

FINAL REPORT

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WORK PACKAGE # 2

EUROPEAN CHILD CARE AND EDUCATION
STUDY

School-age Assessment of Child Development:
Long-term impact of
Pre-school Experiences on School Success,
and Family-School Relationships

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EUROPEAN CHILD CARE AND EDUCATION (ECCE) STUDY GROUP

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TABLE OF CONTENTS

1.	INTRODUCTION	7
1.1	Overview of Early Child Care and Education (ECCE) Project	7
1.2	Previous research on how the nature and quality of young children’s experiences affects developmental outcomes	11
1.2.1	Concurrent effects of ECP quality on child outcomes	13
1.2.2	Longitudinal effects of ECP quality on child outcomes	16
1.2.3	Effects of not adequately controlling for bias due to family characteristics	20
1.2.4	Summary of related research	23
1.3	Conceptual framework for the ECCE Study	25
1.4	Research questions for Workpackage II	27
2.	DESIGN AND PROCEDURES	28
2.1	Introduction	28
2.2	Procedures	31
2.2.1	Operationalisation of conceptual framework and overview of measures	31
2.2.1.1	Assessment of children’s developmental status at two measurement points	32
2.2.1.2	Assessment of educational quality in the family setting and in the centre-based settings of ECP and primary school	35
2.2.1.3	Assessing contextual quality	38
2.2.1.4	Controlling for conditions in the macro-system	39
2.2.2	Sample and data collection procedures	39
2.2.2.1	Sample	42
2.2.2.2	Weighting	45
2.2.2.3	Data collection procedure for the primary school phase	46
2.2.2.4	Collecting data for the primary school phase	47
2.2.3	Controlling and preparing data	49
2.3	Summary	50
3.	SCHOOL SYSTEMS AND EDUCATIONAL CAREERS	52
3.1	Introduction	52
3.2	Instruments to assess children’s educational career, school adjustment and family school cooperation	55
3.3	Care and education systems in the participating countries	57
3.3.1	Austria	57
3.3.2	Germany	60
3.3.3	Spain	65
3.4	Results	68
3.4.1	Children’s educational career during pre-school phase	68
3.4.2	School entry and transition phase	69
3.4.3	Primary school career of students	71
3.4.4	Cooperation between family and primary school	75
3.5	Summary of results and discussion	79

4.	QUALITY IN PRIMARY SCHOOL CLASSES	85
4.1	Introduction and research questions	85
4.2	Measurement of primary school classroom quality	88
4.2.1	Teacher interviews to assess structural quality	88
4.2.2	Observations to assess process quality	89
4.3	Similarities and differences in quality in primary school classrooms	91
4.3.1	Structural characteristics	91
4.3.2	Process characteristics	101
4.4	Comparison of quality aspects experienced by children at age 4 and at age 8	102
4.4.1	Comparisons of structural quality at the country level	102
4.4.2	Comparisons of structural and process quality at the child level	104
4.5	Regression analysis	106
4.6	Summary and discussion	110
4.6.1	Structural quality of primary school classrooms	110
4.6.2	Process quality of primary school classrooms	112
4.6.3	Comparisons of process quality between age 4 and age 8	113
4.6.4	Predicting process quality based on structural conditions and teacher orientation	114
5.	FAMILY CHARACTERISTICS OF THE PRIMARY SCHOOL CHILDREN	116
5.1	Introduction and research questions	116
5.2	Instruments to assess family characteristics	118
5.3	Structural characteristics of families and their home	123
5.3.1	Family size and structure	122
5.3.2	Parents' socio-demographic characteristics	124
5.3.3	Characteristics of family housing	125
5.4	Process quality of families	126
5.5	Children's everyday life and daily activities	127
5.5.1	Children's daily routines	128
5.5.2	Children's activities after school	129
5.6	Availability of physical and social resources	134
5.6.1	Availability and use of outdoor spaces	135
5.6.2	Children's social network: availability and contact	136
5.6.3	Child care resources	136
5.7	Family changes due to the child's entering primary school	137
5.8	Changes over time in family characteristics and family life	141
5.8.1	Structural characteristics of the home	141
5.8.2	Stability and change of process quality characteristics	143
5.8.3	Changes in use of physical and social resources	145
5.9	Summary of results and discussion	147
6.	EDUCATIONAL BELIEFS AND ATTITUDES OF PARENTS AND TEACHERS	151
6.1	Introduction	151
6.2	Instruments	155
6.3	Results	161
6.3.1	Developmental expectations	161
6.3.2	Educational goals	165

6.3.3	Attitudes toward primary schooling	170
6.4	Summary and discussion	182
7.	INDICATORS OF CHILD DEVELOPMENT FROM A LONGITUDINAL PERSPECTIVE	189
7.1	Introduction	189
7.2	Child development outcome measures	191
7.2.1	Mastery of daily living skills	195
7.2.2	Social competence	197
7.2.3	Children's self perception	200
7.2.4	Language development	202
7.2.5	Children's school achievement	203
7.2.6	Final selection of developmental outcome measures for longitudinal analysis	206
7.3	Research questions and analyses strategy	208
7.3.1	Research questions	208
7.3.2	Operationalising the conceptual framework	210
7.3.3	The statistical model	214
7.4	Results	216
7.4.1	Cognitive and achievement-related development	216
7.4.1.1	Effects of the various predictor blocks	216
7.4.1.2	Characterisation of educational quality in the variable blocks	220
7.4.2	Social-emotional development	225
7.4.2.1	Effects of the various predictor blocks	225
7.4.2.2	Characterisation of educational quality in the predictor blocks	230
7.4.3	Comparison and summary of results	234
8.	SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS	240
8.1	Introduction	240
8.2	Conceptual framework	241
8.3	Summary of results	244
8.3.1	Children's educational careers	244
8.3.2	Quality in primary school classes	246
8.3.3	Quality in family settings	249
8.3.4	Quality of educational representations	251
8.3.5	Indicators of child development from a longitudinal perspective	253
8.4	Discussion and recommendations	256
8.4.1	Smooth transition to primary schooling and school adjustment for all students	257
8.4.2	Long-term effects of child care quality - Improve child care quality	258
8.4.3	Primary schooling – Various approaches to improvement	261
8.4.4	Impact of the family – Strengthen the family	263
8.4.5	Different education settings - Towards a more comprehensive understanding and improvement of educational quality	265
	REFERENCES	267

1. INTRODUCTION

1.1 Overview of Early Child Care and Education (ECCE) Project

This is the second and final volume summarising the findings of the ECCE (European Child Care and Education) project. The overall project had two interrelated goals:

1. To better understand the nature and quality of care received by 4 year-old Austrian, German, Portuguese, and Spanish children, and how it affects the children's developmental outcomes.
2. To better understand, from a longitudinal perspective, the nature and quality of care received by 8 year-old Austrian, German, and Spanish children, how it is related to their experiences as 4-year-olds, and how those factors affect children's developmental outcomes.

For an appropriate and comprehensive understanding of the entire project and its findings, each report should be read in conjunction with the other. However, the reports are organised so they can be read independently. Each goal was addressed by a separate, but conceptually related workpackage as described briefly below.

Workpackage I was a cross-sectional analysis of the child care and educational programmes experienced by 4-year old children in Austria, Germany, Portugal, and Spain. The study focused on the two settings in which children in these countries spend the majority of their time, the family and the Early Childhood Programme (ECP)¹. The purpose of this work was to describe and compare the nature and the quality of young children's experiences in the family and the ECP. The following concepts were used to guide the collection and interpretation of data in each setting.

¹ The term Early Childhood Programme is used as a general term throughout this report to include organized programmes for the care and education of young children prior to the time they are enrolled in the primary school system. Although they may also have other names, such programmes include *Krippen* and *Kindergarten* in Austria and Germany, *Creches* and *Jardins de Infancia* in Portugal, and *Guarderías* in Spain.

- **Quality of educational orientations** included the teacher's and mother's beliefs, expectations, and attitudes about educational goals and methods, the role of the ECP and the family in nurturing and caring for the child, and expectations for the child's development.
- **Quality of structural characteristics in the environment** included information for the ECP such as teacher qualifications and experience, child teacher ratio, and availability of space and materials; and for the family information such as configuration and size of family, income, and education of parents.
- **Quality of educational processes** included information for both the ECP and the family about cognitive and social stimulation children receive, and the nature of interactions they have with other children and adults.

Workpackage II (which is the subject of the current report) is a longitudinal extension of Workpackage I. In other words, the children who participated as 4 year-olds in the first study were followed and were the subjects of further data collection when they were 8 years of age. The concepts of educational orientations, structural characteristics, and educational processes were again used to guide data collection about the child's family and educational setting (but this time the focus was on the child's primary school instead of the ECP attended by the child). It is also important to note that Workpackage II included only three countries (Austria, Germany, and Spain; children and families for Portugal were not included for this part of the project).

As important as it is to better understand the educational experiences of children, the goal of the project was not limited to description. An equally important goal was to analyse the interrelationships of the quality of environments for children at both ages and in each of the settings. A major focus of these analyses was to determine whether the *process quality* children experience was dependent on the characteristics of *structural quality*, and the *educational orientations* of care givers (i.e., teachers or mothers) in each of the settings. This is particularly relevant to policy, because structural characteristics are usually amenable to regulation by policy makers. If the quality of a child's educational experience depends on the presence of certain structural characteristics, then policy makers can have a direct affect on the quality of a child's educational experience by regulating structural characteristics in these settings.

Data about the quality and characteristics of the environments was also related to information about the children's developmental status at age 4 (Workpackage I) and age 8 (Workpackage II). At both ages children were assessed on their mastery of educationally relevant skills such as daily living skills, communication, motor development, use of language, and social competencies. The relationship between these outcome measures and the various quality characteristics in the family and educational settings were analysed in an effort to get a comprehensive picture of the factors which affect the development of young children and their school achievement.

The basic conceptual framework was similar for both parts of the project. Workpackage I focused on children at age 4 and Workpackage II focused on children at age 8. The specific methodological approaches, results, interpretations, and implications for policy and practice for Workpackage I are discussed in detail in a previous report (ECCE Study Group, 1997) and are not repeated here. This report presents similarly detailed information for Workpackage II. Where information from Workpackage I is necessary to understand the procedures, results or recommendations of Workpackage II, brief summaries of the previous work are given.

It is important to emphasise that Workpackage II is a longitudinal analysis covering a 4 year period. In other words, children who participated as 8-year-olds in Workpackage II, were also assessed as 4-year-olds in Workpackage I². Although children in all three participating countries were the same age, almost all of the children in Austria and Germany were in grade 2, and almost all of the children in Spain were in grade 3. This happened because children in the countries start school at different ages. Because the goal of the project was to understand how different factors affect children's development, it was decided to include children in the study who were the same age, rather than children in the same grade level.

Similar to the previous report, the results for Workpackage II describe the quality of children's experiences in the family and in the school according to the educational orientations of his or her mother and teacher, the structural characteristics of the family and school, and the quality of educational processes in the family and school. The interrelationships of these variables is analysed to better understand how children in each of these countries are cared for and socialised. Because the same approach to data collection,

²Portugal was unable to participate in Workpackage II. Thus, there were children from only 3 countries (Austria, Germany, and Spain) included in Workpackage II, whereas there were children from 4 countries in Workpackage I.

analysis, and interpretation was used at each time period, it is also possible to examine the stability over time of each of these variables in both family and educational settings.

The core question of the study relates to how the nature and quality of family and educational settings, at ages 4 and 8, are related to children's developmental outcomes at age 8. Although the potential impact of all four settings was analysed, the possible impact of ECP quality on the developmental outcomes of the 8-year-olds was of particular interest because of the widely held belief that early experiences have a particularly important effect on developmental outcomes. If a significant part of developmental and school achievement outcomes can be explained by the nature and quality characteristics of what children experience as 4-year-olds, then it might well be possible for policy makers and practitioners to substantially improve children's developmental possibilities by modifying characteristics of ECPs for 4-year-olds. By incorporating what has been learned about the effects of ECPs, change could also be encouraged, where reasonable, in primary schools and family settings, to substantially improve the future developmental and educational trajectories of young children in various European countries.

Before presenting the conceptual framework and the research questions addressed for Workpackage II, a brief summary will be given of the extant literature which has addressed the relationship between the quality of educational settings and child outcomes. That summary will not be limited to research conducted in institutional settings, but will also summarise the limited data available about the effects of quality in family settings on children's development. Special attention is given in this review to what is known about the long-term effects on children of varying levels of ECP quality.

1.2 Previous research on how the nature and quality of young children's experiences affects developmental outcomes

One of the most frequently cited reasons for the expansion of pre-school programmes in European countries over the past three decades has been the belief that children's participation in pre-school establishes the foundation for later success in school, family life, and society. Unfortunately, there are only a few longitudinal studies which have evaluated this belief, and none that have been done on a cross-national basis with European countries. Thus, even though most experts and practitioners accept this belief, there is very little empirical verification and, more importantly, little understanding of the mechanisms by which such effects, assuming they exist, are regulated.

So that the reader will have a better understanding of why the ECCE project was designed as it was, and how it builds on and extends past research, a brief summary will be given of some of the most relevant past research about how the nature and quality of pre-school and primary school affects children's developmental outcomes. Because of the longitudinal approach of the ECCE-Study, the review will focus especially on possible longitudinal influences of the educational quality children have experienced during their pre-school years.

In line with the research topics of the ECCE-study, the review, where possible, will differentiate between:

- Academic achievement and language development, and
- Social development.

The first part of this review focuses on literature that examines concurrent effects of ECP quality on developmental outcomes of children. Second, research on longitudinal effects of ECP quality will be presented. Finally, we will focus on more recent research which considers the most important influences on children in institutional environments (e.g., ECPs, primary school classrooms), *and* family environments, especially with regard to long-term effects.

Since the 1960's, pre-schooling has become a rapidly expanding international movement to meet the needs for mothers, with young children, who were entering the employed work force. The enrolment of children has increased considerably, regardless of the particular social order, traditions, or countries, both in socialistic and free market countries (e.g. Tietze & Ufermann, 1989; Tietze & Cryer, 1999). The pre-school movement of the '60s

was strongly linked to the compensatory education movement (OECD, 1982, p. 44), at least in many western industrialised countries, where pre-school experiences were seen as a measure to compensate for poor conditions in the homes of less advantaged children and for their lack of early learning experiences that would prepare them for the demands of school. Thus, to improve school readiness for children from such families, intervention programmes were established. Research on the extent to which child development is influenced by the early childhood environment began in response to the fact that more and more young children were attending programmes outside the home.

Child-care research has undergone some important changes during the past two decades; three waves of child-care research are usually described (e.g. Belsky, 1984; Clark-Stewart; 1987a). In the first wave of research, it was asked whether out-of-home child care, in itself, might be harmful to young children, and whether educational interventions could promote developmental growth in children who were considered to be at risk. Thus, early research on child care did not even consider whether or not programmes were of high quality.

In a second research wave, the field moved towards attempting to provide far more specific understandings about how early environments affect the development of young children, and whether early experiences have an influence on children's later accomplishments (cf. Hayes, Palmer, & Zaslow, 1990). Studies conducted in this line of research usually made attempts to measure educational quality and to relate the characteristics and quality of programmes to developmental outcomes. Furthermore, these studies attempted to identify more precisely the particular aspects of quality that promote or impede development in specific domains.

Presently, a third wave of research is being implemented, which includes more exact attempts to measure proximal influences on the child and to consider more distal influences as well. In other words, researchers have now realised that to understand the connection between quality of educational programme and children's developmental outcomes, we must also account for the context in which the programme is operating and the influence of other variables (e.g. family characteristics, child aptitude). Thus, these more ecologically valid approaches have incorporated a much more complex set of variables related to characteristics of child-care (quality and type), family characteristics, and individual differences among children. This third wave of research is leading to a richer picture of the ecology of the child care setting and the child's experience in that setting (cf. Scarr & Eisenberg, 1993).

1.2.1 Concurrent effects of ECP quality on child outcomes

Effects on language and cognitive development. Considerable research, much of which was completed in the U.S., has evaluated the association between non-parental care and intellectual development of pre-schoolers. This research has documented that overall quality of child care is positively correlated with cognitive developmental outcomes (Doherty, 1991). Findings of a recent meta-analysis of 25 studies on the relationship between quality of child care of the ECP and children's developmental outcomes (White, Cutler & Tietze, 1997) showed consistent and robust relationships. Although relatively small (average correlations about .20) such relationships were found in almost all studies and were present for virtually all types of developmental outcomes, including social competence, child-adult interaction, language and cognitive development. The evidence for a relationship between quality of child care and developmental outcomes was strongest for language development.

Much of the research on cognitive and intellectual correlates of non-parental child care has been gathered in the course of evaluating the effects of *intervention programmes*. Such experimental research has documented that early childhood educational interventions (out-of-home schooling) can have positive and enduring effects on cognitive performance, particularly among children from less academically stimulating homes. Several studies show that pre-schoolers who experienced high quality educational intervention programmes (beginning during infancy) show better progress on tests of language and cognitive functioning than similar pre-schoolers without such care experiences (Bryant, Burchinal, Lau & Sparling, 1994; Burchinal, Lee & Ramey, 1989, Clark-Stewart, 1987b; Clark-Stewart et al., 1994; Dunn, 1993; Howes, 1990; Martin, Ramey & Ramey, 1990; McCartney, Scarr, Phillips & Grajek, 1985; NICHD Child Care Network, 1998; Roberts, Robinowitch, Bryant, et al., 1989; for reviews see Belsky, 1984; Hayes et al., 1990; Lamb, 1997). For example, Ramey and his colleagues showed that African American children from impoverished backgrounds enrolled in continuing intervention programmes maintained IQs in the normal range up to their 5th year of life (Martin, Ramey & Ramey, 1990). The children in the intervention group consistently performed better on standardised measures of cognitive performance than a control group of similar children not enrolled in such programmes (Burchinal, Lee, & Ramey, 1989).

Several researchers have also examined the intellectual and cognitive performance of children in *non-intervention community child care programmes*. The results generally show that high-quality out-of-home care has positive effects on intellectual development, at least in

the short term. Higher quality in community child care facilities was shown to be to moderately correlated with better language development across a number of studies (Dunn, 1993; Goelman & Pence, 1987; McCartney, 1984; Peisner-Feinberg & Burchinal, 1996; Phillips, McCartney & Scarr, 1987; Whitebook, Howes & Phillips, 1990). For example, Dunn (1993) reported that the intelligence of 4-year-olds from middle-class families was correlated with the quality of alternative care, even after controlling for family backgrounds. Clark-Stewart et al. (1994) reported that middle-class 2-to 4-year old children in centres scored better on measures of cognitive development than children who remained in exclusive care of their parents, who had in-home sitters, or were in family day care. These effects were greater in centres of higher quality.

Results from Workpackage I of the European Child Care and Education Study completed in Austria, Germany, Portugal, and Spain are in line with the general positive picture emerging from studies completed in the U.S. After controlling for effects of child characteristics and family quality, up to 6% of variance in language development of 4-year old children was accounted for by ECP quality. Thus, the impact of ECP quality on children's development seems to be substantial (ECCE Study Group, 1997) and, as these results indicate, ECP quality has a positive effect on children's language development. It should be mentioned that a few studies have not found such positive correlations. For example, the Göteborg Child Care Study (Broberg, Hwang, Lamb & Bookstein, 1990) found that quality and type of out-of-home care were *not related* to the children's verbal abilities. It is likely that what is measured and where a study is completed may influence the findings regarding the effects of child care on children's language and cognitive development.

Effects on socio-emotional development. Research in the area of socio-emotional outcomes covers a number of behavioural domains such as affect (e.g., Hesteness, Kontos & Bryan, 1993); peer relationships (e.g., Vandell & Powers, 1983); personality maturity (e.g., Lamb, Hwang, Bookstein, Broberg, Hult & Frodi, 1988); behaviour problems (e.g., Bates, Marvinney, Kelly, Dodge, Bennett & Pettit, 1994; Scarr, McCartney, Abott-Shim & Eisenberg, 1995) and social competence (Clark-Stewart et al., 1994; Phillips, McCartney & Scarr, 1987). Whereas, most research on the effects of early childhood education on cognitive developmental outcomes, was been done with intervention programmes, most studies on socio-emotional outcomes have been implemented in community programmes.

Most studies testing for concurrent associations between child care quality and socio-emotional outcomes indicate a positive effect of child care quality on the development of socio-emotional abilities. For example, Hestenes et al. (1993) showed that 3-to 5-year-olds expressed more positive affect when their day care arrangements were of higher quality. Clark-Stewart et al. (1994) reported that middle-class 2-to 4-year-old children in child care, especially those in centre care, were more friendly toward and more compliant with unfamiliar experimenters than those in the exclusive care of their parents. These children were more socially competent when the care was of good quality and if they experienced intermediate amounts of care (see above). Using the Child Behavior Inventory (CBI; Schaefer & Edgerton, 1976) as an indicator of children's social competencies, Phillips et al. (1987) found that overall quality, as measured by the Early Childhood Environment Rating Scale (ECERS; Harms & Clifford, 1980) was highly predictive for 6 of 10 subscales of the CBI after accounting for effects of children's age, family background, and child-care experience. The results underline the assumption that children attending higher-quality child-care centres are more likely to demonstrate greater social competence and adjustment.

Vandell and Powers (1983) observed 55 white middle-class 4-year-olds during free play in either poorly equipped, crowded, inadequately staffed centres with large groups of children or in centres with higher quality. Quality of interaction with the teacher was correlated with the quality of the centre, and children in low-quality centres spent more time unoccupied and in solitary play. According to these results the authors suggested that quality of care may be an important consideration in investigating effects of child care on peer relationships. Howes, Matheson, and Hamilton (1994) highlighted the importance of the relationship with pre-school-teachers. They reported that children who had secure relationships (compared to children with insecure relationships) with their first teachers were rated as optimally ego-controlled, and more gregarious, ego-resilient, popular, and socially adept. Also, Howes et al. (1994) reported that 14- to 54-month-old in classrooms rated as good or very good in caregiving were more likely to be securely attached to teachers. Securely attached children were more competent with their peers and showed higher social competence. The authors of the Cost, Quality and Child Outcomes Study (1995) concluded that children enrolled in centres providing care of high quality had superior social skills, even after controlling for the effects of social class, ethnicity, and other aspects of family background. Similarly, results of the ECCE Study showed a statistically significant correlation between quality of the ECP and children's social competence and daily living skills (ECCE Study Group, 1997).

The vast majority of existing research has found that, high-quality out-of-home care appears to foster personality maturity, social competence and peer relationships. There have, however, been a few reports of non-parental care in the pre-school years being associated with the development of behaviour problems. For example, Bates et al. (1994) reported that the extent of care in the first to fifth years of life predicted less positive adjustment. However, greater child care exposure was associated with teacher reports of fewer internalisation symptoms (e.g., somatic complaints, anxiety, depression). Pierrehumbert, Ramstein, Kramanioal and Halfon (1994) reported that Swiss children who behaved securely with their mother in the Strange Situation at 21 months were rated as more aggressive by their mothers at 5 years of age unless they had experienced more than average non-maternal care. Thus, as with the research on cognitive and language development, results indicate positive effects of high quality care on children's social-emotional development, but with some exceptions.

1.2.2 Longitudinal effects of ECP quality on child outcomes

As was the case with research on the concurrent effects of ECP quality on children's developmental outcomes, the longitudinal effects of ECP quality will be examined with respect to those studies which have examined *language development, cognitive functioning and academic achievement*, versus those which have examined the effects on socio-emotional development.

Effects on language and cognitive development. The results from various studies conducted in this line of research indicate that centre-based child care in general has a (positive) *enduring* effect on children's development. As already mentioned, most of the research on the association between non-parental care and intellectual development in pre-schoolers has been gathered in the course of evaluating *intervention programmes* designed to enhance the school readiness and academic performance of disadvantaged and at-risk children. Generally, these studies demonstrate moderate to large positive gains in academic and cognitive performance linked to attending model early-intervention child care centres (Campbell & Ramey, 1994; Darlington, Royce, Snipper, Murray & Lazar, 1980; Lazar & Darlington, 1982; McCartney, Scarr, Phillips, & Grajek, 1985; Schweinhart & Weikart, 1980, for a review see Lamb, 1997). The long-term outcomes of children in a few such programmes have been studied extensively and reported in the work of the Consortium for Longitudinal Studies in the U.S. (Lazar & Darlington et al., 1982). Compared to control group children,

those who participated in such early intervention programmes were much less likely to have been placed in special education classes and somewhat less likely to have been retained in grade. Intelligence scores remained higher for the treatment children for several years. Reading achievement was significantly higher at third grade and mathematics achievement was significantly higher until sixth grade. Other studies that were not part of the Consortium have also reported positive school-age effects of participation in model pre-school education programmes (Ramey & Campbell, 1991; Schweinhart, Barnes, & Weikart, 1993).

In contrast to results of intervention programmes, the results of longitudinal studies of the effects of community child care are less consistent. In a retrospective study of third-graders who had experienced varying amounts of non-maternal care, Vandell and Corasaniti (1990) found that extensive care beginning in infancy was associated with *poorer* scores on standardised cognitive measures. By contrast, Burchinal et al. (1995) reported *no* association between infant child care and cognitive performance (e.g., PPVT) at 6 to 12 years of age in a sample of middle-class White and African American children. Similarly, Phillips and her colleagues (1987) reported that concurrent positive effects of high quality centre care observed with 3- to 5-year old children were no longer evident at ages 5 to 8, while family background variables and maternal IQ were better predictors of intellectual status.

There have, however, been some studies examining the effects of children's experiences in community centres which showed a *positive* long-term impact. For example, when examining the effects of child care quality that school-aged children had experienced before entering primary school on school-adjustment in the first grade, Howes (1988) reported that academic progress and school skills were predicted by high-quality, stable child care. Characteristics of children, such as gender or age at entry into child care appeared to influence the effects that child care had on the children. In particular, early entry into child care was associated with academic progress in boys and with school skills in girls.

In Europe, a study with 8500 children born during one week in England, Scotland, and Wales showed that children who attended pre-school education had better reading and math skills at age 10 and that the effects differed by type of early childhood programme the children had attended (Osborne & Milbank, 1987). A smaller study, completed in the U.K., also found that children who had attended well-funded comprehensive early childhood programmes adjusted more successfully to the first year of school and were more learning-oriented than their peers from less comprehensive programmes (Jowett & Sylva, 1986).

In Germany, a retrospective study on the effects of kindergarten attendance, based on a representative sample of primary school children in the state of North-Rhine Westphalia, showed positive relationships with indicators of successful schooling. Specifically, schools with a higher number of kindergarten-places in their neighbourhood had less retained children, less children who needed to repeat a class, and a lower number of children placed in special education (Tietze, 1984). In another German study (Winkelmann, Holländer, Schmerkotte & Schmalohr, 1977), it was found that children from high quality community based programmes did better in various aspects schooling than a control group of children.

In Sweden, results from the longitudinal extension of the Göteborg Child Care Study show, that performance on standardised measures of children's cognitive abilities at the end of second grade (average age 8 years 6 months) was correlated with the number of months children had spent in centre-based care before 3.5 years of age and by the quality of care received in these centres (Broberg, Wessels, Lamb, & Wang, 1997). By contrast, children who had attended family child care performed more poorly than those who had been in centre care. These results are largely consistent with those of Anderson (1989, 1992) who also studied Swedish children and reported consistent *positive* associations between earlier enrolment in child care centres and cognitive ability and academic achievement of 8 and 13-year olds. Another study completed in Norway compared educational competence of 20-year-olds who received centre care to those who exclusively received parental care. Results show that young adults who received centre care achieved *higher* levels in competence than the control group and that this effect was increased for those who had attended high quality centres (Hartmann, 1995).

Effects on socio-emotional development. Studies on longitudinal influences of ECP quality on socio-emotional outcomes have not been quite as consistent as the findings for intellectual development. Studies completed in the U.S. have shown negative consequences (e.g., Haskins, 1985, on aggression) but a greater number have shown positive effects (e.g., Clark-Stewart, 1984; Clark-Stewart & Fein, 1983; Peisner-Feinberg & Burchinal, 1996; Phillips, McCartney & Scarr, 1987; Whitebook, et al., 1990). Some studies have reported no effects (e.g., Deater-Deckard, Pinkerton & Scarr, 1996; McGurk, Caplan, Hennessy & Moss, 1993; Scarr & Eisenberg, 1993 for reviews). Studies conducted in Sweden (e.g., Promidis, Lamb, Sternberg, Hwang, & Broberg, 1995) have shown very modest or no enduring effects of child care experience or variation in quality on children's social-emotional outcomes.

Regarding the *positive effects* of child care, children who have participated in child care appear to be more socially skilled than their home-reared peers, as demonstrated by their more advanced perspective-taking skills, co-operative behaviour, task-orientation, and confidence in social interactions (Clark-Stewart & Fein, 1983; Clark-Stewart, 1984; Howes, 1988; Howes & Olenick, 1986; Rubenstein & Howes, 1979). Howes (1988) reported that, after family characteristics were accounted for, fewer behavioural problems occurred if high quality and stable child care had been experienced. In a longitudinal extension of their study mentioned above, Vandell & Powers (1983) tested whether differences in children's activities due to their exposure to good or poor quality child care had long-term consequences for children. Indeed, they found that 8-year old children who had attended poor quality child care centres showed more problematic development than did their counterparts who had attended higher quality programmes. During triadic play sessions, they had fewer friendly interactions and more unfriendly interactions. Observers rated them as less socially competent and less happy (Vandell, Henderson & Wilson, 1988). Borge and Meluish (1995), who followed all the children in a rural Norwegian community from their fourth birthdays through second grade, reported that children who experienced more centre care had significantly *fewer* behaviour problems at ages 7 to 10.

On the other hand, displays of aggression, negative affect, and resistance to adult requests have been reported to be more prevalent among child-care than among home-reared children, even in the long run (Haskins, 1985; Ramey, Dorval, & Baker-Ward, 1981). Burchinal et al. (1995) likewise reported that 6- to 12-year old children had higher levels of externalising problems than children with no pre-school experiences. Interestingly, pre-school experience predicted more positive ratings of the social behaviour of African American but not of White children in this study.

The association between non-parental care and behavioural problems was *not evident* in several other studies. Scarr, McCartney, Abott-Shinn, and Eisenberg (1995) reported that length of time in centre care had no effect, and observed quality of care had minimal effects on children's behavioural adjustment and manageability as reported by both parents and teachers. Deater-Deckard et al. (1996) likewise found, that indicators of centre quality (e.g., teacher-child ratio, quality index measured by ECERS) were generally unrelated to mother and teacher ratings of behaviour problems and social withdrawal whereas home environment factors and adjustment at 4 years of age were predictive of individual adjustment of 8-year-olds. However, as the authors caution, this finding does not necessarily imply that child care

quality has no effect. The outcome measures only examined behavioural maladjustment and, given that the sample was relatively homogenous and at low risk for developing problems, these measures may not have appropriately captured the developmental aspects of social competencies.

1.2.3 Effects of not adequately controlling for bias due to family characteristics

It is likely that the mixed findings of past research, especially in the domain of social development, may be a result of inadequate controls for child characteristics, child care quality, family environment or family child care selection characteristics. For example, in a review, Eisenberg and Scarr (1993) pointed out that a major problem in studies of child care effects has been that the quality of care selected by parents may be linked with parents' personal characteristics. This relationship may lead to an overestimation of child care effects that are really attributed to family differences.

Several studies have supported this position on the inter-relatedness of child care and selection bias due to family characteristics. Howes and Olenick (1986) reported that children from families with lower income and mother-only families with the mother was employed were more likely to be found in lower quality alternative care. *Parenting behaviour* was also found to be related to the type of centre attended. Parents with more punitive forms of discipline and more authoritarian attitudes toward children were found to choose lower quality care for their children (Bolger, 1991; Scarr, Phillips, McCartney & Abbott-Shim, 1993). Children in high quality care tended to have parents who were more involved and interested in compliance than parents of children in lower quality care. In a Swedish longitudinal study child and family characteristics moderated the influence of child care quality at 2.5 years of age on measures of socio-emotional functioning at age 4 (Hagekull & Bohlin, 1995). Child care quality had a stronger positive influence on ratings of aggressive behaviour for children from lower socio-economic homes and on ratings of internalising problems and ego strength for boys.

Looking at longitudinal effects there is evidence that family characteristics are influential on children's *school adjustment*. Children with less well-educated parents are at risk for poor school performance (Ramey & Haskins, 1981). In Howes (1988) maternal work, family status, maternal education, and child-care characteristics were examined as predictors of school success. Although families of different maternal employment and material status used different patterns of child-care, these variables were less important for children's

adjustment to school than were parental education and children's experiences in child care.

In an attempt to correct the problems associated with inadequate controls for potential influences on children's development, recent research has tried to account for family characteristics in investigating effects of ECP quality on children's development. These studies have extended the research methodologies according to an ecological model of development (cf. Bronfenbrenner & Crouter, 1983; Sameroff, 1983) by examining the longitudinal influence of child care quality, both in families and ECPs, on children's development. Those using a more ecologically valid approach (e.g., Osborn & Milbank, 1987; Schuck & Schuck, 1979; Schweinhart & Weikart, 1997) have succeeded in investigating more fully the possible influences of the immediate environment of the child by examining the association between child outcomes and characteristics of the early childhood programme environment (e.g., duration of ECP participation, process quality in ECP, continuity and change of care) after accounting for family characteristics (e.g., educational level of parents, number of siblings).

One example that incorporates family and centre characteristics into predictive models of child outcomes was conducted by Lamb et al. (1988). In their Swedish sample, they found social class and family background characteristics to be the best predictors of peer sociability and social competence, while there were no differences among children who experienced different types of child care (e.g., centre-based, family day care). Another 4-year longitudinal study completed in the U.S. showed that indicators of centre quality were generally unrelated to mother and teacher ratings of behavioural adjustment of second graders while home environment factors and earlier behaviours were predictive (Deater-Deckard, Pinkerton & Scarr, 1996).

A longitudinal study of children in family day care, child care centres, or home care by mothers in Bermuda (Scarr et al., 1989) found that children of single mothers who lived with parents or other family members were more similar to children living with both parents than they were to children of single mothers living alone. It was the latter group that displayed more cognitive delays. For children of single mothers living alone, increased time in child care yielded higher developmental scores. Whereas type of care was not predictive of child IQ, the best predictors of cognitive development observed in all children were high family income, high maternal vocabulary scores, authoritative parenting, and fewer maternal work hours. Kontos (1991) found similar results when studying an American sample of pre-schoolers.

A secondary analyses of the Perry Pre-school data set (Luster & McAdoo, 1996) showed that only mother's education was predictive of achievement in first grade, whereas other family background characteristics (e.g., maternal involvement in kindergarten, father's education, number of persons per room) were not. Further, children who were more motivated and who had higher IQ scores in kindergarten had higher achievement test scores in first grade and even eighth grade.

Peisner-Feinberg and colleagues (1999) in their longitudinal study on the effects of child care experiences on children's second grade developmental status also have included both family and pre-school quality information. The variable maternal education was used as a proxy for more specific measures of family quality. They found that family environment plays a primary role in children's second grade development, and that pre-school experiences, which influenced children's concurrent development during the early childhood years, continue to have an effect, both in areas of cognitive and social development, possibly more for children at greater risk of school failure.

There are indicators that children's prior developmental status may also be predictive of their later development. In the Göteborg Longitudinal Study (Broberg et al., 1990), measures of the home environment (e.g., socio-economic status), which were predictive for cognitive abilities in pre-school-aged children, were no longer predictive when the children were in the second grade. However, prior ability in cognitive measures at age 3.5 or 6.5 was significantly correlated with cognitive abilities. Child care quality predicted cognitive abilities only among children who had spent at least 36 months in out-of-home care during their pre-school years.

Altogether, the literature highlights the importance of examining children's development from a more ecologically valid perspective, considering child characteristics (e.g., cognitive abilities, child care history, IQ in pre-school age) and family characteristics (e.g., socio-economic status, stimulation). The ECCE study (ECCE Study Group, 1997), although only dealing with concurrent effects, took the perspective used in the most comprehensive research, in which quality of both family and pre-school experiences are considered in attempting to explain differences in children's outcomes. The report for Workpackage I showed that after controlling for effects of child characteristics (explaining up to 1.1 to 11.7% of variance) up to an additional 30.3% of the variance in cognitive and social-emotional outcomes of children could be accounted for by family educational quality and up to 11% of additional variance could be accounted for by ECP quality in the various countries.

Thus, although the effects of child and family characteristics are high, the impact of ECP quality on 4-year old children's development clearly seems to be substantial.

1.2.4 Summary of related research

Most of the published literature shows that centre-based child care, presumably of high quality, can have positive effects on children's intellectual and social development, regardless of family background. Research on the effects of child care on children's development highlights the importance of the quality of the environment. Basically, when children are in high quality pre-school environments both cognitive and social development are encouraged. However, such effects are absent for children who are in poorer quality environments.

In particular, empirical findings from previous research consistently indicate immediate, *short-term* positive effects of child care quality on cognitive as well as on social developmental outcomes in children. The literature also reveals *longitudinal* effects on both, cognitive and social development, but those results are less consistent. For example, longitudinal intervention studies consistently show positive effects on children's cognitive development, even in the long run (e.g., maximum through age 23, see Schweinhart & Weikart, 1997). By contrast, studies targeting community-run ECPs show a few negative results (e.g., Vandell & Corasaniti, 1990), a few with no effects (e.g., Burchinal et al., 1995; Phillips et al., 1987) and somewhat more with positive effects (e.g., Broberg et al., 1997; Howes, 1988; Jowett & Sylva, 1986; Osborne & Milbank, 1987). Taking into account that positive effects mainly emerge in intervention studies, in which high quality of care seems to be a given and in a number of studies of European child care centres in which high quality also is provided (e.g., Henessy & Meluish, 1991) it seems reasonable to conclude that high educational quality in early childhood education has a positive long-term effect on cognitive developmental outcomes. Furthermore, as Broberg's Swedish study (Broberg et al., 1997) impressively showed, some of the positive effects of quality of alternative care on children's development may not occur immediately, but may increase with children's age.

Results from studies investigating longitudinal effects on children's *social development* indicate that positive effects do not appear if only child care attendance per se is considered. Thus, the quality of care plays an important role and long-term positive effects on children's social development are only evident if high quality and stable child care are provided (e.g., Borge & Meluish, 1995). By contrast, negative effects for children in poor quality centres

(e.g., Vandell et al., 1988) as well as no effects on behavioural adjustment were found (e.g., Deater-Deckard et al., 1996; Scarr et al., 1995).

Taken together it can be concluded that effects of ECP quality on children's *cognitive and social* developmental outcomes are likely to be present, even in the long-run. However, as studies incorporating a more ecologically valid perspective indicate, effects of out-of-home child care quality are often confounded with effects of the quality of the family environment. Studies which controlled statistically for family characteristics have found that early childhood programme quality has small but reliable additional effects on children's immediate and long-term language and cognitive development, social competence and social adjustment (e.g., ECCE Study Group, 1997; Goelman & Pence, 1987; McCartney, 1984; Peisner-Feinberg et al., 1999; Schweinhart & Weikart, 1997).

In addition to indicators of the two most relevant environments of children, family and institutional care, characteristics of the children, themselves, need to be taken into account when evaluating the longitudinal effects of non-family child care programmes. As several studies indicate, the developmental status of the child as a pre-schooler must be considered when effects of educational quality on children's achievement at older ages (e.g., in second grade) are investigated.

Past research shows that it is important to investigate *longitudinal effects* of child care attendance on children's development in the domains of cognitive functioning and social competencies. However, as the literature clearly indicates, the educational quality children experienced in their pre-school period in the family and ECP settings needs to be taken into account. It is essential to use an ecologically valid approach to investigate and control more fully the possible influences of the child's immediate environment, especially when looking for longitudinal effects. Thus, an integrative model of developmental influences that incorporates variations in pre-school, family environments and individual characteristics of the child may well provide a conceptual framework for examining the effects of pre-school quality on outcomes of the children in primary school. In addition, it would seem reasonable to investigate the effects of the quality of the school setting as well. In summary, characteristics of the individual child, of both pre-school and primary school quality, of family educational quality during both pre-school and primary school, must all be taken into account when attempting to examine the long-term effects of pre-school experiences on later developmental outcomes.

1.3 Conceptual framework for the ECCE Study

An analysis of how the quality of educational experiences in the home, early childhood programme, and primary school contributes to children's developmental status at 8 years of age, must account for a wide range of variables. How these variables are related to each other, their relative importance, and how they should each be measured has been approached from many different perspectives and with many different issues in mind (see for example Belageur, Mestres & Penn, 1992; Katz, 1996; Moss & Pence, 1994; Tietze, 1994). It is clear that the quality of a child's familial and educational environment can be affected by many complex interrelated factors, which are continually facilitating or conflicting with each other and are being affected in turn by other outside factors. Selecting which aspects of the environments should be evaluated is itself a major task, with valid possibilities for comparisons ranging from factors that are far removed from the child's actual experiences, such as the economic or political environment which provides the underpinning for the pre-school and school age educational system in which the child is enrolled, to factors which are more closely, but not directly, experienced by children, such as the structural and pedagogical characteristics of ECPs and schools, and finally to the nature and quality of the interactions and environments that children experience each day, either as groups or individuals. Additionally, it would clearly be short-sighted and incorrect to attempt to evaluate the relationship between the nature and quality of children's educational experiences and their developmental status, without accounting for the effects of family environment and interactions. Finally, particularly in a longitudinal study which attempts to account for effects and interactions over a four-year period, it is critical to consider at least some of the most important variables which contribute to the macro system and the context in which the research is done and which may be affecting families, ECPs, schools and children.

To account for the most important of the variables referred to above, the project was designed based on the assumption that the socialisation and development of a child is influenced primarily by the child's experiences in the settings where the child spends the most time. For virtually all children, this includes the family, for a growing number of children it includes some type of ECP, and for virtually all 8 year-old children, it includes a primary school. The quality of each of these environments or settings is influenced by a complex set of variables which can be grouped into three general categories (see also Hayes, et. al., 1990; Scarr, Eisenberg & Deater-Deckard, 1994, and Tietze, 1985):

- **Orientations and beliefs of parents and teachers.** In families, ECPs and schools, parents and/or teachers have attitudes and opinions about appropriate goals for the ECP or schools, child raising techniques, and expectations and educational aspirations for the child.
- **Structural variables.** For ECPs and schools, these include variables such as centre or class size, adult/child ratios, teacher qualifications and experience, and facilities and resources. For families, these include variables like the configuration and size of the family, income, and educational level of the parents,
- **Process variables.** In families and educational settings, these include variables related to the type, frequency and duration of the activities in which children engage and the nature and quality of the interactions children have with their peers and adults in those settings.

Variables in each of these categories interact with and influence each other to some degree, and may have direct or indirect effects on children's development. For example, it is clear that structural variables influence processes (e.g., the nature of interactions children have with their peers), but they do not completely determine processes. In other words, interactions of the same nature and quality can, and often do, occur under completely different structural conditions. It is also clear that variables in each of the settings can cross over and interact with variables in another setting. For example, depending on how assertive parents are, their beliefs and attitudes can easily have an impact on the nature of the activities which occur in a primary school or ECP. Because of the dynamic and interactional nature of all these variables, it is impossible to adequately evaluate the impact on children's development and functioning of variables in one setting, without simultaneously considering similar variables in the other settings. Similarly, what happens to a child when he or she is 4 years old, or the developmental status of a child at 4 years of age could easily affect the nature of that child's interactions with others, or his or her developmental status as an eight year-old. Thus, the ECCE project was designed in a way that took into account for each child in the study the structural, orientations/beliefs and process variables in ECPs, schools, and family settings, at two different points in time, when the child was 4 years old and again when he or she was 8 years old.

The research questions addressed by Workpackage II are listed at the beginning of each chapter. These questions can be summarised in 5 broad categories, each of which is addressed

by one of the chapters 3-7 as described briefly below. In each case, analyses were done within countries, and where sensible, comparisons were made between countries.

1.4 Research questions for Workpackage II

Chapter 3: What are the experiences of children with regard to education and care from preschool age (i.e. from their first enrolment in an out-of-home setting) to their present state in primary schooling at age 8? How is the transition process from pre-schooling to primary schooling mastered? To what extent do parents and teachers exchange information and co-operate with regard to the child's educational career? What is the present state of children in various domains of school-achievement?

Chapter 4: What is the quality of primary school for 8-year-olds as defined by measures of structural and process quality? Is educational quality in ECP and primary school settings stable?

Chapter 5: What is the quality of educational experiences for 8-year-olds in their family settings as defined by measures of structural and process quality? To what extent is quality of educational experience in the family stable over the four-year period considered in this study?

Chapter 6: What are the ideas, beliefs, and attitudes of mothers and teachers with regard to the education of the 8-year-olds? What are mother's developmental expectations for their children and what kind of goals do mother's have for schools? To what extent do mothers and teachers agree about educational goals, expectations, beliefs, and attitudes?

Chapter 7: To what extent do quality characteristics in the four major settings evaluated in this study (i.e. the family settings when the child is 4 and 8 years of age, the ECP setting, and the primary school setting) impact student's developmental and school achievement status at age 8? Particularly, what is the long-term impact of the ECP on children's development?

