'work group' specialized in an anti-bullying approach. However, most of the strategies were implemented at a lower level, for example: schools implemented lessons to stimulate student's social emotional development, increased school yard surveillance, or evaluate the school learning environment by administering sociograms.

Schools of group 2 (the control group) continued executing their existing school policy on bullying. This policy contained one or more of the following strategies: use of specific methods to stimulate student's social emotional development, digitally administration of sociograms, or focusing on student's behaviour. The control schools claimed they implemented their policy at a moderate ( $n=5$ ), intensive ( $n=5$ ) and very intensive ( $n=4$ ) manner.

Schools of group 3 (the Social Network intervention) reported that they have worked on their strategies at a moderate or intensive manner but their intervention. Looking at the realization of the action plans, it appeared that all schools indeed implemented their strategies at the classroom level. They used the network information in several ways, for example: focusing on class climate, using a specific method to stimulate a student's social emotional development, and/or looking at the role students own in order to match students for class assignments or for reorganizing the classroom set-up.

The Dutch part of the Daphne project showed that the Dynamic model intervention is the most effective approach in reducing bullying. From the multi-level analyses it appeared that both the tendency to be bullied and to bully other students in schools that applied the Dynamic model intervention (group 1) decreased more than in schools that continued their current anti bullying policy (group 2) or schools that used the social network analyses approach in grade 5 (group 3). This effect remained while controlling for differences in student background characteristics and initial level of the outcome variables. At the start of the study the three groups were similar with respect to their school policy on teaching and school learning environment and dealing with bullying. Knowing that the dynamic model approach was effective in dealing with bullying at primary schools, the question rises in what way the actions of schools using this approach were different from what the control schools did during the intervention period.

**Table 3.18: Top 5 of the Dynamic model intervention schools with the largest reduction in bullying and being bullied between the pre (T1) and post intervention occasion (T2)**

School	BEING BULLIED			School	BULLY		
	T1	T2	Change T2 - T1		T1	T2	Change T2 - T1
<b>A</b>	-1.44	-2.88	-1.55	<b>D</b>	-1.53	-2.74	-1.21
<b>B</b>	-1.74	-3.09	-1.35	<b>A</b>	-2.68	-3.19	-0.51
<b>C</b>	-1.39	-2.73	-1.23	<b>C</b>	-2.71	-3.23	-0.46
<b>D</b>	-1.27	-1.93	-0.91	<b>F</b>	-3.01	-3.44	-0.42
<b>E</b>	-2.15	-2.93	-0.80	<b>E</b>	-3.45	-3.74	-0.28

*Note.* Rash estimates of the outcome variables are shown.

The analyses of the implementation questionnaires suggested that the schools which made use of the dynamic approach managed to change aspects of their school policy that applied - as intended - to their whole school. To get a better insight into successful strategies of schools of the Dynamic model intervention group, five schools with the largest reduction of bullying were investigated in detail. First, only the Dynamic model schools with data of more than 10 students were selected. For each student the change in tendency to be bullied and to bully between the T1 and T2 was calculated and averaged over the school. The schools were sorted on the size of the change (descending) in being bullied and bully. The other five schools with the largest decrease in being bullied and bullying others are presented in table 3.18. These are the 'best practice' schools.

Table 3.18 shows for example, that in school B the average tendency to be bullied changed from -1.74 at the pre intervention occasion (T1) to -3.09 at the post intervention occasion (T2), leading to an average reduction of 1.35. The school B is the second best school. As can be seen in table 3.18, there were four Dynamic model schools that belonged to the best five schools with respect to both the reduction of being bullied and the reduction of bullying other students: schools A, C, D and E. The implementation questionnaire gave insight into the actions of the four best performing schools A, C, D and E. Three of them reported that they made systematic use of the project's handbook. Each school took several actions during the intervention period. The most often applied actions were improving the surveillance at the school yard (4) and during lunch break (3), making or up-dating the school's behaviour code (4), organising activities for improving the consciousness of students and staff with respect to bullying behaviour at their school (3), creating a closer cooperation between staff (4) and with students (3). According to school A the most successful anti-bullying actions were making a school behaviour code, in combination with formulating class rules carried by teachers and students, and using the results from sociograms. School C and D reported both that the closer cooperation between staff was their key to success; school D warmly commended a special anti-bullying working group. Finally, school E said that a better organization of the surveillance at the school yard was their most important action.

### Searching for the impact of contextual factors

In order to test whether there is a relationship between school contextual and policy factors and bullying in this study, the data of the Olweus bullying variables at the pre intervention occasion (T1) were combined with five school contextual factors from the national inspectorate and ten Dynamic model school effectiveness factors. Multi-level modelling was used to look at the relationship between these school-level factors and bullying at the student level. The dependent variables in the models were the Rash estimates of the tendency to be bullied (scale A) and bully others (scale B). The school contextual factors serving as predictors were: school size, high proportion of ethnic minority students (>10% of the school population has an ethnic minority background; dichotomous variable), proportion of low SES students (proportion of students with low educated parents), school type (public (*reference*), Roman Catholic, Protestant or other non public schools), and school localization. The school policy factors that were included as predictors were: the quantity of teaching, provision of learning opportunities, quality of teaching, student behaviour outside the classroom, collaboration among teachers, partnership with stakeholders, provision of learning resources, school policy on dealing with bullying, evaluation of the policy on teaching and evaluation of the policy on SLE. The results of the multi-level modelling are summarized in table 3.19 and the following observations arise from this table.

The figures of the empty model reveal that there is a significant amount of variance at the school level (L2). Dutch schools differed from each other with respect to the tendency to be bullied and to bully others. Therefore, it is worthwhile exploring which school context or school policy factors may explain the differences in bullying outcomes between schools. The main results of this exploration are shown in Model 1.

From the five school contextual factors and ten Dynamic model school effectiveness factors, only one school contextual factor and one school policy factor were relevant. There was a strong significant relationship between the proportion of low SES students and the tendency of being bullied (1.172) and bullying other students (1.344). When controlling for this factor, the contribution of the proportion of ethnic minority students and school type were not significant. The most important school context

characteristic is the SES of the school population: bullying was more likely to happen in schools with high proportions of low SES students. Model 1 also shows that the most important school policy factor is the quantity of teaching (table 3.19). The higher the level of quantity of teaching - teaching time -, the lower the tendency to be bullied (-.735) and to bully others (-.538). This suggests that the more schools are able to use school time effectively, the less room there is for bullying. This effect was significant. The additional effect of the average provision of learning opportunities (respectively, .265 and .283) was not large enough to reach significance. The school-level variables in Model 1 explained 29.8% of the variance at school level in being bullied, and 42.4% of the school level variance in bullying.

**Table 3.19: Multi-level results of the impact of School level factors on bullying behaviour of Dutch grade 5 students at the pre intervention measurement occasion (T1)**

Parameter		Being bullied (Scale A)	Bully (Scale B)
<b>Model 0</b>	Intercept	-2.422 (.094)	-3.276 (.081)
	<i>variance L1</i>	2.221 (.123)	1.253 (.068)
	<i>variance L2</i>	.208 (.078)	.186 (.059)
	Deviance	2516	2253
<b>Model 1</b>	Intercept	-1.073 (1.071)	-2.639 (.814)
	<i>School context:</i>		
	high proportion ethnic minority students	-.397(.426)	-.089(.326)
	proportion low SES students	1.712 (.620)	1.344 (.472)
	<i>school type:</i>		
	- Roman Catholic	-.094 (.244)	-.095 (.190)
	- Protestant	-.140 (.206)	-.043 (.163)
	- other non-public schools*	-.170 (.313)	-.108 (.249)
	<i>School policy:</i>		
	average quantity of teaching	-.735 (.311)	-.538 (.220)
	average provision of learning opportunities	.265 (.302)	.283 (.234)
	<i>variance L1</i>	2.206 (.123)	1.254 (.068)
	<i>variance L2</i>	.113 (.056)	.080(.035)
	Deviance	2502	2232
R <sup>2</sup> L1	9.2%	12.8%	
R <sup>2</sup> L2	29.8%	42.4%	

*Note:* L1 is student level, L2 is school level. R<sup>2</sup> L1 is the percentage explained variance at the student level. Rash estimates of the outcome variables are shown.