A concluding chapter (8) will highlight some of the major findings and discuss implications for policy and practice.

2. DESIGN AND PROCEDURES

2.1 Introduction

The current study is a longitudinal extension of the data collection phase completed with 4-year old children in ECPs (pre-school phase). In the previous phase, we investigated the educational quality experienced by children in their ECPs and in their families, and the relationship of these quality characteristics to the children's developmental outcomes. This longitudinal extension of that study examines another important point in the educational lives of children which is their adaptation to the new demands of formal schooling at the end of the first two grades. At this time information is presented about how well children have coped with the new developmental tasks required of pupils in school. The continuation of the original study adds to what we understand about how children progress educationally during four of the earlier formative years.

As in the previous phase, this study focuses on educational quality, and particularly on the relevance of educational quality to the development of 8-year old children at the end of the transition to primary schooling (second grade). Educational quality was investigated twice, once when children were four-years-old and attended an ECP, and once when children were eight-years-old and attending primary school.

To better understand and explain differences in children's developmental outcomes, the relative influences of educational quality are considered with regard to both the *family* as well as the *classroom setting*. Although children usually remained in the same family environment (their home) we wanted to be able to represent any differences that might have occurred in the family educational quality provided for pre-school, as compared to school-aged children. Accordingly, educational quality in the families was investigated twice, when children were about 4.5 years and when they were about 8.5 years old (usually in second or third grade). Similarly, educational quality in the classroom settings, ECP and primary school, was investigated twice, during the kindergarten year 1993/94 and during the school year 1997/98.

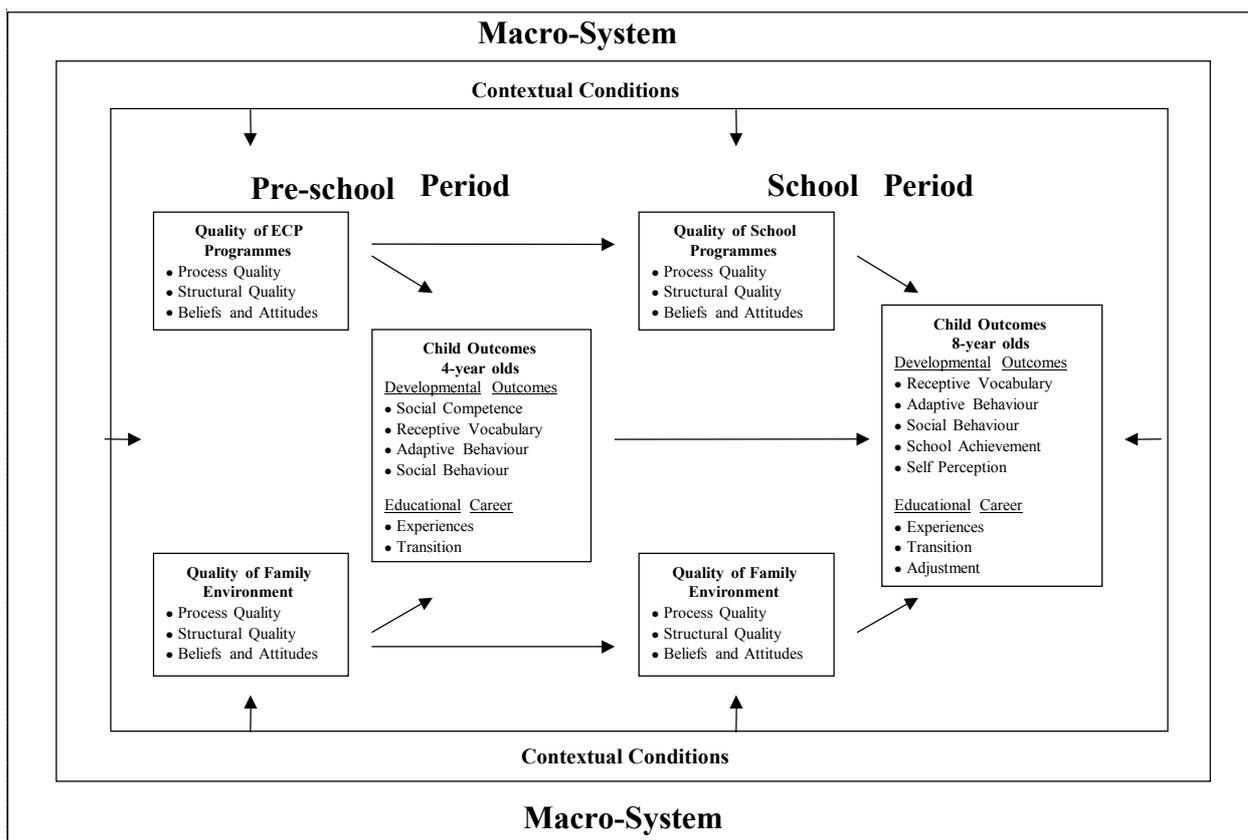


Figure 2.1 Graphic representation of the conceptual framework used to guide the design, analyses and interpretation of the ECCE Project

Figure 2.1 contains a graphic representation of how the various categories of variables investigated in this study are related and interact with each other. It is assumed at each point in time, that variables in the family, the school and the ECP influence the developmental status of children. However, it is also important to note that the context and the macro system in which these settings exist may have an important effect on the nature, strength and importance of each of the variables in the system, on how variables interact with each other, and on how they affect child development. For example, cultural differences between countries may affect how likely parents are to voice their opinions about how schools or ECPs operate, economic conditions at a particular time may affect the resources available to schools or ECPs in one community or country but not another, or historical factors that are no longer directly relevant may have a continuing effect on how schools or ECPs are structured and operated in one place but not another.

The arrows between the boxes in Figure 2.1 are meant to indicate that the different groups of variables constantly interact with each other. They are *not* intended to show all

possible linkages among the groups of variables. It is important, however, to show that each child is located in a family which finds itself in a particular context and a particular macro-system. How that child develops can be affected by all of the different variables shown in Figure 2.1. The specific ways in which those general variables are measured is summarised in the following sections. The purpose of this conceptual framework is to provide a general understanding of the important variables and linkages which guided the design of the study and were used in analysing and interpreting the results of the data.

As the figure illustrates, the settings family and kindergarten (school) are conceptualised as sole micro systems (Bronfenbrenner, 1979), each with the same basic components of educational quality. These basic components may differ for each child. In addition, the different contexts in which these settings are embedded may also influence developmental outcomes. For example, the family is embedded in a specific living environment, which can provide a range of possible developmental contexts for children (e.g., from poor to excellent) which vary in the extent to which they promote positive development. The family is also embedded, to a varying extent, in a social network of neighbours, friends and relatives that can also be related to the effect of the family on the child (e.g., Peek, 1995).

Similarly, the ECP classroom and the primary school class, as classroom settings are embedded in different contextual conditions. For example, the sponsoring agency, and the social and regional features of the catchment area of an ECP or primary school may determine to some extent classrooms processes. In our study, these conditions which are related to the micro-systems of family and ECP/school are conceptualised as *contexts* (see Figure 2.1).

It should be noted that these two micro-systems (family and classroom) are not isolated units because reciprocal interactional processes occur between the two of them. For example, parents have specific expectations toward ECPs and schools which are responded to by the schools in the specific expectations of teachers. In these interactional processes there are concrete exchanges of educational and child related information which influence the two systems.

Since Bronfenbrenner (1979) it has become usual in work on socialisation and development to postulate, at least theoretically, the importance of the macro-system in which all lower systems and contexts are embedded and experience a certain similarity. Empirical studies on the care of young children, as well as on their socialisation, usually do not specify

explicitly the conditions of the macro-system because these studies are usually completed in only one given macro-system. However, the cross-national character of the present project provides for different macro-systems according to the national conditions in each participating country.

Summary. As Figure 2.1 illustrates, the longitudinal conception of the study is established by the following elements:

The study examines development during a 4-year period of development. This period includes the last two years of children's pre-school period as well as the first two years of early compulsory schooling.

The design of the study includes two measurement points of children's developmental status.

- a first measurement of children's developmental status at about 4.5 years of age (1994)
- a second measurement at the end of early compulsory schooling (grade 2, 3) at about 8.5 years of age.

Educational quality that children experience in their families and classroom environments is assessed for both the pre-school time *and* the time of early schooling (grade 2, 3), in the family *and* in the classroom.

The conceptual framework targets spatial and social characteristics of the contexts, in which the family and classroom settings are embedded.

The conceptual framework specifies country as a macro-system factor.

2.2 Procedures

This section describes the selection of variables and the instrumentation (2.2.1). In addition, methodological aspects of the longitudinal design of the study (e.g., sample, attrition) and data collection procedures are described.

2.2.1 Operationalisation of conceptual framework and overview of measures

As stated earlier, this study was conceptualised as a follow-up to the study of 4-year old children in their families and ECPs in 1993/94. The first phase of the study was completed in four countries Austria, Germany, Portugal and Spain. During the second phase of the study,

data were collected during the second half of the 1997/98 school year, by research teams in Austria, Germany, and Spain³.

Teams in the three participating countries collected extensive data to evaluate the long-term effects of ECP educational quality on developmental outcomes, as well as the more direct effects of quality in children's families and primary classrooms. The vast majority of the data collection procedures were co-operatively developed by the research teams in the three countries, and data were collected using the same format, content, and procedures.

Each country used the *same instruments* to collect data about classrooms, families, and children. To the extent possible, existing measures with proven reliability and validity were used. However, all instruments required translation, and/or adaptation for use in the different countries. In some cases new instruments were developed to meet the specific needs of the study.

Responsibility for the selection, translation, adaptation and development of instruments was divided among the various countries. In each case the process included using the conceptual framework shown in Figure 2.1 to decide what type of an instrument was needed, selecting theoretically-based dimensions and characteristics to be measured, converting those dimensions and characteristics into standardised instruments, pretesting, refinement, and finalisation of the proposed instrument, and creation of an English version of the instrument for exchange with the other participating countries. After the instruments were exchanged, further pilot testing by each individual country, followed by collaborative discussions, led to further refinements and finalisation of the instruments eventually used in the ECCE study. Some instruments required several such revisions. The instruments which emerged from this process are described briefly in the following sections. More detailed information is provided in chapters 3-7.

2.2.1.1 Assessment of children's developmental status at two measurement points

The assessment of children's developmental outcomes was guided by four considerations. First, it did not seem reasonable to use traditional instruments which focus primarily on isolated psychological dimensions and which are designed for use in laboratory settings, but are less suitable in everyday life situations. Instead, more molar, true-to-life measures (Lazar & Darlington, 1982) were chosen which assess the individual's ability to

³ The Portuguese research team did not participate in the second phase.

adapt to, effectively cope with, and master a variety of daily life situations (Rosenbaum, Saigal, Szatmari & Hoult, 1995; Schmidt-Denter, 1994). Second, beside high inter-individual variability, educational biographies of children follow a common pattern in our culture: For example children in ECPs are expected to cope with specific daily life situations and to be able to successfully interact in their ECP group. A child in second/third grade of primary school is asked to cope with a broader frame of daily living situation and, in particular to have adapted to its role of being a pupil to get along with the basic requirements of school-related achievement. Based on this background the selection of instruments to assess developmental outcomes was guided by the demand of being consistent with such culturally normative developmental biographies. Third, consistent with the conceptual framework on which the ECCE study was based, children's behaviour is viewed as being inseparable from the context in which it occurs. Consequently, the child's social competence and ability to deal with daily life situations was measured separately with regard to the child's ECP school and family setting: the two main socialisation contexts within which the child lives and develops. Finally, the developmental domains that were measured during the pre-school phase of children's development were still considered to be appropriate for use in this follow-up study. Thus the same developmental dimensions were also measured during the primary school phase, but extended to include skills and abilities expected of older children. In addition, in accordance with the developmental challenges of a school-aged child, the main domains of school achievement in primary school were also incorporated into the assessments used in the study.

Data collection phase 1993/94 (5 areas of development)

The measurement of children's development for the first data collection phase of this study included the following:

The Vineland Adaptive Behavior Scale (VABS, Sparrow et al., 1984) was used to obtain information about children's independence and daily living skills. The instrument included:

- a 44 item questionnaire for the ECP setting (children's developmental status as rated by teachers)
- a 64 item questionnaire for the family setting (children's developmental status as rated by mothers)

The Scale of Social Competencies to measure children's social behaviour, including a combination of a shorted version of the Kohn & Roseman Social Competence Scale (1972)

and 10 items from the Classroom Behaviour Inventory (Schaefer & Edgerton, 1976). The instrument included:

- a 33 item questionnaire for the ECP setting (ratings by teachers)
- a 15 item questionnaire for the family setting (ratings by mothers)

The Peabody Picture Vocabulary Test (PPVT-R, Dunn & Dunn, 1981) to assess children's language development

For more detail on these instruments see Final Report on children's pre-school phase (ECCE-Study Group, 1997).

Data collection phase 1998 (7 developmental outcome and school achievement measures)

For the second data collection phase, the basic procedures used to assess children's developmental status were continued. Due to the increase in children's age, the use of the Vineland Adaptive Behavior Scale was extended. Instead of the Scales of Social Competencies, the complete Child Behavior Inventory was used. Also, use of the Peabody Picture Vocabulary Test was continued.

Several subtests of the Woodcock-Johnson School Achievement Test (Woodcock & Johnson, 1989, 1990) were used to assess children's school achievement in second (Austria, Germany) and third grade (Spain). In addition, the children's self perceptions, attitudes and feelings about school were assessed with an adaptation of the Young Children's Feelings About School measure (Stipek & Ryan, 1997). Altogether the following instruments were administered in the second wave of data collection.

A 32 item version of the Vineland Adaptive Behaviour Scale (VABS) for the school setting (ratings by teachers),

A 85 item version of the VABS for the family setting (ratings by mothers),

A 42 item version of the Classroom Behavior Inventory (CBI) for the school setting (ratings by teachers),

A 37 item version of the CBI related to aspects which could be assessed in the family setting (ratings by mothers),

The Peabody Picture Vocabulary Test (PPVT) as a setting-neutral measure,

Five sub-tests of the Woodcock-Johnson School-Achievement Test (WJ) related to the school setting,

Children's self perceptions about their school experiences as assessed by the Feelings About School (FAS, Stipek & Ryan, 1997) instrument.

This set of developmental and achievement related measures was supplemented with questions about children's school careers, collected in a standardised interview with mothers, to find out whether children had thus far experienced a normal school career (e.g., no retention in grade, no assignment to special education).

2.2.1.2 Assessment of educational quality in the family setting and in the centre-based settings of ECP and primary school

According to the conceptual framework we assume that the educational quality experienced by children in their two main settings (family and ECP/school) is central to their development. To enable longitudinal analyses of effects of quality children had experienced during pre-school, research with 8-year olds was conceptualised from a parallel perspective. This implies that comparable dimensions of educational quality needed to be measured. Thus, as in the data collection wave with 4-year olds in each country, the quality of child care in the family and in the primary classroom was evaluated according to the following three dimensions:

process quality - the quality and dynamic of the educational process (e.g., aspects of the interaction of children with adults, peers and the physical environment),

structural quality - the quality of the frame conditions in the family and classroom settings in which educational processes take place (e.g., for schools/classrooms: school or class size, teacher qualifications; for families: configuration and size of family, income, educational level of parents),

quality of educational orientations - the educational values, beliefs and attitudes of adults immediately involved in educational processes (e.g., the attitudes and opinions of teachers and parents about appropriate developmental goals, tasks of families, ECPs and schools, including their co-operation in children's education).

These three aspects of educational quality can be investigated in a similar manner in each of the educational settings, (family, ECP, and primary school). However, the operationalizations of the quality dimensions differs to some extent, due to the specific characteristics of each setting type. In other words, all three settings can be evaluated on the

same dimensions of quality, but the specific indicators used to assess the dimensions must be appropriate for the type of setting.

According to the longitudinal design of the study, educational quality related to the three aspects (processes, structures, orientations) was assessed in each of the two phases of the children's lives, in both the pre-school and primary school phases.

Educational quality in children's pre-school phase - family and ECP

Quality of the home setting. To investigate *process quality* in families two instruments were used: First, the Home Observation Measurement of the Environment (HOME, Caldwell & Bradley, 1984) was used to estimate the degree of developmental stimulation children experience within their family. Second, the Activities Questionnaire (ACT, Roßbach & Leal, 1993) developed by the ECCE research team was completed by mothers to provide information about the frequency of 19 activities done with the child in the family.

Data on *structural quality* in the family were collected during standardised interviews with the mother (Bairrao, Leal & Roßbach, 1993). Data collected included age of parents, educational status, labour force participation, household composition, socio-economic status and living conditions of children.

Data on *educational orientations* of parents was again collected during standardised interviews with mothers using rating scales (Palacios, Oliva, Roßbach & Tietze, 1993).

For detailed information on the instruments used to assess educational quality in families, see ECCE-Study Group (1997).

Quality of ECP setting. To investigate *process quality* in ECPs three instruments for measuring process quality on different levels were selected for use in this study: the Early Childhood Environment Rating Scale - ECERS (Harms & Clifford, 1980), the Caregiver Interaction Scale - CIS (Arnett, 1989) and the Observation Scheme for Activities in Pre-schools - OAP (Palacios & Lera, 1991). The ECERS and CIS require a 2-3 hour observation in ECP classrooms and a short interview with the lead teacher (ECERS). The OAP is a time-sampling instrument in which two target children are observed. The teachers educative role (e.g., transmitting information, structuring activities) as well as children's concrete actions are observed.

The *structural quality* in ECPs was investigated using standardised interviews with the director and lead teacher. Information about personal, social and spatial conditions (e.g.

professional and in-service training of teachers, group composition, number, size and availability of rooms) were gathered.

Educational orientations were investigated during the interview with the lead teacher using several rating scales. This was completed in a manner that was parallel to the interview with mothers about educational attitudes, and developmental representations.

For detailed information on the instruments used to assess educational quality in families, see, again, ECCE-Study Group (1997).

Educational quality in children's primary school phase - family and school

Quality of home setting. Educational quality was again conceptualised with regard to the dimensions of processes, structures, and educational orientations. Accordingly, in the data collection with 8-year olds, instruments were selected to be comparable to those used in the pre-school phase of the study. This provided us with parallel and comparable information on all three dimensions. However, the instruments were adapted to represent the characteristics and needs of school-aged children and their families (e.g., daily schedule, daily routines). As in the first phase of the study, *process quality* was investigated by using the HOME (Home Observation Measurement of the Environment, Caldwell & Bradley, 1984), an instrument which enabled us to estimate the degree of developmental stimulation children experience within their family. We also used an extended version of the Activities Questionnaire that had been used in the pre-school phase, which was completed by mothers and provides information about the frequency of a number of activities both at home and outside the home (ACT-PS, Palacios, Grenner, Hundertmark-Mayser, Lera & Tietze, 1998a). A questionnaire with ratings about co-operative processes between families and schools (e.g., exchange between mothers and teachers about child's adaptation to school) was completed by mothers (COOP, Krumm, Wetzel, Gartner, Itzlinger & Weiß, 1998).

Also, as in phase one, information was collected on aspects of *structural quality* in families through standardised interviews with mothers (Tietze, Grenner & Hundertmark-Mayser, 1998). As in the version used in the pre-school phase, the questionnaire included questions about age, educational status and labour force participation of parents, family status, and household composition, as well as about changes in family life due to children's school entry (e.g., daily schedule, freetime, social network, care situation). Information on *educational beliefs and attitudes* was gathered through a face-to-face interview and a written

questionnaire (Palacios, Grenner, Hundertmark-Mayser, Lera, & Tietze, 1998b) which targeted parents developmental expectations of their child, the developmental goals parents hold for their second and third graders, and expectations parents have for primary schooling (content and methods of lessons). In addition, a questionnaire for mothers focussing on the co-operation between families and schools, as well as the families' activities to support children's success in school (e.g., homework) was administered to indicate the quality of the relationship between the family and school settings.

Quality of school setting. The educational quality second and third graders experience in their immediate classroom environment was conceptualised to be parallel with the investigation of educational quality in the ECP setting. To obtain comparable information about the quality of the educational environment again three dimensions of quality were targeted: educational orientations of teachers, structural quality and quality of processes. To investigate *educational beliefs and attitudes* of teachers the same instrument was used as for mothers, including a face-to-face interview and a written questionnaire (Palacios et al., 1998b). Using a standardised interview (Roßbach & Stendel, 1998), teachers were asked about several *structural aspects* of the classroom (e.g., number of lessons, number of pupils, age range, availability of learning materials), as well as about personal characteristics of the lead teacher (e.g., age, education, professional experience).

To investigate the *process aspects* of the classroom environment two observational instruments were used. With the Instructional Environment Observation Scales (Secada, 1997) six relatively broad dimensions of general instruction (i.e., not related to a specific child) were rated by trained observers (e.g., classroom climate, social support for student learning). The second instrument completed was a time sampling instrument (Observation of Activities in the School, OAS, Palacios & Lera, 1998) in which specific activities of a target child and the lead teacher were observed (e.g., teacher role, relationship with children).

2.2.1.3 Assessing contextual quality

According to the Bronfenbrenner model, the contextual quality experienced by 4- and 8-year-old children was conceptualised to include characteristics of their immediate family and school environment. Parallel to data collection in the family and in the classroom settings, information on contextual quality was gathered. In particular, in the family setting, information about the availability and usage of children's places to play as well as characteristics of the social network (e.g., number of friends in neighbourhood) were obtained

using the above mentioned standardised interview with mothers (Bairrão, Leal, & Roßbach, 1993). During the standardised interviews with teachers (Schuster, Roßbach & Tietze, 1993; Roßbach & Stendel, 1998) contextual information about the school setting, such as organisational aspects, social characteristics of the catchment area and conditions that might interfere with (e.g., noise pollution, road safety) or extend potential opportunities for children (e.g., cultural offers, sports areas, parks) were obtained.

2.2.1.4 Controlling for conditions in the macro system

No specific characteristics of the macro-systems of the participating countries were measured. Instead, nationality was treated as a macro-system factor. This approach allows for detecting potential macro-system impacts although it does not allow for identifying specific macro-system factors which may provide for the observed impact.

Table 2.1 summarises all instruments. All of the instruments presented so far will be described in more detail in the separate result chapters.

2.2.2 Sample and data collection procedures

The sampling and data collection procedures used in this longitudinal follow-up required extensive effort with regard to making preliminary decisions about project organisation (Silbereisen, 1995), maintaining the sample (Brikenbach, 1998; Engel & Reinecke, 1994; Rendtel, 1990), ensuring representativeness to the extent possible (Rendtel, 1995), weighting of data (Pischner, 1994; Rendtel, 1997) and finally, making decisions about data structure and analyses (Bijleveld & van der Kamp, 1998; Hujer, Rendtel & Wagner, 1997). This section of this chapter deals with sample stability, attrition and other methodological aspects that were considered in conducting the study, preparing data and in making decisions regarding weighting of data.

Table 2.1 Overview on instruments used in pre-school and primary school phase

		Variables	Instruments	Instruments	Variables		
Setting School (Micro-system)	Child Development	<p>Pre-school phase: Language development PPVT (Dunn & Dunn, 1981) Primary school phase: Language development PPVT (Dunn & Dunn, 1981); School-Achievement Woodcock Johnson Tests of Achievement (Woodcock & Johnson, 1989/1990) Children's self perception and feelings about school FAS (Stipek, 1993; Stipek & Ryan, 1997)</p>				Development	Setting Family (Micro-system)
		<p>Pre-school phase Adaptive Behaviour in ECP Social Competence in ECP</p>	<p>VABS (Sparrow, Balla & Cicchetti, 1984) SESV-E (Tietze, Feldkamp, Gratz, Roßbach & Schmied, 1981) CBI (Schaefer & Edgerton, 1976)</p>	<p>VABS (Sparrow, Balla & Cicchetti, 1984) SESV-E (Tietze, Feldkamp, Gratz, Roßbach & Schmied, 1981) CBI (Schaefer & Edgerton, 1976)</p>	<p>Pre-school phase Adaptive behaviour in the family Social competence in the family</p>		
	Process Quality	<p>Pre-school phase Care routines; Cognitive stimulation; Sensitivity; Discipline; Activities; Children's activities in ECP</p>	<p>Early Childhood Environmental Rating Scale (ECERS, Harms & Clifford, 1980); Caregiver Interaction Scale (CIS, Arnett, 1989); Observation of Activities in Pre-school (OAP, Palacios & Lera, 1991)</p>	<p>Home Observation Measurement of the Environment (HOME, Caldwell & Bradley, 1984); Questionnaire on Children's Activities in Pre-school Age (ACT, Roßbach & Leal, 1993)</p>	<p>Pre-school phase Educational resources, Interactive behaviour; Cognitive stimulation; Children's activities</p>	Process Quality	Setting Family (Micro-system)
<p>Primary school phase Classroom climate and routines; Cross - disciplinary connections; Social support for student learning; Student engagement Teacher Role, Relationship with teachers</p>	<p>Instructional Environment Observation Scales (Secada, 1997); Observation of Activities in School (OAS, Palacios & Lera, 1998);</p>	<p>Home Observation Measurement of the Environment (HOME, Caldwell & Bradley, 1984); Questionnaire on Children's Activities in School Age (ACT-PS, Palacios, Grenner, Hundertmark-Mayser & Tietze, 1998a); Questionnaire about Co-operation between Family and School (COOP, Krumm, Wetzel, Gartner, Itzlinger & Weiß, 1998)</p>	<p>Primary school phase Educational resources; Interactive behaviour; Cognitive stimulation; Evaluation of transition from pre-school to school; Evaluation of children's school career; Children's activities; Co-operation of family and primary school</p>				

	Variables	Instruments	Instruments	Variables			
Setting School (Micro-system)	Structural Quality	<p>Pre-school phase Age, Education, Qualification, Professional Experience, Satisfaction; Organisation and Composition of Class; Teacher-Child Ratio; Curriculum</p> <p>Primary school phase Age, Education, Qualification, Professional experience, Satisfaction; Organisation and composition of class</p>	<p>Standardised Interview with ECP Teachers (Schuster, Roßbach & Tietze, 1993)</p> <p>Standardised Interview with Primary School Teachers (Roßbach & Stendel, 1998)</p>	<p>Parental Household Survey for Families with Pre-School Aged Children (Bairrão, Leal & Roßbach, 1993)</p> <p>Parental Household Survey for Families with School Aged Children (Tietze, Grenner & Hundertmark-Mayser, 1998)</p>	<p>Pre-school phase Age of parents; Educational status; Labour force participation; Family status</p> <p>Primary school phase Age of parents; Educational status; Labour force participation; Family status; Care and free-time situation of child</p>	Structural Quality	Setting Family (Micro-system)
	Educational Orientations	<p>Pre-school phase Developmental expectations; Educational goals; Expectations towards ECP</p> <p>Primary school phase Developmental expectations; Educational goals; Expectations towards primary schooling</p>	<p>Parent and Teacher Questionnaire on Educational Representations for Pre-School Aged Children (Palacios, Oliva, Roßbach & Tietze, 1993)</p> <p>Parent and Teacher Questionnaire on Educational Representations for School Aged Children (Palacios, Grenner, Hundertmark-Mayser, Lera & Tietze, 1998)</p>	<p>Parent and Teacher Questionnaire on Educational Representations for Pre-School Aged Children (Palacios, Oliva, Roßbach & Tietze, 1993)</p> <p>Parent and Teacher Questionnaire on Educational Representations for School Aged Children (Palacios, Grenner, Hundertmark-Mayser, Lera & Tietze, 1998b)</p>	<p>Pre-school phase Developmental expectations; Educational goals; Expectations towards ECP</p> <p>Primary school phase Developmental expectations; Educational goals; Expectations towards primary schooling</p>	Educational Orientations	
Macro-System/Contextual Quality	<p>Pre-school phase Type of ECP; Social structure of quarter</p> <p>Primary school phase Country; Region of country; Number of classes in school</p>	<p>Standardised Interview with ECP Teachers (Schuster, Roßbach & Tietze, 1993)</p> <p>Sampling Procedures Standardised Interview with Primary School Teachers (Roßbach & Stendel, 1998)</p>	<p>Parental Household Survey for Families with Pre-School Aged Children (Bairrão, Leal & Roßbach, 1993)</p> <p>Sampling Procedures Parental Household Survey for Families with School Aged Children (Tietze, Grenner & Hundertmark-Mayser, 1998)</p>	<p>Pre-school phase Living area; Social network; Children in neighbourhood</p> <p>Primary school phase Country Availability/Usage of places to play; Social network; Children in neighbourhood</p>		Macro-System/Contextual Quality	

2.2.2.1 Sample

For the pre-school phase data were collected in each of the three countries according to a mutually-agreed-upon sampling plan which provided for high variation of ECP and family conditions within each country. In all countries, the sampling plan included the same sequence of steps including the selection of specific region and types of centres, random selection of centres, classrooms within those centres, and 4 target children within each classroom. For more details, please see report on pre-school phase (ECCE Study Group, 1997, p. 43).

The sampling procedures described above resulted in data being collected in 314 ECPs (43 in Austria, 103 in Germany, 88 in Portugal, and 80 in Spain). Data were also collected for 1244 children who were attending these centres and for their families, as well as for 173 children who were not attending any ECP at time of data collection and for their families.

Table 2.2 gives an overview about the number of ECP children studied at age 4, the number of ECPs being studied as well as the number of children studied in the current data collection at age 8 and the number of primary schools and classrooms being studied. Please note that data collection with 8-year olds in Spain did not include the children originally studied in the region Ciudad Real. Due to organisational reasons⁴ the Spanish team recruited a new sample of 8-year-olds in Ciudad Real. Therefore the following table refers only to those children who had originally been studied in WP#1.

As can be seen 73 to 77% of the children and families who had participated in the data collection in the pre-school phase agreed to participate the data collection in the primary school phase, when children were about eight years; six months and were usually attending the second (Austria, Germany) or third (Spain) grade of primary school.

Although children generally attended ECPs in their local communities during the pre-school period of data collection, these same children made transitions to many different primary schools. Thus, multiple children could not usually be studied in the same facility or classroom. This caused the number of classrooms represented in the sample to increase for the second wave of data collection. This was especially true in Germany, where the 396 target children included in the first phase of the study were enrolled in 103 classrooms, while the remaining 306 children were enrolled in 214 classrooms in 164 primary schools.

⁴ Data collection with 4-year olds in Ciudad Real originally took part one year later (1994/95) than in the other regions. Consequently children from Ciudad real hadn't reached the critical age of 8 years in Spring 1998 and need to be dropped from the longitudinal sample.

Table 2.2 Development of sample

	Austria	Germany	Spain	Total
Children studied at age 4 [†]	144	396	238	778
Children studied at age 8	107	306	173	586
Percentage of original sample	76.4%	77.3%	72.7%	74.5%
ECP classrooms	43	103	60	226
Primary classes	73	214	103	390
Primary schools	53	164	80	297

[†]Numbers refer to children who were available at end of the ECP-year 1993/94.

Analysis of attrition

For each national sample, an analysis of attrition was conducted. This was done by comparing the subjects remaining in the sample to those who no longer participated. The comparisons were carried out using various marker variables (regional, setting, child and family characteristics).

Within each country specific analyses (chi-square statistics) were completed to estimate the degree of bias in the remaining sample with regard to the *sampling criteria* used to recruit the original sample of ECPs, which was region in Austria and Spain, and region and type of setting in Germany. As Table 2.3 illustrates, in Austria we find a greater tendency to drop-out among children from Salzburg City than in Upper Austria. In Germany (both former East and West-Germany) there is a tendency for children from half-day programmes to drop out less than for children from full-day centres. For the Spanish sample, children from Sevilla showed a tendency to drop out less, while those from La Coruna showed a tendency to be more likely to drop out. However, none of these differences reached statistical significance. Therefore, it was concluded that with regard to the sampling criteria, attrition was random in each of the participating countries.

In addition to the sampling criteria, Table 2.3 illustrates major *personal* and *socio-ecological characteristics* of the child and family for children who did and did not continue to participate in the study. To test for statistical significance chi-square Tests (sex, siblings, family status, occupational status) and T-Tests (for age, income) were completed within each country. While the variables age and sex of children, the percent of single mothers and of

mothers employed do not differ between these two groups in all three countries, statistically significant differences were found for the percentage of children with siblings and income. In particular, in Germany the percentage of children who have siblings is higher for children who remained in the sample than for those who dropped out. In Austria and Spain such a difference between the two groups was not found. In these two countries, families remaining in the sample tend to have a higher monthly income than those who did not participate. In Germany, a similar tendency can be observed although it does not reach statistical significance. The trend for families with lower socio-economic backgrounds to drop out more frequently is in line with the experiences seen in many other studies.

In summary, we found that there was a tendency for more attrition to occur with families of lower socio-economic backgrounds and in German families where children had no siblings. This means that in only 3 out of 27 comparisons statistically significant differences were found. Based on these results, it was concluded that the longitudinal sample was, if at all, not severely biased.

Table 2.3 Characteristics of children who did or did not continue to participate in the study

		Austria		Germany		Spain	
		remained	dropped	remained	dropped	remained	dropped
Percentage of children from	Salzburg City	38.7	47.4				
	Upper Austria	24.5	15.8				
	Salzburg Region	36.8	36.8				
	Full-day Centre East Germany			40.2	44.2		
	Full-day Centre West Germany			25.2	33.3		
	Half-day Centre West Germany			34.6	22.3		
		Sevilla				34.7	29.2
		Barcelona				33.5	32.3
		La Coruna				31.8	38.5
Age of children in years at May 31, 1998 (age; months)		8;4	8;2	8;6	8;6	8;8	8;8
Percentage of female children		49.1	50.8	49.0	53.3	49.1	60.5
Percentage of children with siblings		75.7	78.9	72.5	56.7**	69.9	61.5
Percentage of single mothers		8.5	13.2	6.5	11.1	2.3	3.1
Percentage of mothers employed		53.8	50.0	29.2	31.1	49.4	36.9
Monthly income in ECU (pre-school phase)		2142	1525**	2073	1940	1317	969*

**p<.01 for difference remained/dropped

+ Numbers refer to Spanish children who are *not* from Ciudad Real.

2.2.2.2 Weighting

As described in detail in the report on the pre-school phase, in each country the samples of ECPs were drawn as a stratified disproportional selected random sample. Thereby, a sufficient number of each national ECP type could be assured in each of the national samples. To correct for the disproportional sampling all data was weighted for analysis presented in the former report. Due to the longitudinal character of the follow-up study presented in this report, again, data need to be weighted for purposes of analyses. As described in the former paragraph only minor bias, if at all, was found with regard to the *sampling characteristics*, respective to other characteristics, in the remaining sample of 8-year old children in all three

countries. Therefore it seems reasonable to continue the weighting procedure already used for data analyses in the pre-school phase. Consequently, analyses and results presented in the following result chapters refer to weighted data (except data analyses using primary classrooms as unit of analyses).

2.2.2.3 Data collection procedure for the primary school phase

The general *data collection procedures* were discussed and agreed upon by all of the participating teams. Data collection for both measurement points, was preceded by an intensive phase of preparing instruments aiming at high instrumental validity and reliability, comparability between the countries, practicability for external data collectors, feasibility of use, acceptability and economy of data collection. Once the set of instruments described above was finalised, each of the teams translated and pilot-tested the instruments with an appropriate sample in their own country to make sure they were applicable to that setting. Any unexpected findings or problems were discussed with team members from the other countries, and then final revisions were made. Teams also discussed and agreed upon the procedures for training and monitoring data collection so that there was confidence that all of the data were collected in a similar manner. Finally, the procedures for recording and checking the data were standardised so that it would be possible to compare the results later.

Because of complexity of instruments and in order to achieve high quality of collected data, careful *training of data collectors* was considered a critical issue. In addition, it was needed to assure that data collection in each participating country would follow the same procedure. To ensure consistent, reliable data collection, the following steps were taken:

- Development of a shared procedure for the training of data collectors,
- Common training of national key-trainers for data collection at the co-ordinating centre in Berlin,
- On-site training of national data collectors by trained national key-trainers according to the mutually agreed upon training procedures.

Although expertise and experience regarding training of data collectors was available in each of the national teams, the development of a *training procedure*, especially with regard to the application of the more complicated instruments, was regarded as a prerequisite to obtain comparable data across countries. Accordingly, two different training procedures were

developed, one for data collection in families and the other for data collection in schools. The procedures included all major steps in data collection, including both practical exercises for trainees and administration of instruments in the field.

Based on the plan for training data collectors, a training session of all *national key-trainers* was organised in Berlin to ensure that the later training of national data collectors (to be done in each country independently) followed the same rules. In order to have a common training situation, English speaking schools in Berlin were chosen for training. A by-product of the training of the national key-trainers was an improvement of the general training procedure.

The training of data collectors *within* each separate country was carried out independently. Most of the data collector trainees were students in education and psychology. A number of these trainees had served as data collectors in previous phases of the study. The training of the data collectors took 3 days. The training contained practical work in the field supervised by key-trainers.

2.2.2.4 Collecting data for the primary school phase

In planning the project it was assumed that in each participating country, the processes required for children's adaptation to the new demands of formal schooling would be completed by about the second or third year in school. Because age is a critical determinant of development and because the age at which children begin compulsory schooling differs in the various countries, an age of 8 years and 6 months was selected for the follow-up assessment of children. This meant that data collection was scheduled for the second half of the academic year 1997/98 assuming that the process of children's adaptation to formal schooling would be finalised. In particular, in all three countries, data collection was initiated March 1, 1998 and completed in mid-June 1998.

Several preparatory steps had to be realised to enable the start of the data collection in March 1998. Most of these steps were the same in each of the participating countries, Austria, Germany, and Spain with only minor deviations.

Recruiting subjects and schools. Recruiting of subjects in Austria, Germany and Spain began in November 1997 by sending letters to all parents who had participated in the data collection phase of the pre-school period. Herewith parents were informed about the new wave of data collection (e.g., purpose of this data collection, planned schedule, instruments to

be used). Parents were asked to grant permission for their participation and the participation of their child as well. In addition they were asked to give permission for the collection of information about their child's school environment and requesting teacher ratings of their child's social competence and daily living skills. The contact to parents was also used to find out the name of the school and class in which their child was enrolled, and the name of their child's lead teacher.

Obtaining permission to collect data in schools in Austria and Germany. In January 1998 contact was made with the ministries of education (Germany) or the province school boards (Austria) to obtain permission for collecting data in schools. In Austria and Germany with their decentralised systems and regionalized responsibilities, a variety of procedures was necessary. Once the general permission from the ministries/school boards was granted, in February 1998, all schools, that had been named by the parents in the sample, were contacted individually by letters. Directors and class-teachers were asked for their support of the study and to allow visits to the respective classrooms of the target children. Following the letter, all directors were contacted by telephone to get their permission or to answer further questions. Most of the directors and teachers were co-operative and agreed to classroom observations and a teacher's interview.

In Spain, no official permission procedure was necessary. Rather, because of the more centralised educational system in Spain, most of the target-children, who had participated in data collection for the pre-school period, remained in the same school they had attended during their pre-school years.

Data collection took place in the two most important settings for children, in their *families* and *primary school classes*. In particular, information about the educational quality children experience in their families as well as in their classrooms was obtained.

The data collection in the *primary school classes* consisted of two parts. In the first part, an observation was completed in the each target child's classroom. In the second part, a 45-minute interview with the teacher of that classroom was conducted. The teacher interview was conducted directly after the observation in the classroom. Information on teacher's perceptions of children's daily living skills and social competence was gathered with a questionnaire during the teacher interview.

The data collection in the *families*, again, consisted of two parts. In a first part, a 45-minute interview was conducted with the mothers. In the second part mothers were asked to

complete a written questionnaire on additional aspects of the family situation and on their perceptions of their child's daily living skills and social competence. In the meantime, several tests (e.g. Peabody, Woodcock-Johnson) were conducted with the child in a separate room. To ensure optimally efficient data collection procedures, a decentralised system of data collection was established in all participating countries, except in Austria. Within the countries, data collection was conducted at separate *research sites* located in each of the regions that were participating the study. Each research site consisted of a province co-ordinator who managed the interviewers and completed all requirements to guarantee correct and accurate data according to the data collection guidelines. In Austria, data collection was conducted centrally from Salzburg.

Interviewers were organised into *two groups*, one responsible for data collection in primary school classrooms and the other responsible for data collection in the families (including psychological tests with children). These two groups were supervised by two separate (and specialised) staff members within each of the national research teams.

2.2.3 Controlling and preparing data

According to agreements between the partners each national team took responsibility for their own data entry. The Co-ordination Centre in Berlin provided a framework for how the various steps of data entry and data cleaning should be completed.

To ensure that identical data entry procedures were used, the Co-ordination Centre provided each country with guidelines. Each country was required to make sure that these guidelines were followed with regard to data entry, data cleaning, and structuring data files. In addition, the national research teams were provided with empty data entry windows (SPSS programme) for each instrument. These data entry windows allowed data entry for each instrument according to specific rules of coding. Data entry was begun in all countries in conjunction with data collection.

The *data cleaning procedures* established by the Co-ordination Centre addressed three different levels of data cleaning that are considered important in order to achieve high quality data files: (1) checking of all instruments (questionnaires, test sheets etc.) when data collectors delivered their work, (2) checking the data entry process at time of data entry (including supervision of data entry staff and double checks for every 5th case), and (3) checking of data files after data entry.

All teams ensured that each national data set was cleaned according to these principles

before the data sets were transmitted to the Co-ordination Centre for integration into the comprehensive data set.

2.3 Summary

The preceding sections described the framework of the study and its operationalisation in the two data collection waves in the pre-school and the primary school phase. An overview was given about the instruments used to investigate the different areas that included:

- Children's development,
- educational quality in the family setting,
- educational quality in the classroom setting (ECP, primary school),
- contextual conditions of the settings, and
- conditions of the macro systems.

Further detail about instruments used will be provided in the following chapters.

In addition, the current sample (children, families, ECPs, and primary school classrooms) was described. Four years after the initial data collection about 75% of the original sample continued in the study. In particular, in Austria 107 of 144 children participated in primary school phase, while in Germany 306 of 396, and in Spain 173 of 238 participated. Depending on the country, this means an attrition rate of 23 to 27% was seen. In the remaining samples no significant bias with regard to the sampling criteria (region/type of setting) could be observed in Austria, Germany and Spain. Accordingly it was argued that the weighting procedure already used for data analyses in the pre-school phase could be applied in analyses of the primary school phase.

Regarding the classroom environments, a relatively high diversification is obvious. This is especially true for German children, who attended 103 ECP classes in 1993/94 and now attend 214 classrooms in 164 primary schools. Spanish children attended 60 ECP classes and are now visiting 103 classrooms in 80 primary schools. Similarly, Austrian children attended 43 ECP classes and are now distributed among 73 classrooms in 53 primary schools.

Due to intensive contacts with families and schools (e.g., directors, teachers) during the initial phase of the study, data collection in the primary school phase was completed in relatively short period (e.g., 3-4 months). Data collection was conducted based on a

decentralised system with a number of co-ordinators in the different research sites within each country. A system of exacting controls was implemented to ensure high quality data that was comparable for use across countries.

3. SCHOOL SYSTEMS AND EDUCATIONAL CAREERS

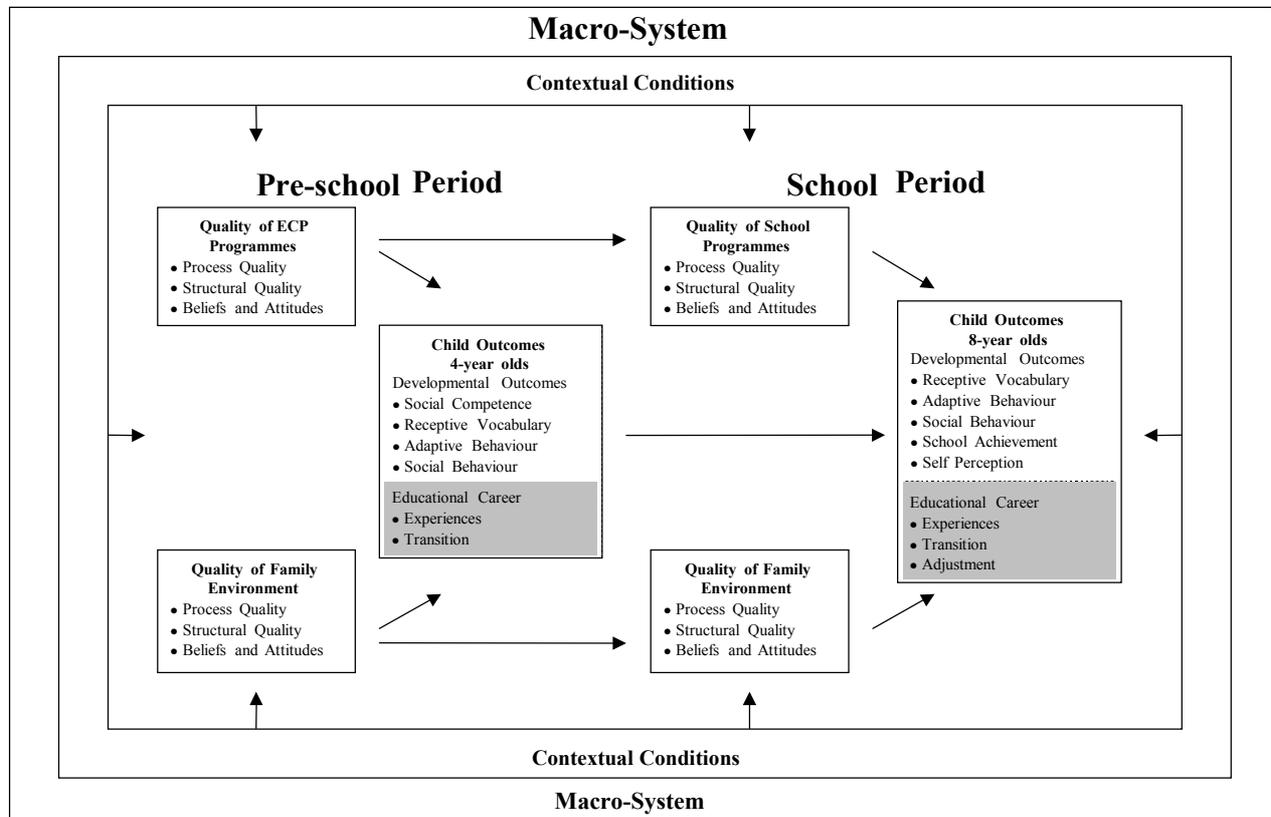


Figure 3.1 Conceptual framework for analyses of children’s educational career in various countries

3.1 Introduction

This study refers to a four-year period in the lives of children, covering two phases: a major part of children’s pre-school period and, with the beginning of compulsory school, a substantial part of the primary school period. Within the national pre-school and compulsory school systems in the three participating countries, relatively similar care and educational services are experienced by most children, creating typical educational careers for children that are shared within a country.

The impact of national educational systems on children’s educational careers is well-reflected in the rules determining when a child can enter primary school. In all countries, as soon as children are enrolled in compulsory school, changes occur in children’s individual

daily schedules and activities and in daily family routines. The national school system, regulated by law, thus provides for highly predictive patterns in children's educational careers. However, between-country differences exist. For example, in Spain, compulsory school starts one year earlier (i.e. at the age of 5), than in the other two countries, and Germany's state school law allows early admittance to compulsory school if children are not more than half a year younger than required for school entrance (6 years) and if they have proven their school readiness. Thus, changes in the patterns of national educational careers (and in family patterns) occur at different times in these different countries. In addition, children's progress from one grade to another, within a common social context, and with common learning experiences based on a common curriculum for all children, additionally fixes the course of children's educational careers.

Influences of the national systems can also be seen with regard to the pre-school period. Even when there is no legal obligation for governments to provide pre-school services or for families to take advantage of them, the mechanisms of the national systems influence patterns in the care and educational careers of the children. For example, the specific supply rate of early childhood programmes influences mothers' enrolment in the work force or can affect change in cultural traditions regarding care and education of young children. Such frame conditions provide for patterns in the educational careers of pre-school aged children, even if children's enrolment is not regulated by law. Typical patterns may include aspects such as when and how long the majority of children experience institutionalised education, as well as what the experience and socialisation for the majority of children will be.

Within the typical patterns seen in children's national educational careers, there is also significant variation. It is not unusual for individual children to deviate from the national educational career pattern for one reason or another. For example, it is more difficult for some children (and their families) to cope with the transition into primary school at the time prescribed by the standard educational career, so they might enter school later than would be expected. In addition, some children might have difficulty meeting the requirements of achievement in the specific grades of primary schooling, and thus move onto the next class later than the majority. Both instances would bring about a deviation from the national pattern seen in children's educational careers. Deviations from the expected career are also seen in the pre-school years. For example, some children may begin child care as an infant or toddler and begin an educational career that is distinctly different from that of other children because the provision for early care and education is not widely available before age 3. Thus,

typical care and education careers of children are to be expected, but with some deviations from the mainstream patterns.

Based on this background, the purpose of this chapter is twofold. In a *first* section, a condensed description of the national care and education systems of the participating countries will be given, covering the age range of 4 to 8 years of age. This description provides a picture of the major patterns in the care and education careers in the respective national systems, as considered in the study.

In a *second* section, and based on the data of this study, information will be given on various actual characteristics of the care and education career of the children under consideration. In particular, the following research questions are considered:

1. What are the typical general patterns seen in the pre-school educational careers within the three countries?
 - How old are the children, generally, when entering (centre-based) out-of-home care?
 - How many years do they spend in child care prior to compulsory schooling and how stable are these care arrangements for the children?
 - What differences can be observed between the countries?
2. What are the typical general patterns seen in the primary school educational careers within the three countries?
 - At what age do children enter compulsory schooling?
 - How many children enter the system on a regular schedule, how many with delayed entry and how many with earlier admittance?
3. Do problems occur in children's transitions to primary school and who, if anyone, helps them to adjust to the new circumstances?
4. How many children skip grades and how many are retained in grade? How many children changed their school during the first two or three years?
5. To what extent do the children adjust to their actual grade with regard to various aspects including teacher, other children, and achievements, as perceived by mothers?
6. To what extent do teachers and parents co-operate in their educational efforts for children?

3.2 Instruments to assess children's educational career, school adjustment and family school co-operation

Information on children's *educational career* and *school adjustment* during primary schooling was obtained during a home visit in which a family questionnaire (Tietze et al., 1998) was completed. Information on family-school co-operation (COOP, Krumm et al., 1998) was obtained in a separate interview with the mother during the home visit as well as in an interview with the teacher. Table 3.1 gives an overview of the instruments targeting aspects of children's educational careers, their adjustment to primary school and the co-operative processes between family and school. Information on children's care careers during the pre-school phase was partly augmented by the respective interviews with the mothers when children were age 4 (cf. Workpackage I Report, 1997).

The family questionnaire was designed to be completed primarily as a face-to-face interview with mothers as interviewees. In addition, some questions were included that required mother's written responses during the interview. In the interview, information was collected on the various aspects of interest, including

- Characteristics of children's career of out-of-home care
- Characteristics of children's school entry and school career (e.g., entry on regular schedule)
- Mothers' perception of children's transition into primary school (e.g., ratings about the favourable conditions of children's school entry).

A separate interview completed with mothers on *processes of co-operation* between families and primary schools was used to obtain data on:

- Information-exchange processes (e.g., number of consultation hours; number of parent meetings during school year),
- Characteristics of homework as a product of exchange between requirements of schools and parental support (e.g., time children spent on homework; degree of parental help needed), and
- Ratings of mothers' satisfaction with the teacher (also compared to the ECP teacher) and with children's school performance.

To receive a complete picture of these exchange processes the COOP-Instrument was also completed by teachers who provided their perspective on these aspects of co-operation.

Table 3.1 Overview of instruments

Domains	Instrument	Goals, item examples
I. Career of out-of-home care during pre-school phase	Standardised interview with mother	Information about the age of entering out-of-home care, number of years stayed in out-of-home care
II. School career during primary schooling	Standardised interview with mother	Information about characteristics of children's school entry (e.g., regular schedule, delayed) and school career (e.g., skipped one grade)
III. Transition into primary school	Standardised interview with mother	Child had no problems; School and teacher helped child (4 items) <i>Response set</i> (1) disagree completely, (2) disagree to some extent, (3) agree to some extent, (4) agree completely
IV. Adjustment to school	Standardised interview with mother	Child likes going to school; Child gets along with the teacher, School meets social-emotional needs (8 items) <i>Response set</i> (1) agree not much, (3) agree a little, (5-6) agree some, (8) agree very much, (10) agree a lot
V. School achievement in various subjects	Woodcock-Johnson Tests of Achievement (W-J-R)	Measuring cognitive abilities, scholastic aptitudes, and achievement (124 items) e.g., reading statement and filling in missing word („Drums were pounding in the distance. We could ____ them.“) or giving correct answer to question („What insect makes honey?“)
VI. Co-operation between family and school	Co-operation questionnaire with <i>mothers</i> and <i>teachers</i>	Information about characteristics of the co-operative work between family and teacher, e.g., whether teacher informs parents about child's school day; parental attendance during consulting hours; parental observations in classroom; parental support needed for homework

Beyond using data of the interviews and questionnaires one result section targets children's school achievement as measured by the Woodcock Johnson Achievement Test (WJ-R, Woodcock & Johnson, 1989, 1990). For details on this instrument see Chapter 7.

3.3 Care and education systems in the participating countries⁵

3.3.1 Austria

Characteristics of the pre-school system. Although organised early child care and education (Early Childhood Programmes – ECP) has a long lasting tradition in Austria⁶, attempts to make ECPs available to all children did not start until the 1960s. Statistics for 1995, one year after data collection had been completed for the pre-school phase of our sample, report that 30% of all 3-year-olds, 71% of the 4-year-olds and 90% of the 5-year-olds were enrolled in a Kindergarten, the Austrian form of an ECP. Some 54% of the centres provide full-day services, an equal percent of the remaining centres operate full day with a lunch-break, or provide half day services. The percentage of children who are younger than 3 years and enrolled in out-of-home care (either in centres or in family child care) is small (not more than 3%) (Tietze & Cryer, 1999, p. 181). ECPs are not located in schools and do not belong to the education system in an administrative sense. ECPs are under the general administrative responsibility of the nine provinces, but local municipalities are supposed to be responsible for ensuring sufficient capacities. About 25 % of the ECPs are operated by public/private entities (churches or other organisations), about three out of four programmes are operated by municipalities.

Children are typically enrolled in age-mixed groups with an age span of 3 to 6 years. Sometimes, under 3-year-olds are enrolled in these Kindergarten groups, too. The curriculum focuses on various areas with an emphasis on the promotion of „social learning“.

Transition to primary school. In Austria, schooling begins in September and is compulsory for all children who have reached their sixth birthday by August 30 of that year. Children who reach that age between September 1 and December 31 of the respective year can be admitted to primary schooling upon request of their parents. Children who have attained compulsory school age, but are considered not yet ready for the first grade, may attend a transition class (Vorschulklassen) at the primary school. Also, children with special educational needs as well as young children (6th birthday between September 1 and December 31), who were admitted upon parents' request, but appear not yet ready for the first grade,

⁵ Data with regard to the national care and education system were mainly derived from nationally authorised descriptions available in the EURODICE files.

may be enrolled in a transition class. However, these transition classes are not available in all primary schools. ECPs and primary schools belong to two systems whose administration differs completely. The linkages between ECPs and primary school are usually very weak. Efforts have been made to create closer contacts between the two, but these have not yet become common practice. The degree to which linkages between the ECPs and primary school exist, currently depends on private initiatives of individual teachers from both sides.

Characteristics of the primary school system. Administrative responsibility. In Austria, the entire school system is under the regulation of federal laws, although school legislation is also done at the provinces level. The federal and the province levels act as complementary legislators. However, provincial acts can only determine minor specifications within the frame set by the federal legislator. The federal framework legislation relates to issues on teaching and curricula, school inspection, pre- and in-service teacher training establishments, school development and educational research. Moreover, it also covers the costs of teacher salaries at public schools and at private schools established under public law. The nine provinces' responsibility for implementing and executing legislation relates to organisational matters of public compulsory schools including the composition and establishment of district and province school boards.

Municipalities and community associations are the providers of the primary schools. They are in charge of the establishment and maintenance of schools and are heavily involved in educational matters. However, they have little power in determining what is taught. Yet, under the provisions of school autonomy, schools enjoy a free scope of action when it comes to independent curricula development, and may add contents of local interest to the curriculum.

Parents have the right to represent their interests in discussions with the teachers, the school head and the school authorities. This right is exercised by the parental representatives for the classes, and by representation in the „Schulforum“ (to strengthen and promote the school community).

Organisation of instruction and classes. The students are grouped together in classes according to their age. Lessons are usually held by classroom teachers with the exception of religious education. A five-day week with free Saturdays is the rule in primary education.

⁶ This section on Austrian ECPs as well as those on German and Spanish ECPs is derived from Workpackage I Report, 1997, pp.24.

Classes start between 7.30 and 8.00 a.m. and a lesson lasts 50 minutes (which may be shortened to 45). Between the lessons, there are breaks of 5 to 15 minutes. If afternoon classes are held (which is rare), the lunch break must be sufficiently long to allow a meal. The total number of weekly lessons is 21 for grades 1 and 2, 25 for grades 3 and 4. The number of lessons per school-day is 4-6 in grades 1-4.

Grades 1 and 2 (and the transition class, if available), form a unit called „Primary Level I“. All students of grade 1 are entitled to move on to grade 2, regardless of the results of their evaluation in the end-of-year report. Children who need more time to learn at the beginning of primary schooling will be granted a third year without having to repeat a class in a formal sense. Accelerated promotion during primary school is possible (one school year). Primary schooling which is designed to take four years, (grades 1-4), must be no less than three years for each child.

General orientation of curriculum. The curriculum for the primary school is framed in broad and flexible terms. It defines, generally, the educational objective, the educational and didactic responsibilities, and the contents to be taught in the different subjects and the interdisciplinary fields. It is the foundation on which teachers may independently base their conceptual and practical work.

The comprehensive educational mandate for primary school teachers aims at individually fostering each and every child. It is to take into account students' individual needs and educability, and to initiate a process of continuous learning. On the basis of students' individual backgrounds, "primary schooling" must accomplish the following: arouse and nurture an eagerness to learn, encourage interests and talents; strengthen or build social competencies; improve language skills; encourage general development of artistic, manual, and physical skills; nurture the gradual formation of appropriate attitudes towards learning and working.

The flexible nature of the curriculum leaves teachers considerable latitude in selecting, emphasising, timing, defining, and organising course contents as well as in selecting teaching methods and tools according to different didactic criteria. In addition to the compulsory subjects of the curriculum, students are free to choose non-assessed optional classes (such as school choir, drama classes, etc.) which are designed to foster special interests and skills. Although the contents taught are divided into different subjects, it is considered beneficial to avoid a strict division. As classroom instruction is based on the experiences, interests and needs of children, learning approaches are situational and interdisciplinary and include health

education, reading, writing, arithmetic, media education, music and arts, political education, intercultural learning, sex education, speech, environmental education, road safety, and economics (e.g. consumer behaviour). At the primary level, the learning process is stimulated through methods associated with the following approaches: learning through play and discovery, open education, project-oriented curriculum, investigation, and repetition with practice.

Rules for marks, reports, and repetition of grade. Each school year is divided into two semesters. Students receive a school report after the first semester, and an end-of-year report. The report should indicate all the assessments required for the grade in question, as well as the required endorsements (e.g. entitlement/non-entitlement to move on to the next grade, successful completion of (or failure to complete) the last grade). The term report for the first grade may contain either a written overall assessment or an overall assessment with more specific written additions. All other term or end-of-year reports at primary level must consist of marks or marks with verbal additions. There are no oral examinations; school tests are held only in grade 4. At that stage, the primary school recommends which form of secondary education seems appropriate for each child.

Supervision and care of school children during out-of-school hours. From the school year 1994/95 onwards, pilot projects of all-day schools have been integrated into standard schooling. However, full-day primary schools are still the rare exception. For those that do exist, schedules consist of an instruction component (described above) and an attendant component. The attendant component consists of subject matter-oriented periods, individual learning periods, recreation, and mealtimes. Instruction and attendant components may be consecutive or inter-linked. If the inter-linked option is taken, all students must select this school type, since the instruction and attendance components are alternated throughout the day. If the consecutive option is selected, the attendant component begins in the afternoon, after instruction. In this case students may participate in the attendant component either partly, or not at all. Afternoon programmes generally consist of subject-related time for study (e.g., to complete assignments), individual time for study (e.g., for repetition) and leisure time. Educators are involved in designing afternoon programmes, giving due regard to the requirements of leisure activities.

3.3.2 Germany

Characteristics of the pre-school system. As in Austria, pre-schools (ECPs) and

primary schools belong to two different administrative systems. ECPs (Kindergärten) are generally regulated by federal frame legislation, while details are fixed by state laws and regulations. Politically, they are within the realm of the social welfare system rather than the education system.

As a result of the two different societal systems in East and West Germany following World War II, many aspects of the ECP system developed differently in the two parts of the country. Consequently, the overall supply rate for places in ECPs, the percentage of full-day programmes, as well as the number of places especially for under 3-year-olds is considerably higher in the Eastern than in the Western part of the country. In 1994, the year of data collection for the pre-school phase of this study, the percentage of children aged from 3 years to school age (6) who were enrolled in an ECP was 73% in the West, but 100% in the East, and for children under 3 years it was 2.2% versus 47.3%.

In the former East Germany, ECP services are usually available for the entire day (10-12 hours per day) whereas in the former Federal Republic, this applies to only about 15% of the places in Kindergartens (entire day is at least 8 hours, with services available during the lunch period). The majority of the ECPs are operated by private entities (such as churches or other voluntary organisations), while the remaining are operated by municipalities. However, regardless of the programme operator, the same standards and regulations apply, although these may vary from state to state.

Most ECPs are organised as age-mixed groups covering the age span of 3 to 6 years. More age-homogeneous grouping (e.g. groups for 4-year olds) may also occur as well as age-mixed groups of children from 1-6 years of age, or even 1-12 years. There is no pre-specified curriculum that must be followed. Many programmes organise their activities around a „situational approach“, which is designed to prepare children for dealing successfully with everyday situations and to promote „social learning“. This approach does not include specific training in pre-academics.

Transition to primary school. At the time of data collection for the present study, the school year started on August 1, and primary schooling was compulsory for all children who had completed their sixth birthday by June 30 of that year. Children who had their sixth birthday between July 1 and December 31 of the respective year could be admitted to primary school upon request of their parents and if they appeared ready for schooling (this needed to be proven by performance on a formal school readiness assessment). Children who had

reached mandatory school age, but who did not appear to be ready for school entrance could be enrolled in a transition class (Schulkindergarten), if available, or could participate in a Kindergarten Programme for an additional year. The school entry regulations outlined here applied to the sample in this study. However, since 1997, based on an agreement between the states (Länder), school entry regulations became even more flexible and differ, to an extent, between the Länder.

When children start primary school, they move not only to a different building, but into a different educational system. Although continuity of education across the various educational levels is emphasised since the reform of education in the early 70s, linkages between the ECPs and primary schools are usually very weak. Co-operation depends on local initiatives of ECP and primary school teachers and may include measures such as joint staff conferences, mutual visits of teachers and children in ECPs and primary schools, or maintaining groups (or sub-groups) of children who were together in ECPs when determining the composition for primary school classes.

Characteristics of the primary school system. Administrative responsibility. Compulsory schooling in Germany begins at 6 years of age, and lasts until 18 years. Students in grades 1-9/10 are enrolled in schools of general education. Students at the upper secondary level (grades 11–13) may be further enrolled in schools of general education which prepare for university entrance or they may participate in part-time (or full-time) vocational schools with accompanying apprenticeships or other vocational training. Primary schools (Grundschule) are independent organisations and cover the first 4 grades (in some states the first 6 grades) of the education system. They are designed as comprehensive schools, i.e., all children of the respective age (with the exception of children with severe disabilities) are enrolled in this type of school, whereas secondary education is usually divided into different tracks.

Detailed regulations on schooling are enacted by the states (Länder) in conjunction with their respective school laws. The Ministries of Education and Cultural Affairs of the Länder are responsible for Curricula for primary schools, as well as for other educational levels. Based on mutual agreements, there is considerable similarity in the primary schooling curricula and teaching principles across all Länder. The curricula are required of teachers, and the director of each school is responsible for ensuring that the curricular content is being taught. However, curricula are formulated in a general manner, so that teachers have a

considerable degree of freedom with regard to special emphases and teaching methods.

Organisation of instruction and classes. Students in primary schools are grouped in age-homogeneous classes, with university-trained teachers. Typically, these schools are open from about 8 a.m. to 1 p.m. from Monday to Friday. However, the time spent in school by individual students is generally less, depending on the number of lessons scheduled for the respective grade. Primary school students attend lessons for 17 to 27 instruction hours per week. In most states, there are about 20 instruction hours in the first grade, increasing to about 27 in the fourth (final) grade of primary school. As a rule, each instruction hour lasts 45 minutes. In the first two grades, most lessons are provided by the class teacher. From grade 3 onwards, the role of subject teachers becomes more important, so children receive instruction from other teachers as well.

General orientation of curriculum. Lessons at the primary school level generally emphasise the basics of reading, writing and arithmetic, as required in the recommendations of the Kultusministerkonferenz (Sekretariat der Ständigen Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland, 1994). As a rule subjects include German, mathematics, science, art, music, sport, and in most Länder, religious instruction. With regard to the introduction of foreign languages in primary schools, the Länder have developed various approaches. Foreign language teaching in grades 3 and 4 in the primary schools is generally offered as a non-compulsory subject, and meant to familiarise children with foreign languages. In addition, the following areas are presently emphasised in primary school curricula more frequently than in the past: linguistic education (encouragement of linguistic development), mathematical education (introduction to logical thinking and problem solving), media education (using media in a critical way), aesthetic education (creative activities and sensory experiences), using technology, movement education, environment and health issues (treating nature and one's own body in a responsible way), and attachment to one's home country or region combined with an international outlook.

Rules for marks, reports, and repetition of grade . There are two types of reports given in primary schools. The first type is a written verbal report on the child's behaviour and achievement. This type of report is usually given in the first two grades, although, in some Länder, this type of report is continued throughout the four primary school years. The second type of report uses numbers, from one (very good) to six (not acceptable) to indicate the level of the students' performance. Usually this type of report is introduced in grade three and used thereafter. However, many schools combine the two types.

Officially, all children are automatically promoted from grade one to grade two in primary school. However, voluntary repetition of grade one is possible and not infrequent. As a rule, from grade two onwards, all students are assigned to suitable grades depending on their achievement, either through promotion or retention in grade. The promotion/retention decision is based on the marks achieved in the student's school report at the end of the school year. Of the total number of students in the elementary sector, 1.8% repeated a grade in 1997. Rossbach and Tietze (1996) found that in the state of Nordrhein-Westfalen, there were always more students who repeated the first or second grades (introduction phase) than the third and fourth grades (achievement phase). A similar trend was found for the number of children who were sent to schools for disabled children, (i. e. more children were sent in grade 1 and 2 than later in their educational careers).

There is no final examination at the end of primary schooling. However, at the end of grade 4 (or 6), students receive a recommendation for secondary school placement in addition to their annual report. The final decision on secondary school placement is either made by the parents, the secondary school, or the school supervisory authority, depending on Länder regulations. The tendency is for the parents' wishes to be increasingly important in decisions about the child's educational future.

Supervision and care of school children during out-of-school hours. Changes in children's living conditions have put pressure on the elementary schools to help provide supervision of children, not just during regular school hours, but also before and after school. This additional care and supervision for elementary school children is usually within the domain of after-school centres (Horte). In the majority of Länder these centres are operated by the public youth welfare services. Current efforts are focused on developing closer co-operation between schools and after-school centres. A growing number of elementary schools have introduced extended hours (approximately 7.30 a.m. to 1.00/2.00 p.m. depending on local conditions) for all children, so that parents can be sure their children have somewhere to stay beyond the time covered by compulsory lessons. In some cases, the extended hours are covered by the teaching staff. In other cases, teaching staff is usually not available for such supervisory duties. The children are looked after by other paid staff, some of whom are paid by the agencies that operate the programmes and also cover the materials costs. Parents are normally expected to pay a fee for such services, the actual amount depending on their financial status.

3.3.3 Spain

Characteristics of the pre-school system. As in most European countries, the availability of ECPs for children from 3 to compulsory school age has increased considerably during the past three decades. In 1994, the year of the major part of data collection for this study, 55.9% of the 3-year-old children and 99.8% of the 4-5 year olds were enrolled in ECPs. 65% of children enrolled attended public centres, and 35% attended private.

Centre-based education of children under six years of age has been developing in Spain in the last few decades as a downward extension of primary schools. First, classrooms were provided in schools for 5-year-old children; after a few years, schools began to provide classrooms for 4-year-old children, and the reforms of the 1990's extended schooling to 3-year-olds. Since the enactment of a law in the early 1990's which reformed the education system, the education of young children has become an official part of the education system and is under the auspices of the Ministry of Education.

Schedules for ECPs in Spain may vary according to various conditions. Typically, centres attended by children 3-6 are usually open for 5 or 6 hours a day, which can be organised without a break (e.g. from 9 a.m. to 2 p.m.) or with a long lunch break (e.g. 9.30 to 12.30 a.m. and from 5 to 7 p.m.). Children are grouped in age-homogeneous classes. As a result of ECPs being created as a downward extension of the primary schools, the educational activities for young children are currently still quite similar to those found in primary schools. However, the official curriculum for ECPs in Spain, following the educational reform of the early 1990's, is now organised into three areas of experience: personal autonomy and identity, communication and representation, and knowledge of physical and social medium. The concept of areas of experience indicates a contrast to more academic approaches such as „content areas“ or „subjects“, which are often used to describe the educational activities of older children.

Transition to primary school. The school year starts at the beginning of September (normally in the second week). Primary schooling is compulsory for all children who have completed their sixth birthday by December 31 of that year. Pre-school education is not compulsory. However it is provided to almost all children four and five years of age, and progressively the option for three-year-old children is increasing. Given that pre-school education is provided by the government, classrooms are normally in the same buildings that house primary schools. Although continuity of education across the various educational

levels has been emphasised since the educational reform of the early 90s, contacts and co-ordination between primary and pre-school teachers is still not considered sufficient. Co-operation related to common activities and curricula depends on the teachers' initiatives; however staff meetings and decisions about schools are made with the whole school staff, including pre-school and primary teachers.

Characteristics of the primary school system

Administrative responsibility. The current primary education system in Spain is based on the LOGSE act which was enacted in 1990. This law established primary education to serve children aged 6-12, and secondary education from 12-16, both levels being compulsory. Primary education is organised into 3 levels, each composed of 2 grades: 1-2, 3-4, and 5-6.

The LOGSE Act was established by the central government, however, the Spanish organisation into the provinces (such as Andalusia, Catalonia, or Basque country), allows these provinces to adapt and complete this general orientation according to their different realities and needs. However, the central government established a number of areas that must be integrated in the curriculum: language, maths, sciences, social sciences, arts, physical education, and foreign languages. Also, other general principles, such as student-teacher ratios (i.e., 25-30 students per teacher), main objectives of the education, teacher training, attention to special needs, and rules for grade retention have to be observed.

Each province has the responsibility to create laws and regulations to operationalise the general act (LOGSE), regulating the curriculum in a more specific way, establishing a system for teacher training, developing an inspection system, and creating rules and principles for evaluation, the distribution of hours in the school, as well as other characteristics.

Schools are divided into privately and publicly-funded sectors. The private sector can be totally private with staff salaries and maintenance totally dependent on parental fees, or semi-private (concertadas) which were originally private, but now have staff salaries funded by the government. Seventy-five percent of the schools are public.

Organisation of instruction and classes. There is a classroom teacher for each group of students, although some subjects, such as foreign language or physical education, are taught by specialised teachers. The classroom teachers must know the student's aptitudes and interests. They are expected to contribute to the students' integration in the school and to keep parents informed on their children's progress and problems. The school schedule is divided into a morning session, usually beginning between 9 and 10 a.m. and ending between

12 noon and 1 p.m., followed by an afternoon session which starts between 2.30 and 3.30 p.m. and ends at 4 – 5 p.m. This schedule includes all programmed and extra-curricular activities. The weekly timetable in Primary Education usually consists of 25 sixty-minute periods, (i.e., 5 hours per day).

General orientation of curriculum. The curriculum has a humanistic and holistic orientation, with a main objective of developing children's capacities (cognitive, affective, social and physical), and facilitating their adaptation to the cultural, social and natural environments they experience. To achieve this main objective, the curriculum is organised into six compulsory teaching areas:

1. Social, cultural and natural environment: The main objective of this area is to provide wide knowledge to the students about their environment, including the particular characteristics of their neighbourhood, town, province, community, country and world.
2. Spanish language and literature, including the regional language (such as Catalan). In this area, the multiple function of language (communication, representation and self-regulation) must be addressed.
3. Mathematics addresses the education of basic intellectual abilities applied to problems and to everyday life situations.
4. Arts cover various forms of expression and representation such as sculpture, music and drama, reinforcing the children's representations of both reality and their internal worlds.
5. Physical education addresses children's complete motor development.
6. Foreign language is introduced during the second cycle (third year of Primary education), although it can be introduced earlier, and in most municipalities is currently initiated at the Pre-school level. The main objective is to teach how communication is possible in a different language.

Religious education is compulsory for the schools and voluntary for students. Those students, who by parental decision do not participate in religious education, are offered alternative activities related to ethical and social issues.

In addition, the LOGSE also has established principles called cross-curriculum or transversal areas. These include the following areas: moral and social issues, and education on peace, gender equality, consumer knowledge, health, environmental issues and traffic safety. These areas are expected to be included in everyday activities.

Rules for marks, reports, and repetition of grade. Students are assessed at the end of each cycle of primary schooling, (i.e. at the end of every two years). The assessment is based

on a continuous evaluation and includes cognitive, social and affective areas of development. The classroom teacher considers the information furnished by other professionals who also work with the group of children in question or with any of them in particular. If the classroom teacher decides that any student was unable to achieve the objectives of a cycle, then that teacher can consider the option of retaining the child in the cycle for one more year. However, this option is considered only as an exception, and each student can repeat a grade only once during primary education. A decision of retention in grade must be made with input of parents, inspectors, other teachers and psychologists. At the end of primary education, no academic certification is granted, since at that point students have not yet completed their basic compulsory education.

3.4 Results

3.4.1 Children's educational career during pre-school phase

As depicted in Table 3.1, the children of our samples in the three countries typically start their out-of-home educational careers at somewhat different ages. In Austria, enrolment in an out-of-home care and education programme begins at an average age of 3 years and 3 months, and about half a year later than in the two other countries. In addition, standard deviations differ among countries. The higher standard deviations in Spain and Germany indicate greater heterogeneity in the entrance age than that found in Austria, where entrance ages of children are more similar. For Germany, the high standard deviation reflects the fact that in the eastern part of the country a high supply rate for under-three-year olds is available and used by parents, whereas in the western part, centre-based out-of-home care is generally only provided for children beginning at the age of 3 years. This is due to the different social traditions in the two sections of the country.

Table 3.2 Educational career in out-of-home care; differences in means/percentages across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Age of child when entering out-of-home care (years; months)	M SD	3;3 0;7	2;9 1;2	2;8 1;0	p<.01 A>S,G
Number of years in out-of-home care (years, months)	M SD	3;1 0;5	3;7 1;1	2;5 1;0	p<.01 G>A>S
Same ECP group 1993-1994	%	93.5	98.1	100	G,S>A

Although the age of entering out-of-home care is the lowest for Spanish children, their time spent in out-of-home care during the pre-school period is, on average, the shortest. The average of 2 years and 5 months in out-of-home care is more than one year less than the respective amount of time experienced by German children, and about 8 months less than that for their Austrian counterparts. This is clearly due to the earlier admittance of Spanish children into compulsory primary school.

The countries under consideration differ to some extent with regard to the stability of the out-of-home care environment for children. During the pre-school year 1993-94, when the children were about four years old, all children in the Spanish sample and 98.1% of the German sample were continuously enrolled in their same ECP, whereas that fact applied only to 93.5% of the Austrian children. Undoubtedly, this lower percentage is mainly due to a higher mobility of families in this country. Additional data, which is only available for the German sample, indicates that about 20% of the children changed their ECP, during the total period from entering an out-of-home programme to the beginning of compulsory primary schooling.

3.4.2 School entry and transition phase

Age of and modalities for children. School entrance in the three countries is based on regulations laid down in school laws, although these regulations may provide for some flexibility. German children are older when entering primary schools. Using Sept. 1 as a common school-entering date, the average age of German students is 10 months older than their Spanish counterparts, and Austrian students are about 8 months older than the Spanish. (cf. Table 3.2)

Table 3.3 Transition into primary school: age and schedule; differences in means/percentages across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Age of child when entering school (years; months)	M SD	6;7 0;4	6;9 0;4	5;11 0;2	p<.01 G>A>S
On regular schedule	%	96.4	90.7	99.7	p<.001 S,A>G
Delayed	%	3.6	5.2	0.3	p<.01 G>S
Early	%	0.0	4.1	0.0	p<.01 G>A,S

Not regarding this high average age, a considerably higher percentage of German students begin compulsory school on a schedule that deviates from that typically seen (i.e. they experience either delayed or earlier admittance to school). In contrast, almost all students in Spain enter primary school on a regular schedule.

When mothers were asked to judge the transition process their children experienced, from a retrospective point of view (at the end of grade two in Austria and Germany, grade 3 in Spain), they gave mostly positive ratings. Most mothers agreed with statements such as „child was well prepared by the ECP“ and „school and teachers helped the child to adapt“. There are no differences of the maternal ratings across the countries. With regard to the statement „child needed family support“, the responses of the mothers were ambivalent. With an average of about 2.5 on the focus-point scale in all three countries, mothers neither agreed nor disagreed with this statement. With regard to the average positive picture of students' transition to primary school, as reported by mothers, the remarkably high standard deviations should be considered. They indicate that the favourable picture, which is found for most of the students, does not apply for a minority. Based on the standard deviations given, it can be estimated that for about 10-15% of students, the transition to primary school was difficult. According to mothers' ratings, these students tended to have problems and to not be well-prepared by the ECP. In addition, the school and teacher tended not to help (enough), and the children tended to rely on family support in their adjustment.

Table 3.4 Transition into primary school: preparation, problems, and support; differences in means across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Child had no problems ⁺	M SD	3.40 0.83	3.33 0.89	3.46 0.72	n.s.
Child was well prepared by ECP	M SD	3.44 0.73	3.29 0.74	3.41 0.69	n.s.
School and teacher helped Child	M SD	3.48 0.77	3.46 0.71	3.38 0.72	n.s.
Child needed family support	M SD	2.42 1.01	2.48 0.97	2.60 1.00	n.s.

⁺ Statements rated by mothers on a 4-point scale (1=disagree completely, 4=agree completely)

3.4.3 Primary school career of students

The primary school systems in the three countries are conceptualised and organised as non-selective systems, especially in the lower grades. Accordingly, retention in grade as well as skipping one grade can be expected as rare events. Indeed, as depicted in Table 3.5, both events are almost non-existent in the samples, indicating a high emphasis of teachers and school on mainstream education during this stage.

Table 3.5 Primary school career of students; differences in percentages across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Skipped one grade	%	0.0	0.1	1.1	n.s.
Retained	%	0.0	0.1	0.0	n.s.
Changed school	%	7.5	6.4	10.7	n.s.

In addition to the data on the more formal educational careers of students, mothers were asked about their children's adjustment to school in the current school year. The results are depicted in Table 3.6. On a ten-point rating scale (response categories 1 = agree not much, 3 = agree a little, 5-6= agree some, 8 = agree very much, and 10 = agree a lot), maternal ratings

were on average positioned in the positive half of the continuum, in the middle between „agree some“ (5) and „agree a lot“ (10). Thus, mothers mostly rated „agree some“ to „agree a lot“, when asked about:

- the child's *school achievement*, (i.e., „if the child tries to do well at school“, „does indeed do well at school“ or „is adjusted to school“),
- the child's *social adjustment*, (i.e., „if the child likes going to school“, „gets along with kids“, and „gets along with the teacher“), and
- the *school's support* for the child, (i.e., if the „school meets the social-emotional needs of the child“, and if the „first grade prepared child for second grade tasks“).

Standard deviations, mostly in the range of 1.5 to 2 scale points, however, reveal considerable differences in the ratings of the mothers. This indicates that a certain percentage of mothers perceive a less favourable picture for their children.

Country comparisons reveal statistically significant differences in all maternal ratings with a coherent trend: German mothers give consistently lower ratings in all characteristics than Austrian or Spanish mothers do. This result appears to be surprising, since the German students are in general older than the students in the two other samples.

Table 3.6 Children’s adjustment to school in current school year; differences in means across the countries

		Austria	Germany	Spain	ANOVA/ Duncan
Child likes going to school ⁺	M SD	7.41 2.14	6.91 2.13	7.64 2.08	p<.001 A,S>G
Child tries to do well at School	M SD	7.93 1.79	7.34 1.79	7.66 2.00	p<.001 A>G
Child does indeed do well at school	M SD	7.79 1.65	6.95 1.75	7.35 1.81	p<.001 A>S>G
Child gets along with teacher	M SD	8.51 1.53	7.75 1.95	8.00 1.87	p<.001 A>S,G
Child gets along with kids	M SD	7.91 1.50	7.49 1.49	8.45 1.25	p<.001 S>A>G
First grade prepared child for second grade tasks	M SD	8.22 1.60	7.47 1.70	7.84 2.09	p<.001 A>G
School meets social-emotional needs	M SD	7.54 1.67	6.67 1.95	7.42 1.73	p<.001 S,A>G
Child is adjusted to school	M SD	8.14 1.37	7.35 1.62	8.43 1.50	p<.001 A,S>G

Statements rated by mothers on a 10-point scale (1 = agree not much, 3 = agree a little, 5-6= agree some, 8 = agree very much, and 10 = agree a lot)

Besides the maternal ratings, children’s *school achievement* was assessed in a variety of domains using nationally adapted subscales of the Woodcock-Johnson-Tests of Achievement (WJ-R, Woodcock & Johnson, 1998, 1990). Domains of assessment include the sub-scales Reading Comprehension, Calculation, Applied Problems, Science, and Social Studies. In addition, a total achievement score was built by summing up the scores of the single sub-scales. Tests were administered individually in children’s home. For more information on the WJ-R, its adaptation and measurement characteristics, see chapter 7. Results are shown in Table 3.7.

Statistically significant differences between the countries can be observed in few of the five sub-scales as well as in the total WJ-score. For the sub-scale Social Science, differences are significant only at the 10-percent-level. Observed differences show a clear pattern. German students, on average, score lowest in all subdomains. The students of either one or of both other countries do statistically better than German students. With regard to the total score, the mean for German students is about half a standard deviation lower than for the students of the two other countries. Spanish students score highest in the total score as well as in most of the subscale scores. Interpreting these results, however, it should be kept in mind that Spanish children are in grade 3, whereas Austrian and German students are in grade 2, i.e., the latter have one year less schooling. The higher scores for Spanish children are especially obvious for the sub-scale „Calculation“. An inspection of the Calculation items indicates that this difference is mainly due to differences in certain items dealing with multiplication and division of 2-diget numbers. This level of arithmetic is not yet part of the second grade curriculum in Austria and Germany.

The consistently low scores of German students in the WJ-test coincide with the maternal ratings reported above, where German mothers rated consistently lower than mothers in the two other countries with regard to their children’s school achievement, their social adjustment to school, as well as the schools’ support to the child.

Table 3.7 Children’s school achievement (Woodcock-Johnson Achievement Test); differences in means/percentages across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Reading Comprehension	M SD	13.9 2.61	12.03 3.37	14.37 2.84	p<.001 A,S>G
Calculation	M SD	8.81 2.68	8.43 2.94	11.16 3.23	p<.001 S>A,G
Applied Problems	M SD	14.83 2.97	13.37 3.71	13.84 4.45	p<.001 A>G,S
Science	M SD	13.99 2.09	13.30 2.51	14.38 2.89	p<.001 A,S>G
Social Studies	M SD	10.27 2.32	9.37 2.12	9.74 2.27	p<.10 A>S>G
Total Scale	M SD	61.80 8.36	56.84 11.37	63.49 11.87	p<.001 A,S>G

3.3.4 Co-operation between family and primary school

Students' educational careers are embedded in, and influenced by, both the students' family and school environments. A further important influence on the students' educational career, however, is how families and the school co-operate with regard to career-related issues of students. In the final section of the chapter, we will deal with various aspects of co-operation.

Co-operation is a two-sided process. It includes both the parent's involvement in school and the teacher's involvement in the child's home. *Parent involvement* at school can include parental attitudes and activities, thereby, they may influence (in a positive or negative way, directly or indirectly) the student's attitude toward school, their learning and school success. *Teacher involvement* in the student's home may include the efforts of teachers to influence the way in which parents bring up their children, for example, to promote school success (Krumm, 1996). The positive effects of involvement/co-operation have been demonstrated across a wide range of age levels and populations (Grolnick, Benjet, Kurowski & Apostoleris, 1997). Based on this background, in a first series of questions, the opportunities for parent-teacher exchanges were addressed. Results are depicted in Table 3.8.

According to teachers' reports, *consultation hours for parents* are offered considerably more frequently in Spain than in the two other countries. The average of 23.4 consultation hours in the first half of the school year indicates that more than one consultation hour per week is available. This may show that parent-teacher contact is easily accessible and individualised. In Austria and Germany, consultation hours are offered less frequently. However, when they do occur, considerably more parents take the opportunity for this kind of individualised exchange/contact.

Teachers report on average 1-2 *formal parent meetings* during the first half of the school year. In general, the parents of 18-19 children participate in such a meeting. This equals 74% of the parents in the German classes, 82% of parents in the Spanish classes, and 85% in the Austrian classes.

When comparing the number of parent meetings in primary school with the number of parent meetings in the ECPs, no great differences can be observed, with the exception of Germany. In German pre-schools, 6.1 parent meetings per year were reported, but for the primary school phase only an estimated 3.4 ($2 * 1.7$) meetings are held during the same time period. In Spain, the number of parent meetings is actually the same in both phases (2.7 vs. estimated 2.8), in Austria very similar (4.0 vs. estimated 3.4).

In all three countries, there are a few students, i.e., on average 1.2 to 2.6 per class whose parents neither take the opportunity for a consultation hour nor participate in a parent meeting. The number of these parents is statistically higher in Germany than in the two other countries.

Table 3.8 Parent-teacher meetings at school; differences in means across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Number of consultation hours for parents during first half of the school year	M	5.4	8.1	23.4	p<.001 S>G,A
	SD	7.7	11.0	11.1	
Number of parents per class attending consultation hours	M	7.0	15.4	2.8	p<.001 G>A>S
	SD	6.2	8.4	4.8	
Number of formal parent meetings during first half of the school year	M	1.7	1.7	1.4	p<.01 G,A>S
	SD	1.0	0.8	1.2	
Number of children in class whose parents attended a meeting	M	18.9	17.8	19.1	n.s.
	SD	4.2	5.5	10.5	
Number of parents who attended no consultation hours or parent meetings	M	1.2	2.6	1.4	p<.001 G>S,A
	SD	2.1	4.5	2.5	
Number of parent meetings in past kindergarten year	M	4.0	6.1	2.7	p<.01 G>A,S
	SD	1.8	5.4	1.4	

A more or less daily contact between the home and the school is established through the *students' homework*. Parental supervision of homework provides the opportunity for parents to be kept informed about the student's learning process and to help the child even if this may not be intended by teachers. Duration of homework, rated by both teachers and by mothers, as well as parental help with homework, are depicted in Table 3.9.

In Austria and Germany, according to teachers' estimations, students spend about 2.5 hours per week, i.e., half an hour per day, doing homework. For Spanish students this is increased to 3 hours per week which represents a statistically significant difference between the amount of homework in Spain and in the two other countries. The same country difference can be observed when the amount of time spent on homework, as assessed by mothers, is compared. Interestingly, in all three countries, mothers report that their children spend considerably more time on homework than is estimated by teachers. In Germany, the mother's report is 30% higher than that estimated by teachers, while in Spain it is 90% higher, and Austria mother's reports are in between. These figures indicate that teachers may

not always be realistic about the time students spend on the homework they assign. According to the mothers' reports, parents spend, on average, a considerable amount of time helping their children with homework. The amount of time varies between 2.3 hours per week in Austria and Germany and 3.5 hours per week in Spain. During about two thirds of the total time that children spend on homework, parents are helping their children, with the highest proportions of parent time seen in Germany. This amount of parental time leads to the assumption that parents, on average, are well-informed about their children's school work. The time of parental support correlates substantially, in all three countries, with the length of time children spend on homework ($r=.58$ to $r=.66$). It seems that when students need more time for completing homework, parents extend their support time accordingly.

Table 3.9 Homework at home and parental support; differences in means across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Hours per week students spend doing homework at home (teachers' estimation)	M SD	2.5 1.2	2.6 1.4	3.0 1.8	p< .01 S>A,G
Hours per week students spend doing homework at home Hours per day students spend doing homework at home (mothers' reports)	M SD M	3.9 2.2 46'	3.4 2.3 40'	5.6 4.1 1h 07'	p<.001 S>A,G
Hours per week parents help with homework	M SD	2.3 2.2	2.3 2.2	3.5 3.5	p<.001 S>A,G
Proportion of children's homework time with parental help	%	59%	67%	63%	p<.01 G>A

Teachers and parents establish relationships with one another during the schooling of the child. The quality of these relationships can be regarded as important for children's well being as well as for their academic progress in school. Based on this background, mothers were asked about their *relationship with the teacher*. Results are depicted in Table 3.10, which also includes a rating of how mothers feel about their relationships with the primary teachers as compared to the relationship they had with their children's ECP teachers. On average mothers in all three countries rated the relationship to teachers as „rather good“, although Austrian mothers rated the relationship significantly better. Comparing relationships of mothers to the primary school and the ECP teachers, mothers rated both at the same level,

„just the same“. Again, a statistically significant country difference is found in favour of Austria.