\*: three Islamic schools made part of the sample and were classified as ‘other non-public schools’.



## C.4) England

### C.4.1) Investigating the functioning of school factors in English primary schools

Teachers from 35 different schools completed the questionnaire measuring the functioning of the school factors. After creating factor scores, the data were aggregated at school level (see Chapter 2, section B.4).

Table 3.20 summarizes the results for all the factors (and dimensions) in terms of number of schools, minimum and maximum values, mean and standard deviation. These results provide a picture of the functioning of the 35 schools regarding the factors included in the theoretical framework of our study.

**Table 3.20: Descriptive statistics for different factors (and dimensions) related to school policy (at school level)**

School factors and their dimensions	N	Minimum	Maximum	Mean	Std. Deviation
<i>School policy on teaching</i>					
quantity of teaching	35	3,10	4,79	3,5235	,37344
provision of learning opportunities	35	3,12	4,62	3,5703	,36298
Quality of teaching	35	2,87	4,58	3,487	,43060
<i>policy on school learning environment (SLE)</i>					
student behaviour outside the classroom	35	2,28	3,79	2,9682	,4712
collaboration among teachers	35	2,31	4,37	3,3868	,47025
partnership with stakeholders	35	2,37	4,15	3,0421	,42177
provision of learning resources	35	2,27	3,41	3,0186	,41373
<i>school policy for dealing with bullying</i>					
evaluation of policy on teaching	35	2,14	3,89	2,7598	,45780
evaluation of policy on SLE	35	2,57	5,00	3,4724	,48975
school policy on teaching (frequency)	35	3,60	4,97	4,1866	,29413
school policy on teaching (stage)	35	1,94	5,00	2,8105	,57078
school policy on teaching (focus)	35	2,58	4,55	3,47264	,45176
school policy on teaching (quality)	35	2,08	4,42	3,32750	,53280
policy on SLE (frequency)	35	1,79	3,57	2,8905	,49077
policy on SLE (stage)	35	2,32	4,88	2,9540	,62125
policy on SLE (focus)	35	2,30	4,07	3,0164	,36118
policy on SLE (quality)	35	2,66	4,47	3,6298	,36559

In sum, the English schools score highest on the frequency dimension of the factor ‘school policy on teaching’ (3.60), and lowest on the frequency of evaluating the school policy on school learning environment (1.79). Also and overall, the mean factor scores are higher for school policy on teaching than for policy on the school learning environment. Similar findings about the mean scores of the school factors have been reported in the section concerned with the across-country analysis of data and in most sections presenting results emerged from the within-country analyses.

The Olweus questionnaire has been filled out by 555 students of the fifth grade in 35 different schools on two occasions, before and after the intervention. As regards scale A –the extent to which students are *victims* of bullying- a mean of -3.41 before the intervention emerged implying that the extent to which English students are bullying is generally speaking very low. As regards scale B –the extent to which students are bullying- the English Rasch scores at individual student level range from -4 to 2, with a mean of -3.80 before the intervention and a standard deviation 0.76. Thus, the extent to which English students report themselves bullying is also very low.

#### *C.4.2) Investigating the impact of the dynamic approach*

Table 3.21 presents the descriptive statistics of the student background characteristics. The three groups did not differ with respect to ethnicity and the proportion of students speaking English as an additional language. However, the proportion of pupils eligible for Free School Meals in group 1 was significantly larger than in the other group, as was the percentage of boys.

As shown in table 3.22, no significant differences existed between the intervention and comparison groups before or after the intervention, though the overall scores on quality of teaching had improved in the Dynamic Model intervention group. Table 3.23 presents the results emerged from conducting a multilevel analysis of students’ final scores in each outcome measure which helps us to measure the impact of the intervention on reduction of bullying and on the improvement of student attitudes towards the quality of school life.

**Table 3.21: Background characteristics of the English students for each intervention group**

	<b>Group 1: Dynamic Model intervention</b>	<b>Group 2: Comparison interventions</b>
Number of students	289	266
Boys	<b>53.4%</b>	<b>47.8%</b>
Ethnic minority	13.6%	13.3%
Eligible for Free School meals	<b>28.4%</b>	<b>23.1%</b>
English as an additional language	8.8%	7.9%

**Table 3.22: Average (SD) of the main outcome measures for English grade 5 students at the pre (T1) and post intervention (T2) measurement occasion**

<b>Outcome</b>	<b>Occasion</b>	<b>Group 1: Dynamic Model Intervention</b>	<b>Group 2: Comparison interventions</b>
Scale A Rash - being bullied	<b>T1</b>	-3.40 (1.28)	-3.42 (1.31)
	<b>T2</b>	-3.45 (1.37)	-3.42 (1.31)
Scale B Rash - bully	<b>T1</b>	-3.82 (0.73)	-3.77 (0.80)
	<b>T2</b>	-3.82 (0.66)	-3.75 (0.78)
Quality of school life - Rash	T1	<b>1.36 (1.08)</b>	<b>1.38 (1.24)</b>
	T2	<b>1.51 (1.02)</b>	<b>1.45 (1.27)</b>

Being bullied

In Model 1 (table 3.23) the student's background characteristics gender, ethnic minority percentage, and percentage of pupils eligible for Free School meals were added to the empty model (Model 0), together with the schools average of the outcome measure at before start of the intervention (T1), in this case the school average of the tendency being bullied at T1. It is clear from this model that scores at times 1 and 2 were highly correlated. School level variance was completely explained by this model, and so was the

vast majority of variance at the pupil level. Gender and ethnicity were not significantly related to outcomes, there was a weak relationship with Free school Meal eligibility. Because of the strong correlation between the Olweus scale measures at times 1 and 2 there was no added variance explained by the Dynamic Model intervention in model 2.

**Table 3.23: Results of the multi-level analyses for Rash estimates of bullying behaviour and quality of school life of English grade 5 students at the post intervention measurement occasion**

	<b>Parameter</b>	<b>Being bullied (Scale A)</b>	<b>Bully (Scale B)</b>	<b>Quality of school life</b>
<b>Model 0</b>	intercept	-3.424 (.090)	-3.792 (.044)	1.301 (.075)
	<i>variance L1</i>	1.247 (.079)	.480 (.030)	1.200 (.074)
	<i>variance L2</i>	.301 (.068)	.045 (.016)	.148 (.076)
<b>Model 1</b>	intercept	-0.581 (.299)	-0.434 (.057)	0.489 (.174)
	boys	-0.014 (.210)	.000 (.009)	.000 (.000)
	ethnic minority	-0.021 (.187)	-.013 (.081)	-.006 (0.42)
	Free School Meal eligibility	0.639 (.207)	0.425 (.214)	.157 (.091)
	outcome T1	0.825 (.019)	.884 (.014)	.612 (.213)
	<i>variance L1</i>	0.343 (.021)	.065 (.004)	0.639 (.055)
	<i>variance L2</i>	.000 (.000)	.000 (.000)	.046 (.025)
	R <sup>2</sup> L1	82.4%	86.5%	55.2%
	<b>Model 2</b>	intercept	-0.581 (.299)	-0.419 (.057)
boys		-0.014 (.210)	.000 (.009)	.000 (.000)
ethnicity		-0.020 (.186)	-.013 (.081)	-.006 (0.42)
Free School meal eligibility		0.636 (.206)	0.422 (.213)	.153 (.090)
outcome T1		0.825 (.019)	.883 (.014)	.612 (.211)
group 1		-.024 (.050)	-.035 (.022)	.065 (.060)
<i>variance L1</i>		0.343 (.021)	0.065 (.004)	0.639 (.055)
<i>variance L2</i>		.000 (.000)	.000 (.000)	.046 (.025)
R <sup>2</sup> L1		82.4%	86.5%	55.8%

*Note:* L1 is student level, L2 is school level. R<sup>2</sup> L1 is the percentage explained variance at the student level.