Table 3.10 Relationship of parents to the primary and the pre-school teachers; differences in means across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Relationship with the primary school teacher ⁺	M	4.3	3.8	3.9	p<.001 A>S,G
	SD	0.8	0.9	0.8	
Relationship to teacher compared to pre-school teacher ⁺⁺	M	3.2	2.9	2.9	p<.001 A>S,G
	SD	1.0	1.2	0.8	

⁺1= very bad, 2=rather bad, 3=average, 4=rather good, 5=very good

⁺⁺1=much worse, 2=a little worse, 3=just the same, 4=a little better, 5=much better

More positive relationships between parents and teachers are positively associated with better school adjustment by students, as can be seen in Table 3.11. Although correlation coefficients are only low to moderate in size, there is a coherent pattern across countries. This pattern indicates that positive parent-teacher relationships are associated with various aspects of school adjustment such as „child likes going to school”, „child tries to be good at school, „child indeed does well at school“, „child copes well with teacher“, and „child copes well with other kids“. Relatively high correlations can be found for the items „child copes well with the teacher“, „previous grade prepared child for present grade tasks“, and „school accommodated well to social and emotional needs of the child“. This points to the fact that mothers with better parent-teacher relationships tend to see their children and their children’s needs better served by the school than mothers with a less favourable parent-teacher relationship do.

Table 3.11 Correlations between goodness of parent-teacher relationship and various aspects of students' school adjustment across countries

	Austria	Germany	Spain
Aspects of school adjustment			
Child likes going to school	.33**	.32**	.17*
Child tries to be good at school	.15	.24**	.18**
Child indeed does well at school	.13	.23**	.10
Child copes well with teacher	.42**	.50**	.23**
Child copes well with other kids	.16	.22**	.16*
Previous grade prepared for present grade tasks	.43**	.37**	.23**
School accommodated well to social-emotional needs of students	.46**	.49**	.14*
Child copes well with school in general	.24**	.32**	.24**

**p<.01, *p<.05

3.5 Summary of results and discussion

After introducing the systems of pre-school and primary education in each of the three participating countries, this chapter dealt with findings illustrating, in detail, various characteristics of the care and education careers of the children in the sample. In particular, information is given on general patterns in children's pre-school and primary school educational careers, characteristics of children's transition into primary school, and their actual adjustment to various requirements of primary schooling in second/third grade.

Educational career during pre-school phase. Children in the sample are, on average, enrolled in out-of-home care for about 3 years, with out-of-home care for Austrian children beginning considerably later (about half a year later) than in Germany and Spain. High variation in the entrance age found in Germany seems to reflect the continued effect of different societal traditions in the eastern and western parts of the country. A higher supply rate for under-three-years olds is still available in the former East Germany, and continues to be used by parents. Children from Spain spend considerably less time (on average 2 years 5 months) in ECPs than Austrian (3;1) and German children (3;7).

School entry and transition phase. According to school laws, German students are, on average, 10 months older when entering primary school than their Spanish counterparts, and Austrian students are 8 months older than the Spanish children. While almost all Spanish students enter school on a regular schedule, in Germany a considerably higher percentage of students begin compulsory schooling on a schedule that deviates from that typically seen. From a retrospective point of view, the child's transition from ECP to primary school is regarded by mothers in all three countries as mostly positive, although remarkably high variation provides some evidence that a less positive picture applies to some children.

Primary school career of students. According to the non-selective systems established in primary schooling, grade retention or skipping a grade are almost non-existent in all three countries (up to 1.1% in Spain). Accordingly, children's adjustment to the requirements of school in the current school year as perceived by mothers, is estimated quite positively, with however, substantial within-country variation indicating a less favourable picture for some 10 – 15 % of the children. German mothers give consistently lower ratings in all indicators of adjustment than Austrian and Spanish mothers. The less favourable perception of German mothers coincides perfectly with German student's school-related achievement (assessed by the Woodcock-Johnson Achievement Test), in which they consistently score lower in all subdomains than their Austrian and Spanish counterparts.

Co-operation between family and primary school. Teachers from all countries report to offer, on average, 1-2 parent meetings during the first half of the school year with about 74-85% of parents participating in these meetings. However, more consultation hours are offered to Spanish than to Austrian and German parents, indicating that exchange and contact opportunities of this kind seem to be more easily accessible in Spain than in the two other countries. The number of parent meetings in ECPs and in primary schools does not differ in any of the countries. Also, the number of parents who neither use the opportunity for a consultation hour nor participate in a parent meeting is extremely low across countries. For doing homework, as the most common opportunity for daily exchange about school-related issues, according to teachers' estimations, Spanish students spend 3 hours per week while Austrian and German students spend 2.5 hours per week. However, in all countries, mothers' perceptions of their children's time spend doing homework differs considerably from teachers' time estimations (between 30 to 90% more time perceived). During about two thirds

of the total time that children spend in homework, parents are helping their children, with the highest proportion of parent time in Germany. On average mothers in all three countries rate the relationship to their children's primary school teachers as "rather good", although Austrian teachers rated them to be significantly better. Furthermore, in all countries, positive relationships between parents and teachers are positively associated with better school adjustment of students. In particular, mothers reporting better parent-teacher relationships tend to see their children's needs better served by the school than do mothers with less favourable relationships.

Discussion.

1. In all three countries, the first two years of primary school appear as non-selective levels and thereby as a non-selective entrance phase of compulsory schooling. This is intentional, and reflected by the educational policy and regulation within each of the countries as well as in the data found on the samples. Retention in grade 1 is an extremely rare event, indicating that grades 1-2 are conceptualised as a comprehensive unit, independent of whether the two grades are officially considered a „cycle“ as is true in Spain, or as a less stringently organised unit, as seen in Austria and Germany. In addition, most mothers, in general, report a smooth transition for their children into compulsory schooling for which the ECP prepared the child, and the school and teacher helped. However, it should be noted that these results reflecting averages do not apply to every individual child. Considering the standard deviation in all of the maternal ratings, it can be estimated that about 10-15% of students, according to mothers' ratings, tended to have problems, to not be well-prepared by the ECP, needed family support, and were not well-helped to adapt by the school and teacher. Although this problem may not be completely avoidable, whatever measures are taken by the public educational system, the results point to a minority of children (and families) in each country who may need further assistance in adapting to compulsory schooling.
2. Interestingly, the three educational systems operate quite differently (under the same goals of adapting to children's needs) when the grouping of children is considered. Differences in this respect occur already in the pre-school phase. Spanish children are already age-homogeneously grouped from the beginning of their pre-school years. German children, in general, are enrolled in an ECP with mixed age-groups of at least a 3-year age span.

Although primary schooling in Germany relies on age homogeneous classes as well, age-heterogeneity in classes is much greater than in Spain. While less than 1% of children in the Spanish sample do not belong to the „regular“ age group (within a year) of the class, (i.e., those students who are „delayed“), in Germany, nearly 10% of the students do not belong to the „regular“ age group (i.e., those students who are either „delayed“ or admitted early to school). In educational debates in Germany, it is often argued that the more flexible school entrance procedures would allow for individualised school entrance of students and for a better fit between students' prerequisite abilities and the requirements of the school. Interestingly, this belief is not supported by the present data. Despite the flexible school entrance in German schools, maternal ratings on the various aspects of school adjustment for students are consistently less favourable than in other countries. Furthermore, this result is underlined in German students' less favourable achievement test scores, where the intention of flexible entrance procedures has not been met in providing a close fit between student prerequisites and the school requirements.

3. In all three primary school systems, on average, a well-established co-operation between schools and families does exist. Regular parent-teacher meetings take place and are attended by the vast majority of parents. Many parents also take the opportunity to meet with teachers, and to become informed about their children during consultation hours. Mothers, in general, assess their parental relationships with teachers as being rather good. In addition, it can be assumed that most parents are informed about what is going on in the school and on their children's progress, through their children's homework. Past educational reform of primary schools in all three countries has de-emphasised the volume and meaning of homework to be completed by students. The data of this study, however, show that homework is still a regular part of most children's primary school experiences and that teachers in all countries underestimate, considerably, the time needed by students to complete their homework, when compared to mother's reports. In addition, and quite surprisingly, parents help their children on average, during two-thirds of the time children spend on homework. Further educational reform on the co-operation between schools and parents needs to consider such data. The extent to which parents presently help their children with homework may be regarded as undesirable. On the other hand, eliminating homework, reducing it, or assigning it to be done at school under supervision by teachers or other school staff, may prevent parents from obtaining a

continuous insight into their children's schooling process, and from being informed enough to intervene quickly to advocate for their children if needed.

4. The data of this study provide an opportunity to examine the association between academic achievement and when children begin academic primary schooling. In this sample, Austrian and German students generally had close to two years of primary schooling when school achievement was assessed, while Spanish children had an additional year, (i.e. close to three years of primary schooling) because primary school started a year earlier for these students. In Austria and Germany, the one year less of compulsory primary schooling for the 8-year-olds is counterbalanced by an additional year of pre-school. When comparing school achievement scores across the countries, it is not surprising that the German students score consistently lower than the students in Spain because of the additional academic year that Spanish students have had. It is surprising, however, that the German students' achievement scores also differed significantly from the scores of the Austrian sample (who also had two years of primary schooling). On the other hand, no statistically significant difference was observed between Austrian and Spanish children, although children in these two countries differed by 1 year in the amount of academic schooling they had. These results indicate that the number of years in formal schooling at this age may not be the best predictor for school achievement and that successful schooling can be organised in different ways (i.e., balancing the educational experiences of students in pre-school and primary schooling differently). Comparing school achievement scores for the Austrian and Spanish children in more detail, the Spanish students are stronger, although not significantly so in the sub-test Calculation, a more curriculum dependent measure that is usually taught in a relatively didactic, and focused manner. Austrian students, on the other hand, tend to be stronger than Spanish children in "Applied Problems" and the "Social Studies" subscales, that require a combination of skills, and which might be learned through less didactic approaches.

These data show that further study is needed if we are to better understand the pros and cons of having children begin academic schooling earlier or later. There is some indication that beginning earlier (less pre-school) helps children acquire skills that are narrowly focused, while more pre-school seems to be related to better performance on tasks

that require a broader set of skills. However, because the results are not consistent with regard to children who have more or less academic schooling, it is obvious that other factors impact children's achievement. Perhaps, the issue is not only *when* children begin academic schooling, but rather *what is taught* to children as they are ready, in either pre-school or formal compulsory schools.

4. QUALITY IN PRIMARY SCHOOL CLASSES

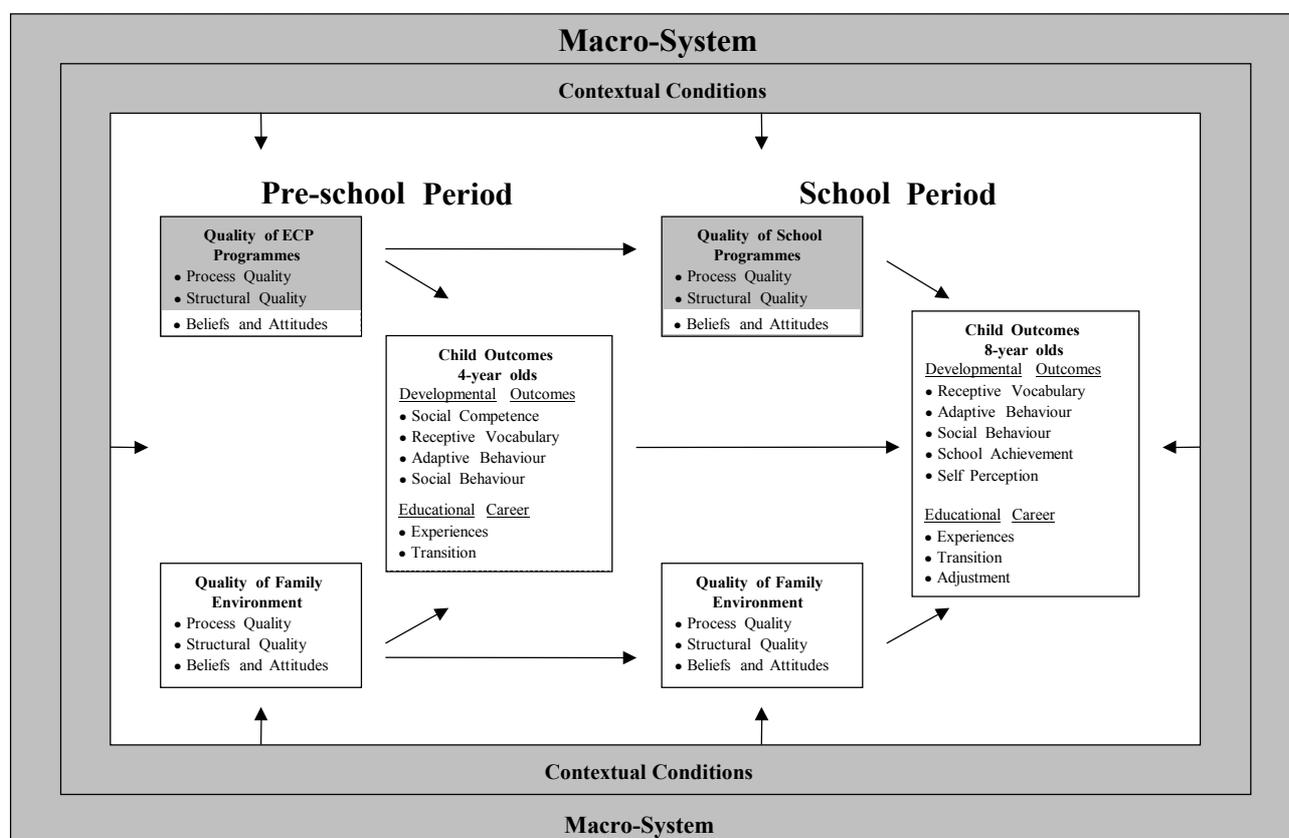


Figure 4.1 Conceptual framework for analyses of primary school classrooms in various countries

4.1 Introduction and research questions

As described in Chapter 1, children's developmental status at age 8 is conceptualised as being influenced by the quality of four major settings that children experience: the family setting experienced by children during the pre-school and school phases, and the two institutional settings, ECP and school. The primary school environment was experienced by all children in this study, and represents each country's method of fostering children's development in both cognitive and non-cognitive domains. At the beginning of this chapter, we will describe our approach in the context of school effectiveness research, describe the instruments used in this study to assess the quality of the school setting, describe the various quality characteristics of the school settings in the participating countries, and analyse the interrelationships among quality characteristics. Educational orientations of teachers, considered to be part of the quality concept, will not be discussed in this chapter, but will be handled in Chapter 6 in

connection with, and contrast to, educational orientations of mothers. Also, the impact of the quality of school settings on children's development will not be presented here, but will be discussed in Chapter 7, which examines the impact of quality in the various settings on children's development.

Research on the effects of schooling has identified a number of conditions at various levels of the school system which influence student's learning in different domains. Based on analyses, both classroom and school level conditions, most researchers have concluded, that the classroom level conditions are of greater importance and are directly influential on student's learning (Ditton, 1999; Sammons, Hillmann & Mortimer, 1995; Rossbach & Tietze, 1996; Schaffer, Nesselrodt & Stringfield, 1994; Scheerens, 1992). In general, classroom level conditions account for more variance in students' cognitive and non-cognitive domains than do school level variables (cf., e.g., Ditton & Kreeker 1995; contrary, Creemers & Reezigt, 1996). However, the importance of school level variables (and the even less proximal conditions found in the context in which schools operate) should not be ignored since these more distant variables are likely to influence the processes at the classroom level (Creemers & Reezigt, 1996; Sammons, Hillmann & Mortimer, 1995; Scheerens, 1992, 1997).

The quality of instruction is considered to be the most important factor at the classroom level for enhancing the learning and the development of students. The term "quality of instruction", however, is defined in various ways. Some authors use the term, primarily, to describe the time students spend on their tasks. Others use the term in a broader sense to include aspects such as curricula, grouping procedures in classrooms and teaching behaviour (cf., e.g., Creemers, 1994; Fraser, Walberg, Welch & Hattie, 1987; Slavin, 1987; Wang, Haertel & Walberg, 1993; Weinert, Schrader & Helmke, 1989). The present study uses the broader definition.

Instructional quality, therefore, can be considered a complex construct with many and various facets. In many studies, aspects of how instruction is organised, classroom management, aspects of classroom climate and teacher-student and student-student interactions have been found to have important effects on students' learning. Criteria in those studies have included marks (or grades), achievement test scores, as well as non-cognitive outcomes such as self-concept, attitudes about learning, and how much students like school (cf., e.g., Baumert, Schmitz, Sang, & Roeder, 1987; Brophy & Good, 1986; Creemers, 1994; Doyle, 1986; Einsiedler, 1997; Fraser, Walberg, Welch & Hattie, 1987; Gruehn, 1995; Helmke, 1988, 1997; Helmke & Schrader, 1990; Helmke, Weinert, 1997a, b; Knuver &

Brandsma, 1993; Sammons, Hillmann & Mortimer, 1995; Scheerens, 1992; Schrader, Helmke & Dotzler, 1997; Treinies & Einsiedler, 1996; United States Department of Education, 1986; Weinert, 1996, 1998). In addition, aspects of „open“ education or instruction, „constructivist learning environments“ and „situated learning“ are discussed as important indicators of good instruction (cf. Dubs, 1995; Einsiedler, 1997; Gerstenmaier & Mandl, 1995; Giaconia & Hedges, 1982; Jürgens, 1995; Walberg & Thomas, 1972). Moreover, it is recognised that a successful instructional approach must be selected according to the goals and content to be taught, as well as the characteristics of the students who are receiving the lesson (Einsiedler, 1997; Weinert, 1996, 1998).

For the purpose of this study, where the school is considered one of the four major settings that influence children’s development at age 8, the conceptualisation of school and instructional quality required simplification. This was done according to two principles:

Recognising that there are various levels of school systems, which influence children’s development, it was decided to focus only on the classroom level since this represents the children’s most immediate school environment.

To maintain parallel conceptualisations of all four settings of interest, we decided to use the same conceptual framework as was used in analysing the ECP and family settings.

Following these principles, quality at the primary classroom level was conceptualised according to three dimensions:

- **quality of educational orientations of primary school teachers** (e.g., expectations about development, educational attitudes, beliefs about the goals of primary schooling)
- **quality of structural conditions of the primary classroom** (e.g., experience, age, working hours per week of the classroom-teacher; class size, percentage of foreign students; number of lessons per week; materials and space)
- **quality of process features, i.e. instructional quality** (e.g., classroom management, climate, teacher behaviour)

As mentioned earlier, the educational orientations of primary school teachers will be discussed in Chapter 6, in conjunction with the educational orientations of mothers. Thus, the present chapter focuses on the quality of structural and process features of primary

classrooms. Based on the conceptual framework presented, this chapter investigates the following research questions:⁷

- What are the similarities and differences in structural aspects at the primary classroom level in Austria, Germany and Spain?
- How do instructional processes vary in the three countries and where are differences and similarities?
- Are quality features the children experienced at age 4 (in the early childhood programme) similar or different to those the children experienced at age 8 (in the primary school classroom)?
- How do structural quality characteristics relate to classroom process quality characteristics?

4.2 Measurement of primary school classroom quality

4.2.1 Teacher interviews to assess structural quality

As described in more detail in chapter 2, an interview was conducted with the primary school classroom-teacher to gather data on the teacher educational orientations (see chapter 6) and on the structural features of the classroom according to four dimensions:

- **Teacher characteristics**, such as
age, number of years as primary school teacher, amount of in-service training, number of contract hours per week, number of hours for preparing lessons, job satisfaction
- **Classroom characteristics**, such as
class size, number of different teachers in the class, percentage of foreign students, percentage of students with disabilities
- **Organisation of instruction**, such as
number of lessons per week, average hours of homework per week, average percentage of whole group instruction

⁷ All analyses will be done with unweighted data. An exception is Germany where the disproportion of classrooms in the sample from East and West Germany will be accounted for by weighting.

- **Space-material characteristics**, such as the availability of audio-visual materials, computer, and learning games

With regard to teacher and classroom characteristics, most of the variables investigated are conceptually identical to what was used in ECP classrooms. This is only partly true for the Space-Material characteristics, while variables related to the organisation and instruction were not examined for the ECPs.

4.2.2 Observations to assess process quality

In the research on teaching, different instruments have been used to measure process quality (often referred to as quality of instruction) at the primary classroom level. In many cases, low-inference observation instruments have been used which are related to specific aspects of instruction. Such instruments are very time consuming to complete and it is sometimes difficult to aggregate the results into a summary score. Thus, to describe and evaluate a school's process quality empirically validated, objective instruments are needed that are reliable and valid, and easy and efficient to administer (Teddle, Virgilio & Oescher, 1990). Examples of such instruments (mainly rating scales) are available and include the Instructional Environment Observation Scales (Secada, 1997), the Special Strategies Observation System - SSOS (Nesselrodt & Schaffer, 1993; Schaffer & Nesselrodt, 1992) and the Virgilio Teacher Behavior Instrument - VTBI (Teddle, Virgilio & Oescher, 1990).

The present study used the Instructional Environment Observation Scales (IEOS). The IEOS developed by Secada (1997) consist of several rating scales addressing both more general aspects of instruction as well as special aspects of instruction in mathematics, reading and writing.

Each scale is rated using a five-point system, with each point described in detail. For the purpose of this study, the six scales for general aspects of the instruction were selected: classroom climate, classroom routines, cross-disciplinary connections, linkages to life beyond the classroom, social support for student learning, and student engagement. The scales were scored at the end of an observation period in the classroom. The observations were done similarly in all three countries by trained observers and included two lessons given by the classroom-teacher in a morning session. Lessons in mathematics and language (reading/writing) were required as part of the observation time.

Factor analyses for the data from each country were done using the six scale scores from the IEOS. Factor analyses point to a two-factor solution in all countries. Considering only loadings equal to or larger than $|.5|$, the results are practically identical in the three countries and indicate the following two factors:

- **Classroom management** (four items): The four items address classroom climate, classroom routines, student engagement, and social support for student learning. High scores on this scale describe instruction in which the students are engaged in their lessons, transitions from one activity to another take place quickly and smoothly disruptions are kept to a minimum so that the class can spend much of its time on tasks, students feel safe and respected, and in which there are high expectations for all students but less skilled students are not discouraged.
- **Relevance of content** (two items): High scores on this scale indicate an instructional environment in which the observed lessons, activities or tasks are connected to multiple subject-areas (cross-disciplinary connections) and to competencies or concerns beyond the classroom (linkages to life beyond the classroom).

The two scales derived from the factor analyses Classroom management and Relevance of content, correlate with each other: .21 in Austria, .08 in Germany and .29 in Spain and, as shown in Table 4.1, have reasonably good the internal consistencies (Cronach’s alpha), given that they have so few items.

Table 4.1 Internal consistencies (Cronbachs alpha) of the scales for measuring process quality in primary classrooms

	Austria	Germany	Spain
Classroom management	.74	.82	.77
Relevance of content	.44	.50	.41
IEOS (total of six items)	.64	.66	.72

4.3 Similarities and differences in quality in primary school classrooms

For the following descriptions it should be kept in mind that even though the average age of children in all countries was almost the same, almost all children in Austria and Germany were in the second grade (Austria: 90.2%, first grade 6.9% and third grade 2.8%; Germany: 82.2%, first grade 7.0% and third grade 10.7%), whereas almost all children in Spain were in the third grade (98.4%, second and fourth grade each 0.8%).

4.3.1 Structural characteristics

Structural characteristics of the primary classrooms were investigated with regard to teacher characteristics, classroom characteristics, organisation of instruction and space-material characteristics.

Teacher characteristics. In primary education, the classroom-teacher plays an important role as the person with whom students interact most frequently, usually on a daily basis. The classroom-teacher is also the primary organiser of the classroom's learning processes. The following three aspects of classroom-teacher characteristics were examined:

- personal characteristics of the classroom-teacher (i.e., age; sex; number of own children)
- professional experiences of the classroom-teacher (i.e., number of years as teacher; in-service-training completed)
- characteristics of the classroom-teacher's job (i.e., weekly number of lessons completed per week; actual number of weekly working hours; weekly number of hours for preparing the lessons; job satisfaction)

Table 4.2 shows the means and standard deviations for each aspect of teacher characteristics. In addition, results of ANOVAs and Duncan-tests of statistical significance of country differences ($p < 0.5$) are provided. All results are reported only for the main classroom-teacher even if there were other teachers in the class.

Table 4.2 Teacher characteristics; differences in means across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Age of classroom-teacher (in years; months)	M SD	42;9 7;10	47;3 8;10	45;9 9;3	p<.01 A<G, S
Percentage of male teachers	%	8%	8%	26%	p<.001 A,G<S
Number of own children	M SD	1.6 1.1	1.4 1.1	1.6 1.3	n.s.
Number of years; months as teacher	M SD	19.5 8.5	21.1 9.10	19.2 10.8	n.s.
In-service-training completed (number of days in last 12 months)	M SD	6.3 6.3	4.1 6.1	10.8 23.5	p<.001 A,G<S
Number of lessons per week required by contract	M SD	22.2 2.2	24.1 4.1	25.3 3.2	p<.001 A<G<S
Actual number of working hours per week	M SD	37.9 6.2	39.3 7.5	35.0 7.0	p < .001 S<A, G
Number of hours per week preparing lessons	M SD	8.9 4.2	10.0 4.8	4.9 3.2	p<.001 S<A,G
Ratio of hours for preparing lessons to total working hours per week (in %)	M SD	23.2% 9.9%	25.9% 12.6%	14.4% 9.7%	p<.001 S<A,G
Satisfaction with payment ⁺	M SD	2.0 0.9	1.6 0.8	2.2 1.1	p< .001 G<A,S
Satisfaction with work with the students ⁺	M SD	1.2 0.4	1.4 0.7	1.4 0.7	n.s.
Satisfaction with co-operation with colleagues ⁺	M SD	1.4 0.8	1.6 0.7	1.4 0.7	n.s.
Satisfaction with management of principal ⁺	M SD	1.8 0.9	1.8 0.9	1.5 0.9	p<.05 S<A,G
Satisfaction with general working conditions ⁺	M SD	1.7 0.7	2.1 1.0	1.7 0.9	p<.001 A,S<G
Mean satisfaction of teachers ⁺	M SD	1.6 0.5	1.7 0.5	1.7 0.6	n.s.

⁺ (1) satisfied; (2) rather satisfied; (3) rather dissatisfied; (4) dissatisfied

All three countries teachers are in their forties, but the teachers in Austria are, on average, younger than the teachers in Germany and Spain. There are, however, quite large differences in the ages of the teachers. Most teachers are female, with male teachers three times as frequent in Spain (26 %) as in Austria or Germany. Teachers in all three countries have an average of about 1.5 of their own children.

Regardless of country, teachers in this study had a substantial amount of professional experience (an average of about 20 years in the field, but with quite a bit of variability within each country). The data suggest that these teachers tended to start their professional teaching careers at around the age of 25 - somewhat younger in Austria (23;4) and somewhat older in Germany (26;2) and Spain (26;7). The amount of in-service training completed by teachers in the past 12 months appears to be quite different in the three countries, with Spanish teachers completing almost twice as much (11 days) as Austrian (6 days) and German teachers (4 days). However, these mean differences are largely a function of 8% of the Spanish teachers who take courses during the whole year and, thus, have had 45 and more days in-service training in the last 12 months. Without these teachers, the Spanish mean would be 4.6 (standard deviation 5.7) which is comparable to Austrian and German teachers.

Teachers job requirements are quite different in each country. For example, the number of lessons required of them each week, ranges from a low of 22.7 in Austria, to 24.1 in Germany, to 25.3 in Spain. However, in each country, the time allocated to a lesson is calculated in terms of instructional hours which differ by country. Generally, an instructional hour in Germany is 45 minutes, while in Austria it is 50 minutes and in Spain, 45 or 60 minutes. Thus, it should be noted that the number of lessons should not be mistaken for the number of actual hours of instruction per week completed by classroom-teachers. Comparing the total of teachers self-reported working hours, the number of amounts to 35 per week in Spain, while in Austria it is 38 and in Germany 39. Again, the high standard deviations found in each country indicate large within country differences. Spain also differs from the two other countries with regard to the amount of time used to prepare lessons. In Austria and Germany, about a quarter of the total weekly working time is spent in preparing lessons (nine to ten hours). In Spain, a seventh is used for preparation (five hours).

The attitudes of the teachers about their jobs was investigated with regard to five different aspects of job satisfaction including pay, working with the students, co-operation with colleagues, principals management, and general working conditions. When all five aspects are averaged, teachers in all three countries report a similarly high degree of

satisfaction with their jobs (a score of 1.6 on a 4 point scale). However, some minor differences do exist with regard to different aspects of satisfaction. German teachers are a little more satisfied with their pay and less satisfied with their general working conditions compared to their Austrian and Spanish peers. The Spanish teachers are a little more satisfied with the principal's management than are teachers in Austria and Germany. The highest level of satisfaction is shown in all countries for work with the students and the co-operation with colleagues.

Classroom characteristics. Table 4.3 shows the results for the three participating countries related to:

- number of different teachers working with the class
- composition of the class (i.e., class-size; percentage of female students; age differences; percentage of foreign students and of disabled students; students for which the level of instruction is judged by the teacher to be too high or to low)

On average, the participating students in Germany experienced fewer different teachers (3.5) in the week than the students in Austria (4.2) or Spain (4.7). Although there are some within country differences, no country uses a system in which the students of this age are taught by just one teacher. Considering the relatively high number of different teachers in Spain, one should keep in mind that the Spanish students of the sample are mostly third graders, while the vast majority of Austrian and German students are enrolled in grade 2.

The groups of students that teachers instruct are not particularly large: from a low of 22 students in Austria, 23 students in Spain, and 24 students in Germany. This means, that the average class size in all three countries is quite good, even though there are some classes in each country, which are considerably larger. On average, the composition of the classes are balanced with regard to the sex of the students. The countries do not differ in this aspect. Differences can be found, however, with regard to the age span in the classes. German classrooms tend to show the greatest range in age, with an average difference between the oldest and youngest students of one year and nine months. The difference in Austrian classrooms is one year and five months, while in Spain it is only one year and one month. Thus, the Spanish classes are distinctly more age homogeneous than the Austrian and especially than the German classes.

Table 4.3 Classroom characteristics; differences in means/percentages across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Number of teachers who work with class on a regular basis per week	M SD	4.2 1.4	3.5 1.5	4.7 1.6	p < .001 G<A<S
Class size (number of students enrolled)	M SD	22.1 3.3	24.1 3.8	23.4 4.9	p < .05 A<G;S
Percentage of female students	M SD	49.9% 12.0	48.2% 8.6	48.0% 11.6	n.s.
Difference between youngest and oldest students in class (years; months)	M SD	1;5 0;5	1;9 0;6	1;1 0;7	p < .001 S<A<G
Percentages of foreign students in class	M SD	13.1% 11.5	15.0% 16.7	0.9% 2.3	p < .001 S<A, G
Percentage of foreign students with language problems in class	M SD	3.7% 5.4	3.8% 6.7	0.2% 1.2	p < .001 S<A, G
Number of disabled students in class	M SD	0.2 0.7	0.3 0.9	0.5 0.9	p < .05 A,G<S
% of students for whom instructed level is too high	M SD	8.6% 7.0	10.7% 7.2	18.2% 13.1	p < .001 A,G<S
% of students for whom instructed level is too low	M SD	6.6% 7.0	9.0% 9.6	16.9% 16.9	p < .001 A,G<S

In the Spanish classes, almost no foreign students are enrolled (on average, less than 1% of the students). In Austria and Germany⁸, however, around a seventh of the students in the average class is of foreign origin. However, very high differences in this respect are found between classes within Austria and Germany as indicated by the high standard deviations. The percentage of foreign students, in general, should not be confounded with the percentage of foreign students who have difficulties in school because of primary language differences. With regard to this aspect of classroom composition, only about 4% of the students in the classes in Austria and Germany, and 0.2% in Spain, tend to have such problems. This means that in all three countries, one out of four students with a foreign origin has language problems in the classroom. However, this refers only to the mean level within the countries.

⁸ In Germany, the category "foreign students" also includes children from emigrants of German origin from Eastern European countries, although they form a minority among „foreign students“.

As can be seen from the standard deviations, classes exist with no problems, whereas other classes have higher proportions of students who have difficulties in following instruction because of primary language differences. Almost no students with disabilities are reported being enrolled in the classes, although the number of disabled children in Spanish primary classes appears to be twice as high as those found in Austrian and German classes.

With regard to the achievement level in the classes, classroom-teachers report that, on average, they teach a high proportion of students for whom the level of work required is either too high or too low. This is especially true in Spain. In Austria and Germany, the teachers report that the achievement level is too high for around 10% of their students. This percentage rises to almost 20% in the Spanish classes. On the other hand, the Austrian and German teachers report that for 7% to 9% of their students the level is too low. Again, this percentage is much higher in the Spanish classes (17%). This result is surprising when one considers that Spanish classes are more age-homogeneous than are Austrian and German classes. It could be that Spanish instruction is more oriented to an average achievement level, whereas more accommodation is made for individual differences in Austrian and German classes.

Organisation of instruction. Table 4.4 shows the results for the three participating countries related to:

- number of hours of instruction per week (i.e., total hours; hours provided by the classroom teacher; hours for the subjects of language, mathematics and science)
- classes with extra-curricular activities
- general emphasis on special aspects of instruction (different forms of instruction in language and mathematics; frequency of written controls of the student's work in language and mathematics)
- homework (frequency per week; duration)
- percentage of classes where lunch is provided
- frequency of regular planning time with other teaching staff

Table 4.4 Organisation of instruction; differences in means/percentages across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Number of instruction hours per week ⁺	M	22.0	22.2	25.8	p < .001 A,G<S
	SD	1.2	2.3	2.4	
Number of hours of instruction given by the classroom-teacher in the class ⁺	M	18.7	17.4	19.1	p < .001 G<A, S
	SD	1.8	3.3	3.8	
Number of instruction hours					
Language ⁺	M	7.0	5.8	4.5	p < .001 S<G<A
	SD	0.4	1.1	0.8	
Mathematics ⁺	M	4.0	5.0	4.2	p < .001 A<S<G
	SD	0.3	0.6	0.7	
Science ⁺	M	3.0	2.6	4.3	p < .001 G<A<S
	SD	0.3	0.9	1.0	
Percentage of classes with extra curricular activities	%	89%	80%	91%	n.s.
Instruction in language (within class); % of time					
Whole group instruction	M	40.8%	40.2%	42.4%	n.s.
	SD	16.9%	16.2%	19.1%	
Small group work	M	13.8%	13.7%	13.0%	n.s.
	SD	9.7%	7.5%	10.6%	
Working in pairs	M	16.9%	19.3%	8.3%	p < .001 S<A, G
	SD	10.0%	10.3%	10.0%	
Working alone/individually	M	28.2%	27.1%	36.3%	p < .001 A, G<S
	SD	13.8%	10.8%	16.7%	
Instruction in mathematics (within class); % of time					
Whole group instruction	M	40.1%	39.6%	42.9%	n.s.
	SD	15.5%	16.0%	17.8%	
Small group work	M	10.2%	10.8%	11.9%	n.s.
	SD	8.4%	8.0%	10.1%	
Working in pairs	M	16.0%	18.9%	7.6%	p < .001 S<A<G
	SD	9.9%	11.6%	9.2	
Working alone/individually	M	33.6%	30.8%	37.6%	p < .01 A, G<S
	SD	13.9%	12.9%	16.4%	
How often teacher checks written language assignments ⁺⁺	M	2.3	2.7	3.8	p < .001 A<G<S
	SD	0.9	1.1	1.2	
How often teacher checks written mathematics assignments ⁺⁺	M	2.6	3.0	3.7	p < .001 A<G<S
	SD	1.1	1.2	1.2	
Percentage of classes where teachers assign homework	%	100%	100%	84%	p < .001 S<A, G
Number of days per week children are assigned homework	M	4.8	4.4	4.2	p < .001 S<A, G
	SD	0.6	0.9	1.3	
Number of hours per week children are expected to do homework	M	2.5	2.6	3.0	p < .05 A, G<S
	SD	1.2	1.4	1.8	
Percentages of classes where lunch is provided	%	6%	25%	54%	p < .001 A<G<S
Regular planning time with the other teachers in the class ⁺⁺⁺	M	2.5	2.4	2.5	n.s.
	SD	2.4	2.4	1.9	

⁺ These numbers are not related to 60 minute-hours but to instructional hours (in Germany 45 minutes, in Austria 50 minutes, in Spain 45 or 60 minutes).

⁺⁺(1) more than once a week; (2) weekly; (3) every two weeks; (4) monthly; (5) less than monthly; (6) never

⁺⁺⁺ (1) once per month; (2) twice per month; (3) three times per month; (4) four times per month; (5) five times per month; (6) more than five times per month

In Austria and Germany, 22 hours of instruction (lessons) are provided per week. Almost four more hours of instruction are provided in Spain each week. Again, it should be remembered that Spanish students represented in the study are mainly third graders, while German and Austrian students are mainly second graders. The within country differences in the hours of instruction are rather low (especially in Austria). Since the „hours of instruction“ may last 45 or 60 minutes in Spain (and only 45 minutes in Germany and 50 in Austria), the Spanish students in our sample experience substantially more instruction than do Austrian and German students. In all three countries, most of this instruction is provided by the classroom-teacher, in Austria 85 % (18.7 hours), in Germany 78% (17.4 hours) and in Spain 74% (19.1 hours). Again, the within country differences are rather low, especially in Austria.

Instruction in the basic primary subjects, language, mathematics and science, is most likely to be provided by the classroom-teacher (about 90 % in Austria and Spain and 80 % in Germany). However, countries differ in the amount of time allocated to these basic subjects. More language instruction is provided in Austria (almost a third of all hours of instruction) than in Germany (about a quarter) and in Spain (a sixth). There is less of a difference between the countries in the amount of mathematics instruction provided with, on average, four to five hours of mathematics being taught. Less science is taught in Austria and Germany than in Spain. Comparing the amount of instructional time provided for the three subjects, about the same amount of hours is taught in language, mathematics and science in Spain whereas more time is allocated to language and mathematics in Austria and Germany. In addition to the subjects set by the core curriculum, students in almost all classes in Austria, Germany and Spain experience some form of extra curricular activities which include activities such as sport, choir, artwork and compensatory education.

Whole group instruction is the prevalent form of instruction in all three countries where about 40% of the instruction in language and mathematics is usually provided to students in whole groups. Only about 10% is provided in smaller groups. For the remaining time, teachers in Spain tend to have the students work alone and individually, rather than working in pairs. In Austria and Germany, having students work alone also occurs frequently, but students have more opportunity to work with a partner than in Spain. Within all three countries high variation exists with regard to whole group instruction, group work, working in pairs and working alone. Students written language and mathematics work is checked by the teachers, on average, between weekly and every two weeks. However, there is high variation within the countries as can be seen by the standard deviations.

Assigned homework appears to be a routine part of the educational experience in all three countries. In all Austrian and German classes, homework is assigned to students, whereas this is true for five out of every six classes (84%) in Spain. On average (including all classes in the sample), students are expected to spend 2.5 to 3 hours per week doing homework. In general, homework is assigned four to five times a week. Considering the frequency and the weekly homework time assigned by teachers, it can be estimated that on average, students are expected to do 30-45 minutes of homework per day. This amount of homework would not appear to be burdensome to primary students. However, with regard to the number of hours per week students are expected to do homework, substantial within country differences exist. This is true especially in Spain, where in one out of every six classes no homework is assigned, but in the classes where homework is assigned, it is generally assigned five days a week and students are expected to spend 3 hours a week on this work, one hour more than that expected of the average student in Austria and Germany.

The provision of lunch to students occurs more frequently in Spain than in the other two countries. In Spain, lunch is provided in more than half of the classes (even if it may not be for all students in the class). In Germany, this is done in a quarter of the classes, whereas the provision of lunch is an exception in the Austrian. In the three countries, classroom-teachers on average have the opportunity to plan two to three times per month with other teachers who work in their class. This indicates substantial co-operation among the teachers. However, it should be noted that quite high variation is found within the three countries, indicating that this opportunity is not available to all teachers to the same degree.

Space-material characteristics. Teachers provided information on the availability of 26 different materials for use in classroom instruction. Five materials were found in more than 80 % of all classrooms: textbooks, workbooks, reference books, a classroom library, and teacher chalkboard. The frequency of the other 21 teaching materials is shown in Table 4.5.

Table 4.5 Structural aspects at classroom level, space-material dimension

	Austria	Germany	Spain	
<u>Percentages of classrooms which have:</u>				
Maps	16%	17%	64%	
A globe	11%	15%	42%	
A computer	23%	9%	4%	
An overhead projector	73%	46%	0%	
A cassette recorder	81%	76%	46%	
Audio tapes	53%	36%	40%	
Record player/CD player	48%	25%	4%	
Records/CDs	37%	18%	2%	
A video recorder	8%	2%	2%	
Video tapes	11%	2%	3%	
A video camera	3%	1%	1%	
A slide projector	14%	6%	0%	
Slides	16%	3%	2%	
A movie projector	5%	1%	1%	
Film strips	3%	1%	1%	
A TV	8%	2%	2%	
Learning games	96%	80%	50%	
Hands-on materials	92%	86%	56%	
Science table(s)	25%	10%	2%	
Sink(s)	100%	29%	9%	
A student chalkboard	51%	57%	59%	
Number of different materials in the classroom	M SD	12.4 3.9	9.6 2.9	8.4 2.3

For almost all materials, the same tendency can be found: The more technical materials, such as a computer, overhead projector, cassette recorder, or record player, are more frequently available in Austria than in Germany or Spain. The same is true for the availability of learning games, hands-on materials, science tables and sinks. On the other hand, maps and globes are more frequently available in Spain than in Austria and Germany. The higher frequency of instructional equipment in Austrian classrooms is also reflected in the average number of different materials available in a classroom (last row in Table 4.5). On average, 12 different materials (out of the list of 26) are available in Austrian classrooms, 10 in German classrooms and 8 in Spanish classrooms (the differences between all countries are statistically significant, $p < .001$).

4.3.2 Process characteristics

As noted earlier, one observational instrument has been used to study process characteristics in the participating primary classrooms: the IEOS - Instructional Environment Observation Scales (Secada, 1997) with the two sub-scales Classroom management and Relevance of content. Table 4.6 contains means and standard deviations for the IEOS.

Table 4.6 Process quality at classroom level - IEOS; differences in means across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Classroom management	M	3.9	3.6	3.2	p<.001 eta ² =.10 S<G<A
	SD	0.6	0.7	0.8	
Relevance of content	M	1.9	1.9	1.6	p<.01 eta ² =.03 S<A,G
	SD	0.8	0.9	0.8	
Total score	M	3.2	3.0	2.7	p<.001 eta ² =.11 S<G<A
	SD	0.5	0.6	0.7	

Using a five-point rating scale, the theoretical midpoint is 3.0. This is exactly the mean of the IEOS total score in Germany whereas the total for Austria lays slightly above and the total for Spain slightly below the midpoint of the scale. The differences between the countries are highly significant. However, of all the differences in the process quality of the classrooms, only 11% can be attributed to the country factor, i.e., 89% of all the quality differences are due to other factors. In all three countries, the means for Classroom management lay above the midpoint of 3.0. This indicates that, on average, the classrooms are more likely to be characterised by a classroom climate in which the students feel safe and respected, in which they experience social support for their learning. Students do not lose instructional time due to transitions, and there is a higher student engagement.

The mean differences between the three countries for Classroom Management are also statistically significant, with Spain nearest to the midpoint, Austria almost one scale-point above the theoretical mean, and Germany in the middle. 10% of all differences can be attributed to the country factor. In all three countries, substantial within country differences exist. Compared to the mean, the within country differences are highest in Spain and lowest in Austria.

Even higher within country differences can be found with regard to the scale Relevance of Content. The means are quite low in all three countries. The small difference between Spain on one side and Austria and Germany on the other side is significant. However, only 3% of all differences can be attributed to the country factor. The low mean in Relevance of content indicate that, on average, in the observed lessons there was little evidence of effort to connect the lessons, activities or tasks to other subject areas and to competencies or concerns beyond the classroom. According to those who think such connections are important (cf. Dubs, 1995; Gerstenmaier & Mandl, 1995), such low means indicate a learning environment which needs improvement. As indicated by the high standard deviations, though, there were a few classes in each country who scored well on this variable.

4.4 Comparison of quality aspects experienced by children at age 4 and at age 8

The ECCE-study follows a sample of children from age 4 to age 8 and studies quality aspects of the extra-familial environment the children experience at two different age levels. This section examines whether the quality features the children experienced at age 4 in the early childhood programme (ECP) are similar to what the children experienced at age 8 in the primary school (PS). This question is examined at both the country level and the child level, considering, to the extent possible, both structural and process characteristics of the two settings.

4.4.1 Comparisons of structural quality at the country level

For the ECPs, structural aspects were analysed according to teacher, classroom and space-material characteristics. For the PS classrooms, those same aspects were investigated, with the addition of the Organisation of Instruction variable. Direct comparisons are possible for teacher and classroom characteristics. Table 4.9 shows the means of the comparable characteristics.