### Bully others

A similar picture emerges for the tendency to bully others (scale B). Again, the vast majority of variance is explained when the measure prior to the intervention is added to the model, with Free School Meal eligibility being marginally significant and the other background variables having no significant impact. As a consequence, the intervention did not show a significant relation with outcomes in model 2.

### Quality of school life

In the quality of school life models, none of the student background characteristics were relevant covariates except for the pre-intervention measure, which explained over 50% of the between pupil variance in scores. No relationships were found with the interventions in model 2.

Overall, in the English schools studied, frequency of bullying was very low and stable. The stability was such that pre-implementation measures explained the vast majority of the variance in post-implementation measures, with other variables, including the intervention, not explaining a significant amount of variance.

While the English data did not show any intervention effect, mainly due to the strong correlation between pre-and post-intervention measures which subsumed most of the variance, there was nevertheless significant between school differences in bullying outcomes. In the final part of this section we will therefore explore possible school contextual factors that may explain these differences in bullying outcomes. School level predictors are often divided into two different categories: school context and school climate (Ma, Stewin, & Mah, 2001; Payne & Gottfredson, 2004). School context refers to structural characteristics such as school size and the neighbourhood's socioeconomic status (SES).

In order to test whether a relationship exists between bullying and school contextual factors in this study we combined data from the Olweus scales at time 2 with data from the teacher questionnaire and existing public data that is available for all English schools, in particular inspection data from the national inspectorate, Ofsted, and school performance data. The Rasch scale scores emerged from the OBVQ were the dependent variable, while predictors entered were: school type (faith or non-faith

school), percentage pupils eligible for free school meals, percentage pupils with SEN, percentage ethnic minority pupils, mean score on the Index of Deprivation and Poverty Affecting Children (IDACI), percentage boys (from national performance data); attitudes to parents, use of teaching time, provision of learning opportunities (from teacher survey), teaching quality, leadership quality, providing personal development and well-being (from inspection grading). Multilevel modelling was used to look at the relationship between these school-level factors and bullying at the pupil level. Results of the multilevel models are given in table 3.24.

As can be seen in table 3.24, pupil intake variables do not appear to be significantly related to bullying in this sample. Percentage boys, percentage pupils from ethnic minorities, mean IDACI scores and percentage pupils eligible for free school meals were not significantly related to bullying outcomes. There was a significant relation with school type, in that bullying was less likely to occur in faith schools, in this sample mainly Church of England schools.

On the other hand, some significant relationships were found with school characteristics. Schools that had higher inspection grades of teaching and school policy quality saw lower levels of bullying. This was not the case for schools with higher scores on providing opportunities for personal development, however. Teacher survey responses showed a significant relationship between attention to the learning environment and lower levels of bullying. Attitudes to parents and teaching time were not significantly related to bullying outcomes. These variables explain 37.9% of school level variance in being bullied (scale A) and 31.1% of school level variance in bullying others (scale B).

Overall, there is evidence that school characteristics are related to the prevalence of bullying in the school. However, the variables that appear to make a difference in this sample are those related to school quality and effectiveness rather than pupil intake characteristics, suggesting that bullying is indeed a school effectiveness outcome. This finding seems to provide support to the theoretical framework of the proposed dynamic approach to face and reduce bullying.

**Table 3.24: Results of the multi-level analyses for Rash estimates of bullying behaviour of English grade 5 students at the post intervention measurement occasion**

	Parameter	Being bullied (Scale A)	Bully (Scale B)
<b>Model 0</b>	intercept	-3.424 (.090)	-3.792 (.044)
	<i>variance L1</i>	1.247 (.079)	.480 (.030)
	<i>variance L2</i>	.301 (.068)	.045 (.016)
<b>Model 1</b>	intercept	-2.271 (0.183)	-2.845 (.158)
	Percentage boys	1.276. (1.219)	.873 (.722)
	Percentage ethnic minority	-2.030 (1.503)	-.738 (.619)
	Percentage Free School Meal eligibility	2.970 (2.026)	1.477 (1.290)
	Mean IDACI	1.825 (1.136)	.785 (.514)
	<i>Faith School</i>	-0.418 (.086)	-0.265 (.094)
	Attitudes to parents	2.623 (1.936)	1.163 (1.007)
	Teaching time	2.339 (1.791)	1.375 (1.042)
	<i>Learning environment</i>	6.154 (2.147)	3.219 (1.856)
	<i>Teaching quality</i>	7.330 (2.299)	3.619 (1.286)
	<i>Leadership quality</i>	4.035 (1.210)	2.213 (1.737)
	Providing personal development	2.324 (2.426)	1.488(1.053)
	<i>variance L1</i>	1.187 (0.82)	.457 (.032)
	<i>variance L2</i>	.187 (.052)	.031 (.014)
	<i>Explained variance L1</i>	4.8%	4.8%
<i>Explained variance L2</i>	37.9%	31.1%	

*Note:* L1 is student level, L2 is school level. R<sup>2</sup> L1 is the percentage explained variance at the student level.

## C.5) Belgium

### *C.5.1) The functioning of school factors in primary schools*

Teachers from 29 different schools of Belgium completed the questionnaire measuring the functioning of school factors. After creating factor scores, the data were aggregated at school level. Table 3.25 illustrates the results for all the factors (and dimensions) in terms of number of schools, minimum and maximum values, mean, and standard deviation.

We can observe that the Flemish schools tend to score highest on the frequency dimension of the factor ‘school policy on teaching’ (4.23), and lowest on the frequency of evaluating the school policy on teaching (2.69). Also and overall, the mean factor scores are higher for school policy on teaching (quantity of teaching: 3.78; provision of learning opportunities: 3.62; quality of teaching: 3.26) than for policy on the school learning environment (student behaviour outside the classroom: 2.84; collaboration among teachers: 3.22; partnership with stakeholders: 3.17; provision of learning resources: 2.80). In regard to the school policy for dealing with bullying, the mean factor score is very close to the mid point of the scale (3.02). It is finally important to note that the values of standard deviations are much smaller than those reported in other countries, implying that there is less variation in the functioning of school factors in Belgium than in other countries (e.g., Cyprus and Greece). During the first phase, the OBVQ was also completed by 790 students of the fifth grade in 28 schools. The Rasch model was used to analyse student responses to the items of the two scales of OBVQ (see Chapter 2, section B.1). In regard to the scale A, which is concerned with the extent to which students are *victims* of bullying, the Flemish Rasch scores at individual student level range from -4 to 4, with a mean of -2 (standard deviation is 1.52). Similarly, the Flemish Rasch scores of scale B, which is concerned with the extent to which students bully others, it was found out that at individual student level this score range from -4 to 4, with a mean of -2.97 (standard deviation is 1.28). Thus, the extent to which Flemish students either are being bullying or bully others is generally speaking rather low. However, the relevant values of the standard deviation imply that there is a lot of variation among Flemish students in regard to the extent to which students are being bullied or bully others. By conducting one way analysis of variance, it was found out that the Rasch



**Table 3.25: Descriptive statistics of scores for the functioning of different school factors (and their dimensions) of Flemish schools (*at school level*)**

<b>School factors and their dimensions</b>	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
<i>school policy on teaching</i>					
quantity of teaching	29	3,29	4,80	3,7826	,35488
provision of learning opportunities	29	3,04	4,60	3,6169	,35640
Quality of teaching	29	2,52	4,33	3,2600	,49157
<i>policy on school learning environment (SLE)</i>					
student behaviour outside the classroom	29	2,03	3,75	2,8415	,46734
Collaboration among teachers	29	2,25	4,33	3,2233	,49209
partnership with stakeholders	29	2,50	4,20	3,1717	,40843
provision of learning resources	29	2,10	3,30	2,7953	,39101
<i>school policy for dealing with bullying</i>					
evaluation of policy on teaching	29	1,98	3,83	2,6878	,50589
evaluation of policy on SLE	29	2,40	5,00	3,2815	,53402
<i>school policy on teaching (frequency)</i>					
school policy on teaching (frequency)	29	3,64	5,00	4,2270	,28891
school policy on teaching (stage)	29	1,94	5,00	2,7355	,61038
school policy on teaching (focus)	29	2,58	4,50	3,4196	,44991
school policy on teaching (quality)	29	2,00	4,38	3,2563	,54585
<i>policy on SLE (frequency)</i>					
policy on SLE (frequency)	29	1,75	3,36	2,5622	,44491
policy on SLE (stage)	29	2,00	5,00	2,9339	,66088
policy on SLE (focus)	29	2,18	3,40	2,7494	,34388
policy on SLE (quality)	29	2,70	4,25	3,3329	,38749

person (student) estimates within a school for either scale A or scale B are similar, but different from students in other schools. This justifies our decision to create relevant measures of bullying incidents at school level by aggregating the student estimates at the level of school. As a consequence, at the next step of the analysis we conducted descriptive statistical analysis of the school level scores of each scale and it was found out that there was a lot of variance in levels of bullying between schools since the standard deviations of each person scale is relatively high (scale A: 0.92 and scale B: 0.98). It was also possible to identify some schools who obtained relatively large scores in both scales and these schools were initially encouraged to participate in the second phase of the study since at those schools more bullying incidents were reported and was therefore more important to develop strategies and actions to face and reduce bullying.