Table 4.9 Comparisons of structural features in early childhood programmes (ECP) and primary schools (PS); means or percentages at country level

	Austria		Germany		Spain	
	ECP	PS	ECP	PS	ECP	PS
Age of main teacher (in years; months)	30;1	42;9	33;6	47;3	36;5	45;9
Number of years as teacher	9.5	19.4	12.2	21.1	9.9	19.2
Percentage of male main teachers	3.0 %	8.0 %	0.5 %	8.0 %	2.5 %	26.0 %
In-service-training (number of days in the last 12 months)	5.1	6.3	4.3	4.1	11.2	10.8
Number of working hours per week (real)	37.5	37.9	38.2	39.3	32.0	35.0
Number of hours per week preparing lessons	8.4	8.9	5.1	10.0	8.2	4.9
Mean satisfaction of teacher	1.6	1.6	1.7	1.7	2.0	1.7
Class size (number of children enrolled)	24.3	22.1	20.8	24.1	23.7	23.4
Percentage of foreign children in class	9.1 %	13.1 %	5.1 %	15.0 %	0.6 %	0.9 %
Number of disabled children in class	0.5	0.2	0.2	0.3	0.4	0.5
Number of teachers in class	2.3	4.2	2.2	3.5	1.0	4.7

In general, teachers in PS classrooms are about 9 (Spain) to 14 (Germany) years older than the teachers in the ECP classrooms. Not surprisingly, they have about 10 years more experience than the pre-school teachers have. These differences might be due to somewhat longer teacher training required for primary school teachers, the selection of more experienced individuals as PS classroom teachers, a possible tendency for a higher turnover rate in pre-schools. In PS classrooms there are substantially more male classroom teachers than in the ECPs. Nevertheless, only every 12th to 13th classroom in the Austrian and German samples is led by a male teacher. Although the situation is more balanced in Spain, (i.e., every 4th classroom teacher is male) children in all three countries experience mainly female models in their extra-familial environments at both age levels, ages 4 and 8. At the pre-school level centre-based education is almost exclusively female, while at the primary level it is overwhelmingly dominated by females.

In all three countries, ECP and PS teachers do not participate differently in in-service training. Also, no differences are found with regard to the (real) number of working hours per week with the exception that PS classroom teachers in Spain work, on average, three hours more per week than their colleagues in ECP classrooms. There are differences, though, in the number of hours that ECP classroom teachers and PS classroom teachers use to prepare their work with students. In Austria, both groups of teachers use about the same time (eight to nine hours per week). In Germany, however, the PS classroom teachers use double the amount of time used by their ECP colleagues (ten compared to five hours). The opposite pattern is found in Spain where the teachers in the ECP classrooms use three hours more for preparing their work than their colleagues in the PS classrooms. In all three countries, both groups of teachers are equally well satisfied with their work, with a slight tendency for Spanish teachers to be somewhat more satisfied than ECP teachers.

In Spain, the mean size of the ECP classroom is almost identical to the mean size of the PS classrooms. In Austria, the sizes of the classrooms decrease from the early childhood programme to primary school (from 24 to 22), whereas the size increases in Germany (from 21 to 24). In Austria and Germany, the mean percentages of foreign children in a class increase during the transition from the early childhood programme to primary school. The increase is quite moderate in Austria but, in Germany, the percentage is three times higher in the (compulsory) PS classroom compared to the (voluntary) ECP. Thus, foreign children are significantly underrepresented in the ECPs. In no country, is there a change from the very low percentage of disabled children between ECP and PS. In all three countries, the number of teachers the children experience in the classroom increases when going from their early childhood programme to primary school. The increase is considerable for Spain where there is only one teacher per ECP classroom but an average of almost five in the PS classroom.

4.4.2 Comparisons of structural and process quality at the child level

The comparisons of structural features, described above, are based on the average situation at the country level. Since individual children were followed in the longitudinal design, we can also examine the degree to which individual children at each age level experience similar structural features in their institutional environments. For this purpose correlations were completed on the structural features at the two points in time. With regard to teacher characteristics, all correlations were almost zero or very low indicating that the classroom teacher characteristics experienced by a child at age 4 in the ECP are independent

of those teacher characteristics experienced at age 8 in the PS.

With regard to classroom characteristics, most correlations were also very low, with three exceptions, however. First, in all three countries, children in ECP classes with a higher proportion of foreign children are more likely to experience a higher percentage of foreign children in their PS classrooms (correlations in Austria .39, in Germany and Spain .49). This is probably due to ECP and PS classrooms being located in the same catchment areas, where the percent of foreign students in both settings reflects the percent of foreign families living in the area. Second, in Spain a moderate correlation (.44) was found between ECP class size and PS class size, where children who experience higher class sizes at age 4 are more likely to experience higher class sizes at age 8. This may be due to the fact that many Spanish children move from ECP classrooms that are located in the same school as their PS classrooms, but this is not the case in Austria and Germany. Finally, in Austria there is a modest correlation (.37) between the number of disabled children in ECP and PS classrooms. This might be due to a common policy or philosophy practised in some ECP and PS settings. Taken together, it appears that contextual features outside of the ECP and primary school, such as a common catchment area, a common school system, or a common philosophy or policy, may provide for some similarity in the structural features experienced by students at both ECP and PS institutional levels.

In addition to structural characteristics, stability in process quality for children was examined. Table 4.10 shows correlations of indicators of process quality that children experience at the two points in time. The correlations are restricted to the totals of the Early Childhood Environment Rating Scale (ECERS) and Caregiver Interaction Scale (CIS) used in the ECP classroom (see Report on Workpackage I, ECCE Study Group, 1997, p. 230) and the Instructional Environment Observation Scales (IEOS) used in the PS classrooms.

Table 4.10 Correlations of indicators of process quality experienced by children at age in ECP classroom and at age 8 in PS classroom

IEOS process quality experienced at age 8	Process quality experienced at age 4	
	ECERS	CIS
Austria	-.14	.00
Germany	.09	.10
Spain	.32***	.17*

*p < .05; ***p < .001

As can be seen, in Austria and Germany no relationship was found between the indicators of process quality at the two points in time (i.e., the process quality a child experiences at age 8 in the PS classroom is independent of the process quality the same child experienced at age 4 in the ECP classroom). A different result was found for Spain where the correlations between the measures of process quality at the two points in time are weak to moderate. The correlations indicate a tendency for those children in Spain who experiences lower quality environments at age 4 to also experience lower quality settings at age 8, and vice versa. This correlation might be due to the high proportion of ECP and PS classrooms that are located at the same schools in Spain, and thereby belong to a common organisation whereas in Austria and Germany, the ECPs and PSs belong to separate systems.

4.5 Regression analysis

The last research question in this chapter is related to the relationships between structural quality and teacher beliefs on one side, and classroom process quality on the other side. In other words, is the process quality in the primary classrooms determined by the beliefs of the teachers and the structural characteristics of the class? Do conditions like, for example, hours of instruction per week, class size, or percentage of foreign children determine the way instruction is given? Or are the instructional behaviours of teachers and their interactions with the students independent of structural conditions and the beliefs of the teachers? Answers to

such questions are important, because they have an effect on how we try to improve childrens developments and outcomes.

Most researchers have found relatively weak correlations between structural characteristics of primary school classrooms and process quality. For example, Helmke and Weinert (1997b, 246f.) found only marginal relations between the composition of the class and process quality. There is one surprising exception in their study: Class size was positively related to classroom management, structuring, individual support, and social climate; i.e., the larger the class, the better these aspects of process quality. Thus, larger classes may contribute to better process quality. An alternative explanation might be that more competent teachers are assigned to larger classes. In many studies, class size has no effects on the achievement of the students (cf. Helmke & Weinert, 1997a, 94ff.) which may be due to the fact that teachers do not adjust their instructional behaviour to the possibilities of smaller classes. Based on the results of past research, we expected to find relatively weak relationships between process quality on one side and structural aspects and orientations of the teachers on the other side.

Because the ECCE study was not specifically designed to answer these questions, the following analyses should be considered as a more heuristic approach. A regression approach was used with structural conditions and teachers' educational orientations (cf. Chapter 6) as predictors and the IEOS total value as criterion. The regressions were done within the countries with, however, the same set of predictors in all three countries. Because of the rather low sample size of elementary school classes, especially in Austria, only a smaller set of predictors could be used. The selection of predictors was done according to the following rules:

- Each of the four dimensions of structural quality and the educational orientations of teachers should be considered with approximately the same number of variables.
- Starting with the structural variables included in the Tables 4.2 - 4.5, those variables should be selected which are of most importance and most often cited in the literature. If conceptual similar variables are highly correlated, only one variable should be selected.
- Those variables with zero-order correlations with the IEOS-total of $< .10$ in all three countries should be deleted. Among the variables deleted according to this rule were, for example: number of days in-service-training in the last 12 months, class size, percentage of female students in class.

According to the proceeding rules, the following 13 variables were selected:

- Educational orientations of teachers (three variables; see chapter 6): developmental expectations of teachers; teachers achievement oriented educational attitudes; teachers creativity oriented educational attitudes
- Structural aspects, teacher characteristics (four variables): number of years as teacher; number of lessons per week required by contract; number of hours per week preparing lessons; mean satisfaction of teacher
- Structural aspects, classroom characteristics (three variables): percentage of foreign students with language problems in class; number of teachers who work with class per week; difference between youngest and oldest student in class
- Structural aspects, organisation of instruction (two variables): number of hours of instruction per week; number of hours per week children spend doing homework
- Structural aspects, space-material (one variable): number of different materials in the classroom.

Table 4.11 contains the results of the regressions (β s and R^2).

Structural conditions and educational orientations of teachers only explain a small part of the variance in process quality as measured by the IEOS: about a sixth of the variance in Germany and Spain and less than a tenth in Austria. Thus, the process quality in the primary classrooms is not determined by the beliefs of the teachers and the structural conditions of the classes. Rather, the same instructional behaviour of teachers and the same kinds of interactions with the students can be seen quite independent of frame conditions and the beliefs of the teachers. On the other side, these conditions are not totally irrelevant in improving process quality. A sixth of explained variance means that improving structural conditions can improve process quality to some degree. However, these results show that process quality (as measured by the IEOS) will probably not be changed dramatically by focusing only on structural changes.

Table 4.11 Regressions of process quality (IEOS total score) on structural features and educational orientations of teachers (only $\beta \geq |0.5|$)

		Austria	Germany	Spain
Educational orientations of teachers				
developmental expectations of teachers	β	-	-.13	-
teacher's achievement oriented educational attitudes	β	-	-	-.25*
teacher's creativity oriented educational attitudes	β	-.16	.16*	.09
Teacher characteristics				
Numbers of years as teacher	β	-	.08	-.12
Number of lessons per week required by contract	β	-.09	.10	-.09
Number of hours per week preparing lessons	β	-.06	-	.15
Mean satisfaction of teacher	β	.19	-.08	-
Classroom characteristics				
Percentage of foreign children in class	β	-.10	-.06	-
Number of teachers in class	β	-	-.12	.08
Difference between youngest and oldest student in class	β	-.05	.07	-.14
Organisation of instruction				
Number of hours of instruction per week	β	.08	-	.10
Number of hours per week children spend doing homework	β	.09	.12	-
Space-material				
Number of different materials in the classroom	β	.13	.20**	.12
Total % of variance explained - R^2		7.8 %	17.6 %***	18.6 %

* $p < .05$; ** $p < .01$; *** $p < .001$

Because of the rather small sample sizes (especially in Austria), the β s should be interpreted cautiously. Nonetheless, there does not appear to be a consistent pattern across the three countries. Different variables (with partly different directions) are predictive of IEOS process quality in Austria, Germany and Spain. There is one exception: In all three countries, a higher number of different materials available in the classroom is connected with better process quality. Even if the number of different materials available is only a rough indicator, it seems to be that the availability of more instruction materials may contribute to improvements in process quality. Beyond that, it seems that there are not one or two predictors in each of the countries which are of exclusive importance for the process quality. Rather, it seems that a set of different structural characteristics may influence process quality. Taking as example the situation in Germany (because of the larger sample and the greater amount of variance explained), better process quality is found in classrooms with better space-material conditions, where teachers are oriented to promote the child's creativity, have earlier developmental expectations, a lower number of teachers instructing the class, more importance on doing homework is emphasised (in the sense of more hours per week).

4.6 Summary and discussion

Following a conceptual approach which differentiates quality features of a setting in three dimensions (educational orientations, structural quality and process quality), we have described in this chapter the quality of structural features and instructional processes occurring in those primary classrooms which are visited by children in our sample at age 8 (mainly second grade classes in Austria and Germany and third grade classes in Spain). Furthermore, we have compared the quality features the children experienced at age 4 in the early childhood programme with those the children experienced at age 8 in the primary school. Finally, we have analysed the relationships between structural features and educational orientations of primary school teachers on one side and the process quality in the primary classrooms on the other side. Structural information at the classroom level was collected by interviews with the main teacher in the class. Information on process quality has been collected by observations with the Instructional Environment Observation Scale IEOS (Secada, 1997). The main result of these analyses are summarised below.

4.6.1 Structural quality of primary school classrooms

Information about the structural quality of classrooms was collected with regard to teacher characteristics, classroom characteristics, organisation of instruction and the space-material dimension. Although there were differences between Austrian, German and Spanish classrooms, it should be noted that the main results reported here are based on statistical averages of the structural aspects in a country. For almost all structural aspects, there was considerable variation within each of the three countries. Thus, we do not have *the* Austrian, German or Spanish classroom, and it is important to remember that the classrooms differ substantially within the countries. When summarising the main results and comparing some of the most important structural aspects of the statistically average classrooms between the three countries, the high within country variation has to be kept in mind.

In several aspects, the primary school classrooms do not differ between the three countries or the differences are of low magnitude and importance. For example, in all three countries, the teachers mean age is in the forties and the participating classroom-teachers have an average of 20 years experiences. In general, the teachers tend to start their professional teaching careers at an age of about 25. They spend four to six days per year in in-service training (excluding those teachers in Spain which take courses during the whole year).

Spanish teachers work about 35 hours per week and Austrian and German teachers about three to four hours more. In general, the teachers report being quite satisfied with their jobs. In all three countries, the class sizes of about 22 to 24 students can be considered good conditions for working with primary school-aged students. Most of the instruction is provided by the classroom-teacher and in almost all classes the students experience some form of extra curricular activities. About 40% of the instruction in language and mathematics is provided to students in whole group. Thus, whole group instruction is the prevalent form of instruction in the three countries. About a tenth to a seventh of the time is spent in small group work. Most of the rest of the time, the students work alone in all three countries. (This is somewhat higher in Spain than in Austria and Germany where more work is done in pairs.)

Assigned homework appears to be a routine part of the school experiences. In Austria and Germany, homework is assigned in all classes and the students are expected to work 2 hours per week on their homework. In Spain, homework is assigned in five out of every six classes and if home work is assigned, the students are expected to work for one hour more on their homework than in Austria and Germany. Thirty to 45 minutes of expected homework per day would not appear to be burdensome to primary students. Between two and three times per month, the teachers have the opportunity to plan their work with the other teachers in the class which indicates substantial co-operation among the teachers.

There are, however, differences between the three countries. For example, even though female classroom-teachers are predominant in all three countries, a quarter of all teachers in Spain are male, whereas this is only true for 1 out of 12 classroom-teachers in Austria and Germany. The Austrian and German primary classrooms are more heterogeneous with respect to age than the Spanish classrooms (an age span of 1.1 years in Spain compared to 1.5 and 1.9 years in Austria and Germany). Austrian and German teachers have about 10 hours per week to prepare their lessons which is twice as much time as teachers have in Spain. In Austria and Germany, around a seventh of the students of the classes are of foreign origin (with about one out of four students with foreign origin having language problems in the classroom) whereas foreign students are quite rare in Spanish classes (only about 1%). In all three countries, the classroom-teachers report that they teach a relatively high proportion of students for whom the level of work is either too high or too low. In Spanish primary school, the instructed level is too low for 17 % of the students and too high for 18 % of them. This is almost the double proportions than in Austria and Germany.

Spanish students (mainly third graders) experience substantially more „hours of instruction“ per week than do the students in Austria and Germany (mainly second graders). Interestingly, Spanish teachers give about the same number of hours of instruction per week in language, mathematics and science (about four hours of instruction each) whereas Austrian and German teachers allocate more time to language (seven in Austria, six in Germany) and mathematics (four; five) than to science (three). In Austria and Germany, written assignments in language and mathematics are checked by the teacher between weekly and every two weeks which is more often than in Spain (about once per month).

There are some other structural aspects in which the three countries differ from each other. German students experiences fewer different teachers in the week (3.5) than the students in Austria (4.2) and in Spain (4.7). In Spain, lunch is provided in more than half of the classes whereas this is only true for a quarter of the classes in Germany and for only 6% of the classes in Austria. Substantially more materials are available in Austrian classrooms than in German and especially in Spanish classrooms.

4.6.2 Process quality of primary school classrooms

With regard to process quality as measured by the IEOS total score and the subscales Classroom management and Relevance of content, there were statistically significant, but not large differences between the three countries. Only 10% of all differences in Classroom management and 3% in Relevance of content can be attributed to the country factor; most of the variances is due to other factors. Thus, country in which classrooms are located, is not a particularly important determinant of the process quality in primary school classrooms. Other factors, however, play important roles for the process quality in specific primary classrooms.

In all three countries, classrooms in this study had mean values above the theoretical midpoint of the five-point rating scale (3.0) for the Classroom management subscale with Spanish classrooms only slightly above 3.0, Austrian classrooms almost one scale-point above 3.0 and Germany in the middle. The Classroom management subscale is characterised by the degree to which the students experience a climate in which they feel safe and respected, experience social support for their learning, do not lose instructional time due to transitions and have a higher proportion of engaged learning time. To some degree, this is consistent with a more classical concept of process quality and suggests that the average primary school classroom in all three countries has reasonably good process quality on this dimension. However, the high standard deviations suggest that a significant number of

classes (perhaps 15 %) are substantially below the mean. Thus, there is definitely room for improvement in this area.

Compared to Classroom management, the means for the Relevance of content subscale were substantially lower (in all three countries below 2.0) with quite high within country differences. Relevance of content is related to an instructional situation which emphasise the active effort of the teacher to help students understand the cross-disciplinary connections of the instructional material, and relate them to competencies or concerns beyond the classroom.

By increasing the relevance, it is thought the students will be more motivated to learn and will retain and use this knowledge longer. The relatively low scores and high standard deviations for this variable indicate that even though the average classroom does not do this well, there are a few who do it very well. Therefore, it is an area where much progress is possibly, this is, however, an area where not much empirical work has been done. If it can be shown that the Relevance of content is strongly related to the learning of the students, improvements are urgently needed.

4.6.3 Comparisons of process quality between age 4 and age 8

A comparison of the quality of Early Childhood Programmes (ECP) attended by children at age four with quality features these same children experienced in their primary classrooms at age 8 yielded interesting information about similarities and some differences. At the child level, i.e. comparing the quality features of the two environments individual children experience, the following picture was found: In the teacher characteristics, no correlations were found indicating that the classroom-teacher characteristics experienced by a child at age 4 in the ECP are independent of those teacher characteristics experienced at age 8 in the primary classroom. With respect to classroom characteristics, most correlations were also very low. There are, however, some indications that contextual features outside of the ECP and the primary school, such as a common catchment area (with, for example, a higher proportion of foreign children), a common school system (like in Spain), or a common philosophy or policy (like the integration of disabled children in ECPs and primary schools in Austria) sometimes result in similarities in the structural features experienced by students in the ECP and the primary classroom.

When process quality at the two points of time is considered (measured in the ECP classrooms with the Early Childhood Environment Rating Scale and the Caregiver Interaction Scale; measured in the primary classroom with the IEOS), no relationship was found in

Austria and Germany. In other words, the quality of pre-school, experienced by a child is independent of the quality of the primary school attended by that child. From a political point of view, this result is desirable since it means that children who experienced at lower process quality have as good a chance as anyone to experience a higher quality primary school programme. In Spain, however, there was a statistically significant positive, although relatively low correlation. This indicates that in Spain, there is a tendency for children who experienced a lower process quality in the ECP to also experience a lower process quality in the primary school classroom. This continuity in process quality may be due to the high proportions of ECP and primary school classrooms located at the same school in Spain. In Austria and Germany, where the ECP and the PS systems are separated, problems in the transition from one to the other system is more challenging, but there is no continuity of lower or higher process quality. In Spain, where the ECP and the primary school systems are more integrated, problems with transition are less probable but there is more continuity in process quality (which may mean „good“ continuity as well as „bad“ continuity).

4.6.4 Predicting process quality based on structural conditions and teacher orientation

The degree to which structural conditions and orientations of teachers can predict process quality in primary school classrooms as measured by the IEOS is of practical importance because it may point to different ways of improving school quality. If the impact of structural conditions and orientations of teachers is high, improvements in process quality may be obtained by manipulating structural conditions or by attempting to change beliefs of teachers. If there is no or only low impact, other ways or additional ways for improving process quality like, for example, in-service-training may be more promising. Because these analyses were based on small sample sizes and used an explorative approach, the results should be viewed as tentative. Country specific regression analyses showed, as expected, that the structural conditions of the classrooms and the educational orientations of the teachers are weakly predictive of process quality. In other words, only about a sixth of the IEOS variance in Germany and Spain is explained and less than a tenth in Austria. Most part of the variance in the IEOS process quality is independent of the structural conditions and the teachers' orientations. The same instructional behaviour of teachers and the same kinds of interactions with the students can be seen under different structural conditions and orientations of the teachers. This does not mean, that the structural conditions and the orientations of the teachers are irrelevant. Rather, this result indicates that improvements of such aspects alone

will not lead to substantial improvements in process quality. We assume, that a more direct teacher training approach in which teacher behaviour is directly trained in his or her usual place of work might be a promising way to improve programme quality. The regression results also show that there is no consistent set of structural aspects and orientations of teachers which similarly influence in same way the process quality in all the three countries. Rather, different variables are important in the three countries with the exception that better space-material conditions - as indicated by the number of different materials available in the classroom - are consistently connected with better process quality in all three countries. In addition, the lower influences of structural conditions and orientations of teachers on process quality are not exerted by just one or two variables but by a set of different variables.

5. FAMILY CHARACTERISTICS OF THE PRIMARY SCHOOL CHILDREN

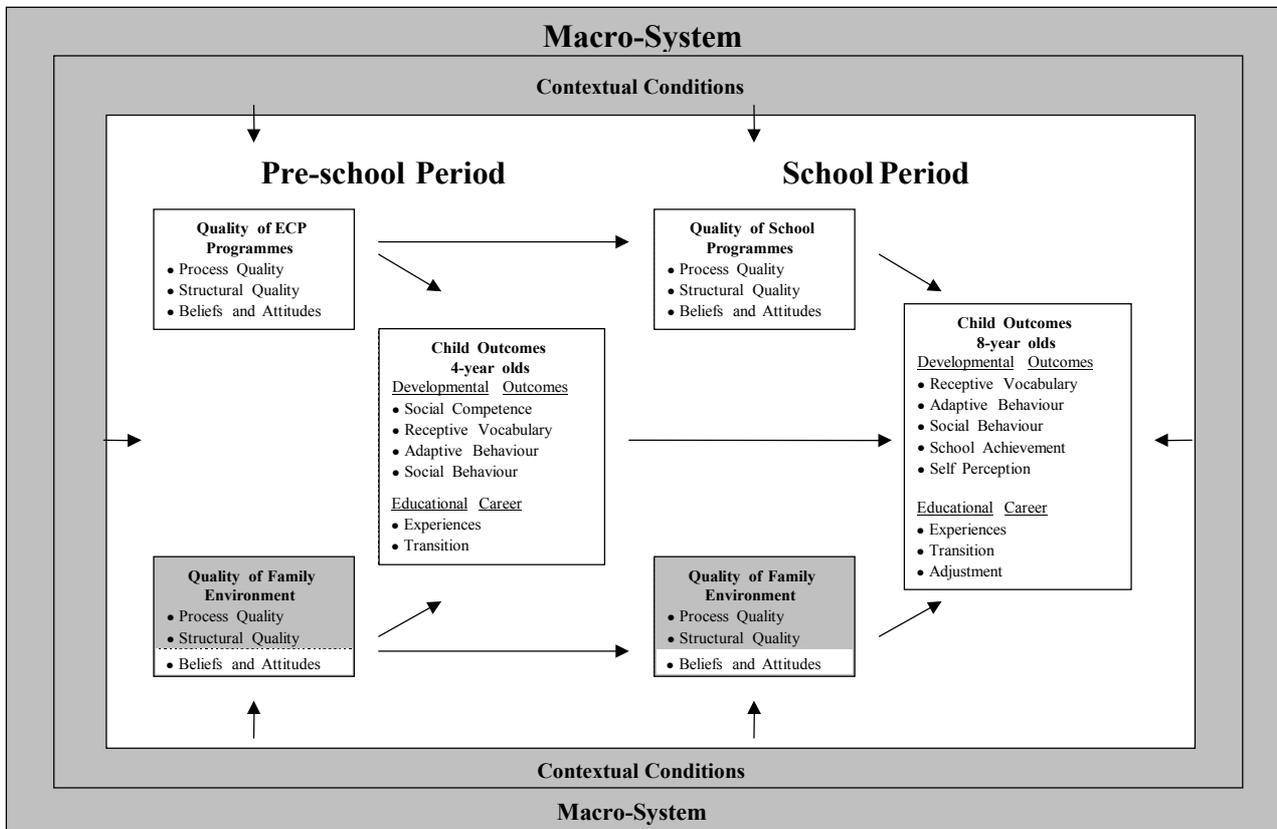


Figure 5.1 Conceptual framework for analyses of family environment in various countries

5.1 Introduction and research questions

The most widely accepted theories about children’s development and socialisation are based on an ecological approach which assumes that development is an ongoing, incremental, and predictable result of the interactions a child has with the different ecosystems in which he or she participates (Bronfenbrenner, 1979). Because children spend more time with their families than anywhere else, it is thus not surprising that scientific research over the last 50 years has provided convincing evidence that the quality of the family environment is inextricably linked to a child’s developmental growth (Bradley, Mundform, Whiteside, Casey & Berrett, 1994).

Given the consistency and amount of past research on this topic, it would not have been a wise expenditure of resources for this study to confirm once again that family variables are important predictors and determinants of children's development. Rather, the goal of this research was to examine family variables from the perspective of „quality assessment“ to determine whether qualitative differences among families have an effect on the experiences children have in school and how those differences and experiences interact with each other and influence the developmental outcomes for a particular child.

To aid in analysis and interpretations the framework for this qualitative assessment of the family was structured similarly to the way in which quality was assessed in the Early Childhood Programmes and Schools. In other words, families were assessed with regard to the quality of structural variables (e.g., the characteristics of the family, socio-demographic variables), process variables (e.g., the way in which family members interact with each other, and the experiences they have), and the orientations, expectations, and beliefs of the parents. It was hypothesised that by understanding these variables, and the way they interact with the contextual variables and the macro system in which the family is located, that a better understanding of children's development would be possible.

A similar qualitative assessment of the family, using the identical conceptual framework, was done for families in this study when the children were approximately 4-years of age. Despite the fact that the children, as 8-year olds, are more independent, and more likely to spend time outside the family environment and to explore things on their own, the same conceptual framework is relevant for describing the quality of the family. This increased independence notwithstanding, it remains true that the family setting remains an important influence on the child, and that it is impossible to understand the developmental course for a child without accounting for what is happening in the family.

In this chapter attention is given to describing children's families, the experiences children have when they are not at school, and the changes families have experienced as a result of their child's transition from early childhood programme to a primary school. The research questions examined in the chapter are summarised below:

1. What are the structural characteristics of children's family settings when the children are 8 years of age (e.g., number of people in the family, characteristics of the family home, and socio-demographic factors)?
2. What educational stimulation are children most likely to receive at home?

3. What daily routines and activities are children most likely to experience at home?
4. What physical and social resources are available to children at home and in their communities, and to what extent are these used?
5. What family changes have occurred, if any, with children's transition to primary school?
6. What are the similarities and differences in the family environments of children at ages 4 and 8 years?

For each question we will present descriptive information, as well as analyses related to variations within and between countries, and variations linked to socio-demographic variability.

5.2 Instruments to assess family characteristics

Consistent with the conceptual framework which guided the overall study, the quality of the family environment was assessed with regard to both structural and process characteristics. Information about the family characteristics was obtained using questionnaires and observational procedures during a home visit. An overview of the various instruments used for assessing the structural and process quality of the family is given in Table 5.1.

To assess *structural characteristics*, two family questionnaires were used. The first was administered when children were enrolled in pre-school, while the second was completed when children were in primary school. Both instruments were designed primarily as a face-to-face interview with the mothers as the interviewees, but a few questions required written responses. The questionnaires collected information about various structured characteristics of the family, including

- personal characteristics of the family (e.g. size, composition, nature of the home, parents' employment)
- aspects of children's out of school activities, nature and frequency of unstructured activities, organised out-of-school activities, activities involving peer interaction and family cultural activities)
- child-related resources available to the families (e.g. availability and use of outdoor spaces, existence of other children in the neighbourhood, frequency with which children play together, and resources available to parents for the care of their children).

- changes in family life due to the child's entrance into primary school (e.g. changes in parental employment, child care arrangements, family schedules, relationships among family members).⁹

To examine the *process quality* that children experience in their family settings, two other instruments were administered during the home visit. The school age version of the HOME scale (Caldwell & Bradley, 1984) was used to assess the quality of the family environment and a self-administered checklist was used to assess the extent to which children were involved in various activities (Activities Questionnaire, ACT-PS, Palacios et al., 1998a).

The 59 items included in the HOME provide information about many different aspects of the family environment. These elements include emotional and verbal response (10 items), stimulation of maturity (7 items), emotional environment (8 items), objects and experiences that stimulate development (8 items), provision of active stimulation (8 items), degree of participation of the family in experiences that stimulate development (6 items), degree of fathers' involvement (4 items) and the appearance of the physical environment (8 items). Each of the items must be completed by a trained observer through observation, or if an item is not readily observable, via a question to the mother. Items are scored „present“ (score 1) or „not present“ (score 0) and the total score obtained for each family equals the total number of items with a score of 1.

Although sub-scale scores are sometimes used for the HOME, it is more common to use the total score, since the factorial structure of the HOME is different from the logical dimensions used to general items. However, factor analyses done with data from this sample revealed three distinct factors. The first factor included the subscales 4 (Growth fostering materials and experiences), 6 (Family participation in developmentally appropriate experiences), and 7 (parental involvement) and was labelled „Appropriate experiences and materials“. The second factor included subscales 8 (Physical environment), 3 (Emotional climate), and 5 (Active stimulation) and was labelled „Physical and emotional Resources“. The third factor included subscales 2 (Encouragement of maturity) and 1 (Emotional and verbal responsivity) and was labelled „Parental Support“.

⁹ Obtaining information on maternal beliefs with regard to child development, and educational goals and attitudes was also part of the home visit procedure. Results on maternal beliefs are presented in chapter 6.

Table 5.1 Overview of instruments used to assess structural and process quality of the family

I. Family		
<i>Process Quality</i>		
	Instrument:	Item examples:
1. Developmental stimulation	HOME (59 items) (Home Observation for the Measurement of the Environment)	Child puts outdoor clothing in special places; Child has a special place to keep his things; Child has more than 10 books available <i>Answer mode: yes/no</i>
2. Children's activities	ACT-PS (Questionnaire on Children's Activities) (30 items)	Child plays educational computer games; Child makes construction games; Child does homework, Child goes to the park; Child invites other children; Child does music activities out of school <i>Answer mode: (1) never, (2) less than monthly, (3) monthly, (4) weekly, (5) daily</i>
<i>Structural Quality</i>		
1. Personal characteristics	Standardised interview with mother	Age of parents, educational status, labour force participation, hours per week outside for work
2. Social characteristics		Family status, size of household, socio-economic status
3. Spatial-material characteristics		Number of rooms per person
II. Context of family setting		
1. Social conditions	Standardised interview with mother	Social network, children in neighbourhood
2. Spatial-material conditions		Availability/usage of places to play
III. Influence of primary schooling on family life		
Impact of child's enrolment in primary school on aspects of family life	Standardised interview with mother	Changes in the relationship of child to siblings, extension of mothers labour force participation

Item-total correlations for these three subscales indicated the deletion of a few items with zero or even slightly negative coefficients. The number of items in each of the resulting three subscales are shown in Table 5.2. The subscales correlated moderately (.23-.52) within the countries and had adequate internal consistence.

Table 5.2 HOME scale; internal consistencies (Cronbach's Alpha)

	Austria	Germany	Spain
HOME Total score	.76	.70	.69
HOME scale I: Appropriate experiences and materials	.61	.48	.43
HOME scale II: Physical and emotional resources	.56	.52	.62
HOME scale III: Parental support	.48	.58	.52

The Activities Questionnaire (ACT-PS, Palacios et al., 1998a) was a second measure of process quality in homes assessed during the family interview. Similar in nature to the Questionnaire version for pre-school children, used when children were 4 years old, this adapted version consisted of two parts with a total of 30 items about activities in the family's home, or activities in the extended family environment. Mothers were asked to rate each of the 30 activities on a five-point-scale: (1) not at all, (2) less than monthly, (3) monthly, (4) weekly and (5) daily. Items asked about the frequency of occurrence of a variety of children's play and leisure activities at home such as motor activities (e.g., ball games, running, jumping rope, bicycle riding), creative and art activities (e.g., painting, drawing, singing, listening to music), construction and board games or computer activities. The 16 items include activities that represent the increasing maturity and independence of eight-year-olds, including organised and group activities outside the family, cultural activities, peer contacts, and responsibilities for household chores.

As with the HOME, a factor analysis was completed for the Activity checklist. Based on the results, two additive scales were built, one indicating a summary score for the child's activities within the home (ACT Home) and the other indicating a summary score for the child's activities outside the home (ACT Outside Home). In addition an ACT total was calculated. Internal consistencies of the three scales are depicted in Table 5.3 and tend to be similar to those of the HOME scale.

Table 5.3 Activities scale (ACT); internal consistencies (Cronbach's Alpha)

	Austria	Germany	Spain
ACT-Total	.73	.72	.72
ACT-Home	.46	.50	.63
ACT-outside home (activities outside family)	.73	.66	.67

5.3 Structural characteristics of families and their homes

This section contains information about the size of the families included in the parent’s socio-demographic characteristics, and the structural characteristics of the homes in which they live, with data reported separately for the subjects in each country (size, number of rooms, etc.).

5.3.1 Family size and structure

As can be seen in Table 5.4, the Spanish families have more adults than Austria or Germany, but all three countries have about the same number of children.

Most families in all three countries consisted of at least two adults and two or more children. However, there are also a considerable number of families in each country (about 20%) that include only one child. The percentage of mothers living alone with their children was highest for the Austrian sample and lowest for the Spanish.

Table 5.4 Family composition and structure; differences in means/percentages across countries

		Austria	Germany	Spain	ANOVA/Duncan or Chi-Square
Number of family members					
Number of adults in family	M	1.97	2.02	2.40	p<.001 S>G,A
	SD	0.52	0.53	0.90	
Number of children in family	M	2.08	2.05	1.94	n.s.
	SD	0.88	0.78	0.69	
Number of families with grandparents in the home	%	2.4	4.5	15.8**	p<.001 S>G,A
Family structure					
2 or more adults with two or more children	%	68.1	72.2	75.8	p<.001
2 or more adults with one child	%	19.5	18.6	21.9	
Mother with two or more children	%	7.7	6.0*	0.9*	
Mother with one child	%	4.7	3.3	1.4	

* p<.05 ** p<.01

5.3.2 Parents' socio-demographic characteristics

As can be seen in Table 5.5, mothers and fathers are of comparable ages in the three countries. As far as *mothers' marital status* is concerned, most mothers are married, although there are some who are single or divorced. The number of widows is marginal. There are statistically significantly more married mothers in the Spanish sample, while more single mothers are found in the Austrian sample.

As far as *mother's work status* is concerned, two thirds of the mothers in Austria and Germany are employed, whereas less than half are employed in Spain. In Spain, twice as many mothers are housewives as in Austria and Germany. In addition, more German mothers report themselves to be unemployed than one would expect by chance.

Employed mothers report *working outside the home*, on average, from approximately 27 hours per week in Austria to about 36 hours in Spain, both representing less than what would be considered full time employment. Austrian and German mothers work significantly fewer hours than Spanish mothers. When mothers are classified into three levels, according to the number of hours per week they spend working, it is interesting that most are in the lowest level (less than 25 hours per week), and most Spanish mothers are in the middle level (ranging from 25 to 45 hours a week). German mothers are somewhat more evenly distributed across the three levels.

There are no differences between the countries regarding *fathers' work status* (92-95% of fathers are employed). With an average of 48-49 hours per week of being outside the home to work, fathers appear to be working at least full-time, and also significantly more than mothers. As can be seen in Table 5.5, the highest percentage of fathers are *out of home for work* more than 45 hours a week. The percentage of fathers in the category 25-45 hours out of home is significantly higher than in the other two categories.

Taken together, there is evidence that although the percentage of both mothers and fathers who work outside the home is high, the differences in the amount of hours that each parent works outside the home suggests that mothers and fathers cannot dedicate the same amount of time to looking after children and to the family's needs in general. These data suggest there is a certain degree of traditionalism in the distribution of male and female roles.

The data in Table 5.5, also show that Austrian and German families, on average, have a substantially higher income than do Spanish families.

Table 5.5 Individual characteristics, work status and family income; differences in means/percentages across countries

		Austria	Germany	Spain	ANOVA/Duncan or Chi-Square
Mothers' age in years	M SD	36.55 4.82	36.09 4.5	36.64 5.09	n.s.
Fathers' age in years	M SD	39.24 6.72	38.80 5.68	39.27 5.64	n.s.
Mothers' marital status	%				
- Married		78.7	84.6	90.7**	p<.05
- Divorced		8.3	9.0	6.0	
- Single		11.2**	5.3	2.6	
- Widow		1.8	1.1	0.7	
Mothers' work status	%				
- Employed		69.6**	66.1**	46.5	p<.001
- Housewife		27.2	22.3	50.4**	
- Unemployed		0.6	6.2**	2.0	
- Student, on leave		2.9	5.5	1.1	
Mothers' hours per week outside the home because of work ⁺	M SD	26.88 11.96	30.87 14.90	35.70 12.67	p<.001 S>A,G
Mothers' hours/week outside because of work ⁺	%				
- Less than 25 hours		54.8**	3.4	22.3	p<.001
- Between 25 and 45 hours		37.5	30.8	53.6**	
- More than 45 hours		7.6	25.8	24.1	
Fathers' work status	%				
- Employed		94.7	92.4	92.7	n.s.
- Unemployed		4.0	4.2	5.0	
- Other working circumstances		1.3	3.4	2.4	
Fathers' hours per week outside the home because of work ⁺⁺	M SD	49.16 9.74	49.31 10.41	47.97 10.62	n.s.
Fathers' hours/week outside because of work ⁺⁺	%				
- Less than 25 hours		1.4	3.1	2.5	n.s.
- Between 25 and 45 hours		24.5	25.6	34.9*	
- More than 45 hours		74.1	71.3	62.6	
Family income in EURO	M SD	2243.7 852.2	2275.4 1128.1	1246.8 630.9	p<.001 A,G>S
Purchasing power per family ⁺⁺⁺	M SD	865.6 328.8	900.8 446.6	554.2 280.4	p<.001 A,G>S
Purchasing power per person ⁺⁺⁺	M SD	220.4 90.3	227.9 127.1	134.9 73.9	p<.001 A,G>S

* p<.05 ** p<.01

⁺ Only for employed mothers.

⁺⁺ Only for employed fathers

⁺⁺⁺To determine a purchasing power figure that would be comparable for the entire sample, the family's income was divided by the amount of money needed in their country to purchase a product from a multinational source where the products have a very similar relative cost in each country (Economist, April 1999).

To better determine the real income of families in the three countries, two purchasing power indices were used. The first indicator shows the purchasing power of the family unit. The second shows the purchasing power per person in the family. Both indicators show statistically significant differences between Austria and Germany on the one side and Spain on the other. Based on these indices, the difference in real income between the countries is smaller than when comparing just the net income of families. However, the purchasing power of families in the Spanish sample is still only about 60% of that reported for the families in the Austrian and German sample.

5.3.3 Characteristics of family housing

Table 5.6 shows that the number of rooms per family is similar in the three countries. However, because of the higher number of adults living together in the Spanish families, the rate of rooms per person is lower in Spain than in Austria.

A majority of children in all three countries have their own room, but this is significantly less likely in Spain than in Germany. In families where children share their room, they usually share it with siblings, although in both Germany and Spain nearly 5% share with their parents.

Table 5.6 Characteristics of family housing; differences in means/percentages across countries

		Austria	Germany	Spain	ANOVA/Duncan or Chi-Square
Number of rooms	M	4.77	4.69	4.69	n.s.
	SD	1.55	1.61	1.45	
Number of rooms per person	M	1.23	1.17	1.11	p<.05 A>S
	SD	0.45	0.38	0.45	
Children with their own room	%	68.6	75.3	54.9	p<.01 G>S
Person sharing a room with child	%				n.s.
- Brothers/sisters		98.1	95.4	92.8	
- Parents		0	4.6	4.8	
- Grandparents		1.9	0	0.8	
- Others		0	0	1.6	

5.4 Process quality of families

One aspect of process quality in the family is the amount of educational stimulation children receive. This was measured using the HOME for school-aged children (Caldwell & Bradley, 1984). As depicted in Table 5.7, the total HOME scores were statistically significantly different between Austria and Germany on the one side and Spain on the other. The difference in favour of the two more northern countries is substantial in magnitude, amounting to more than half a standard deviation. Similar results were found for each of the subscales.

It is interesting to note that when HOME scores are compared for different levels of mothers' educational level and family purchasing power, there are significant differences. As shown in Tables 5.8 and 5.9, in almost all cases HOME scores increase as mothers' educational level or the family's purchasing power increases.

Table 5.7 Developmental stimulation (HOME-Total) of 8-year old children in families; differences in means across countries

		Austria	Germany	Spain	ANOVA/ Duncan
HOME-Total	M	44.67	44.43	41.55	p<.001 A,G>S
	SD	5.22	4.72	5.93	
HOME scale I: Appropriate experiences and materials	M	14.03	13.73	12.87	p<.001 A,G>S
	SD	2.14	1.94	2.08	
HOME scale II: Physical and emotional resources	M	17.66	17.82	14.66	p<.001 A,G>S
	SD	2.33	2.27	2.76	
HOME scale III: Parental support	M	10.83	11.62	11.23	p<.001 G>S
	SD	1.89	1.89	1.86	

Table 5.8 Developmental stimulation (HOME-Total) of 8-year old children in families; differences in means across mother’s educational level

		Educational level of mothers				
		(1) Lower	(2) Intermediate School	(3) High School Completed	(4) University Degree	ANOVA/ Duncan
Austria	M	43.88	45.02	44.54	45.37	n.s.
	SD	5.33	4.76	6.52	4.41	
Germany	M	42.04	44.14	45.97	46.30	p<.001 4,3>2>1
	SD	5.45	4.63	3.37	3.87	
Spain	M	38.91	41.62	42.91	44.62	p<.001 4,3>1 2>1 4>2
	SD	6.55	5.15	5.70	4.79	

Table 5.9 Developmental stimulation (HOME-Total); differences in means across levels of purchasing power in families

		Purchasing power of families ⁺				
		(1) Low	(2) Mid-low	(3) Mid-high	(4) High	ANOVA/ Duncan
Austria	M	44.30	45.25	44.80	44.16	n.s.
	SD	4.92	6.04	4.81	5.13	
Germany	M	41.86	44.28	45.80	46.20	p<.001 (4),(3)>(2)>(1)
	SD	5.21	4.20	4.52	3.83	
Spain	M	38.86	41.13	42.73	45.01	p<.001 (4)>(3),(2)>(1)
	SD	6.35	5.11	5.69	4.73	

⁺The four levels of purchasing power represent the quartiles of the distribution within each country.

5.5 Children’s everyday life and daily activities

In addition to the environment at home, the activities in which the child engages every day, contribute to the overall process quality in the child’s family context. This was assessed using the ACT questionnaire. The first part focused on the child’s daily schedules and how daily activities are organised. Second, the kind of activities that children do in their leisure time were examined (i.e., after their school activities have finished).

5.5.1 Children’s daily routines

With regard to children’s waking up time, as shown in Table 5.10 there is an average difference of 1.75 hours between the German/Austrian sample and that of the Spanish. The average amount of time that the children are awake is also different. The Spanish children (13.75 hours) are awake about half an hour longer than their Austrian and German counterparts (13.25 hours).

Table 5.10 Children’s daily routines; differences in time across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Getting up time	M SD	6:45 19'	6:45 22'	8:25 29'	p<.001 S>A,G
Hours awake	M SD	13h.14' 36'	13h.14' 31'	13h.42' 39'	p<.001 S>A,G
Hours spent at school	M SD	4h.34' 32'	5h.04' 1h.23'	5h.48' 1h.16'	p<.001 S>G>A
Hours spent in the classroom	M SD	4h.18' 20'	4h.07' 32'	5h.10' 50'	p<.001 S>A, G
Hours spent doing homework (at home)	M SD	48' 26'	44' 31'	1h09' 52'	p<.001 S>A,G
Time they go to bed	M SD	20:00 31'	20:00 29'	22:10 38'	p<.001 S>A, G

Of all the time children are awake, the average number of hours spent at school and in their classroom are also shown in Table 5.10. It also shows the proportion of time awake spent in school varies from 34.5% for children in Austria, to 38% in Germany, and 42% in Spain. Spanish children spend statistically significantly more hours both at school and in their classrooms.