#### *C.5.2) Investigating the impact of the dynamic approach*

This part refers to the main results concerned with the impact of using the dynamic integrated approach upon the reduction of bullying. Since the OBVQ was administered twice –once before and once after the intervention- we dispose of two datasets regarding bullying (pre-measure and post-measure), and are thus able to analyse the possible effect of the DAPHNE programme on bullying. However, it was not possible to match the data emerged from the two measurement occasions (pre and post) at student level. Given the fact that the study was not a group randomisation study, we decided to conduct a multilevel analysis of student final scores at each scale and treat as an explanatory variable the aggregated score of the pre measure at the level of school.

#### Being bullied

The results emerged from the multilevel analysis of student scores in scale A are shown in table 3.26. The first model presents the variance at individual, and school level without explanatory variables (empty model or model 0).

**Table 3.26: Parameter Estimates and (Standard Errors) for the analysis of Flemish students scores in Scale A of OBVQ (Flemish Students within schools)**

Factors	Model 0	Model 1	Model 2
<b>Fixed part (Intercept)</b>	-2.43 (.09)	-1.91 (.09)	-1.15 (.10)
<b>Student Level</b>			
Sex (0=boys, 1=girls)		-0.03 (.14)	-0.03 (.13)
<b>School Level</b>			
<u>Context</u>			
Average prior measure		0.76 (.25)*	0.83 (.24)*
<u>Daphne Intervention</u>			0.24 (.15)+
<b>Variance components</b>			
School	8.2%	8.0%	2.0%
Student	91.8%	83.1%	82.0%
Explained		8.9%	16.0%
<b>Significance test</b>			
X <sup>2</sup>	1979.7	1875.5	1872.3
Reduction		104.2	3.2
Degrees of freedom		1	1
p-value		.001	.01

\*Statistically significant effect at level .05.

+ Statistically significant effect at level .10

The figures of model 0 reveal that less than 10% of the variance in the extent to which students are being bullied (scale A) was at the school level. In model 1, background factors at student and school level were added to the empty model. The likelihood statistic ( $X^2$ ) shows a significant change between the empty model and model 1 ( $p < .001$ ). We can also observe that the effect of the aggregated score of prior measure at the school level was associated with the student final measure of scale A. However, this model does not explain more than 10% at the individual level and this can be attributed to the fact that prior measure at student level is much stronger predictor of final measure than the contextual factor of prior measure aggregated at the school level. In model 2, the impact of the using the dynamic approach to face and reduce bullying was measured by entering a relevant dummy variable (with schools in the control group as the reference group) to model 1. The likelihood statistic ( $X^2$ ) shows a significant change between

model 1 and model 2 ( $p < .001$ ). Model 2 helped us also explain most of the variance situated at the school level (i.e., 6 out of 8 percent of the total variance situated at the school). Although the impact of using the dynamic model was not found to be associated at .05 level with final achievement (but only at .10 level), we could claim that model 2 provides a better picture of student final achievement in scale A. These findings also imply that the intervention had an effect not only at all the other four countries but also in Belgium and the fact that we were in a position to demonstrate statistically significant difference at .10 level between the experimental and the control group may be attributed to the fact that we did not have enough statistical power to demonstrate better results.

### Bully others

Table 3.27 illustrates the parameter estimates and the standard errors derived from the multi-level analysis of student scores in scale B of the OBVQ. The first model presents the variance at individual, and school level without explanatory variables (empty model). The figures of model 0 reveal that approximately 9% of the variance in the extent to which students bully others (scale B) was at the school level. In model 1, gender and prior achievement at the school level were added to the empty model but only prior achievement at school level was found to be associated with final student score in scale B. Moreover, the likelihood statistic ( $X^2$ ) shows a significant change between the empty model and model 1 ( $p < .001$ ). We can finally observe that approximately 5% of total variance was explained by adding the prior achievement at the school level. The figures of model 1 emerged from analysing student responses to scale B of OBVQ are very similar to those reported above concerned with student score in scale A. In model 2, the impact of using the dynamic approach to face and reduce bullying was measured by entering a relevant dummy variable (with schools in the control group as the reference group) to model 1. The figures of table 3.27 reveal that the likelihood statistics shows a significant change between model 1 and model 2 ( $p < .001$ ). Model 2 was also able to explain approximately 5% of the total variance but most of the explained variance was situated at the school level. Although the impact of using the dynamic model was not found to be associated at .05 level with final achievement (but only at .10 level), we could claim

that model 2 provides a better picture of student final achievement in scale B. These findings are very similar to those reported in the multilevel analysis of Flemish students in scale A and imply that the use of the dynamic approach to face bullying helped schools to reduce bullying at significantly higher level than the schools of the control group.

Therefore, the results of the across-country analyses as well as those emerged from within-country analyses in the five participating countries provide support to the assumptions of the theoretical framework of the study and also show that the use of the dynamic approach to face and reduce bullying helped schools in different countries to reduce bullying and achieve relevant affective aims. Thus, in the next chapter, we draw implications of findings for theory, policy and practice.

**Table 3.27: Parameter Estimates and (Standard Errors) for the analysis of Flemish students scores in Scale B of OBVQ (students within schools)**

<b>Factors</b>	<b>Model 0</b>	<b>Model 1</b>	<b>Model 2</b>
<b>Fixed part (Intercept)</b>	-3.18 (.09)	-2.41 (.11)	-1.25 (.10)
<b>Student Level</b>			
Sex (0=boys, 1=girls)		-0.06 (.15)	-0.06 (.15)
<b>School Level</b>			
<u>Context</u>			
Average prior measure		0.73 (.29)*	0.73 (.29)*
<u>Daphne Intervention</u>			0.35 (.20)+
<b>Variance components</b>			
School	8.8%	8.7%	4.4%
Student	91.2%	85.4%	85.2%
Explained		5.9%	10.4%
<b>Significance test</b>			
$X^2$	1711.2	1705.9	1702.7
Reduction		5.3	3.2
Degrees of freedom		1	1
p-value		.001	.01

\*Statistically significant effect at level .05.

+ Statistically significant effect at level .10

## CHAPTER 4

### CONCLUSIONS

The main findings of this study are outlined in the first section of this chapter. Implications of findings for theory, policy and practice are also drawn and suggestions for further research are provided.

#### **A) Main Findings: A synopsis**

In chapter 2, we present the research instruments which were used to measure: a) bullying, b) the quality of school life (as perceived by students), c) social cognition, and d) the functioning of school factors included in the theoretical framework of the proposed dynamic approach to face and reduce bullying. By analyzing data of this study, the construct validity of these instruments is demonstrated. It can therefore be claimed that these instruments can be used by researchers for conducting relevant comparative studies in the area of bullying. In the first part of chapter 3, the results of across-country analyses are presented. In this part, it is shown that there is a significant variation among schools on the extent to which students are being bullied or bully others and on the functioning of school factors included in the proposed framework. Within-country analyses of the data emerged from the first phase of the study revealed that this school variation can also be identified among schools which are in the same country. In addition, across- and within- country analyses of data emerged from the first phase, revealed that schools managed to obtain relatively higher scores on the frequency dimension of each factor and lowest on the dimensions measuring qualitative characteristics of the factors. This finding provides support to one major assumption of the dynamic model about the use of the five dimensions to measure the functioning of school factors.

The first part of chapter 3 is also concerned with the *impact of the proposed dynamic* approach to face and reduce bullying. By using separate multilevel modelling techniques to analyse data emerged from all five participating countries (across-country analyses), it was found out that there are significant differences among schools in their effectiveness status in terms of reducing bullying. The importance of school effect is demonstrated by using either data emerged from the scale A of OBVQ (which refers to

the extent to which students are being victimised) or the scale B (which refers to the extent to which students bully others). Moreover, the multilevel analysis revealed that schools which made use of the dynamic approach were able to reduce bullying at a significantly higher level than the schools of the control group or of the social network group. The use of the dynamic approach to face bullying had also a significant effect in the development of positive attitudes towards schooling but this effect was smaller than the effect that the dynamic approach had on reduction of bullying. These findings were generally supported by the results of the within-country analyses. More specifically, in Cyprus and the Netherlands, a group randomization study was conducted in order to compare the impact of the proposed dynamic approach with the impact of other approaches to face and reduce bullying. By using multilevel modelling techniques, we were in a position to demonstrate the positive impact of the proposed approach on the reduction of bullying and on the improvement of student attitudes towards the quality of school life. In Greece, it was also possible to demonstrate the positive impact of the dynamic approach upon reduction of bullying and improvement of the quality of school life. However, in the other two countries, we found some difficulties to demonstrate the impact of the dynamic approach but these might be attributed to some difficulties the country research teams had to face in collecting data and identifying schools where bullying incidents occurred very often. More specifically, very few students in England reported that they are either being bullied or bully others and thereby much smaller school variations in terms of their scores in these two scales of OBVQ were identified. As a consequence, by entering the pre-measures on bullying in the empty model, no school variance was left to be explained by any other variable (including the use of the dynamic approach to face and reduce bullying). However, the importance of the school factors to explain bullying was demonstrated by using inspection data and demonstrating that variables associated with the school factors can explain variation in the extent to which students are being bullied or bully others. In regard to the impact of the proposed approach in Belgium, it is important to note that in this country we were not in a position to match data emerged from the pre and post measure at the student level. Since the study that was conducted in Belgium was not an experimental study, in our attempt to compare the final measures of the experimental and control group we were in a position to control for the

impact of pre-measure at the school rather than at the student level. Thus, analysis of data emerged in Belgium revealed that differences in the extent to which students are being bullied or bully others are statistically significant at the .10 level (rather than at .05 level). However, our difficulty to demonstrate statistically significant differences at .05 level can be attributed to the low statistical power that was available from the study that was conducted in Belgium. Therefore, we can claim that the across- and the within- country analyses reveal that schools which made use of the dynamic approach were able to reduce bullying at a significantly higher level than the schools of the control group. It is also important to note here that qualitative data collected during the second phase of the project revealed that schools did not face significant difficulties in developing their own school self evaluation mechanisms and generally supported the proposed dynamic approach to face and reduce bullying. Thus, both quantitative and qualitative data provide support to the importance of using the dynamic approach to develop strategies and action plans to reduce bullying. In chapter 3, it is also demonstrated that the use of the dynamic approach had a significant impact on the achievement of a relevant with bullying affective outcome dealing with the quality of school life. Finally, the results about the impact of the dynamic approach upon student achievement on social cognition are not so clear since in Cyprus positive impact is reported whereas in the Netherlands no impact on social cognition is reported. This finding could be attributed to the fact that most schools developed strategies and actions which were concerned with the improvement of the school learning environment rather than with the provision of further learning opportunities and thereby no impact on the achievement of relevant cognitive outcomes could be observed in schools which did not give emphasis to this aspect of the intervention. Finally, in some countries it was possible to collect data on the functioning of school factors both at the beginning and at the end of the intervention. The country reports of Cyprus and Greece show that schools which made use of the dynamic approach managed to improve the functioning of school factors at a higher level than the schools of the control group. Moreover, those schools which managed to improve their school factors were also found to be more effective in terms of reducing bullying. These findings provide further support to our assumption that the improvement of the functioning of school factors had an effect on students in terms of reducing



bullying and achieving relevant affective outcomes. For this reason, several dissemination activities (Appendix I) were undertaken to encourage, policy makers and practitioners to make use of this approach for reducing bullying and researchers to conduct studies investigating its short and long term effects.

## **B) Implications of findings for theory, policy, and practice**

Implications of the positive findings of this project for the development of effective policies and practices in reducing bullying can be drawn. Knowing that the dynamic integrated approach can be effective in dealing with bullying at primary schools, the question rises in what way the actions of schools using this approach were different from what the control schools did during the intervention period. The analyses of the implementation questionnaires revealed that the schools which made use of the dynamic approach took actions in order to change aspects of their school policy associated with bullying that applied - as intended - to their whole school. Most of these changes were also directed to the students (e.g., increased school yard, offering relevant learning opportunities beyond those included in the official curriculum). In addition, the dynamic approach stresses the importance of a share responsibility of the whole school community in developing and implementing strategies and actions to face bullying by undertaking actions aiming to improve the school learning environment and involving in the project every school stakeholder (see for example activities associated with the partnership factor included in the handbook). However, at the same time it is acknowledged that the role of teachers and their active involvement is crucial for the success of interventions aiming to face and reduce bullying. For example, the research team gave the message to the school stakeholders that the successful implementation of this project was due to the active involvement of teachers in designing and implementing their action plans by bringing their knowledge and experiences in dealing with bullying and drawing suggestions from the research team in order to develop their own strategies and action plans. The active involvement of teachers, students, and parents in defining the strategies and action plans eventually encouraged their active participation in implementing these action plans for improvement purposes since teachers is very likely to adopt a more positive attitude

towards improvement projects when they are involved in developing the interventions rather than simply implement what was developed by a team of “experts” (Fullan, 2001).

Teacher participation in school-level decision making has been advanced for a wide variety of reasons (Smylie, Lazarus & Brownlee-Conyers, 1996). Most often, participation is thought to enhance communication among teachers and administrators and improve the quality of educational decision making (Conway, 1984). Participation may also contribute to the quality of teachers' work life (Conley, Schmidle & Shedd, 1988). In addition, participation has been promoted on the basis of ethical arguments or "professionalizing" teaching and "democratizing" school workplaces (Duke, Showers & Imber, 1981; Murphy & Beck, 1995). Emphasis is also given to teacher collaboration and especially to providing opportunities to teachers in order to exchange experiences and successes and failures in dealing with bullying incidents since teacher-teacher interactions promotes teacher professional development and allow teachers to learn from each other on how to face and reduce bullying effectively. In this way, the proposed approach is concerned with the most critical school factors found to be associated with the achievement of both cognitive and affective learning outcomes. By treating bullying as a challenge for introducing new learning goals and improving the functioning of those factors that are associated with school effectiveness, the schools which made use of the dynamic approach were in a position to achieve these new aims and not only reduce bullying but also support their students to develop positive attitudes towards their peers, teachers, school and learning. As a consequence, schools which made use of the dynamic approach did not only manage to reduce bullying but also to improve the quality of the school life.

Second, another essential difference of the proposed approach has to do with the strong emphasis that is given to self-evaluation and to the development of formative evaluation mechanisms which can help schools identify any problems that may emerge during the implementation of the various action plans. Thus, a major evidence in this project is that there is scope to be given to school self evaluation in order to help schools develop effective strategies and actions to face and reduce bullying. School self-evaluation promotes the importance of collecting and analyzing data at different stages of a school

improvement project aiming to reduce bullying and thereby a continuous evaluation model is used in implementing the project. Moreover, schools are expected through reflections to adapt their strategies and actions in order to improve them and thereby the formative purpose of evaluation is achieved. In addition, by offering a theoretical framework to schools, it was also possible to help stakeholders identify their priorities for improvement (through SSE) and understand why and how dealing with a school factor can have an effect on reducing bullying. In this way, the use of an evidence-based and theory-driven approach can help schools develop effective strategies and action plans which address important school factors and can contribute in the improvement of the learning environment of schools and classrooms and through that to the reduction of bullying. In this project, this assumption was systematically tested and the findings of across- and within- country analyses revealed that this approach can have a positive impact on reducing bullying and improving the quality of school life.