When the school day is over, academic education continues to influence their daily activities, because the children are often assigned homework. The amount of time children spend on homework averages about .45 minutes in Austria and Germany, and about 70 minutes in Spain (a statistically significant difference). However, it should be noted with regard to both hours spent in school and hours spent on homework, that even though the children were the same age, most of the Spanish sample were in grade 3 whereas most Austrian and German children were enrolled in grade 2. This fact should also be kept in mind when considering that school and homework account for 51% of the time Spanish children are awake whereas it is only 41% in Austria and 44% in Germany.

5.5.2 Children's activities after school

In order to obtain a more complete picture of children's activities after school, mothers were asked during the interview to complete a questionnaire about their children's activities. Ratings refer to how often their child participated in each of 30 activities. Ratings were completed using a five point scale (5=daily, 4=weekly, 3=monthly, 2=less than monthly, 1=never). The 30 activities can broadly be categorised into five groups: *less structured* activities, such as riding a bike or singing, listening to music; *organised out-of-school* activities such as music lessons or doing sports; activities which *express autonomy* such as choosing clothes or going shopping alone; activities *involving peer relationships* such as inviting other children home or sleeping at another child's home; and *cultural family activities* such as going on family outings or visiting museums.

Less structured activities. One of the most common activities that children do during the non-school hours consists of going to a park or an open area where they can ride their bike, play with a ball, roller skate or take part in other outdoor games. Inside the house and once their homework has been finished, a substantial number read books, or other materials every day. Singing, listening to music, dancing, as well as painting, moulding figures with their hands or any pastimes with pencil and paper closely follow reading activities in frequency. Other common activities are talking about problems and conflicts and entertaining themselves by watching TV. All these activities are carried out daily or weekly by at least 80% of the children in the sample. However, activities such as watching TV or educational videos, playing with a computer or computer games or video games, playing with construction games, table games or role games are done far less frequently.

The similarities and the differences found in the three countries are shown in Table 5.11. As can be seen, there are various significant differences between the frequency with which children from the three countries are involved in the activities. Among these differences are that Austrian and German children tend to engage in outdoor activities (e.g., go to parks and open spaces, ride a bike, play with a ball) more often than the children in Spain. Spanish children watch more TV and educational videos. German and Austrian children also sing and listen to music, talk about problems, play table games and pretend play, more often than Spanish children.

The analysis of the relationship between the performance of these activities and the socio-demographic family variables shows a few, but not many, significant differences.

Among the children of families with lower educational levels, activities such as going to the park or the square are more frequent, as are riding bicycles or ball games. For these children, these activities are usually performed daily, whereas at higher educational levels, they tend more often to be performed weekly. Likewise, recreational computer or video games are less frequent at the higher educational levels. Furthermore, there is a higher level of daily television viewing in families with lower income, while board games, dramatisation games and role playing are less frequent in them. Playing with educational computer programmes or video games is more frequently a weekly activity among high income families.

Table 5.11 Less structured activities; differences in means across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Go to parks, open spaces	M	4.82	4.63	4.21	p<.001
	SD	0.39	0.62	0.83	A>G>S
Ride a bike, roller skate, ball games (outdoors)	M	4.57	4.47	4.19	p<.001
	SD	0.50	0.53	0.77	A,G>S
Read books, children stories, comics	M	4.54	4.32	4.39	p<.05
	SD	0.57	0.76	0.60	A>G
Singing, listening to music, dancing	M	4.31	4.29	4.03	p<.001
	SD	0.75	0.69	0.94	A,G>S
Drawing, making shapes, pastimes with paper and pencil	M	4.14	4.11	4.07	n.s.
	SD	0.66	0.63	0.71	
Talking about problems and conflicts	M	4.04	4.18	3.51	p<.001
	SD	0.70	0.68	1.34	A,G>S
Watch TV or videos to entertain themselves	M	3.96	3.78	4.29	p<.001
	SD	0.94	1.02	0.86	S>A,G
Watch TV and educational videos	M	3.15	3.31	3.58	p<.001
	SD	0.86	0.98	1.17	S>A,G
Table games	M	3.48	3.40	3.23	p<.001
	SD	0.91	0.85	0.85	A,G>S
Play with entertaining computers/videoconsoles	M	3.10	3.10	2.95	n.s.
	SD	1.21	1.22	1.36	
Construction games	M	3.23	3.34	2.84	p<.001
	SD	1.08	1.18	1.28	A,G>S
Play with educational computer and video games	M	2.71	2.74	2.83	n.s.
	SD	1.35	1.33	1.41	
Pretend play, dramatic play, role games	M	3.22	3.20	1.91	p<.001
	SD	1.08	1.19	1.24	A,G>S

⁺1=never, 3=monthly, 5=daily

Organised out-of-school activities. As can be seen from Table 5.12, of the activities listed on the questionnaire, sports is the most common out-of-school activity done by children in the study, followed by musical activities. Group activities, in clubs and associations, are less frequently done by the children in all three countries, as is the learning of a foreign language. The comparisons between countries show some differences. In Austria

and Germany, for instance, children participate in musical activities more often than in Spain while in Austria sport activities are more common than in Germany and Spain. In Spain, group activities and learning foreign languages are more frequent than in the two other countries.

Children of mothers with more education participate more frequently in musical activities and in the learning of foreign languages. Musical activities are also more common for children in families of higher incomes, whereas the learning of foreign languages is more frequent in both the highest and the lowest income groups.

Activities which express autonomy. Table 5.12 also shows that Spanish children move around the neighbourhood alone less frequently but go shopping alone more frequently than Austrian and German children do. German children tend to do some household chores more often than children in the other two countries. Relating these activities to family background variables reveals that moving around the neighbourhood alone occurs more frequently in families with mothers who are less educated. There are few differences, and no defined tendencies, appearing in relation to income level. Activities which express autonomy tend to be carried out mainly on a daily (for example, self-care activities) or a weekly basis (for example, household chores).

Activities involving relationships with peers. Of the activities involving relationships with other children, shown in Table 5.12, some are more likely to occur on a daily basis, such as going out with friends, while others occur less often, such as sleeping at another child's house or going on trips with friends, which, on average, happen less than monthly. Children from Spain participate in all these activities less frequently than their German and Austrian counterparts.

Considering family background variables, the educational level of the mothers appears to effect only one activity, i.e., inviting other children home is more common in children whose mothers have completed at least the secondary level of education. Children from less affluent families were less likely to participate in any of these activities than children from more advantaged backgrounds.

Table 5.12 Various categories of activities⁺; differences in means across countries

		Austria	Germany	Spain	ANOVA/ Duncan
Organised out-of-school activities					
Sports	M	3.88	3.50	3.27	p<.001 A>G,S
	SD	0.78	1.09	1.38	
Music	M	2.70	2.68	2.04	p<.05 A,G>S
	SD	1.43	1.45	1.44	
Group activities in clubs, association, etc.	M	2.06	1.80	2.62	p<.001 S>A,G
	SD	1.38	1.21	1.47	
Learning foreign languages	MS	1.30	1.19	1.96	p<.001 S>A,G
	D	0.81	0.67	1.41	
Activities which express autonomy					
Choose clothes, get dressed, have a shower	M	4.42	4.49	4.28	n.s.
	SD	1.06	0.81	1.09	
Move around the neighbourhood alone	M	4.88	4.79	3.69	p<.001 A,G>S
	SD	0.32	0.55	1.64	
Do some household chores	M	3.62	4.01	3.72	p<.001 G>A,S
	SD	0.95	0.75	1.19	
Go shopping alone	M	3.06	3.04	3.51	p<.001 S>A,G
	SD	1.09	1.08	1.10	
Prepare own meal (breakfast)	M	3.29	3.59	3.47	n.s.
	SD	1.29	1.23	1.41	
Activities involving relationship with peers					
Going out with other children	M	4.29	4.24	3.88	p<.001 A,G>S
	SD	0.76	0.76	1.23	
Inviting other children home	M	4.04	3.88	3.69	p<.001 A,G>S
	SD	0.52	0.64	1.00	
Sleep at another child's home	M	2.12	2.16	1.42	p<.001 A,G>S
	SD	0.86	0.83	0.73	
Going on trips with friends	M	2.64	2.60	1.94	p<.001 A,G>S
	SD	0.94	0.83	0.96	
Cultural family activities					
Going on family outings	M	3.50	3.43	3.21	p<.001 A,G>S
	SD	0.68	0.72	0.94	
Going to the cinema or theatre	M	2.22	2.16	2.29	n.s.
	SD	0.51	0.51	0.87	
Visiting museums, exhibitions, etc,	M	2.17	2.02	1.89	p<.001 A>G>S
	SD	0.57	0.51	0.69	

⁺1=never, 3=monthly, 5=daily

Cultural family activities. Mothers were also asked about activities that usually involve the parents or other relatives because they require greater planning, travel and expense. These are activities that expand children's horizons by exposing them to new places or to various cultural experiences. In Table 5.12 it can be seen that, as expected, these activities occur less frequent than the other types of activities discussed above.

With respect to the comparisons between countries, no country differences were found with regard to going to the cinema. However, family outings and visits to museums or exhibitions are more frequent in Austria and Germany, than in Spain. In Spain, it is also more frequently reported that children never carry out these activities.

With respect to the family background characteristics, visiting museums and going to the cinema take place less often when mothers have less education, or in families with lower incomes.

Activities of children: Combined scores. As described above, factor analytic techniques were used to categorise the 30 individual activities into 2 groups: 1) children’s activities within the family, and 2) children’s activities outside the home. A total score was the combination of the two. Country comparisons are depicted in Table 5.13.

Table 5.13 Activity scores (ACT-Home, ACT-Outside home, ACT-Total); differences in means across countries

		Austria	Germany	Spain	ANOVA/ Duncan
ACT-Home	M	4.15	4.08	3.76	p<.001 A,G>S
	SD	0.53	0.54	0.77	
ACT-Outside home	M	3.83	3.77	3.51	p<.001 A,G>S
	SD	0.45	0.43	0.59	
ACT-Total	M	3.99	3.92	3.63	p<.001 A,G>S
	SD	0.40	0.41	0.54	

Results are similar to what was found in many comparisons at the single item level. For both subscales and the total, Spanish children’s reported participation in the activities were on average, statistically significantly lower than those of the children in Austria and Germany. No differences within the countries related to mother’s educational level (cf. Table 5.14). However, for Germany and Spain, as the purchasing power of the family increases, ACT scores also tend to increase (cf. Table 5.15).

Table 5.14 Activities (ACT-Total); differences in means across mother’s educational level

		Educational level of mothers				
		(1) Lower	(2) Intermediate School	(3) High School Completed	(4) University Degree	ANOVA/ Duncan
Austria	M	3.97	3.93	3.99	4.09	n.s.
	SD	0.34	0.45	0.35	0.44	
Germany	M	3.85	3.90	4.01	3.97	n.s.
	SD	0.46	0.41	0.37	0.37	
Spain	M	3.70	3.63	3.64	3.60	n.s.
	SD	0.55	0.53	0.50	0.44	

Table 5.15 Activities (ACT-Total); differences in means across levels of purchasing power in families

		Purchasing ⁺ power of families				
		(1) Low	(2) Mid-low	(3) Mid-high	(4) High	ANOVA/ Duncan
Austria	M	3.90	4.07	3.95	3.95	n.s.
	SD	0.44	0.32	0.42	0.45	
Germany	M	3.85	3.88	3.94	4.02	p<.05 (4),(3)>(2)>(1)
	SD	0.45	0.40	0.38	0.38	
Spain	M	3.55	3.50	3.60	3.78	p<.05 (4),(3)>(2)>(1)
	SD	0.63	0.52	0.47	0.50	

⁺The four levels of purchasing power represent the quartiles of the distribution within each country

5.6 Availability of physical and social resources

Children and families may vary considerably in the extent to which physical and social resources are available to them in their local community. In this study, three areas were investigated that relate to the physical and social resources available to the family and children in their daily life: the availability and use of outdoor spaces, the existence of other children in the neighbourhood and the frequency with which the children play together, and the resources that parents have available for the care of their children.

5.6.1 Availability and use of outdoor spaces

In the interviews mothers were asked to provide information about the availability and use of five types of outdoor spaces: garden/backyard, playground, public park, woods/fields, and the street (sidewalk). In general, the sampled children had available an average of 3.5 of these spaces (SD=1.1), with no significant differences linked to country or family income.

There were, however, differences among the countries with regard to how frequently various outdoor spaces are used. Table 5.16 shows the average frequency of use for each of the different outdoor spaces.

Table 5.16 Usage⁺ of outdoor environments and social network; differences in means across countries

Use of:		Austria	Germany	Spain	ANOVA/ Duncan
Garden, backyard	M	4.83	4.36	4.16	p<.001
	SD	0.47	1.17	1.39	A>G,S
Playground	M	2.80	3.17	3.60	p<.001
	SD	1.53	1.34	1.46	S>G>A
Public park	M	1.55	1.55	3.27	p<.001
	SD	1.07	1.07	1.47	S>A,G
Wood, fields	M	3.48	2.66	3.14	p<.001
	SD	1.25	1.39	1.39	A>S>G
Street, road	M	3.89	3.61	2.81	p<.001
	SD	1.51	1.51	1.90	A,G>S
Contact to children in neighbourhood	M	4.35	4.08	3.91	p<.01
	SD	0.68	1.16	1.33	A>G,S

⁺ (1) not at all; (2) less than monthly; (3) monthly; (4) weekly; (5) daily

As can be seen, Austrian children use outdoor spaces such as gardens, woods/fields, and streets more. Spanish children, on the other hand, use squares, playgrounds and parks more often. Many Austrian and German children do not have access to parks, but are able to use other spaces such as gardens, the countryside or the street. However, Spanish children rarely use the street as a play area, and tend to use parks or squares instead. Family income is associated with the types of spaces used by the children. Children from families with lower incomes use the more public spaces (parks, squares) while children from more advantaged families tend to use the more private spaces such as the garden or yard.

5.6.2 Children's social network: availability and contact

More than 90% of all mothers interviewed explained that in their most immediate area there were other children with whom their children could play. Regarding both the availability and the frequency with which children play with their neighbours, there are more similarities than differences between the countries. In the three countries studied, a large majority of children play with their neighbours on a daily or weekly basis. This is reported for 89% of the Austrian children, 93% of the German, and 88% of the Spanish. On average, Austrian children tend to have more frequent contacts than German and Spanish children (see Table 5.16).

It is interesting to note that the most extreme values for this variable are to be found among the children of families in lower income brackets, who show either high frequencies of playing with friends or not having other children in the neighbourhood with whom to play. In general, as the economic situation of the families rises, these extremes decrease, so that in families in the middle to high-income brackets, the children tend to play with others more often, usually on a weekly basis.

5.6.3 Child care resources

Families participating in this study most often reported using relatives to care for their child, either in the family home or at the home of a relative. This was true for about one third to a half of the Austrian and Spanish parents and a third of the German parents. It is noteworthy, though, that a significant number of children (8.9 % in Austria and 13,7 % in Germany) are left alone and others are left with brothers or sisters, but no adult (8.4% in Austria, 10.5 % in Germany and 7,5 % in Spain). Thus, a larger portion of the children are left without adult supervision after school. Use of the child's school or a child care centre for child care is five times as likely in Germany (36.2%) than in Austria (8.4%) and in Spain (7.8%). In Germany, every seventh child attends a child care centre (either the one they attended as pre-schoolers or another) whereas this is true in Austria only for every 28th child and in Spain only for every 67th child. Having a paid caregiver at their home is twice as likely for Spanish families (12.4%) than for Austrian families (6.5%), and three times as likely than in Germany (4.8%). Child care alternatives are significantly different among countries, as can be seen in Table 5.17.

Table 5.17 Use of different child arrangements; differences in percentages across countries

	Austria	Germany	Spain	ANOVA/ Duncan
Exclusively by parents: %	57.4	49.3	47.7	p<.01 A>G,S
Other than Parents:				
Own school %	4.8	22.9	5.3	p<.001 G>A,S
Another school %	0.0	0.0	1.0	n.s
Old child care centre %	0.0	6.2	1.5	p<.01 G>A,S
Other early child care centre %	3.6	7.1	0.0	p<.001 G>S
At home with relatives %	18.3	17.4	20.2	n.s
At home with paid caretaker %	6.5	4.8	12.4	p<.01 S>A,G
At a relative's home %	23.0	15.9	23.7	n.s.
At non-relative's home %	10.1	4.8	1.0	p<.001 A>G, S
With brothers/sisters %	8.4	10.5	7.5	n.s.
Alone at home %	8.9	13.7	2.4	p<.001 A,G>S
Other alternatives %	1.2	2.8	2.4	n.s.

5.7 Family changes due to the child's entering primary school

The family and the school setting can be regarded as mutually influencing one another. Family characteristics certainly influence the children's progress in school, school achievement and related developmental domains (see chapter 7). The school, on the other hand, may also influence the child as a part of the family, and on the family as a whole. In this section, aspects of how the child's attendance at school affects the family will be examined based on information collected during the interview with mothers. Areas covered in the interview included the impact of the child's school attendance:

- maternal labour force participation
- the child's care situation in the family
- inter-familial relationships (child-parents, child-sibling, mother-father)
- daily routines and joint activities
- the parental network

Changes as a result of the child's school attendance, as reported by the mothers are shown in Table 5.18. With regard to maternal employment, most mothers said there was no change. When changes did occur, they were more likely to be more instead of less work, (i.e., re-entering the labour force or an increase in working hours, than to a decrease in working hours). An interesting fact is that about 18% of the Austrian mothers reported that they reduced their work schedules when their children began going to primary school. This percentage is statistically significantly higher than that found in the other two countries.

No change in maternal or paternal care was reported for 56.2% of the children in Austria, 53.9% in Spain, and 47.9% in Germany. However, these differences between countries are not statistically significant. In Austria and Germany, the percentage of mothers who increase their time to care for the child due to the child's enrolment in primary school is higher than that of those who decrease their child care time, whereas in Spain the contrary is true. The percentage is similarly low in all countries with regard to fathers whose care for their children was affected by primary school entry. When a change was present for fathers, however, an increase in paternal care was more often reported than a decrease. An increase in maternal care can be observed for a quarter to a third of the mothers in Austria and Germany, respectively. This increase may reflect the shorter school day in primary schools as compared to that found in most early childhood programmes (ECP), and that school-age child care provisions may not be readily available to families.

The child's school enrolment did have an effect on the families' activities and social network. Only 5.9% of the mothers in Austria, 8.6% in Germany, and 11.0% in Spain reported no changes in this area. Some 58% of the mothers in Austria and Germany reported that the daily routines of the family became more rigid. This is also true for a high percentage of mothers from Spain (37.6%) although this percentage is statistically significantly lower than that found in the other two countries. A similar pattern across the countries appears for the increase in time allocated by families for joint activities. The percent of families where this increase occurs is high in all countries. However, it is substantially higher in Austria and Germany, compared to Spain.

The enrolment in school not only affects life within the family, but for the majority of families, it also affects life outside the family, in terms of the family's network of friends and acquaintances. In all countries, about 60% to three quarters of parents report having new friends as a result of their child's enrolment in school. The percent of families who found new friends is substantially higher in Austria and Spain than in Germany.

A minority of mothers reported changes in relationships among family members as a result of the child's school enrolment. No changes are reported for 72.8% in Austria, 55.1% in Germany, and 65.5% in Spain, and these country differences were statistically significant. Changes in sibling relationships are reported quite frequently. These changes occur more than twice as often in Germany than in Spain. Interestingly, more positive changes, than negative, are reported for all types of relationships, family, siblings, both the mother-child and the father-child. This was not, however, true for the time that couples have available for themselves. In all three countries, most mothers reported that there were no changes, but more mothers report that less time was available for the couple after the child has entered school than those who reported more time becoming available.

Regarding the various possible changes mothers were asked to report on, it appears that only a minority of families are unaffected by the child's entry into school (4.7% in Austria, 2.7% in Germany, and 11.0% in Spain). The domain of the family schedule and family activities seems to be affected most often, followed by the domain of parental child care and of maternal employment. Changes in the relationships among family members and in the shared time of the couple were less frequent. However, when they occur, positive changes occurred more often than negative ones. The overall pattern is quite similar for the various countries although statistically significant differences exist in various single aspects of family life.

Table 5.18 Changes in family's life situation as a consequence of the child's entry into primary school; differences in percentages across countries

		Austria	Germany	Spain	ANOVA/Duncan
Changes in mother's life situation					
No changes	%	43.2	61.6	53.5	p<.01 A<S,G
Re-entrance into labour force	%	8.9	6.6	9.9	n.s.
Increase working hours	%	11.3	6.3	7.1	n.s.
Decrease working hours	%	17.9	6.3	4.4	p<.001 S,G<A
Increased attendance at cultural, political and sports activities	%	24.4	14.5	22.9	p<.01 G<S,A
Changes in parental care					
No changes in mother's or father's amount of care	%	56.2	47.9	53.9	n.s.
Increase in mother's care	%	27.8	32.4	15.7	p<.001 S<A,G
Decline in mother's care	%	11.3	16.4	26.7	p<.001 A,G<S
Increase of father's care	%	9.4	9.9	12.0	n.s.
Decline in father's care	%	5.4	6.0	4.2	n.s.
Changes in family's schedule					
No changes in family's schedule	%	5.9	8.6	11.0	p<.01 A,G>S
Daily routine more rigid	%	58.1	58.6	37.6	p<.001 S<A,G
Time for joint activities increased	%	65.5	59.4	37.5	p<.001 S<G,A
Parents find new friends	%	75.8	58.4	71.1	p<.001 G<S,A
Changes in family relationships					
No changes	%	72.8	55.1	65.5	p<.01 G<S,A
Positive changes in mother-child relationship	%	8.3	18.1	21.0	p<.05 A<G,S
Negative changes in mother-child relationship	%	3.6	7.9	0.9	p<.001 S,A<G
Positive changes in father-child relationship	%	4.0	14.4	12.2	p<.05 A<S,G
Negative changes in father-child relationship	%	1.9	2.3	1.1	n.s.
Positive changes in sibling's relationship	%	18.5	26.1	12.6	p<.01 S<G
Negative changes in sibling's relationship	%	7.4	10.1	4.7	n.s.
Changes in shared time of couple					
No changes	%	84.1	86.5	89.5	n.s.
More common time	%	5.2	4.7	4.1	n.s.
Less common time	%	10.6	8.8	5.9	n.s.
No changes at all	%	4.7	2.7	11.0	p<.01 S>A,G

5.8 Changes over time in family characteristics and family life

As children age, their family environments often change to reflect new abilities and interests. For example, families may well adapt to their school-agers' interest in activities that were not compelling to the children as pre-schoolers, or to the children's widening range of action in the neighbourhood that was not considered appropriate for younger children. Thus, when considering change and stability in family characteristics, from a longitudinal perspective, *qualitative* changes must be considered in addition to the characteristics of families that may have increased or decreased. For example, housing conditions or family income may be defined using the same construct over the years, but the degree of availability may change for families, and so a measure of increase or decrease would be appropriate in describing these family characteristics. However, other more process oriented family characteristics that were appropriate constructs during the children's pre-school phase require new or adapted definition to reflect children's school-age interests and abilities.

In this section, stability and change, with regard to selected constructs of both types will be investigated. The approach considers a selection of those characteristics that were analysed from a cross-sectional perspective in the previous sections of this chapter. The analyses in the following subsections cover a period of four years. They are based on comparisons of data collected when children in the study were 4 and 8 years of age. Instruments used when the children were 4-years-old are described in the Workpackage I Report (ECCE Study Group, 1997). For this later stage of the study, an effort was made to use instruments that, allowed examination and comparison of parallel constructs for the pre-school and school aged phases.

5.8.1 Structural characteristics of the home

For longitudinal comparisons of structural characteristics of the home, two indicators were selected to analyse what kind of changes had occurred over the four years (i.e., between the time the child was 4 years old [Time 1 or T1] and the time the child was 8 years old [Time 2 or T2]). These indicators were the number of hours worked outside the home by mothers and fathers and the family financial resources.

Table 5.19 shows, that between T1 and T2, the average amount of hours worked by mothers increased in all countries. However, statistically significant differences are found only in Austria and Germany. In the case of the fathers, no statistically significant differences were found in the number of hours spent working outside the home between T1 and T2.

Table 5.19 Changes in hours per week worked outside the home and in financial conditions; for each country

	Country T1			Country T2			Country T2-T1		
	Austria	Germany	Spain	Austria	Germany	Spain	Austria	Germany	Spain
Working ⁺ hours per week Mother	25.24	31.93	36.35	29.97	33.94	37.69	T2>T1*	T2>T1**	n.s.
Working hours per week Father	48.75	49.58	50.52	49.71	49.13	48.65	n.s.	n.s.	n.s.
Family income in EURO ⁺⁺	2017	2068	1218	2248	2261	1372	T2>T1**	T2>T1**	T2>T1*
Purchasing power of families	778	818	541	866	901	590	T2>T1**	T2>T1	T2>T1*

⁺Gainfully employed mothers only

⁺⁺The present (fixed) exchange rates (EURO-National Currency) were used for both measurement points

The T2 - T1 comparison also shows a statistically and significant increase for family income and the purchasing power of the families. This is true for the three countries under study, as shown in Table 5.19. The increase is higher in Austria and Germany than it is in Spain, perhaps reflecting the greater increase of mothers' participation in the labour market in these two countries, as noted above.

In addition to differences in means, correlations between the respective scores of the first (T1) and the second (T2) measurement points were calculated as shown in Table 5.20.

Table 5.20 Correlations between T1 and T2 for hours worked outside home and family economic conditions

	Austria	Germany	Spain
Working ⁺ hours per week Mother	.60**	.59**	.56**
Working hours per week Father	.48**	.48**	.72**
Family income in EURO	.51**	.60**	.56**

**p<.01, *p<.05

⁺ Gainfully employed mothers only

Correlation coefficients for all three structural characteristics range from .48 to .72 indicating that even though there are increases over time, families tend to maintain approximately the same relative position in the group. For example, mothers of pre-schoolers who worked outside the home for more hours also tended to work more hours outside the home when their children were school-aged, or if a pre-schooler's family income is lower, the income will still tend to be lower when the child is in primary school.

5.8.2 Stability and change of process quality characteristics

To assess process quality characteristics of families, two measures were used at both measurement points, (i.e., when children were 4 and 8 years of age): the HOME and the ACT Scales. Both scales were administered in two versions, for pre-school- and school-aged children. Although the versions for the two measurement points differ to some extent, to reflect different abilities and interests, they were designed to address the same constructs. To examine stability and change between the two measurement points correlations were calculated, as shown in Table 5.21, for the total scores and for individual items, (i.e. when the single items were sufficiently comparable at the two different times).

Table 5.21 Correlations between T1 and T2 for HOME and ACT scales

	Austria	Germany	Spain
HOME Total	.23**	.49**	.44**
ACT Total	.34**	.41**	.07
Watch educational TV/videos	.16	.07	.19*
Watch TV/ videos for entertainment	.22*	.22**	.20**
Painting, cutting making shapes	.24*	.16**	.23**
Talk about problems and conflicts	.27**	.28**	.11
Do some domestic work	.30**	.19**	.30**
Inviting other children home	.25*	.28**	.28**
Pretend play, dramatic play, role games	.31**	.10	.16*
Running, skipping (outdoors)	.02	.16**	.37**
Ride a bike, roller skate, ball games (outdoors)	.13	.12*	.25**
Singing, dancing, listening to music	.39**	.12*	.30**
Playing at other children's homes	.20	.33**	.30**
Do some shopping alone	.14	.07	.29**
Going on family outings	.37**	.27**	.36**
Going on trips with friends	.22*	.13*	.06

*p<.05, **p<.01

In general, correlations between T1 and T2 for the HOME and ACT scales tend to be weak to moderate. The correlation coefficient for the HOME is low for the Austrian families, and the correlation for the ACT total in Spain is zero, whereas in Germany correlations are of moderate size for both measures.

For single items from the ACT, correlations between T1 and T2 tend to be relatively low, but are often statistically significant and are similar among the three countries. The correlations are statistically significant less often in Austria (8 items) than in Germany (11 items) and Spain (12 items), possibly due to the smaller sample size in Austria.

As shown in Table 5.22, there is a fairly consistent pattern across countries for differences in the frequencies of the various activities between the two measurement points. Most of the activities which are done most frequently during the pre-school time are done significantly less often at age 8. These include activities such as watching TV; painting, cutting, making shapes; helping with domestic work; or playing pretend games. Conversely there is an increase in the frequency of some activities at age 8 that were less frequent at age 4, such as inviting other children home; playing at a friend's or neighbour's home. The activities done more frequently by the older children reflect the school-agers' growing independence, their more advanced gross motor abilities, and their increasing ability to successfully explore and act in their neighbourhood environment.

Table 5.22 Comparison of frequency⁺ of various activities at T1 and T2 across countries

	Country T1			Country T2			Country T1-T2		
	Austria	Germany	Spain	Austria	Germany	Spain	Austria	Germany	Spain
Watch educational TV/ videos	4.18	4.48	4.84	3.24	3.26	3.61	T1>T2**	T1>T2**	T1>T2**
Watch TV/ videos for entertainment	4.18	4.48	4.84	4.04	3.73	4.27	n.s.	T1>T2**	T1>T2**
Painting, cutting making shapes	4.61	4.57	4.67	4.16	4.12	4.05	T1>T2**	T1>T2**	T1>T2**
Talk about problems and conflicts	4.24	4.28	3.49	4.04	4.17	3.56	n.s.	n.s.	n.s.
Do some domestic work	4.06	4.12	4.13	3.67	3.99	3.73	T1>T2*	T1>T2**	T1>T2**
Inviting other children home	3.87	3.51	3.32	4.04	3.79	3.63	n.s.	T2>T1**	T2>T1*

	Country T1			Country T2			Country T1-T2		
	Austria	Germany	Spain	Austria	Germany	Spain	Austria	Germany	Spain
Pretend play, dramatic play, role games	4.61	4.77	4.52	3.26	3.11	1.94	T1>T2**	T1>T2**	T1>T2**
Running, skipping (outdoors)	4.74	4.64	4.78	4.61	4.19	4.41	n.s.	T1>T2**	T1>T2**
Ride a bike, roller skate, ball games (outdoors)	4.22	4.01	4.24	4.61	4.41	4.19	T2>T1**	T2>T1**	n.s.
Singing, dancing, listening to music	3.87	3.51	3.32	4.04	3.79	3.63	n.s.	T2>T1**	T2>T1
Playing at other children's homes	4.23	3.69	3.64	4.30	4.14	3.74	n.s.	T2>T1**	n.s.
Do some shopping alone	3.73	3.76	3.95	3.13	2.98	3.38	T1>T2**	T1>T2**	T1>T2**
Going on family outings	3.68	3.72	3.30	3.54	3.44	3.11	n.s.	T1>T2**	T1>T2*
Going on trips with friends	3.68	3.72	3.30	2.72	2.59	2.10	T1>T2**	T1>T2**	T1>T2**

**p<.01, *p<.05

[†]) (1) not at all; (2) less than monthly; (3) monthly; (4) weekly; (5) daily

5.8.3 Changes in use of physical and social resources

In both T1 and T2 families were asked about the availability and use of outdoor spaces, about the existence of children in the neighbourhood and the frequency of contact with neighbourhood children. Changes from T1 to T2 for these variables are shown in Table 5.23.

With regard to outdoor spaces used by children, the results are somewhat different for each country. For Spanish children, the use of the respective outdoor spaces is, with the exception of the use of fields/woods, consistently higher at age 8 (T2) than it was at age 4 (T1). For German children a slight decrease in the use of most areas can be seen, and for Austrian children, no statistically significant changes are found for most of the areas. However, there is one consistent finding across countries. In all three countries, children at age 8 use the street/road as a play area considerably more frequently than was evident at age 4. This is probably due to the school-agers' more mature abilities to safely deal with the dangers associated with play in the streets.

Table 5.23 Comparison of usage⁺ of outdoor areas and play with children in neighbourhood between T1 and T2 across countries

Use of:	Country T1			Country T2			Country T1-T2		
	Austria	Germany	Spain	Austria	Germany	Spain	Austria	Germany	Spain
Garden, backyard	4.59	4.22	3.24	4.83	4.36	4.16	T2>T1*	n.s.	T2>T1**
Playground	2.90	3.40	2.97	2.80	3.17	3.60	n.s.	T1>T2*	T2>T1**
Public park	1.65	1.82	2.77	1.55	1.55	3.27	n.s.	T1>T2**	T2>T1**
Wood, fields	3.20	2.84	3.51	3.48	2.66	3.14	n.s.	T1>T2*	T1>T2**
Street, road	3.33	2.76	2.19	3.89	3.61	2.81	T2>T1*	T2>T1**	T2>T1**
Contact to children in neighbourhood	3.59	3.56	3.74	3.99	4.04	3.89	T2>T1**	T2>T1**	n.s.

**p<.01, *p<.05

⁺ (1) not at all; (2) less than monthly; (3) monthly; (4) weekly; (5) daily

For 8-year-old children in all countries, there was also more frequent contact with other children in the neighbourhood. In addition to differences, correlations between the two measurement points were also calculated for use of the physical and social resources in the neighbourhood, as shown in Table 5.24.

Table 5.24 Correlations between T1 and T2 for use of physical and social resources in neighbourhood

	Austria	Germany	Spain
Usage of garden, backyard	-.07	.40**	.21**
Usage of playground	.10	.27**	.06
Usage of public park	.18	.57**	.16
Usage of wood, fields	.04	.40**	.26**
Usage of street, road	-.06	.29**	.12
Contact to children in neighbourhood	-.10	.31**	.24**

**p<.01

For the German sample, there was more consistency in use of neighbourhood resources between T1 and T2, as evidenced by the moderate correlation coefficients for all of the resources asked about in the interview. For Spanish children, there is less consistent use of the resources between T1 and T2, with only three of the correlation coefficients reaching statistical significance. The Austrian sample shows the least consistency in use of neighbourhood resources by children at ages 4 and 8.

5.9 Summary of results and discussion

When various statistical analyses are carried out in search for variations or differences between groups, it is easy to overlook the important number of *similarities* that exist among the groups being compared. In the case of the family characteristics described in this chapter, there are important differences related to manifold variables. But in fact, as noted below, there are also a great number of commonalities among the three countries analysed.

- In the overwhelming number of families considered in this study, two adults, father and mother, are present in each family. It is very common for both of them to be working outside the home, with fathers working considerably more hours than mothers. In all countries, fathers' absence from the home averages about 50 hours per week. Undoubtedly, this translates into women's spending more time on activities at home and with their children. Although nearly half of the mothers in Spain and about two thirds of them in Austria and Germany are employed outside the home, there are still consistent differences in how fathers and mothers are involved with children.
- Most of the children in this sample have their own bedroom. Where this is not the case, they normally share the room with a brother or sister. Sharing a bedroom with parents, grandparents or other adults is very rare. In other words, almost all families have an area which is specifically for children.
- The 8-year-old children spend about 5 hours at school, which is about 40 % of their waking time on a weekday. Taking homework into consideration as well, the children spend on average up to 50 % of their waking time on school and school-related issues.
- Activities and entertainment apart from school tend to be similar for the 8-year-olds in the various countries: sport, walking near home, etc. Very few of them never go on family

trips or to a cinema or theatre. Going beyond the narrow family and neighbour circle, at least sometimes, is a common experience for almost all children of the age group considered in this study.

- Most children in all three countries play daily or weekly with friends or neighbours, and thus are enrolled in their own children's network.
- Many families have arrangements for appropriate childcare when the parents cannot be with them. These resources fluctuate based on certain variables.

Naturally, the emphasis of these similarities should not be interpreted to mean that there are not important *differences* between children in the various countries and according to socio-demographic variables (i.e. family income, level of education). Austria and Germany tended to be quite similar to each other, but different from Spain. Just a few examples:

- Boys and girls in Austria and Germany get up 1.5 hours earlier and go to bed more than 2 hours before Spanish children, the latter getting 0.5 sleeping hours less on average.
- Children in Austria and Germany receive more educational stimulation at home (as measured by the HOME) and participate in more activities (as measured by the ACT) than children in Spain.
- Children in Austria and Germany participated in more after-school activities such as walks around the neighbourhood, playing outdoors, going on family outings, and inviting other children to spend the night at their home. Spanish children, on the other hand, seem to have more demanding school schedules as evidenced by the fact that they spend on average 1 hour more in the classroom and also nearly 0.5 hours more on doing homework than Austrian and German children.
- After school, Spanish children learn music or languages more frequently and they seem to allocate more time watching TV and doing some domestic tasks. Spanish children also have more public spaces available such as parks, squares, and less private or semi-private space such as their own garden/yard or that of the neighbourhood.
- Both in Germany and in Austria, one out of ten children spends some hours per week alone at home, a fact which is exceptional in Spain.
- Among the Spanish families considered, there are more two-parent families, fewer mothers working outside the home, and more grandparents living within the families. Also, the income is lower than that of the Austrian and German families studied.

However, there was a greater percentage of single mothers in the Austrian sample, and Austrian mothers worked fewer hours outside their homes than in Germany and Spain. When they cannot take care for their children themselves, Austrian parents more often use their relatives as an alternative to institutional child care than German parents do. Those, in turn, use the child's school as a child care alternative, once the school day has finished. As one last example, German families are more prone to having their children help with domestic chores and more often let them prepare simple meals for themselves.

Across all three countries, the socio-demographic variables were related in many of the variables examined. For example, HOME and ACT scores differ significantly depending on the levels of maternal education and family income. Parents with higher levels of education involve their children more frequently in extracurricular learning activities (music, foreign languages), whereas children whose parents are of a lower income-level spend more hours watching television. These examples show that the experiences children have, are linked to the socio-economic backgrounds of their families.

Besides the many similarities in children's and family's life across countries, it is also very obvious that *cultural conditions* provide for some differences, mainly between Spanish families and children on the one hand and those in Austria and Germany on the other. These differences may be explained by three major points:

First, the higher degree of traditionalism in Spanish family life may be explained by the fact that the process of modernisation has started later in this country and has not yet reached the same level as in Austria and Germany. This is most clearly reflected in income differences. It is doubted if this tendency will last for long, considering the rapid and continuous change of the Spanish society in the context of the ongoing industrialisation of the country.

Second, some of the differences between countries are probably related to climate conditions, which are associated with differing patterns of the daily schedule. This is true with regard to Spain vs. the two more northern countries. The Spanish emphasis on evening activities is undoubtedly due to high temperatures during the day, and this is clearly reflected in the children's daily schedule. Consequently, Spanish children are awake during later evening hours, which is regarded as unsuitable for children in Austria and Germany.

Third, differences in children's lives relate to differences in the school systems. There is clear evidence in the data that the Spanish school system is more time-consuming for the 8-

year-old children, both in school and at home (homework) than the systems in the other two countries. It should be noted that even though the children were all of the same age, the Spanish children of this age mostly attend grade 3, whereas Austrian and German children were typically in the second grade.

A further focus of this chapter was on stability and changes in the family environment over the four years, between the time when children were age 4 and age 8 years. These analyses showed a substantial amount of continuity and stability in most of the variables considered. This stability relates to process quality indicators such as the HOME and the ACT scores, extends to routines and even to special activities, and includes aspects such as the availability and use of physical and social resources in the family's environment. These findings imply stability of favourable developmental conditions for some of the children and less favourable for others. This finding should be kept in mind when the impact of the quality of the family setting on children's development is analysed later in this report.

Naturally, changes are also observed with the passing of time. However, all changes observed are developmentally reasonable and relevant: Children of primary school age spend less time in symbolic play but play more often in open spaces (with less protection and adult supervision) and they can stay alone for longer periods, to mention just some of those changes.

These patterns of stability and continuity are found not only for the children and their experiences, but also for their parents, who tend to show a great similarity between Time 1 and Time 2 with regard to the variables considered. Here, changes are due mainly to the increased time that women spend working outside the home, and to the resultant higher family incomes.

The information from our study confirms the evidence accumulated in recent years of longitudinal research on the developmental process: Development is essentially a stable process, mostly due to the elevated stability of the circumstances and contexts in which it is forged.

6. EDUCATIONAL BELIEFS AND ATTITUDES OF PARENTS AND TEACHERS

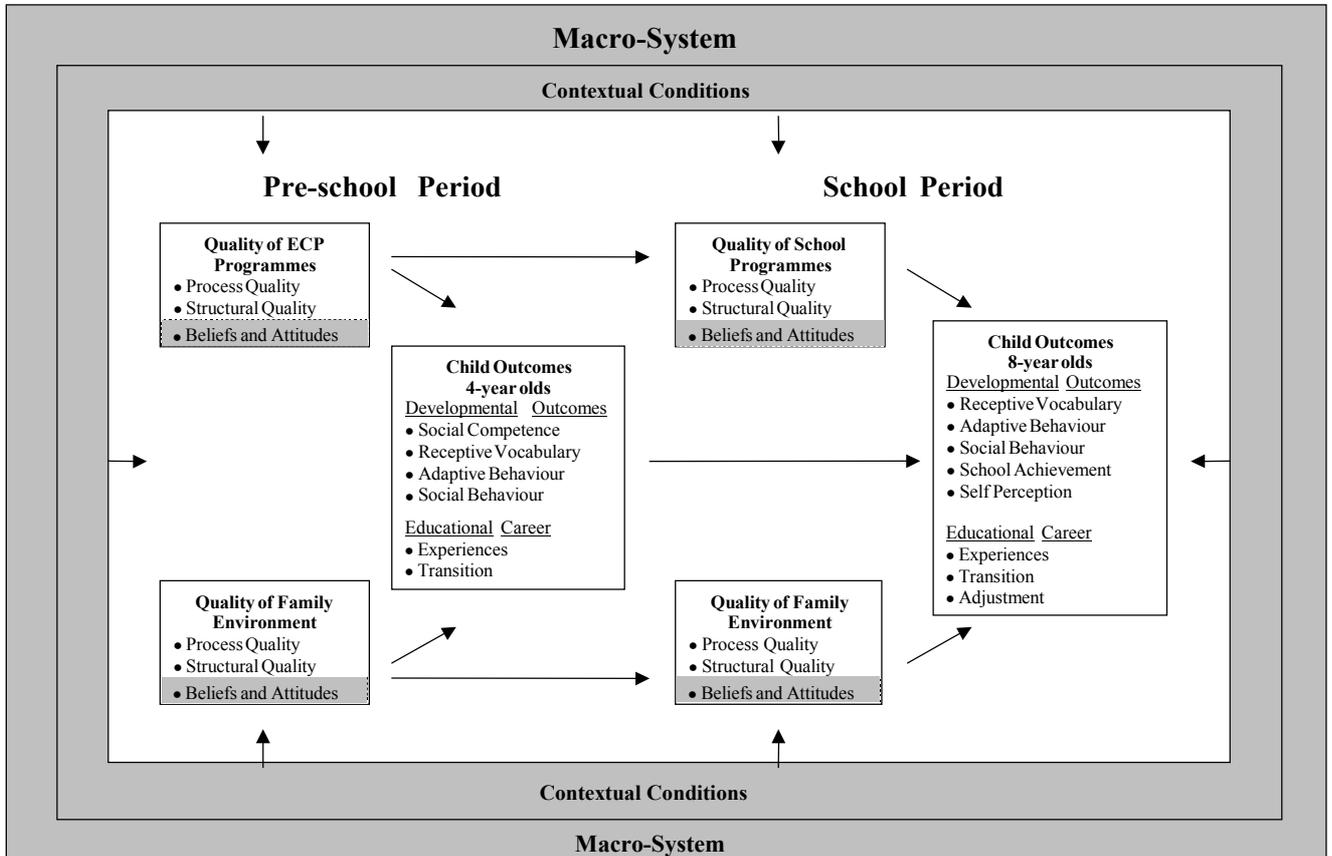


Figure 6.1 Conceptual framework for analyses of educational beliefs and attitudes of parents and teachers in primary schools in various countries

6.1 Introduction

Based on the conceptual framework shown in Figure 6.1, three different domains of educational quality are distinguished: structural and process quality in families and centres, and as a third component, the educational orientations of parents and teachers. These educational orientations include the parents' and teachers' educational goals for their children as well as their beliefs and attitudes towards children and their education. As such, beliefs and attitudes guide the overt interactions between parents or teachers and children and influence the child-rearing environment. The educational orientations of parents and teachers

are conceptualised as a multidimensional construct that includes different subdomains with a number of dimensions and variables.

In its first part, this chapter presents a detailed description of the educational orientations of the parents and teachers participating in the *school-phase* of the ECCE-study. The child-rearing attitudes of both the familial and the institutional educators are evaluated using a three-component model of educational orientations which includes:

- ideas and beliefs about child development
- ideas and beliefs about educational goals
- ideas and beliefs about the primary school as an educational setting

These subdomains are evaluated with respect to the following three questions:

- What are the maternal beliefs and do these beliefs vary between the countries?
- What are the teachers' beliefs and do these beliefs vary between the countries?
- What is the relationship between mothers' and teachers' beliefs within a country and are there differences between the countries in these relationships?

In the second part of the chapter, the relation of mothers' and teachers' educational beliefs for 4-year-old (pre-school phase) and 8-year-old (school-phase) children will be examined. In particular, we will consider stability and/or possible changes in ideas and beliefs about child development, as well as about educational goals.

The concept of educational orientations. The concept of educational orientations relates to the ideas, goals, and values of those adults involved in the educational process. As with other domains of child-rearing quality, educational orientations is a multidimensional construct. Recent research has shown, however, that the different dimensions are not isolated from one another, but are integrated into a larger system of educational orientations that, in turn, relates to educational practices (Goodnow, 1988; Palacios, Gonzales & Moreno, 1992). Since the educational practices of parents or teachers are embedded in a broader universe of rules, norms, ideas, and values (Dantas & Branco, 1996), the measurement and interpretation of these practices must be embedded in this broader universe to achieve an understanding of the underlying phenomena and processes.

Many studies investigating the impact of educational orientations on educational practices rely on Kohn's (1969) hypothesis stating that the social context influences the values and

goals parents have for their children's education. In a co-constructive perspective (Lightfoot & Valsiner, 1992) this hypothesis was extended in the sense that ideas, norms and values are not just transmitted from the society to the parents unidirectionally, but that they are developed or created by both parents and society in a co-constructive way.

The ideas about children, about childhood, and about education change over time due to the dynamic of this co-constructive process. This is particularly apparent if we look at relatively long periods of time (Ariès, 1985; de Mause, 1977). They also vary depending on the *cultural* and *subcultural* environments in which they are embedded (Bronfenbrenner, 1958, 1976; Hess, Kashigawi, Azuma, Price & Dickson, 1980; Miller, 1988; Schaefer & Edgerton, 1985). Another important source of variation in educational orientations results from the differing perceptions of *familial* and *institutional* educators: While familial educators (usually parents) obtain or develop their educational beliefs and orientations primarily through their own socialisation process, the educational orientations of teachers are additionally influenced by their professional training. According to Bronfenbrenner (1979) we can assume that similarities and differences between the characteristics of the two educational belief systems in the familial and institutional educational settings (family and school) have an important impact on the children's educational stimulation and thereby on their development. Thus, it is not only important to investigate the *relationship* between the preferred educational practices and beliefs of mothers and teachers separately, but it is equally important to look at the consistency or inconsistency of the preferred educational practices and beliefs *across* the settings as well as across different developmental periods (e.g., pre-school and primary school phase).

This part of the study aims at describing parents' and teachers' educational orientations in the three participating countries. Based on the work of Miller (1988), we will distinguish and examine *three subdomains* of educational orientations:

1. Developmental expectations

- What kind of expectations do mothers and teachers have regarding the age at which developmental progress will take place (i.e., at what age do children develop specific abilities and behaviours?)

Here, mothers and teachers were asked about the appropriate age at which they expect developmental changes and progress in their children's abilities such as reading a short story

in silence, finding the town, on a map, in which he or she lives, participating in a trip with the school.

Thus, this aspect of educational orientations focuses on mothers' and teachers' expectations for children's.

2. Educational attitudes

- What kind of educational goals/values do mothers and teachers have for school-aged children?
- What is the relative importance of each of these goals/values?

This subdomain targets characteristics or behaviours that children may possess at age eight. Mothers and teachers were asked about the importance they ascribe to specific characteristics of children such as obtaining good marks at school, being sure of him/herself, being sociable with lots of friends. Respondents were asked to rate characteristics and behaviours by their perceived importance. This aspect of educational orientations reflects educational goals mothers and teachers hold for children that may be described as part of normative conceptions about children's development and education.

3. Attitudes toward primary schools

- What is the relative importance that mothers and teachers ascribe to tasks/functions of primary schools?
- What is the relative importance that mothers ascribe to more general characteristics of primary schools?
- What do mothers believe to be the most important content area to be taught during their children's primary education and what is the least important?
- What do mothers believe to be the most important educational methods used in their children's primary education and what are the least important?

This *third* subdomain of educational orientations covers a wide range of educational attitudes mothers (and partly teachers) hold for primary schooling. In particular, the focus is on four different aspects. First, mothers *and* teachers are asked to indicate the relative importance they ascribe to a number of *tasks and functions* that a primary school should provide such as that the school should teach students the value of competitiveness, teach students to organise their work and their time, help children to find solutions to peer conflicts or encourage children to use school knowledge outside of school. Due to time and financial constraints,

information was collected on the next three aspects of attitudes toward primary schools only from mothers. The second aspect targets more general *characteristics and features* expected of a school. These are less related to the school's work with children and more to its general characteristics such as that the school should be close to home, have a good reputation, be well-equipped and have a competent staff. Mothers were asked to rank the different characteristics according to their perceived importance. The third and fourth aspects are related to mothers' perceptions of the relevance of different subject matter (areas and content) that should be taught in school (e.g., reading-writing, spelling, and grammar; mathematics; knowledge of the physical world) and of different teaching methods that should be used for instruction (e.g., have an exercise book, follow a text book, assign homework, carry out experiments).

Altogether this third subdomain of educational orientations investigated in the study may be described as mothers', and to some extent teachers', normative conceptions about functions, characteristics, subject matter and teaching methods of a „good school“. As can be seen from the description these normative conceptions can be divided into a first part targeting in particular the school's work with children (i.e., tasks and functions of primary schools) and a second part covering more general characteristics of the primary school that are less related to its work with children (i.e., general characteristics, content and areas of teaching, teaching methods).

6.2 Instruments

Table 6.1 lists the instruments used to examine educational beliefs and orientations of mothers and teachers in the three subdomains Developmental expectations, Educational attitudes, and Attitudes toward primary schooling. The instruments were used in an interview with the mothers or teachers. In most of the questionnaires respondents were asked to rank the various aspects under consideration with regard to their perceived importance. To avoid tedium for the respondents and to provide for variety, a number of different ranking methods were used, for example sorting cards representing the individual items of an instrument into boxes representing the ranks.

Table 6.1 Overview of instruments

Subdomains	Examples and answer codes
I. Developmental representations	
Developmental expectations (13 items)	Please indicate at what age children read a short story in silence <i>Age ranges in years: „under 5“, „5-6“, „6-7“ to „more than 12“.</i>
II. Educational attitudes	
Importance of educational goals/values (8-year-olds) (12 items)	The child obtains good marks at school <i>Indication on a scale from 1 „not important“ to 8 „very important“.</i>
III. Attitudes toward primary schools	
1. Tasks of primary schools (9 items)	<i>Nine statements such as: „should teach students to organise their work“ or „be a school with discipline that teaches the child to behave“ are ranked according to their importance.</i>
2. Characteristics of primary schools (9 items) (mothers' ranking only)	<i>Nine statements, such as „should be close to home“ or „should have competent and well-trained staff“ are ranked according to their importance.</i>
3. Learning areas and content (9 items) (mothers' ranking only)	<i>Nine contents such as: „Reading-writing, spelling and grammar“, „Mathematics“ are ranked according to their importance.</i>
4. Teaching methods (9 items) (mothers' ranking only)	<i>Nine methods such as: ‘follow a text book’, ‘go on excursions’ are ranked according to their importance.</i>

Developmental expectations. To examine this subdomain, respondents, including both mothers and teachers, were asked about the *age* at which they would expect the development of certain knowledge and skills in four different areas of behaviour: cognitive development, school subject matter, independence, affective relationships. Two of these areas are covered by four different items (cognitive development, independence); the other areas are covered by three items (school content) and two items (affective/sexual relationships). For example the domain „cognitive development“ includes questions about the expected age at which children

would attain the ability to tell time on a watch, clearly distinguish what is imaginary from what is real and to put a collection of stamps, post-cards or photographs into order.

Forming scales. To condense information of these 13 items explorative factor analyses (principal component analysis with varimax rotation) were performed based on the Spanish mothers' subsample resulting in 2 factors. The first factor covers items representing the areas cognitive development and school content and was labelled „knowledge“, the second factor covers items representing the areas independence and sexual relationships and was labelled „autonomy“. Based on these two first-order factors, two scales for developmental expectations were formed with the first scale (Knowledge) comprising 7 items, and the second scale (Autonomy) comprising 6 items. However, item-total correlations calculated independently for parents and teachers within each of the three countries revealed some zero coefficients for the teachers' Knowledge and Autonomy scale. Therefore, for the teachers Knowledge scale in Germany one item was dropped (while in Austria and Spain the scale was formed using the same 7 items as for the mothers version). For the teachers Autonomy scale in Germany and Spain one items was dropped (while in Austria the scale was formed using the same 6 items as for the mothers version). Because the two scales for developmental expectations show moderate correlations (.31 to .49 for the mothers version; .28 to .38 for the teachers version in the various countries), in addition to the mean values for the two scales, a mean score of all 13 items of the scale was calculated. This mean score is labelled „Developmental expectations Total“. The internal consistencies of both scales and the Total scale are depicted in Table 6.2. In general, internal consistencies are of a moderate magnitude.

Table 6.2 Internal consistencies (Alpha-Coefficients) of developmental expectations across countries

	Austria		Germany		Spain	
	Mothers	Teachers	Mothers	Teachers	Mothers	Teachers
Knowledge (7 items)	.78	.57	.71	.58	.75	.63
Autonomy (6 items)	.57	.48	.65	.48	.60	.59
Total Scale (13 items)	.79	.72	.72	.68	.76	.54

Educational attitudes. The questionnaire examining this subdomain refers to mothers' and teachers' attitudes about educational goals that they hold for 8-year-old children. Using an 8-point scale ranging from 1 („less important“) to 8 („very important“) respondents were asked to rank, according to their perceived importance, different characteristics that 8-year-old children might possess (12 items). The items in the questionnaire represent several areas in which mothers and teachers generally have educational goals for children. In particular mothers and teachers were asked to rank items related to school achievement (e.g., obtain good grades at school, read and write without mistakes), to personality (e.g., „be reliable“, „be confident“), to sociability and social competence (e.g., „be sociable and have friends“, „be ready to help others“) and to creativity (e.g., „develop talent for drawing, painting and art“, „learn to play an instrument“).

Attitudes toward primary schooling. Items related to this domain were addressed in *four* sections of the questionnaire.

The *first* section (see Table 6.1, III/1) targets the relative importance of different tasks/functions that are usually associated with primary schooling and teaching children. Mothers and teachers were presented with a list of nine tasks/functions and asked to rank them according to their perceived importance (e.g., „should be a school with discipline that teaches the child to behave“, „should teach students the value of competitiveness“, „should make a point of encouraging co-operation and positive relations among students“, „should emphasise students' social competence“).

Only mothers were asked to respond to the second to fourth sections of the questionnaire. The *second* part (see Table 6.1, III/2) is related to quality aspects and

characteristics of the primary school. Respondents were asked to rank nine aspects according to their perceived importance in terms of school quality (e.g., „school should be close to home“, „should have a wide range of extra-curricular and complementary activities“, „should be a place where the child meets good classmates and friends“, „should provide opportunities for child care beyond school hours“).

In the *third* part of the questionnaire (see Table 6.1; III/3) nine learning areas and contents of primary school lessons were presented to mothers who were asked to rank them according to their perceived importance (e.g., reading, writing, spelling and grammar; mathematics; sex education; sports and physical education, art and music).

The *fourth* part of the questionnaire (see Table 6.1; III/4) targets different methods which are usually associated with teaching (e.g., have an exercise book; follow a text book; visit museums and exhibitions; learn through play; use computers). Mothers, again, ranked the nine methods according to their perceived importance.

Forming scales of general educational attitudes. To condense information on educational attitudes based on common information available from both mothers and teachers, factor analyses were performed using the items referring to the *educational goals* questionnaire (see Table 6.1, II) and to the *tasks/functions* ascribed to *primary schooling* (see Table 6.1, III/1). These two questionnaires are clearly related to educational attitudes that reflect mothers' and teachers' conceptions about educational goals and the tasks and functions of primary schools both focusing on the child's development. Other aspects from the subdomain Attitudes toward primary schools were not included into the analysis because first, they subsume attitudes toward more general aspects of school and schooling, and second, only mothers' rankings were available. Also, these parts of the questionnaire were less well developed for the purpose of condensing information and building onto a scale. Rather, each item of these parts of the questionnaire reflect separate and specific aspects of primary school and schooling.

The factor analyses performed using 12 items from the questionnaire on educational goals and 9 items from the questionnaire on tasks/functions of primary schooling revealed two clear bipolar factors. The *first* factor covers 12 items, seven items from the educational goals questionnaire and five items from the school-task questionnaire. In particular, items reflecting achievement-related goals and tasks/functions of primary school (e.g., „obtain good marks at school“, „be sure of him/herself“, „be good in mathematics“, „read and write correctly“, „be a school with discipline that teaches the child to behave“) have positive

loadings on the first factor, while items reflecting children's sociability and social competence (e.g., „be sociable and have lots of friends“, „be ready to help others“, „have a sense of humour“, „school should take more interest in the well-being of children than in their academic achievement“, „school should make a point of encouraging co-operation and positive relations among children“) have negative loadings. The *second* factor covers five items from the educational goals questionnaire with positive loadings for items such as „develop talent for drawing, painting and art in general“, „develop artistic sensibility and good taste“, „learn to play an instrument“, and negative loadings for items such as „be an honest person“ and „think things through before making a decision“.

Based on these two factors, two scales of immediate child-related educational orientations were formed with the first scale comprising 12 items and the second scale comprising five items. As illustrated by the loading pattern, mothers with high values on the first factor consider achievement-related goals (e.g., „obtain good marks at school“, „be good in mathematics“) to be important while they consider *social-related* goals (e.g., „be sociable and have lots of friends“, „be ready to help others“) to be less important. Furthermore such mothers ascribe high value to *achievement-related* tasks of primary schools (e.g., „be a school with discipline that teaches the child to behave“, „should have reading and writing as top priority“) while they ascribe less value to children's well being and sociability (e.g., „school should take more interest in the well-being of the students than in their academic achievements“, „it should make a point of encouraging co-operation and positive relations among the students“). This pattern of orientation was labelled „Achievement-oriented“ educational attitude.

Mothers with high values on the second factor consider goals related to creativity (e.g., develop talent for drawing, painting and art in general; develop artistic sensibility and good taste) to be important while they consider the more rational and disciplined goals (e.g., be an honest person; think things through before deciding) to be less important. This pattern of orientation was labelled „Creativity-oriented“ educational attitude.

Because the items of the first scale belong to two different questionnaires (e.g., goals, tasks of schools) with two different answer-modes (one using ranking from 1 to 8, one using ranking from 1 to 9) items were adjusted to mean values of zero and standard deviations of one by z-transformation. To be consistent, the same procedure was completed for the second scale (although only items from the goal-questionnaire were included). However, item-total correlations calculated independently for parents and teachers within each of the three

countries revealed some zero coefficients for the teachers' Creativity scale. Therefore for the teachers' Creativity scale in Austria and Germany one item was dropped (while in Spain the scale was formed from the same five items as for the mothers version).

The internal consistencies of both scales are depicted in Table 6.3. In general, internal consistencies are of a moderate magnitude and comparable between countries.

Table 6.3 Internal consistencies (Alpha-Coefficients) of child-related general educational attitudes across countries

	Austria		Germany		Spain	
	Mothers	Teachers	Mothers	Teachers	Mothers	Teachers
Scale 1: Achievement-oriented (12 items)	.61	.60	.72	.71	.61	.66
Scale 2: Creativity-oriented (5 items)	.54	.49	.56	.60	.51	.40

6.3 Results

6.3.1 Developmental expectations

The first subdomain of educational orientations covers mothers' and teachers' *developmental expectations*. Table 6.4 illustrates the average age at which mothers and teachers expect children to develop different skills in the two developmental domains Knowledge and Autonomy (scales formed according to factor analyses, see paragraph 6.2 on instruments) and provides an average total age of Developmental expectations (Total).

Table 6.4 Developmental expectations (age of occurrence in years; months); mother/teacher differences within countries; differences across countries

		Austria		Germany		Spain		ANOVA/ Duncan	ANOVA/ Duncan
		Mothers	Teachers	Mothers	Teachers	Mothers	Teachers	Mothers	Teachers
Total Developmental expectations	M	8;0	8;0	8;0	7;10	8;2	8;4	p<.001 S>A,G	p<.001 S>A>G
	SD	0;7	0;7	0;8	0;6	0;10	0;7		
	t-test	n.s.		p<.01		p<.01			
Developmental expectations Scale I: Knowledge	M	7;7	7;10	7;8	7;6	7;8	7;11	n.s.	p<.001 A,S>G
	SD	0;9	0;8	0;9	0;8	0;10	0;7		
	t-test	p<.01		p<.001		p<.01			
Developmental expectations Scale II: Autonomy	M	8;5	8;3	8;4	8;1	8;10	8;10	p<.001 S>A,G	p<.001 S>A>G
	SD	0;8	0;9	0;10	0;9	1;2	1;1		
	t-test	n.s.		p<.01		n.s.			
Factor 1: Knowledge									
1. Read a short story silently by himself	M	6;8	6;8	6;11	6;8	6;8	6;8	n.s.	n.s.
	SD	0;9	0;7	0;9	0;8	1;1	0;9		
	t-test	n.s.		p<.01		n.s.			
2. Show his/her hometown on a map.	M	8;1	8;4	8;5	8;8	8;9	9;5	p<.001 S,G>A	p<.001 S>A,G
	SD	1;1	0;9	1;3	1;0	1;4	1;3		
	t-test	p<.001		n.s.		p<.01			
3. Multiply correctly with two numbers, each with two digits.	M	9;8	9;3	9;4	9;2	7;9	7;11	p<.001 A>G>S	p<.001 A,G>S
	SD	1;3	0;10	1;4	0;1	1;0	0;9		
	t-test	p<.01		n.s.		n.s.			
8. Read a clock and know what it means.	M	6;11	6;11	6;11	7;2	7;3	7;8	p<.001 S>A,G	p<.001 S>G>A
	SD	0;11	0;11	0;11	0;9	1;0	0;9		
	t-test	n.s.		p<.01		p<.01			
9. Know the meaning of savings.	M	7;1	7;4	7;2	7;1	9;4	10;0	p<.001 S>A,G	p<.001 S>A,G
	SD	1;4	1;4	1;4	1;5	1;9	0;11		
	t-test	n.s.		n.s.		p<.001			

		Austria		Germany		Spain		ANOVA/ Duncan	ANOVA/ Duncan
		Mothers	Teachers	Mothers	Teachers	Mothers	Teachers	Mothers	Teachers
10. Differentiate fiction and reality.	M	6;11	7;11	7;1	7;2	7;1	7;3	n.s.	p<.001 A>G,S
	SD	1;3	1;1	1;4	1;9	1;5	1;1		
	t-test	p<.001		n.s.		n.s.			
11. Sort stamps, postcards according to a principle.	M	8;0	9;1	7;11	7;9	6;7	6;6	p<.001 A,G>S	p<.001 A>G>S
	SD	1;7	1;4	1;10	1;6	1;3	1;0		
	t-test	n.s.		n.s.		n.s.			
Factor 2: Autonomy									
4. Participate in a two or three day class trip.	M	8;10	9;1	7;9	7;10	8;0	8;2	p<.001 A>G,S	p<.001 A>G,S
	SD	1;1	1;0	1;6	1;5	2;2	2;7		
	t-test	n.s.		n.s.		n.s.			
5. Select and put on clothes alone.	M	6;3	5;11	5;10	5;9	6;11	7;1	p<.001 S>A>G	p<.001 S>A,G
	SD	1;2	0;11	1;0	0;11	1;5	1;9		
	t-test	p<.05		n.s.		n.s.			
6. Buy things nearby alone.	M	6;3	6;5	6;6	6;6	7;5	7;4	p<.001 S>A,G	p<.001 S>A,G
	SD	0;11	1;0	1;2	1;0	1;4	1;1		
	t-test	n.s.		n.s.		n.s.			
7. Use public transportation alone.	M	7;8	7;5	8;7	7;11	9;10	9;6	p<.001 S>G>A	p<.001 S>G>A
	SD	1;4	1;2	1;5	1;4	1;10	1;9		
	t-test	n.s.		p<.01		n.s.			
12. Understand what a sexual relationship is.	M	9;9	9;11	9;5	9;4	9;8	10;8	n.s.	p<.001 S>A>G
	SD	1;7	0;11	1;10	1;11	1;7	1;9		
	t-test	n.s.		n.s.		p<.001			
13. Feel sexually attracted by someone.	M	11;9	11;0	11;6	10;9	11;0	10;8	p<.001 A,G>S	n.s.
	SD	0;9	0;8	1;3	1;8	1;8	1;11		
	t-test	p<.001		p<.01		p<.05			

According to the three research questions posed in the introduction of this chapter, the presentation of results is organised as follows: first country differences in mothers' developmental expectations are described, followed by country difference in teachers' developmental expectations. Finally, differences and similarities between countries regarding the relation between teachers' and parents' developmental expectations are discussed. Country differences were analysed using ANOVAs with subsequent Duncan tests to examine country differences in more detail. Differences between mothers' and teachers' responses, within countries, were analysed by independent t-tests.

For *mothers'* Total developmental expectations, a clear pattern of results can be seen with Spanish mothers generally expecting children's developmental progress to occur at an older age than do mothers in Austria and Germany. The difference is statistically significant with a magnitude of two months. The later expectations of Spanish mothers can also be seen in the *Autonomy* scale with a difference of about five months on average. These results are also reflected in mother's expectations towards individual activities and abilities assessed in the questionnaire, which belong to the Autonomy scale (e.g., „select and put on clothes alone“, „buy things nearby“).

For the *Knowledge* scale, no differences in developmental expectations between mothers in the three countries occur. Nevertheless, for the separate items belonging to the scale, statistically significant country differences in developmental expectations exist. In 3 out of 5 items, Spanish mothers hold later expectations than Austrian and (partly) German mothers (item #2, #8, #9) but there are also two items for which Spanish mothers hold earlier expectations than Austrian and German mothers.

Interestingly, the developmental expectations of *teachers* from the various countries participating in the study are quite similar to those of mothers. Spanish teachers generally expect children to achieve developmental milestones 4-6 months later than do Austrian and German teachers. For the two domains of development, Knowledge and Autonomy, Spanish teachers have the latest expectations, although for Knowledge, Spanish and Austrian teachers share these later expectations (compared to German teachers).

Regarding the separate autonomy items, the results found for this subscale clearly show country differences in almost all items, with Spanish teachers holding later expectations than Austrian and German teachers (e.g., „select and put on clothes alone“, „buy things nearby alone“, „understand what a sexual relationship is“).

The country difference found for the *Knowledge* scale showing that Spanish and Austrian teachers hold later expectations than German teachers is clearly reflected in the expectations for the separate items belonging to the scale. In particular, for three items Spanish teachers tend to expect developmental progress later than Austrian and German teachers (i.e., „show his/her hometown on a map“, „read a clock and know what it means“, and „know the meaning of savings).

To analyse the potential differences between mothers' and teachers' developmental expectations, t-tests within each country were completed. For *Spain* a relatively clear pattern emerges. For the Total Scale and for the Knowledge scale Spanish mothers tend to expect developmental progress *earlier* than do teachers. However, this difference is reflected in only a few of the 13 items, with the majority of items showing no differences between mothers and teachers. For the mean score of the second subscale (Autonomy) Spanish mothers and teachers appear to have congruent age expectations for developmental progress.

The opposite is true for *Germany*, with German mothers generally expecting developmental progress *later* than German teachers. This result is seen in all the scales (Total, Knowledge, Autonomy), although it is reflected only in about half of the separate items. In *Austria*, the picture is less consistent, showing congruent expectations for the Total scale and for Autonomy, but Austrian teachers, like their Spanish peers, hold later expectations than Austrian mothers for Knowledge.

6.3.2 Educational goals

Attitudes toward educational goals, in which mothers' and teachers' educational goals for 8-year-old children are summarised, form the second domain of educational orientations that were investigated in the study. To examine mothers' and teachers' attitudes, respondents were asked to rank twelve educational goals according to their perceived importance:

1. Develop talent for drawing, painting and art in general.
2. Be reliable.
3. Obtain good grades at school.
4. Be confident.
5. Think things through before making a decision.
6. Be sociable and have friends.
7. Read and write correctly without mistakes.

8. Be ready to help others.
9. Be good in Mathematics and Science.
10. Develop a sense of art and taste.
11. Learn to play an instrument.
12. Have a sense of humour.

These twelve items were developed to cover four major areas of educational goals such as achievement (e. g., items 3, 7, 9), creativity (e.g., items 1, 10, 11), personality (e.g., items 2, 4, 5) and sociability (e.g., items 6, 8, 12).

Table 6.5 provides three kinds of information. First it shows means, standard deviations and results of ANOVAs with subsequent Duncan tests to assess differences between countries. Second, mean rank positions of importance, assigned to items by mothers and teachers in each of the three countries are shown. The mean rank position of each item within each country is given separately for mothers and teachers, in parentheses. Third, results of t-tests are used to indicate differences between teachers and mothers within countries.

In general, high consistency across the three countries is apparent in mothers' rankings. Thus, mothers from all countries give *top priority* to educational goals relating to children's social maturity and sociability („to be reliable“, „have friends“, „help others“).

Achievement-related goals, such as „reading and writing without mistakes“, „thinking before deciding“ or „obtaining good marks at school“ receive medium rank positions in the countries. There is also high similarity in the three countries for the *least important goals*, which are clearly aesthetics-related, such as „developing talent for drawing“, „have a sense of art and taste“ and finally, „playing an instrument“, which is judged to be the least important educational goal.

To examine country specific differences in educational goals of mothers beyond the general profile found in the rankings of mothers, ANOVAs and subsequent Duncan tests were completed for each goal. For 5 out of 12 items no differences emerge. For the remaining 7 items, country differences do not provide a clear-cut picture although a tendency can be seen for Austrian and German mothers to attach somewhat more importance than Spanish mothers to social goals („have friends“, „help others“, „have a sense of humour“) as well as to goals in which creative abilities are encouraged („developing talent for drawing“, „playing an instrument“).

As Table 6.5 shows, teachers' mean rankings are similar to those of mothers and show high consistency across the countries. Thus, as already shown for mothers, teachers give *top priority* to educational goals related to children's maturity and sociability (e.g., „help others“) while goals related to school achievement (e.g., „read and write without mistakes“) are given *medium priority*. An exception is Austrian and Spanish teachers' opinion about the attainment of good grades at school. While German teachers see this goal as having medium importance, Austrian and Spanish teachers give it lower importance (rank 12 and 10, resp.). Regarding other goals which are ascribed *least importance* high convergence between teachers from all three countries can be observed. As with Austrian, German, and Spanish mothers, teachers from these countries perceive the more aesthetically-oriented goals („have a sense of aesthetics and taste“, „develop talent for drawing“, and „play an instrument“) to be the least important for children's education.

To examine potential differences between mothers' and teachers' attitudes towards educational goals, t-tests were completed. The results indicate general differences between mothers' and teachers' attitudes which clearly occur in Germany, and in Austria (in most of the items), while in Spain, with the exception of a single item („obtain good grades at school“) no differences between mothers' and teachers' attitudes are observable. In Germany, for 9 of 12 educational goals, differences in mothers' and teachers' importance scores can be observed. With the exception of the item „be confident“ which is given significantly higher importance scores by mothers than by teachers, German teachers place consistently higher importance on the remaining 8 goals, than German mothers do. Similar to the findings for Germany, Austrian teachers tend to give higher importance scores on the respective educational goals than do Austrian mothers. This is true for 6 of the 8 items in which significant differences were found. In contrast to the findings for Austria and Germany, Spanish mothers and teachers are consistently similar in their importance ratings. Only for one item, „obtain good grades at school“, is a significant difference found, with mothers assigning higher importance than teachers.

Table 6.5 Educational goals; Mothers and teachers importance rankings⁺

		Austria		Germany		Spain		ANOVA/ Duncan	ANOVA/ Duncan
		Mothers	Teachers	Mothers	Teachers	Mothers	Teachers	Mothers	Teachers
1. Develop talent for drawing, painting and art in general.	M	3.71 (9)	5.03 (8)	3.58 (10)	4.29 (10)	2.91 (11)	3.05 (11)	p<.05 A,G>S	p<.01 A>G>S
	SD	1.86	1.80	1.80	1.79	1.67	1.47		
	t-test	p<.001		p<.001		n.s.			
2. Be reliable.	M	6.84 (2)	6.97 (1)	7.02 (1)	6.91 (3)	6.97 (1)	7.24 (1)	n.s.	p<.01 S>A,G
	SD	1.62	1.52	1.41	1.37	1.70	1.55		
	t-test	n.s.		n.s.		n.s.			
3. Obtain good grades at school.	M	3.91 (8)	2.81 (12)	4.48 (7)	5.57 (6)	4.68 (6)	3.39 (10)	p<.01 G,S>A	p<.01 G>S>A
	SD	2.01	1.84	2.08	2.10	2.08	2.05		
	t-test	p<.001		p<.001		p<.001			
4. Be confident.	M	6.47 (4)	5.88 (5)	6.58 (3)	5.59 (5)	6.74 (2)	6.34 (2)	n.s.	p<.01 S>A,G
	SD	1.77	1.83	1.55	1.77	1.65	2.00		
	t-test	p<.001		p<.001		n.s.			
5. Think before deciding.	M	5.89 (5)	6.16 (4)	5.77 (5)	6.35 (4)	6.04 (4)	6.15 (4)	n.s.	n.s.
	SD	1.70	1.46	1.84	1.68	1.79	1.60		
	t-test	n.s.		p<.001		n.s.			
6. Have friends.	M	6.93 (1)	6.66 (3)	6.94 (2)	7.14 (1)	5.60 (5)	5.80 (5)	p<.01 A,G>S	p<.01 G>A>S
	SD	1.29	1.58	1.26	1.11	1.60	1.91		
	t-test	n.s.		p<.05		n.s.			
7. Read and write without mistakes.	M	4.83 (7)	5.44 (6)	4.93 (6)	5.44 (7)	4.53 (7)	4.80 (6)	n.s.	p<.01 A,G>S
	SD	1.87	1.64	1.86	1.79	1.90	1.84		
	t-test	p<.01		p<.001		n.s.			
8. Help others.	M	6.46 (3)	6.87 (2)	6.46 (4)	7.06 (2)	6.07 (3)	6.28 (3)	p<.05 A,G>S	p<.01 G>A>S
	SD	1.46	1.31	1.33	1.22	1.43	1.76		
	t-test	p<.01		p<.001		n.s.			

		Austria		Germany		Spain		ANOVA/ Duncan	ANOVA/ Duncan
		Mothers	Teachers	Mothers	Teachers	Mothers	Teachers	Mothers	Teachers
9. Be good in math/science.	M	3.69 (10)	5.05 (7)	4.17 (9)	4.89 (8)	3.76 (8)	3.57 (8)	n.s.	p<.01 A,G>S
	SD	1.88	1.82	1.86	1.82	2.01	1.77		
	t-test	p<.001		p<.001		n.s.			
10. Have a sense of art and taste.	M	2.92 (11)	3.31 (10)	2.72 (11)	3.21 (11)	3.19 (10)	3.45 (9)	p<.01 S>G	n.s.
	SD	1.67	1.92	1.52	1.68	1.75	1.45		
	t-test	n.s.		p<.001		n.s.			
11. Play an instrument.	M	2.69 (12)	3.16 (11)	2.31 (12)	2.43 (12)	1.97 (12)	1.81 (12)	p<.01 A,G>S	p<.01 A>G>S
	SD	1.82	1.74	1.73	1.94	1.34	1.61		
	t-test	p<.01		n.s.		n.s.			
12. Have a sense of humour.	M	4.85 (6)	4.29 (9)	4.61 (7)	4.44 (9)	3.64 (9)	3.98 (7)	p<.001 A,G>S	p<.01 G>S
	SD	1.94	2.07	1.94	1.91	1.86	2.23		
	t-test	p<.05		n.s.		n.s.			

[†]Mean importance ranking scores: 1=less important/8=very important; (mean rank position: 1=highest position/8=lowest position); within country differences between mother/teacher scores; cross-country differences in mother and teacher scores

6.3.3 Attitudes toward primary schooling

The third aspect of educational orientations that we examined is the *attitudes of mothers and teachers towards primary schooling*. Since the family and the primary school represent two different settings of socialisation that children experience, it is desirable that both of these settings complement one another positively, leading to an optimal breadth of experiences for children. Furthermore it is assumed, that children will profit from a co-operative relationship between mothers and teachers in their roles as educators (see chapter 3). Thus, in the first part of this section we examine the perception of mothers and of teachers about the importance of *tasks and functions* that may be ascribed to primary schooling. In the subsequent parts of this section, results on mothers' perceptions about the relevance of different *characteristics* of primary schools as well as of different *contents* and *methods* of instruction usually used in primary schools will be presented. This will provide a complementary picture of the beliefs mothers from the three countries share about these characteristics of primary schooling. Altogether, in an attempt to describe the attitudes of mothers (and partly teachers) towards primary schooling three questions will be examined:

1. What importance do mothers, compared to teachers, attach to *tasks* and functions of primary schools (e.g., teach children to organise their work and time, help children find solutions to peer conflicts)?
2. What value do mothers place on different *characteristics* of primary schools (e.g.; close to home, good reputation)?
3. What value do mothers place on different *content* (e.g., mathematics, religion) and *methods* (e.g., follow a text book, assign homework) of primary school lessons?

Mothers' and teachers' attitudes towards primary schools are examined from three perspectives. In particular, differences between countries with regard to *mothers'* and *teachers'* (if available) opinions are analysed, followed by differences in mothers' and teachers' points of view within the countries.

Tasks of primary schools. To examine the relative attitudes of mothers and teachers about the tasks and functions attributed to primary schools, a list of nine different typical tasks expected of schools was presented to teachers and mothers, who were asked to rank them according to their perceived importance. These tasks included that the school should:

1. provide discipline, that teaches children to behave.
2. teach students the value of competitiveness.
3. take more interest in the well-being of the students than in their academic achievement.
4. teach students to organise their time.
5. make a point of encouraging co-operation and positive relations among students.
6. help children to find solutions to peer conflicts without teacher's help.
7. encourage children to use school knowledge outside of school.
8. have as top priority the teaching of reading, writing and calculation.
9. emphasise the student's social competence (e.g., establish social rules with other children or put own needs and wishes aside).

Table 6.6 shows the mean importance rankings for the nine *tasks* reported by mothers and teachers in the three countries. The rank position of each task within each country - separately for mothers and teachers - is given in parentheses. To gain an impression of how mothers and teachers perceive each task, the rank position of each is taken into consideration. In general, the rank positions of the different tasks investigated in the study are quite similar in the three countries. Throughout the countries, the view of mothers and teachers toward the most important, the middle, and the least important tasks of primary schools is relatively consistent, with a few specific exceptions.

As Table 6.6 depicts, both mothers and teachers in all three countries, perceive the „encouragement of co-operation among the students“ to be the *most highly ranked* task, and thus, the most important function of primary schools. For German mothers, the next highest ranked tasks are similar: that the school should encourage children's social competence (item 9) and encourage their abilities to solve conflicts (item 6). Austrian and Spanish mothers, by contrast, rank as the next most important tasks, that schools should provide school-related knowledge (item 7) and teach students to organise their work and time (item 4). For German mothers both of these tasks belong to the medium rank positions (4-6), while, by contrast the two social tasks (items 2 and 6), which were more important from German mothers' points of view, appear in the medium rankings for Austrian and Spanish mothers.

Mothers from all three countries agree on the extent to which basic academics (reading, writing, calculation) is important for the school. This task of the primary school receives a medium rank of 4 in Austria and Spain and 5 in Germany.

Regarding the *least important tasks* of primary schools (rank 7-9), results again indicate great overlap among mothers in all three European countries. In particular, tasks which point to the value of competitiveness (item #2) as well as to children's discipline (item #1) are perceived to be the least important tasks of primary schools (item #2: rank 9 in Austria and Germany, rank 8 in Spain; item #1: rank 7 in Austria and Germany, rank 9 in Spain). Also, „Taking more interest in the well-being of the students than in their academic achievements“ is perceived by mothers from all countries as one of the least important tasks of primary schools (rank 7 in Austria and Germany, rank 8 in Spain).

To examine attitudes toward primary school tasks beyond the general profile found in the rankings of mothers, ANOVAs and subsequent Duncan tests were completed for each task, indicating differences in the mean importance ratings attributed to the tasks between the countries. The results indicate that Spanish mothers, compared to Austrian and German mothers, ascribe higher importance to the school as a place where discipline and good behaviour are emphasised and where students are taught the value of competitiveness. By contrast, Spanish mothers ascribe less importance to the school as a place where children are helped to find solutions to conflicts on their own, than do Austrian and German mothers. Also, Spanish mothers value the school's function of preparing children to use school-related knowledge outside school and to encourage children's social competence less than Austrian and German mothers. With regard to the encouragement of children's social competence, the same country specific differences were found when comparing teacher importance ratings. However, with regard to the other three items, country differences in teacher ratings do not result in a similarly clear picture as country differences for mothers do.

Teachers and mothers within the countries generally rank the tasks of primary schools similarly. As depicted in Table 6.6, results show that in 15 of 27 comparisons no statistically significant differences were found. Items with significant differences generally reflect the patterns already observed in the comparison of ranking positions. In general, in all three countries, teachers tend to place higher importance on social tasks (less emphasis on competitiveness by teachers), on co-operation and positive relations and on children's well-being) than mothers do although differences are not consistently significant in all three countries.

Table 6.6 Different tasks of primary schools: Mothers' and teachers' importance rankings⁺; cross-country differences

		Austria		Germany		Spain		ANOVA/ Duncan	ANOVA/ Duncan
		Mothers	Teachers	Mothers	Teachers	Mothers	Teachers	Mothers	Teachers
1. It should be a school with discipline, that teaches the child to behave	M	3.97 (8)	3.68 (8)	4.17 (8)	4.67 (8)	4.74 (6)	4.12 (8)	p<.05 S>A, G	p<.01 G>A,S
	SD	2.38	2.05	3.33	2.28	3.06	2.79		
	t-test	n.s.		p<.05		n.s.			
2. It should teach students the value of competitiveness	M	2.56 (9)	1.53 (9)	2.65 (9)	2.05 (9)	4.33 (8)	2.28 (9)	p<.001 S>A,G	p<.01 G,S>A
	SD	1.90	1.30	2.09	9.18	2.61	2.25		
	t-test	p<.001		p<.001		p<.001			
3. It should take more interest in the well-being of the students than in their academic achievements	M	4.78 (7)	5.76 (5)	4.62 (7)	4.96 (7)	4.23 (9)	4.62 (7)	n.s.	p<.01 A>G,S
	SD	2.44	2.41	2.71	5.04	2.61	2.54		
	t-test	p<.01		p<.05		n.s.			
4. It should teach students to organise their work and their time	M	5.45 (3)	5.77 (4)	5.08 (6)	5.10 (5)	5.57 (2)	5.85 (2)	n.s.	p<.001 A,S>G
	SD	2.34	2.03	2.23	2.22	2.23	1.92		
	t-test	n.s.		n.s.		n.s.			
5. It should make a point of encouraging co-operation and positive relations among the students	M	6.24 (1)	6.71 (1)	6.20 (1)	6.48 (1)	6.05 (1)	7.10 (1)	n.s.	p<.001 S>G
	SD	1.99	1.90	2.19	1.93	2.19	1.84		
	t-test	n.s.		n.s.		p<.001			
6. It should help children to find solutions to peer conflicts without the teacher's help	M	5.20 (6)	5.14 (7)	5.70 (3)	5.06 (6)	4.59 (7)	5.61 (3)	p<.001 G>A>S	p<.05 S>G
	SD	2.16	2.07	2.00	2.04	2.31	2.09		
	t-test	n.s		p<.01		p<.01			

		Austria		Germany		Spain		ANOVA/ Duncan	ANOVA/ Duncan
		Mothers	Teachers	Mothers	Teachers	Mothers	Teachers	Mothers	Teachers
7. It should encourage children to use school knowledge outside of school	M	6.00 (2)	5.89 (3)	5.59 (4)	5.64 (4)	5.36 (3)	5.46 (4)	p<.01 A>S	n.s.
	SD	2.48	2.62	2.56	2.54	2.37	2.23		
	t-test	n.s.		n.s.		n.s.			
8. It should have the teaching of reading, writing and calculation as top priority	M	5.40 (4)	5.39 (6)	5.26 (5)	5.92 (3)	5.26 (4)	4.99 (5)	n.s.	p<.001 G>S
	SD	3.01	2.53	2.78	2.71	2.63	2.45		
	t-test	n.s.		p<.05		n.s.			
9. It should emphasise the students' social competence	M	5.34 (5)	6.27 (2)	5.71 (2)	6.41 (2)	4.78 (5)	4.95 (6)	p<.01 A,G>S	p<.001 A,G>S
	SD	2.26	2.31	2.53	2.32	2.43	2.06		
	t-test	p<.05		p<.01		n.s.			

[†]Mean importance ranking scores: 1=less important/ 9=very important; (mean rank position: 1=highest position/9=lowest position); within country differences between mother/teacher scores; cross-country differences in mother and teacher scores

Characteristics of primary schools. A second domain of attitudes toward primary schools investigated in the ECCE study examined mothers' perceptions¹⁰ of different quality aspects of primary schools. These aspects represent a broader range of school characteristics which are less educationally-oriented than the school tasks discussed in the preceding section. To measure the relative importance that mothers attach to these quality aspects, respondents were given a list of the following nine characteristics of schools and asked to rank the importance of each.

The primary school should:

1. be close to home.
2. have a good reputation.
3. be well-equipped and have good facilities (sports, laboratories)
4. have a competent and well-trained staff.
5. have a wide range of extra-curricular and complementary activities (sports, language, music, computers).
6. have an ideological or religious orientation in line with parents' preferences.
7. encourage the participation of parents at school.
8. be a place where the child meets good classmates and friends.
9. provide opportunities for child care beyond school hours.

Table 6.7 shows the mean importance rankings for the nine *characteristics* reported by mothers in the three countries. The mean rank position of each characteristic within each country is shown in parenthesis. As with the tasks and of primary schools (see paragraph above, Table 6.6) the rank positions of the different characteristics are quite similar in the three countries. For two items (4 and 8) we find identical rank positions across the countries, for an additional five items (2, 3, 5, 6, and 7) identical rank positions for two countries can be seen. A difference of three rank positions occurs only once with item 3 where Spanish mothers give higher priority (rank 3) than mothers in Austria and Germany (rank 6). However, throughout the countries, the view of mothers toward the most important, the middle, and the least important characteristics of primary schools is relatively consistent.

¹⁰ This domain specifically focuses on parental perspectives. Therefore, only mothers, (not teachers), participated in this area.

Table 6.7 Characteristics of primary schools: Mothers' importance rankings⁺; cross-country differences

		Austria	Germany	Spain	ANOVA/ Duncan
1. It should be close to home.	M SD	4.79 (5) 2.46	5.06 (4)	4.40 (6)	p<.05 A,G>S
2. It should have a good reputation.	M SD	4.34 (7) 2.48	3.61 (8) 2.25	3.32 (8) 2.48	p<.01 A>G,S
3. It should be well-equipped and have good facilities.	M SD	4.54 (6) 1.93	4.81 (6) 2.10	5.86 (3) 1.91	p<.001 S>A,G
4. It should have a competent and well-trained staff.	M SD	8.47 (1) 1.69	8.55 (1) 1.11	8.16 (1) 1.74	p<.05 A,G>S
5. It should have a wide range of extra-curricular and complementary activities (e.g., sports, languages).	M SD	5.12 (3) 2.40	4.95 (5) 2.19	5.02 (5) 1.88	n.s.
6. It should have an ideological or religious orientation in line with parent's preferences.	M SD	3.71 (9) 2.60	3.09 (9) 2.29	3.37 (7) 2.28	n.s.
7. It should encourage the participation of parents at the school.	M SD	4.97 (4) 2.16	5.22 (3) 1.95	5.13 (4) 1.82	n.s.
8. It should be a place where the child meets good classmates and friends.	M SD	5.98 (2) 1.94	5.26 (2) 2.41	6.58 (2) 1.90	p<.001 S>A>G
9. It should provide opportunities for child care beyond school hours.	M SD	3.75 (8) 2.29	4.44 (7) 2.31	3.26 (9) 1.95	p<.001 G>A>S

⁺ Mean importance ranking scores: 1=less important/ 9=very important; (mean rank position: 1=highest position/9=lowest position)

Austrian, German and Spanish mothers ascribe highest importance to competent staff in the school followed by the school being a place where the child meets good classmates and friends. Taken together, an appropriate personal context of a school seems to have the highest priority for mothers. For German mothers, the opportunity for parent involvement is also important and ranks next („school should encourage the participation of parents at school“), whereas in Spain the characteristic that ranks third is that the school be well-equipped and have good facilities (3).

The characteristics to which mothers generally ascribe *medium rank positions* (rank 4-6) are more or less similar with at least mothers from two countries having the same ranking.