It can also be claimed that support provided by researchers to school stakeholders in order to implement their strategies and action plans is also critical in reducing bullying since the research team did not only manage to provide schools with the knowledge-base for dealing with the problems that they may face during the implementation but also helped them with their technical expertise to continuously evaluate their strategies and actions to face bullying. The fact that the proposed dynamic integrated approach was used in schools in different countries and positive results emerged from this project seems to reveal that schools in different contexts can make use of this approach in a relatively easy way. Moreover, this approach to school improvement can help schools not only to improve their school learning environment but also to reduce bullying and achieve relevant affective aims.

The findings of this project concerned with the impact of the dynamic approach to face and reduce bullying are in line with the results of studies investigating the impact of the Comprehensive School Reform program (CSR) on student achievement (Rowan et al, 2009). The approach proposed in this project has some common characteristics with the CSR program which attempts to use a “school improvement by design” approach to encourage schools to work with outside agencies and implement new designs for educational practice. The concept of “design” suggests a school improvement process

guided by a pre-existing blueprint or specification of effective educational practices that can be replicated in many school settings (Rowan, 2001). Thus, the CSR program provides grants to schools to adopt proven comprehensive reforms. Therefore, an evidence-based approach to school improvement is encouraged (Slavin & Fashola, 1998). A meta-analysis investigating the achievement effects of CSR reveals that the schools which implemented CSR models for five years or more had particularly strong effects on achievement and the benefits were consistent across schools of varying poverty levels (Borman et al., 2003).

Given that the second phase of our project took place for only one school year, it can be claimed that the results about the effect of the dynamic approach to face and reduce bullying on reduction of bullying and improvement of the quality of school life are very promising. This study provides further support to the argument that a long-term commitment to research-proven educational reform is needed in order not only to face and reduce bullying but also improve the quality of education (Stringfield, 2000). At the same time, suggestions for further research can be drawn. Longitudinal studies, involving both quantitative and qualitative research methods, should also be conducted in order to provide answers on questions dealing with the short and the long term effect of the proposed dynamic integrated approach upon reduction of bullying and achievement of relevant affective outcomes of schooling. These studies will also help us identify contributory and inhibitory factors to the sustainability of this approach.

Finally, implications for practice can be drawn. The findings of this study as well as several other studies evaluating whole school approaches to face bullying reveal that bullying is a problem that can be handled, reduced and prevented (see also chapter 1). In addition, this project has demonstrated that designing actions and strategies to face bullying at school level, should at least take into account the following three elements: (1) *school learning environment (SLE)*; (2) school policy on *teaching*; and (3) school self-evaluation mechanisms.

Re (1): Emphasis should be given to those aspects of the school learning environment that have direct effect on bullying: (a) student behaviour outside the classroom, (b) collaboration and interaction between teachers, (c) partnerships with other stakeholders, and (d) provision of learning resources.

Re (a): Schools should develop a behaviour code and focus on student behaviour during break time (e.g., by supervising students, creating an attractive environment and organising playground activities), before the start of the lessons (e.g., asking punctuality in students' arrival, arranging a teacher to welcome everyone at the school's entrance), and after school hours/after lessons finish (e.g., appoint a professional person for supervision).

Re (b): This aspect of the school learning environment is particularly important because it can contribute to improving teachers' skills and their every day practice and therefore it affects learning outcomes (cognitive and affective) positively. In their policy, schools can focus their attention on encouraging teachers exchange ideas and experiences about bullying. Classroom visits may also be organised and professional development opportunities should be offered to teachers who face difficulties in dealing with bullying.

Re (c): Collaboration with parents can be established through information about the school policy on bullying or through informative meetings with teachers. Collaboration with professionals outside the school could be needed for individual cases of students and for helping teachers to deal with them. In addressing the issue of bullying and vandalism, also collaboration with the police and/or community services might be needed.

Re (d): The availability and proper use of learning resources has an effect on achieving relevant learning aims (e.g., emotional recognition, understanding of social values, developing positive attitudes towards the school).

Re (2): Schools should also (re)consider their policy on teaching and provide support to teachers in order to develop a safe classroom learning environment (CLE). The three aspects of this domain have to do with: (a) provision of learning opportunities, (b) quantity of teaching, and (c) quality of teaching.

Re (a) Schools should introduce cognitive and affective-emotional learning goals beyond those included in the official curricula (e.g. social cognition, positive attitudes towards peers). Also, teachers should be informed and encouraged to undertake relevant teaching activities to help

students gradually achieve those (e.g. by introducing the topic in teaching materials and lessons, by organising an anti-bullying week or classroom conference).

Re (b) School policy on quantity of teaching should address absenteeism of both students and teachers (e.g. by stressing the importance of being present, by keeping records and analysing trends, by arranging replacement teachers), management of teaching time (in order to have lessons start and finish on time, with minimal interruption, schools should clearly announce their policy to everyone), and policy on homework.

Re (c) Quality of teaching mainly refers to creating a 'learning environment' in the classroom. Therefore, school management team should inform their teachers on the importance of teacher-student interaction, student-student interaction, student treatment, competition between students, and classroom disorder. It could be advisable to discuss these topics with the staff. A safe learning environment could be created by avoiding negative aspects of competition among students, by engaging teachers in positive student-student and student-teacher interactions, by giving teachers directions on how to deal with classroom misbehaviour, and/or by diagnosing professional development needs related to effective teaching.

There are many instruments or tools that could be developed to strengthen and/or reorient school policy at the level of the classroom and/or school learning environment. Amongst others:

- Work on 'commitment' at class and school level as a foundation for a positive and respectful culture.
- As a teacher, question your own style in tackling problematic student behaviour. The pedagogical skills of Patterson could be a good starting point (taking control and drawing the lines, monitoring, positive commitment, positive confirmation and teaching problem-solving behaviour). To what extent are these disposed of by the teachers?
- Organise a survey to check to what extent students, teachers and parents have to deal with bullying.

- Train students to take on the role of mediator in the case of conflicts (peer mediation)
- In the case of severe incidents, organise a restorative consultation with all persons involved, following a set scenario.
- In view of a possible crisis situation, take care of a crisis plan (prevention) and crisis communication (problem-solving).

Re (3): School self-evaluation mechanisms should be developed aiming at both to prevent bullying and to improve the educational practice at school and classroom level. At a later stage, these mechanisms will provide data about the implementation of the strategies and actions for facing bullying, which can lead to redefining and improving school policy on bullying.

As such, the actions, strategies and instruments chosen to face bullying at school level don't necessarily guarantee success. But they can raise the involvement of the school team provided that they meet the following criteria: the instrument will catch on when it is experienced as close to their reality (does it fit with the experiences, questions, interests, needs of the school team?), when reference is sought with the actual knowledge and skills of the school team, when the school team gets the opportunity to be active and actually can get to work, and when the school team experiences that they can actually influence the procedure and the decision-making.

The dynamic approach stresses the importance of a share responsibility of the whole school community in developing and implementing strategies and actions to face bullying. However, it is acknowledged that the role of teachers and their active involvement is crucial for the success of this intervention. Therefore, we like to recognise that the successful implementation of this project and the fact that bullying was faced effectively in the schools which made use of the dynamic approach can be attributed to the teachers of these schools who were actively involved in this project and put effort and energy to implement their action plans. It is due to their active involvement that we were in a position to demonstrate the positive impact of the dynamic approach upon the reduction of bullying and the improvement of the quality of education.

## REFERENCES

- Adams, R.J., & Khoo, S. (1996). *Quest: The interactive test analysis system, Version 2.1*. Melbourne: ACER.
- Alsaker, F., & Brunner, A. (1999). Switzerland. In P. K. Smith, Y. Morita, J. Junger-Tas, D. Olweus, R. Catalano, & P. Slee (Eds.), *The rrature of school bullying: a cross national perspective*, (pp. 250-263). London: Routledge.
- Andrich, D. (1988). A general form of Rasch's Extended Logistic Model for partial credit scoring. *Applied Measurement in Education, 1*(4), 363–378.
- Baldry, A.C., & Farrington, D. P. (2007). Effectiveness of programs to prevent school bullying. *Victims and Offenders, 2*, 183-204.
- Bendixen, M., & Olweus, D. (1999). Measurement of antisocial behaviour in early adolescence and adolescence: Psychometric properties and substantive findings. *Criminal Behaviour and Mental Health, 9*, 323–354.
- Besag, V. (1989). *Bullies and victims in schools*. Milton Keynes, UK: Open University Press.
- Bond, T.G., & Fox, C.M. (2001). *Applying the Rasch model: Fundamental Measurement in the Human Sciences*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Borman, G.D., Hewes, G.M., Overman, L.T., & Brown, S. (2003). Comprehensive School Reform and Achievement: A Meta-Analysis. *Review of Educational Research, 73*(2), 125–230.
- Byrne, B. (1992). *Bullies and victims in a school setting with reference to some Dublin schools*. Dublin: University College.
- Charach, A., Pepler, D., & Ziegler, S. (1995). Bullying at school: A Canadian perspective. *Education Canada, 35*, 12-18.
- Charlot, B., & Emin, J.C. (Eds.). (1997). *La violence a l' e'cole: e' tat des savoir*. Paris: A. Colin.
- Cheng, Y.C. (1993). Profiles of organisational culture and effective schools. *School Effectiveness and School Improvement, 4*, 85 – 110.
- Conley, S., Schmidle, T., & Shedd, J.B. (1988). Teacher participation in the management of school



- systems. *Teachers College Record*, 90, 259-280.
- Conway, J.A. (1984). The myth, mystery, and mastery of participative decision making in education. *Educational Administration Quarterly*, 20(3), 11-40.
- Creemers, B.P.M., & Kyriakides, L. (2006). Critical analysis of the current approaches to modelling educational effectiveness: The importance of establishing a dynamic model. *School Effectiveness and School Improvement*, 17(3), 347-366.
- Creemers, B.P.M., & Kyriakides, L. (2008). *The dynamics of educational effectiveness: A contribution to policy, practice and theory in contemporary schools*. London: Routledge.
- Creemers, B.P.M., & Kyriakides, L. (2010a). Explaining stability and changes in school effectiveness by looking at changes in the functioning of school factors. *School Effectiveness and School Improvement*, 21(4), 409-427.
- Creemers, B.P.M., & Kyriakides, L. (2010b). School factors explaining achievement on cognitive and affective outcomes: establishing a dynamic model of educational effectiveness. *Scandinavian Journal of Educational Research*, 54(3), 263-294.
- Creemers, B.P.M, & Kyriakides, L. (2011). *Improving Quality in Education: Dynamic Approaches to School Improvement*. London: Routledge.
- Cronbach, L.J. (1990). *Essentials of psychological testing* (3rd ed.). New York: Harper & Row.
- den Brok, P., Brekelmans, M., Levy, J., & Wubbels, T. (2002). Diagnosing and improving the quality of teachers' interpersonal behavior. *International Journal of Educational Management*, 4, 176-184.
- Duke, D.L., Showers, B.K., & Imber, M. (1981). Studying shared decision making in schools. In S. B. Bacharach (Ed.), *Organizational behavior in schools and school districts* (pp. 313-351). New York: Praeger.
- Espalage, D.L., & Swearer, S.M. (2004). *Bullying in American schools: A social-ecological perspective on prevention and intervention*. Mahwah, N.J: Erlbaum.
- Fullan, M. (2001). *The new meaning of educational change* (3<sup>rd</sup> ed.). New York: Teachers College.

- Garcia, I.F., & Perez, G.Q. (1989). Violence, bullying and counselling in the Iberian Peninsula: Spain. In E. Roland & E. Munthe (Eds.), *Bullying: An international perspective*. London: David Fulton.
- Genta, M.L., Menesini, E., Fonzi, A., Costabile, A., & Smith, P.K. (1996). Bullies and victims in schools in southern Italy. *International Journal of Educational Research*, 11, 97–110.
- Haeselager, G.J.T., & Van Lieshout, C.F.M. (1992, September). *Social and affective adjustment of self-and peer-reported victims and bullies*. Paper presented at the European Conference of Developmental Psychology, Seville, Spain.
- Hirano, K. (1992, September). *Bullying and victimization in Japanese classrooms*. Paper presented at the European Conference of Developmental Psychology, Seville, Spain.
- Keeves, J.P., & Alagumalai, S. (1999). New Approaches to Measurement. In G.N. Masters & J.P. Keeves (Eds.), *Advances in Measurement in Educational Research and Assessment* (pp. 23-42). Oxford: Pergamon.
- Knuver, A.W.M., & Brandsma, H.P. (1993). Cognitive and affective outcomes in school effectiveness research. *School effectiveness and school improvement*, 13, 187 – 200.
- Kochenderfer, B.J., & Ladd, G.W. (1996). Peer victimization: Manifestations and relations to school adjustment in kindergarten. *Journal of School Psychology*, 34(3), 267-283.
- Krathwohl, D.R., Bloom, B.S., & Masia, B.B. (1964). *Taxonomy of educational objectives: Handbook II: Affective domain*. New York: David McKay.
- Kyriakides, L. (2005). Extending the Comprehensive Model of Educational Effectiveness by an Empirical Investigation. *School Effectiveness and School Improvement*, 16(2), 103-152.
- Kyriakides, L. (2007). Generic and Differentiated Models of Educational Effectiveness: Implications for the Improvement of Educational Practice. In T. Townsend (Ed.) *International Handbook of School Effectiveness and Improvement* (pp. 41-56). Dordrecht, the Netherlands: Springer.
- Kyriakides, L., Kaloyirou C., & Lindsay G. (2006). An analysis of the revised Olweus bully/victim

- questionnaire for students using the Rasch measurement model. *British Journal of Educational Psychology*, 76, 781–801.
- Kyriakides, L., Creemers, B.P.M., & Charalambous, A. (2008). Effective schools in facing and preventing bullying. *Paper presented at the EARLI SIG 18 Conference*. Frankfurt Main, Germany.
- Kyriakides, L., Creemers, B.P.M., Antoniou, P., & Demetriou, D. (2010). A synthesis of studies for school factors: Implications for theory and research. *British Educational Research Journal*, 36(5), 807-830.
- Lagerspetz, K.M., Bjorkqvist, K., Berts, M., & King, E. (1982). Group aggression among school children in three schools. *Scandinavian Journal of Psychology*, 23, 45–52.
- Ma, X., Stewin, L.L., & Mah, D. (2001). Bullying in school: nature, effects and remedies. *Research Papers in Education*, 16(3), 247-270.
- Mellor, A. (1990). *Bullying in Scottish secondary schools*. Edinburgh, UK: Scottish Council for Research in Education.
- Monbusho [Ministry of Education]. (1994). *The present situation of issues concerning Student tutelage and measures by the Ministry of Education*. Tokyo: Author.
- Morita, Y. (1985). *Sociological study on the structure of bullying group*. Osaka, Japan: Osaka City University, Department of Sociology.
- Murphy, J., & Beck, L. (1995). *School-based management as school reform: Taking stock*. Thousand Oaks, CA: Corwin.
- Muthén, L.K., & Muthén, B.O. (1999). *Mplus user's guide*. Los Angeles, CA: Muthén & Muthén.
- Nakou, I. (2000). Elementary school teachers' representations regarding school problem behaviour: Problem children in talk. *Educational and Child Psychology*, 17, 91-106.
- Olweus, D. (1978). *Aggression in the schools: Bullies and whipping boys*. Washington, DC: Hemisphere.
- Olweus, D. (1993). *Bullying at school. What we know and what we can do?* Oxford: Blackwell.

- Olweus, D. (1994). Annotation: Bullying at school: Basic facts and effects of a school based Intervention program. *Journal of Child Psychology and Psychiatry*, 35, 1171-1190.
- Olweus, D. (1996). *The revised Olweus Bully/Victim Questionnaire for Students*. Bergen, Norway: University of Bergen.
- Olweus, D. (1997). Bully/victim problems in school: Facts and intervention. *European Journal of Psychology of Education*, 12, 495–510.
- Opdenakker, M.C., & Van Damme, J. (2000). Effects of Schools, Teaching Staff and Classes on Achievement and well-being in secondary education: Similarities and Differences Between school Outcomes. *School Effectiveness and School Improvement*, 11(2), 65-196.
- Osterman, K., Bjorkqvist, K., Lagerspetz, K M.J., Kaukiainen, K., Landau, S.F., Frazcek, A., & Caprara, G.V. (1998). Cross-cultural evidence of female indirect aggression. *Aggressive Behaviour*, 24, 1–8.
- Payne, A. & Gottfredson, D. (2004). Schools and bullying: School factors related to bullying and school based bullying interventions. In C. Sanders & G. Phye (Eds.). *Bullying: Implications for the classroom*, (pp. 159-176). San Francisco: Elsevier Academic Press.
- Perry, D.G., Kusel, S.J., & Perry, L.C. (1988). Victims of peer aggression. *Developmental Psychology*, 24, 807–814.
- Rigby, K., & Slee, P. (1991). Victims in school communities. *Journal of the Australian Society of Victimology*, 25–31.
- Rigby, K., Smith, P.K., & Pepler, D. (2005). *Bullying in schools: How successful can interventions be?* Cambridge: Cambridge University Press.
- Rowan, B. (2001). The ecology of school improvement. *Journal of Educational Change*, 3, 283-314.
- Rowan, B., Correnti, R., Miller, R.J., Camburn, E.M. (2009). School Improvement by Design: Lessons from a study of comprehensive school reform programs. In G. Sykes & B. Schneider (Eds). *Handbook on Educational Policy Research* (pp 637 - 651). London: Routledge.
- Ruiz, R. O. (1992, September). *Violence in schools. Problems of bullying and victimization in*

- Spain. Paper presented at the European Conference of Developmental Psychology, Seville, Spain.
- Salmivalli, C., Lagerspetz, K.M.J., Bjorkqvist, K., Ostermann, K., & Kaukianen, A. (1996). Bullying as a group process: Participant roles and their relations to social status within a group. *Aggressive Behaviour, 22*, 1–15.
- Sammons, P. (2009). The dynamics of educational effectiveness: a contribution to policy, practice and theory in contemporary schools. *School Effectiveness and School Improvement, 20*(1), 123-129.
- Sharp, S., & Smith, P. (1994). *Tackling bullying in your school: A practical handbook for teachers*. London: Routledge.
- Slavin, R.E., & Fashola, O.S. (1998). *Show me the evidence!* Thousand Oaks, CA: Corwin.
- Slee, P. T. (1994). Situational and interpersonal correlates of anxiety associated with peer victimization. *Child Psychiatry and Human Development, 25*, 97–107.
- Smith, E. (2001). Evidence for the reliability of measures and validity of measure interpretation: A Rasch measurement perspective. *Journal of Applied Measurement, 2*(3), 281–311.
- Smith, P., Morita, Y., Junger-Tas, J., Olweus, D., Catalano, R., & Slee, P. (Eds.). (1999). *The nature of school bullying: A cross-national perspective*. London: Routledge.
- Smith, J.D., Schneider, B., Smith, P.K., & Ananiadou, K. (2004). The effectiveness of whole-school anti-bullying programs: A synthesis of evaluation research. *School Psychology Review, 33*, 548-561.
- Smith, P., & Sharp, S. (1994). *School bullying: Insights and perspectives*. London: Routledge.
- Smylie, M.A., Lazarus, V., & Brownlee-Conyers, J. (1996). Instructional Outcomes of School-Based Participative Decision Making. *Educational Evaluation and Policy Analysis, 18*(3), 181-198.
- Snijders, T., & Bosker, R. (1999). *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling*. London: Sage.
- Stringfield, S. (2000). A synthesis and critique of four recent reviews of whole-school reform in the United States. *School Effectiveness and School Improvement, 11*, 259–269.
- Swearer, S. M., Espelage, D. L., & Napolitano, S. A. (2009). *Bullying prevention and intervention:*

- Realistic strategies for schools*. New York, NY: Guilford Press.
- Teddlie, C., & Reynolds, D. (2000). *The international handbook of school effectiveness research*. London: Falmer Press.
- Westerhof, K.J., Jansen, M.G.H. & van der Werf, M.P.C. (1993). *Het meten van sociale cognitie in de context van de evaluatie van het onderwijsvoorrangsbeleid* [Measuring social cognition in the context of the evaluation of the educational priority policy]. Rion, Groningen, The Netherlands.
- Whitney, I., & Smith, P.K. (1993). A survey of the nature and extent of bully/victim problems in junior/middle and secondary schools. *Educational Research*, 35, 3–25.
- Williams, T., & Batten, M. (1981). *The quality of school life*. ACER Research Monograph no. 12. Hawthorn, Victoria: ACER.
- Wilson, S.J., Lipsey, M.W., & Derzon, J.H. (2003). The effects of school-based intervention programs on aggressive behavior: A meta-analysis. *Journal of Consulting and Clinical Psychology*, 71, 136-149.
- Wright, B.D. (1985). Additivity in psychological measurement. In E. E. Roskam (Ed), *Measurement and personality assessment*, (pp. 101-112). Amsterdam: Elsevier Science Publishers BV.
- Ziegler, S., & Rosenstein-Manner, M. (1991). *Bullying at school: Toronto in an international context (Report No. 196)*. Toronto: Toronto Board of Education, Research Services.

#### APPENDIX I: DISSEMINATION

Our research team used a variety of routes to disseminate the findings of our project in the five participating countries. This dissemination was focused on practitioners, academics, and the general population. Practitioners were targeted through articles in professional papers. For example, an article on Daphne project was submitted by the English team at the Times Educational Supplement, to appear early May. This is the widest read and disseminated practitioner publication for teachers in England. In the article, the website address and a university contact address are given so readers can follow-up and search

for more information. Similarly, an article in *Impuls*, a Flemish practitioner-oriented journal has been submitted. In England, the general public was targeted through a press release from the University of Southampton press office. This led to interviews on local radio and publication in newspapers, including the *Daily Echo* and *Hampshire Times*. In Cyprus, the project coordinator gave an interview to the University of Cyprus radio (21 December 2010) presenting the results of the project. The theoretical framework of the project and its main findings were also presented to three different courses offered to all members of the management team of Cypriot primary and secondary schools which were organized by the Pedagogical Institute of Cyprus. Specifically, two seminars were offered to primary and secondary head teachers and deputy heads in Limassol (1/2/2011 and 3/2/2011) and Nicosia (7/12/2010 and 9/12/2010) about the project. Members of the management team of schools expressed an interest about the project and our research team is working closely with a network of 10 schools aiming to use the dynamic integrated approach to face and reduce bullying.

Academics were targeted through presentation of results as part of the International Congress on School Effectiveness and Improvement, in Limassol, Cyprus on 7 January 2011. Conference papers will be turned into a special issue to be presented to the *Journal School Effectiveness and School Improvement*.

Materials for practitioners, including the English, Dutch and Greek language versions of the project handbook and examples of good practice are available on the project website, <http://www.ucy.ac.cy/goto/jls/en-US/Home.aspx>, which is freely available to practitioners.

After publication, we will send copies of the final EU-report to: a) policy-makers in each participating country at diverse levels, b) the heads of the pedagogical and counseling services and also to c) professional organisations in each country who are concerned with the well-being of pupils and the improvement of the quality of school life.

It is finally important to note that the involvement of the EU and the Daphne project funding were highlighted through including the EU and Daphne logos on all published materials, mentioning EU Daphne funding in interviews and press releases, and in all publications released mentioned above.

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