The characteristics receiving medium rank positions include location (closeness to home), and the physical properties of being a good facility that is well-equipped (except in Spain), a wide range of extra-curricular activities (except in Austria), and the encouragement of parents' participation (except in Germany). These items relate to material conditions of the school and to links of the school to its environment (Distance to children's home, Participation of parents in the school) as well as to activities which are often done outside school.

Regarding the *least important* characteristics of primary school (rank 7-9), characteristics were found that are associated with the schools' reputation and religious orientation as well as care opportunities beyond schooling. Furthermore, the care function of a school in addition to the lessons is regarded as less important.

Altogether a relatively clear and consistent picture emerges in the three countries about mothers' relative values for the various school quality characteristics. Good teachers and good classmates are of primary importance, while diverse and concrete relations of the school to its context are next. Ideological aspects (e.g., religious orientation, reputation) as well as children's care beyond school lessons are perceived as additional functions of schools and are less important.

To examine attitudes toward primary school quality characteristics beyond the general profile found in the rankings of mothers, ANOVAs and subsequent Duncan tests were completed for each quality aspect. The differences in the *mean importance ratings* reach significance in 6 out of 9 quality aspects. Most of these differences were already reflected in the differences of rank positions described above. Considering country differences across the various quality characteristics, Spanish mothers tend to give more importance than Austrian and German mothers to immediate school characteristics and aspects such as school as a place where the child meets good classmates and friends, the school as a well-equipped, good facility. Austrian and German mothers, on the other hand, tend to more strongly emphasise a competent and well-trained staff, although this is the most highly ranked item in all countries. Furthermore, the closeness of the school to the home and the provision of child care beyond school lessons (linking school to family) are more important for Austrian and German mothers than for Spanish mothers.

Content areas and teaching methods of school lessons. The third and fourth domains to be examined, with regard to attitudes towards primary schools, are the relative importance

mothers ascribe to the various subjects taught and to the different methods of instruction that might be used to teach them. Mothers were shown nine cards representing each of these two domains (e.g., nine items for subjects, nine items for methods) and were asked to order them according to what they perceived to be of „least importance“, „medium importance“ and „most importance“. The nine content areas and methods are listed below:

Content areas taught in primary schools

1. Reading-writing, spelling and grammar.
2. Mathematics.
3. Knowledge of the physical world in which the child lives.
4. Moral values including respect to others, equality and tolerance.
5. Sex education.
6. Sports and physical education.
7. Religion.
8. Art and music.
9. Foreign languages.

Methods of primary schooling

1. Use an exercise book with exercises that are reviewed and corrected daily.
2. Follow a text book.
3. Assign homework for students to do at home.
4. Carry out experiments.
5. Teach through play activities.
6. Visit museums and exhibitions.
7. Go on excursions to the countryside, parks, etc.
8. Use audio-visual methods (slides, cassette recordings, videos).
9. Use computers.

Table 6.8 shows the *mean ranking of importance* for the nine *content areas* of instruction in primary schools, assigned by mothers in the three countries. The rank position of each subject within each country is given in parenthesis.

In general, the rank positions of the different content areas taught in primary schools are quite similar in the three countries. The maximum difference in an item is 2 rank positions.

This occurs in 3 or the 9 items. In all other items, there is only a difference of one rank position or items have identical rank positions in all countries.

Mothers appear to consider the traditional content areas of primary schooling „reading-writing, spelling and grammar“ and „mathematics“ as well as „education in moral values“ as the most important subjects of instruction. The areas to which mothers generally ascribe a *medium rank position* (rank 4-6) are also quite similar in the three countries with perfect correspondence in Austria and Germany. Mothers in our sample agree upon „knowledge of the physical world“ and „sports and physical education“ to be areas of medium importance for primary schools. „Art and music“ is ranked in a medium position by Austrian and German mothers (rank 6), while Spanish mothers' view this subject among the least important (rank 8) and place „foreign languages“ in the medium rank. Regarding the *least important* areas of primary schooling (rank 7-9), „sex education“, „religion“ and „foreign languages“ (the latter only in Austria and Germany) are perceived as being the least important subjects that students should be taught in primary schools.

Table 6.9 shows the *mean ranking of importance* for the nine *methods* that might be used to teach the content areas in primary schools, as reported by mothers in three countries.

In contrast to the consistency seen in rankings of areas described above, a less consistent picture arises for the different methods of instruction that might be used to teach the subjects, especially with regard to Spain. Almost perfect consistency in the methods ranked as least, medium and most important is found for Austrian and German mothers. Six out of nine items are ranked exactly the same in Austria and Germany, and if items are grouped in three broader categories of low (rank 1-3), medium (rank 4-6) and high importance (rank 7-9) a perfect convergence in responses can be observed.

Mothers from all three countries agree that „learn through play“ is the most important method to be used in primary school instruction (rank 1), while they also consider „use computers“ as one of the least important methods. However, beyond these agreements, discrepancies exist between mothers from Austria and Germany on the one side and Spain on the other.

The two other methods to which Austrian and German mothers ascribe *high importance* is „assign homework“ and „go on excursions“. The three medium ranked methods in Austria and Germany are „use an exercise book“, „follow a text book“ and „carry out experiments“

while „visit museums“, „use audio-visual methods“ and „use computers“ (also in Spain) are considered to be least important methods of instruction in primary school.

By contrast, Spanish mothers perceive „use an exercise book“ and „follow a text book“ to be the most important methods (beside „learning through play“); „visit museums“, „go on excursions“ and „use audio-visual-methods“ as being of medium importance and „assign homework“, „carry out experiments“, and „use computers“ as least important methods used in primary school.

Table 6.8 Content areas of primary school; Mothers importance rankings⁺; cross-country differences

		Austria	Germany	Spain
1. Reading-writing, spelling and grammar.	M SD	2.81 (1) .23	2.94 (1) .26	2.96 (1) .47
2. Mathematics.	M SD	2.72 (2) .48	2.72 (2) .51	2.68 (3) .59
3. Knowledge of the physical world in which the child lives.	M SD	2.13 (4) .67	2.13 (4) .68	2.52 (4) .65
4. Moral values including respect to others, equality and tolerance.	M SD	2.61 (3) .62	2.52 (3) .62	2.80 (2) .44
5. Sex education.	M SD	1.24 (9) .42	1.23 (8) .47	1.78 (7) .72
6. Sports and physical education.	M SD	2.07 (5) .60	2.04 (5) .62	1.95 (6) .65
7. Religion.	M SD	1.52 (8) .60	1.19 (9) .43	1.50 (9) .67
8. Art and music.	M SD	1.68 (6) .63	1.70 (6) .60	1.66 (8) .67
9. Foreign languages.	M SD	1.60 (7) .71	1.57 (7) .73	2.23 (5) .72

⁺ Mean importance ranking scores: 1=least important/3=most important; (rank positions according to mean values in the table: 1=highest rank position/9=lowest rank position). Due to slightly different data collection procedures used in the 3 countries for this subdomain, statistical cross-country comparisons are not reported.

Taken together, Spanish mothers give teacher-directed methods such as using a text and exercise book (which are corrected exclusively by the teacher) the highest value, while Austrian and German mothers prefer methods that enable both mothers and teachers to share responsibility for children’s learning at home and in school (e.g., assign homework to be done at home). Also, with regard to learning outside of school, Austrian and German mothers show an orientation towards play-based fieldtrips (going on excursions to the countryside or parks) rather than the more cultural fieldtrips (e.g., visiting museum) preferred by Spanish mothers. In this context it also seems reasonable that Spanish mothers perceive audio-visual methods to be more important than their Austrian and German counterparts.

Table 6.9 Methods used in primary schools: Mothers’ importance rankings; cross-country differences

		Austria	Germany	Spain
1. Use an exercise book with exercises that are revised and corrected daily	M SD	2.17 (4) .83	1.95 (6) .86	2.51 (2) .76
2. Follow a text book	M SD	1.99 (5) .72	2.08 (4) .84	2.42 (3) .76
3. Assign homework for students to do at home	M SD	2.25 (3) .75	2.17 (3) .81	1.84 (9) .78
4. Carry out experiments	M SD	1.98 (6) .76	2.02 (5) .77	2.09 (7) .74
5. Teach through play activities	M SD	2.64 (1) .66	2.71 (1) .60	2.52 (1) .65
6. Visit museums and exhibitions	M SD	1.72 (7) .74	1.63 (7) .65	2.31 (4) .72
7. Go on excursions to the countryside, parks, etc.	M SD	2.38 (2) .69	2.27 (2) .70	2.16 (6) .78
8. Use audio-visual methods (slides, cassette recordings, video)	M SD	1.71 (8) .78	1.61 (8) .68	2.19 (5) .74
9. Use computers	M SD	1.61 (9) .76	1.58 (9) .70	2.07 (8) .81

[†] Mean importance ranking scores: 1=least important/3=most important; (rank positions according to mean values in the table: 1=highest rank position/9=lowest rank position). Due to slightly different data collection procedures used in the 3 countries for this subdomain, statistical cross-country comparisons are not report

6.4 Summary and discussion

This chapter presented descriptions of the varying educational beliefs of parents and teachers of 8-year old children. In this study, the educational beliefs of parents and teachers are viewed from a multi-dimensional perspective, which covers expectations about children's development, educational goals, and attitudes toward primary schools. In particular, three subdomains of educational beliefs have been specified and investigated from the perspective of mothers and, for some areas, of teachers as well: Within the first subdomain, *developmental expectations* of mothers and teachers were explored. Within the second subdomain mothers' and teachers' ideas about *educational goals* were investigated. Finally, within the third subdomain, mothers' and teachers' ideas about *tasks/functions* of primary schools were considered. Furthermore, maternal perspectives on *quality aspects* of primary schools as well as on the importance of *teaching content areas* and *methods* in primary schools were assessed. Analyses and results attempted to answer three research questions:

- What are the maternal beliefs and do these beliefs vary between the countries?
- What are the teachers' beliefs and do these beliefs vary between the countries?
- Are there differences between mothers' and teachers' beliefs within a country and what are those differences like?

Developmental expectations. The overall pattern of *mothers'* developmental expectations can be described as follows: Spanish mothers, in general, expect children's development to occur consistently at an older age (about 2 months later) than Austrian and German mothers do. This tendency is clearly reflected in expectations of almost all abilities and skills assessed. However, it is especially pronounced in expectations concerning children's autonomy. An exception to this general result is found for the item multiplication abilities (i.e., multiplying 2-digit numbers) that represents a very narrow school-related competency. Spanish mothers expect multiplication abilities to occur at an earlier age compared to mothers in Austria (1;11 years later) and Germany (1;5 years later). This striking result is reasonable having in mind that Spanish children in the sample usually are in the third

grade, while Austrian and German children are in the second grade. Austrian and German mothers in general hold more or less similar expectations with only a few exceptions in which they differ slightly. However, such differences are inconsistent, without any pattern.

Regarding developmental expectations of *teachers*, the results are quite similar to those of mothers. As with Spanish mothers, Spanish teachers tend to expect developmental progress in children generally at an older age than their counterparts in the other two countries. With an average of 4-6 months later, this country difference is rather more pronounced for teachers' expectations than for mothers' expectations. Again, Austrian and German teachers share similar expectations with only a few exceptions.

No doubt the most striking country differences observed in the data on developmental expectations relate to behaviours and skills of students concerning their autonomy. Both, mothers and teachers in Austria and Germany express substantially earlier expectations on primary school aged children's autonomy than their counterparts in Spain. This difference obviously reflects different cultural traditions regarding what children should be able to explore and to do in their environments and what to decide on their own. It is interesting to note that those differences are less clear or even not present when the expectations on the child's development of knowledge are considered.

Results on the *differences* between mothers' and teachers' expectations analysed within countries also show very clear country patterns. Beyond the general effect of later expectations held by Spanish respondents (both mothers and teachers), results show that this effect is pronounced for Spanish teachers who have still later expectations than Spanish mothers (about 2 months on average). By contrast, in Germany, the opposite result is found; thus German mothers have later expectations than teachers with a magnitude of 2-3 months. Austrian mothers and teachers seem to have the most congruent developmental expectations, although this trend is clearly reflected only in the Total and the Autonomy scale.

Educational goals. For the importance ascribed to educational goals by *mothers* and *teachers* in the three participating countries, a very coherent picture emerges. In general, mothers and teachers seem to hold more or less similar attitudes about the importance of educational goals. Consistently among countries, educational goals that relate to children's personality and sociability are given top priority, followed by goals targeting achievement (especially school-achievement) which receive medium rank positions and finally, aesthetic

goals to which least importance is ascribed. Thus, mothers and teachers from all countries give first priority to educational goals such as reliability; confidence; sociability; and helping others. Medium importance ranks are ascribed to children's progress in achievement and school-related skills, such as read and write without mistakes; be good in mathematics and science. Educational goals which are considered relatively least important include aesthetic goals such as develop talent for drawing; develop a sense of art and taste, or learn to play an instrument.

Beyond this general profile, country differences can be observed in the sense that Austrian and German mothers tend to ascribe generally higher importance than do Spanish mothers to social educational goals (e.g., be sociable and have friends, be ready to help others) and to art-related educational goals (e.g., learn to play an instrument, develop a talent for drawing), irrespective of the goals rank in general of high, medium or low. The country difference found for teachers are more or less similar to those found for mothers.

Differences between mothers' and teachers' opinions about the importance of educational goals is characterised by clear country profiles: With the exception of 1 of the 12 items, no differences in importance ratings between teachers and mothers was found in Spain, whereas in Germany teachers assign higher importance to most of the goals than mothers do. This pattern is partly reflected in Austria, although here the picture is rather inconsistent. A striking result relates to country differences in mothers' and teachers' perception of the importance of obtaining good grades at school. While Austrian and Spanish teachers ascribe lower importance to this goal than mothers do in these countries, in Germany, an opposite picture emerges, with German teachers giving higher value to good grades than German mothers.

The comparatively higher prioritising of social educational goals by the Austrian and German respondents coincides with the earlier developmental expectations on children's autonomy as described above.

Attitudes toward primary schools. The investigation of attitudes toward primary schools, as the third subdomain of educational beliefs, covered three aspects: *Tasks/Functions* assigned to primary schools (assessed both by mothers and teachers), the importance of various *quality aspects* of primary schools (assessed only by mothers), and the importance of various *content and methods* used in primary schooling (assessed only by mothers).

Mothers from all three countries generally have similar perceptions about the relative importance of *tasks assigned to primary schools*. Of the nine tasks respondents were asked to rate in terms of importance, they consistently ranked those related to the encouragement of co-operation among students (e.g., school should help children to find solutions to peer conflicts without teachers' help) to be most important while they ranked the imparting of the three „R's“ (i.e., reading, writing, arithmetic) to be of secondary importance, and tasks related to children's discipline and the value of competitiveness to be least important.

Systematic differences between the countries were found regarding the mean rankings given by mothers for each task. In particular, Spanish mothers ranked tasks related to children's discipline and good behaviour as well as to the value of competitiveness to be more important than Austrian and German mothers. By contrast, Austrian and German mothers value the encouragement of children's social competencies and the use of school-related knowledge outside school to be more important functions of primary schooling than Spanish mothers.

Teachers perception of the importance of different tasks of primary schools closely mirror mothers' perceptions with the encouragement of co-operation between students given top priority, the imparting of the three „R's“ given medium priority and discipline and the value of competitiveness given least priority. Systematic differences in the mean rankings between the countries were not found, so that the differences that did occur do not reflect any clear country profiles.

In general, the *differences* of the mean rankings of mothers and teachers follow a clear pattern. While for the majority of tasks ascribed to primary schooling mothers and teachers hold the same rankings, in all countries teachers emphasise more the importance of children's well-being over their academic achievements, the co-operation among students and the development of social competencies. This emphasis on social values is also reflected in another result showing that teachers ascribe lower importance to the value of competitiveness than mothers in all three countries do.

Quality aspects of primary schools. Results related to *quality aspects of primary schools* that cover the more general function of primary schools and which are less focused on the individual child, are quite homogenous in all three countries. Mothers from all countries agree that appropriate personal contexts of school have the highest priority. This

personal context includes characteristics of the staff (i.e., School should have a competent and well-trained staff) and characteristics of the classmates (i.e., School should be a place where the child meets good classmates and friends). Characteristics that point to relations of the school with its context (e.g.; closeness to home, good facilities and well-equipped, extra-curricular activities) are of secondary importance while ideological aspects (e.g., religious orientation, reputation) are least important quality aspects.

Remarkable differences between the countries appear with regard to the more external characteristics of the school, such as well-equipped and good facilities as well as for internal quality aspects such as the school being a place to meet good classmates and friends, which Spanish mothers rank higher than Austrian and German mothers do. By contrast, Austrian and German mothers tend to emphasise more strongly a competent and well-trained staff. Also, Austrian and German mothers ascribe higher value to characteristics reflecting the link of school and family (e.g., Provision of child care beyond school) than Spanish mothers.

For the *content areas and teaching methods* of school lessons, again a relatively homogenous picture emerges. In particular, in all countries mothers consider basic subjects traditionally taught in primary schools (i.e., Reading, Writing, Grammar; Mathematics) to be the most important content areas, followed by subjects that are considered to be less basic, but still traditionally incorporated into the primary curriculum (e.g., Art and music; Knowledge of the physical world) which are given medium rank positions. Subjects such as sex education, religion and foreign languages, which are less traditionally found in the basic primary curriculum, are perceived to be least important content areas.

Regarding *teaching methods*, the picture is less consistent showing high overlap between Austrian and German mothers, with some exceptions for Spanish mothers. In particular, Austrian and German mothers give methods that enable mothers and teachers to share their responsibility for children's learning (i.e., Assign homework) higher priority while Spanish mothers give higher priority to teacher-implemented methods than Austrian and German mothers do (i.e., using a text and exercise book). Also, Austrian and German mothers give higher importance to more informal methods that enable children to learn outside school (e.g., go on excursions) and through play while Spanish mothers consider more formal educational learning methods outside school (e.g., visiting museums) to be of higher importance. Also, Spanish mothers perceive audio-visual methods to be more important (medium ranking) than Austrian and German mothers (last ranking).

To summarise the mother and teacher results on the various educational orientations, with regard to primary schooling of 8-year old children, one may draw the following picture. Across all three countries, and independent of whether mothers or primary school teachers are asked, priority is given to social goals such as „the child should become a confident, sociable, reliable person, and be ready to help others“. Indeed, those goals can be considered as basic and prerequisite in a world where children are increasingly involved in interactions with others, where inter-dependence and problem-solving predominate, and where the coherence of groups and the society as a whole needs the respective abilities and skills of their members. These basic goals are considered even more important for primary school students than good performance in traditional school subjects (reading, writing, math, and science).

Corresponding to these findings on educational goals, mothers and teachers believe the top tasks of primary school are to encourage co-operation and positive relations among the students, student's social competence, their self-regulation (teach to organise their work and their time) as well as their ability to use, in other settings, what they have learned in school. In line with this perspective the most important characteristics of a good school are competent and well-trained teachers as well as good classmates and friends, (i.e., a social environment supportive of the goals mentioned).

When asked which content areas should be taught in primary schooling, mothers emphasise the traditional subjects (reading, writing and mathematics), followed by the teaching of moral values and the knowledge about the physical world. Other subjects, including art and musical education, teaching a foreign language, sex education or religion, are considered less important. The emphasis on the traditional primary school subjects does not necessarily seem to be contradictory to the high importance of social goals, since the teaching of the latter and the respective experiences of students, need a content-related context.

Within this overall pattern, valid for all three countries, specific country profiles are seen, one shared by the two more northern countries and another typical of Spain. First, although social goals are prioritised by all respondents, both mothers and teachers in Austria and Germany ascribe even more importance to social goals than their counterparts in Spain. Fitting with the emphasis on social goals, mothers and teachers in Austria and Germany also expect development of children's autonomy (i.e., the ability and skills to act independently

and successfully in various social contexts, such as select and put on own clothes alone, buy things nearby alone, or use public transportation alone) at an earlier age than do respondents in Spain.

Corresponding to this picture, Austrian and German mothers put less importance than do Spanish, on traditional teaching methods such as the use of exercise books, and when excursions are done, they give lower priority to „academically oriented“ experiences such as visits to museums and exhibitions and higher priority to more „free“ experiences such as excursions to the country side. Also the link of the school to the family is given higher priority in several ways (that the school should be close to the home and that the school should assign homework for all students to do at home). And finally, the importance of well-trained staff is more highly rated in Austria and Germany than in Spain.

If one were place labels on the two country specific profiles, one could say that within a generally common pattern of educational orientations across the three countries, in Spain there is the tendency towards a more classical portrait of the school, as a more traditional learning environment. In the more northern countries, the primary school appears as a somewhat more open learning environment with stronger links to the families, where social goals and autonomy are more emphasised. Many professionals in education would call this a more modern concept of school. However, it should be noted that the two profiles are described as differentiations within a common pattern of educational orientations and that educational orientations are not necessarily identical to educational reality.

7. INDICATORS OF CHILD DEVELOPMENT FROM A LONGITUDINAL PERSPECTIVE

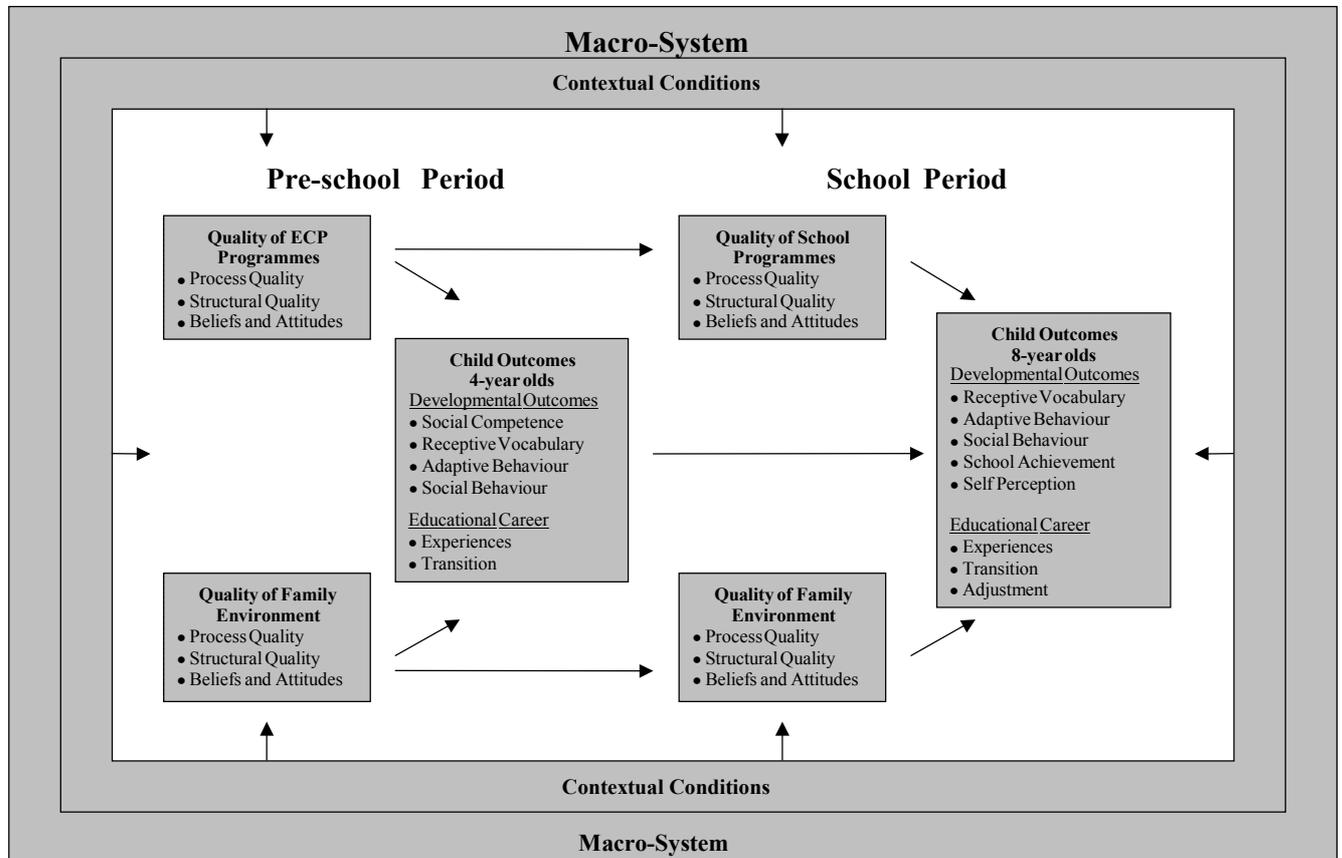


Figure 7.1 Conceptual framework for analyses of predictors of children's developmental status at age 8 in various countries

7.1 Introduction

In this study, we assume that the development of 8-year-old children is influenced primarily by the educational quality they experience in the family in two phases of their biography, the pre-school and school phase, and also by the educational quality they experience in the institutional environments of pre-school and school. Previous chapters have presented descriptive information on the quality of children's family and primary classroom settings. In addition, aspects of continuity and change between the children's family and classroom settings at 4 and 8 years of age have been addressed. The purpose of this chapter is

to investigate how the quality of care in family and institutional settings is related to *child outcomes* in various developmental domains.

The shaded portions of Figure 7.1 show the parts of the conceptual framework used in the ECCE study that were included in the analyses for this chapter. As can be seen, the analyses includes *all* blocks of variables discussed in previous chapters (the macro system, contextual variables, ECP and school classroom quality indicators, family environment variables and developmental status in the pre-school period), as well as the *measures of developmental status at age4 and 8*.

The analyses are conducted from the perspective that among the various components of the system shown in Figure 7.1 there are many different variables in the system that are related to, and have an effect on, other variables in the system. For example:

- structural or process variables in the *family* may enhance or detract from children's developmental progress;
- structural or process variables in the *classroom* (both ECP and primary school) may enhance or detract from children's developmental progress; or
- contextual and macro system variables may be related to characteristics of the family and classroom as well as children's development.

In other words, the analyses in this chapter attempt to examine the *inter-relationships* of all blocks of variables in the system from a longitudinal perspective in order to draw some conclusions about the relation of these variables to measures of child development. Using follow-up data on children, the chapter will address the effects of ECP programme, primary school classroom, and family environment, as well as context and macro-system conditions, on the development of those children in various domains (e.g., social-emotional development, language development, development of school-related abilities).

It is important to note that analyses in this chapter are not focused on whether there are differences among the three participating countries with respect to children's developmental outcomes. Instead, the analyses focus on *whether* and to *what extent* quality in the four settings is related to children's developmental outcomes. Consistent with the cross-national approach used in the other chapters, analyses will focus on whether there are similarities or differences among the countries in the way various aspects of child care and educational quality in the family, ECP, and school classroom are related to children's development.

In the first subsection that follows, child outcome measures used at age 8 will be presented. The rationale for selection of instruments will be provided, the instruments will be discussed, and results of psychometric characteristics will be shown (7.2). In the next subsection, (7.3) the research questions to be addressed in this chapter will be presented in more detail, as well as the analytical approach and the statistical model used. The results section (7.4) distinguishes between findings in cognitive-achievement related areas of development and in the social-emotional area. This is followed by a summary of the main results.

7.2 Child development outcome measures

Measures for assessing the quality of the family and classroom settings, as well as the contexts of these settings, were presented and discussed in previous chapters and will not be addressed further. Rather, the various child outcome measures used in this study will be described. The assessment of children's developmental outcomes at age 8 was guided by four considerations. First, it did not seem reasonable to use instruments that focus primarily on isolated narrow psychological dimensions, but are less applicable to everyday life situations. Instead, in accordance with educational goals, more molar, true-to-life measures (Lazar & Darlington, 1982) were chosen which assess the individuals' ability to adapt to, effectively cope with, and master a variety of daily life situations (Rosenbaum, Saigal, Szatmari & Hoult, 1995; Schmidt-Denter, 1994; Sparrow, Balla & Cicchetti, 1984). Second, despite high inter-individual variability, the educational biographies follow a common pattern in the European cultures. For example, children in ECPs are expected to cope with specific daily life situations and to be able to interact in their ECP group. A child in primary school is asked to cope with a broader set of daily living situations and, in particular, to have adapted to the role of being a student, and to meet the basic requirements for school achievement. Based on this, the selection of instruments to assess developmental outcomes was guided by the demand of being consistent with such culturally normative developmental biographies. Third, consistent with the conceptual framework on which the ECCE study was based, children's behaviour is viewed as being inseparable from the context in which it occurs. Consequently, the child's social competence and ability to deal with daily life situations was measured separately with regard to the child's classroom (ECP and primary school) and family settings:

the two main socialisation contexts within which the child lives and develops. Fourth, developmental domains being measured during the pre-school phase of children's development should also be measured during the school phase. However, in accordance with the developmental challenges of a school-aged child, the main domains of school achievement in primary school should be assessed. This school-focused perspective should include the children's perception of their school experiences and their attitudes and feelings about school. A general requirement for all measures to be used in the study was that they should be short enough to be completed in a reasonable amount of time, that they should be adaptable to different cultural backgrounds (countries), and adaptable, to the extent required, for use by both of the respondent groups, mothers and teachers. This conceptual approach resulted in the selection of the following domains to be explored and the instruments with which to measure these domains:

Independence and mastery of daily living skills (as rated by mothers in the family setting); assessed with an adaptation of the Vineland Adaptive Behavior Scales (VABS, survey-form) by Sparrow, Balla and Cicchetti (1984) for use by mothers.

Independence and mastery of daily living skills (as rated by teachers in the classroom setting); assessed with an adaptation of the Vineland Adaptive Behavior Scales (VABS, survey-form) by Sparrow, Balla and Cicchetti (1984) for use by teachers.

Social competence (as rated by mothers in the family setting); assessed with an adaptation of the Classroom Behavior Inventory (CBI) by Schaeffer, Edgerton and Aaronson (1976) suitable to the family environment.

Social competence (as rated by teachers in the classroom setting); assessed with the Classroom Behavior Inventory (CBI) by Schaeffer, Edgerton and Aaronson (1976).

Language performance assessed with the Peabody Picture Vocabulary Test (PPVT) by Dunn and Dunn (1981).

Academic achievement in various domains such as passage comprehension, calculation, applied problems, science, social studies; assessed with an adaptation of the Woodcock-Johnson Tests of Achievement-Revised (WJ-R) by Woodcock and Johnson (1990).

Children’s self perceptions, attitudes and feelings about school assessed with an adaptation of Young Children’s Feelings About School measure (FAS) (cf. Stipek, 1993; Stipek, Fieler, Daniles & Milburn, 1995; Stipek & Ryan, 1997).

An overview of all instruments to assess the developmental outcomes examined in this study is presented in Table 7.1.

Table 7.1 Instruments used to assess children’s development

Instrument	Dimension	Number of items		Goals, item examples
		Family version	Class-room version	
VABS (Vineland Adaptive Behavior Scales)	Adaptive Behaviour: Total Scale	85	32	<i>Goal:</i> Investigate the adaptive behaviour of children in different life domains <i>Response set:</i> (2) child usually does it, (1) child partly does it, (0) child never does it
	1. Communication	22	15	<i>Item examples:</i> States complete home address, including city and state when asked.
	2. Daily living skills	37	6	Assists in food preparation requiring mixing and cooking.
	3. Socialisation	26	11	Has a preferred friend of either sex.
CBI (Child Behavior Inventory)	Classroom Behavior Inventory: Total Scale (consisting of 10 subdimensions, e.g., Considerateness; Creativity; Extroversion; Distractibility)	37	42	<i>Goal:</i> Investigate major dimensions of social and emotional behaviour <i>Response set:</i> (1) not at all, (2) very little, (3) somewhat, (4) much, (5) very much <i>Item examples:</i> Child awaits his turn willingly. Child says interesting and original things. Child is almost always light hearted and cheerful. Child is quickly distracted by events in or outside the classroom.

Instrument	Dimension	Number of items		Goals, item examples
		Family version	Class-room version	
Young Children's Feelings About School (FAS)	1. Attitudes towards school 2. Perceived competence 3. Feelings about school	Austria, Germany: 9 Spain: 7		<i>Goal:</i> Investigate children's self perceptions of competence, concerns about school, feelings about their teacher, and attitudes toward school <i>Item example:</i> These children's faces show us how well children do in school. Please tell me how well you are in school. <i>Response set:</i> (1) Some children aren't good at all, (2) Some children aren't very good, (3) Some children are just okay, (4) Some children are pretty good, and (5) Some children are very good
PPVT-R (Peabody Picture Vocabulary Test)	Receptive vocabulary: Raw Score	Austria/ Germany: 100 Spain: Number of items varied depending on child's performance		<i>Goal:</i> Investigate child's vocabulary as indicator of language development <i>Response set:</i> right/wrong (child points at the picture that corresponds to the word given by the investigator) <i>Item examples:</i> empty, shoulder, peel
WJ-R (Woodcock Johnson Tests of Achievement)	Academic achievement: Total Score 1. Passage Comprehension 2. Calculation 3. Applied Problems 4. Science 5. Social Studies	114 20 29 25 22 18		<i>Goal:</i> Measuring cognitive abilities, scholastic aptitudes, and achievement <i>Response set:</i> correct response/ incorrect, no response <i>Item examples:</i> Drums were pounding in the distance. We could ____ them? What insect makes honey? (Child needs to tell the correct answer)

7.2.1 Mastery of daily living skills

The Vineland Adaptive Behavior Scale (VABS) by Sparrow, Balla and Cicchetti (1984) is designed to measure adaptive behaviour of individuals from birth to adulthood. A revision of the Vineland Social Maturity Scale (Doll, 1953), the VABS is designed to estimate a person's mastery of daily life situations which are typical in our society. „Mastery of daily life situations“ (what Sparrow et al. call „adaptive behaviour“) refers to the performance of the daily activities required for an optimal personal and social functioning (Sparrow, Balla & Cicchetti, 1984). The VABS covers a wide range of behaviour in four different domains of everyday life:

- Communication (receptive, expressive, and written)
- Daily living skills (personal, domestic, and community)
- Socialisation (interpersonal relationships, play/leisure, and coping skills)
- Motor skills (gross and fine motor)

Whereas measurement with the VABS in the pre-school phase included all four subscales, the selection of age-appropriate items for 8-year-olds, as suggested by the authors, resulted in items representing the first 3 different domains (excluding items for Motor skills which are only appropriate for under 6-year-olds). Usually, the scale is administered in a semi-structured interview with a respondent who is familiar with the individual's behaviour. Scores can be estimated for the single domains as well as a total score (General Index).

The published version of the VABS was adapted for this study for various reasons, including the need to make it appropriate for the cultural characteristics of the participating countries, financial constraints of the study, and the relatively small age range of children in the ECCE sample. The age range of children in the pooled sample was 7;7 to 9;3 years (at the time of assessment). Therefore the total pool of 297 items was reduced to those items covering this age range plus an extension zone at the bottom and at the top of the age range (5 to 12 years). In addition, items which were judged to be inappropriate for the culture of any of the participating countries were eliminated, and the format was adapted so that it could be completed independently as a written questionnaire by mothers and teachers. Based on the results of several field-tests in the participating countries, item wording was revised as necessary and items which showed no variance were dropped. As a result of this work, two versions were finalised: an 85 item version for mothers (VABS-family) and a 32 item version

for teachers (VABS-classroom). The teacher version is shorter because there were fewer items related to behaviours that were likely to be observed in the school setting. Item examples and the response set used in the VABS are shown in Table 7.1.

For each sub-scale, internal consistencies were calculated in each of the participating countries. Results are depicted in Table 7.2.

Table 7.2 Internal consistencies of the Vineland Adaptive Behavior Scales (VABS)

		General Index	Communication	Daily Living Skills	Socialisation
Family Version	Number of Items	85	22	37	26
	Cronbach's α				
	Austria	.92	.78	.82	.83
	Germany	.90	.84	.83	.75
	Spain	.90	.77	.82	.80
Classroom Version	Number of Items	32	15	6	11
	Cronbach's α				
	Austria	.87	.76	.48	.81
	Germany	.90	.85	.47	.84
	Spain	.90	.86	.44	.82

For both versions, the Cronbach's alpha for the general index is quite similar in the three participating countries. The coefficients range from .87 to .92. Internal consistencies for the subscales were predictably lower because of the smaller number of items, but still very respectable with most coefficients around .80. The only exception is the Daily Living Skills sub-scale in the classroom version, where coefficients are consistently low in each participating country (ranging from .44 to .48). However, it should be noted that this sub-scale consists of only 6 items. Similar results were found for the VABS scales used during the pre-school phase of the study (cf. ECCE-Study Group, 1997, p. 291). Interrelationships of the VABS subscales and with the VABS total scale for both the family setting (rated by mothers) and the classroom setting (rated by teachers) are shown in Table 7.3.

The table reveals moderate to high correlations among the subscales. This pattern is seen in both the classroom version and the family version. For both versions, patterns are very similar across countries.

Table 7.3 Correlations of VABS scales

	Family-Version			Classroom-Version		
	Commu- nication	Daily Living Skills	Sociali- sation	Commu- nication	Daily Living Skills	Sociali- sation
Austria						
Daily Living Skills	.59**			.56**		
Socialisation	.53**	.51**		.45*	.60**	
General Index	.87**	.53**	.51**	.76**	.89**	.82**
Germany						
Daily Living Skills	.57**			.59**		
Socialisation	.40*	.52**		.53**	.51**	
General Index	.79**	.88**	.75**	.82**	.73**	.87**
Spain						
Daily Living Skills	.53**			.71**		
Socialisation	.52**	.55**		.46**	.41*	
General Index	.78**	.87**	.81**	.89	.76**	.79**

**p<.01, *p<.05

7.2.2 Social competence

To measure children’s social competence in this study the Classroom Behavior Inventory (Schaefer , Edgerton & Aaronson, 1976) was used. The scale consists of 42 items representing 10 areas and was developed to assess how children behave in a classroom setting. The CBI is completed by having a person who is familiar with the child (i.e., the child’s mother for the family setting and the child’s teacher for the classroom setting) rate the child’s behaviour and skills on a 5-point rating scale. Some items were not relevant or applicable for mothers, who only had knowledge of how the child behaved at home. For the version which mothers completed about their child, items that were not relevant in the family setting were excluded, leaving a total of 37 items.

The total CBI score provides a general understanding of a child’s social competence, while the subscale scores represent specific, narrowly focused characteristics. We were interested in providing a more specific description of children’s social competence than that provided by the total score, but required a more condensed view of this construct than that

provided by the subscales. Therefore, factor analyses were performed using the scores given by teachers (for whom the instrument originally was developed). The factor analysis resulted in three factors, accounting for 58.7 % of the variance. These factors replicated results of other factor analyses of the CBI (Osborne et al., 1991; Feinberg-Peisner et al., 1999) and yielded the following factors:

- Cognitive/attention, consisting of items representing the areas creativity, verbal intelligence, independence,
- Sociability, including items representing the areas extroversion and introversion (reversed), task-orientation, dependence (reversed), and distractibility (reversed),
- Problem behaviour, consisting of items belonging to distractibility, hostility, and consideration (reversed).

Based on this factor analysis, three additive subscales were created, representing the constructs of Cognition/Attention, Sociability, and Problem Behaviour. If necessary, items of subscales with reversed meanings were recoded. Also, to build on the total scale all items with negative meanings were reversed.

Tables 7.4 and 7.5 provide information for each country on Cronbach's alpha coefficients and on interrelations of the CBI scales. For the total scale, the Cronbach's alphas are consistently high across countries, ranging from .93 to .96 for the classroom version and from .90 to .98 for the family version. Alphas for subscales range from .76 to .96 for the classroom version, and from .61 to .91 for the family version. Subscale coefficients for the family version are somewhat lower. This may well be attributable to the fact that the scales for the family version are somewhat shorter and the instrument was originally developed for measuring classroom behaviour.

Table 7.4 Internal consistencies of CBI scales

		General Index of Classroom Behaviour	Cognition/ Attention	Sociability	Problem Behaviour
Classroom Version	Number of Items	42	23	8	11
	Cronbach's α :				
	Austria	.96	.96	.87	.89
	Germany	.95	.96	.81	.91
Spain	.93	.95	.76	.86	
Family Version	Number of Items	37	22	6	8
	Cronbach's α :				
	Austria	.91	.91	.77	.72
	Germany	.90	.90	.75	.70
	Spain	.98	.88	.68	.61

The sub-scale correlations shown in Table 7.5 indicate a range of coefficients with high to moderate correlations. Between the General Index and Cognition/Attention correlations are very high, ranging from (.95 to .97 for the various countries and family and classroom versions). Correlations between the General Index and Problem Behaviour are somewhat lower and negative, ranging from -.59 to -.75, and correlations between the General Index and Sociability are substantially lower, ranging from .36 to .61 for the various countries and family and classroom versions. Low to moderate correlations emerge between Cognition/Attention and Sociability (.24 to .51 for the various countries and family and classroom versions) and between Cognition/Attention and Problem Behaviour (-.38 to -.64). Lower to moderate and partly insignificant correlations emerge between Sociability and Problem Behaviour (-.08 to -.42). Because high values on the Problem Behaviour subscale mean a high amount of problematic behaviour in children, the negative correlations correctly indicate that high indices of Sociability and Cognitive/Attention are related to less problem behaviour. Patterns of relationship between the subscales are similar for both the classroom and family version across countries. In sum, the data are quite consistent for the various countries and it can be concluded that the CBI is functioning well for use in this study.

Table 7.5 Correlations of CBI scales

	Classroom-Version			Family-Version		
	Cognition/ Attention	Sociability	Problem Behaviour	Cognition/ Attention	Sociability	Problem Behaviour
Austria						
Sociability	.51**			.27*		
Problem Behaviour	-.62**	-.14		-.51**	-.22*	
General Index	.97**	.61**	-.73**	.95**	.46**	-.69**
Germany						
Sociability	.24**			.29**		
Problem Behaviour	-.64**	-.42**		-.51**	-.24*	
General Index	.96**	.41**	-.75**	.95**	.51**	-.68**
Spain						
Sociability	.27*			.40**		
Problem Behaviour	-.52**	-.08		-.38**	-.28*	
General Index	.95**	.36**	-.67**	.95**	.59**	-.59**

**p<.01, *p<.05

7.2.3 Children's self perception

Information on children's self-perceptions was obtained by administering a revised (adapted) version of the Young Children's Feelings About School measure (FAS, Stipek, 1993; Stipek, Feiler, Daniles & Milburn, 1995; Stipek & Ryan, 1997). In this instrument, children's perceptions of competence, concerns about school, feelings about their teacher, and attitudes toward school are obtained. To complete the instrument, children were asked to choose one of five faces, ranging from a big frown (negative pole) to a big smile (positive pole) or one of five circles ranging from small to large, that best described their thoughts or feelings about particular situations concerning school. For example, on one item, the children were told that the circles indicated, respectively, that „Some children aren't good at all,

„Some children aren't very good“, „Some children are just okay“, „Some children are pretty good“, and „Some children are very good“. After ensuring that children understood the procedure, they were asked to point to the circle (or face) that showed how good they were. The same procedure was used for each item. To avoid bias of tendencies in the children's answering behaviour, the order of presenting the indicators was alternated. Nine items of this measure were administered in Austria and Germany, while seven were used in Spain.

For the German sample, factor analysis with the nine FAS items revealed 3 dimensions (subscales) of children's perception of the school environment and self-perception regarding their experiences there. Corresponding to Stipek's work (1997), these were labelled Attitudes toward school (FAS subscale I, 4 items), Perceived competence (FAS subscale II, 3 items) and Feelings about school (FAS subscale III, 2 items). A similar dimensional structure could be applied to the Austrian and Spanish data. However, since the sub-scale structure for Spain contains only FAS subscales I and II, which were identical to those applied in Germany and Austria, sub-scale III was dropped for all countries. In addition to the 2 subscales, a total FAS score was calculated, consisting of 9 items in Austria and Germany, and 7 in Spain. Internal consistencies (see Table 7.6) are moderate with Cronbach's alphas ranging from .64 to .74 for the total scales and .57 to .67 for the subscales. The two subscales have correlations of between .24 to .51 within countries (see Table 7.7), while subscale-Total scale correlations range from .67 to .92 across countries.

Table 7.6 Internal consistencies of the FAS scales

	Feelings about School Total Scale	Attitudes toward School	Perceived Competence
Austria	.65	.57	.57
Germany	.64	.59	.60
Spain	.74	.67	.57

Table 7.7 Correlations of FAS scales

	Attitudes toward School	Perceived Competence
Austria		
Perceived competence	.31*	
Total Scale	.85**	.67**
Germany		
Perceived competence	.24*	
Total Scale	.74**	.72**
Spain		
Perceived competence	.51**	
Total Scale	.92**	.81**

**p<.01, *p<.05

7.2.4 Language development

The Peabody Picture Vocabulary Test-Revised (PPVT-R, Dunn & Dunn, 1981), which assesses the child's receptive vocabulary, was used as a measure of language development in the ECCE study. Although it is clear that language development consists of more than receptive vocabulary, the PPVT was selected because it correlates highly with other measures of language development, is a standardised measure that has been used frequently in previous research on early childhood programmes, is easy to administer and requires little time to complete. Instead of having someone rate items describing activities the child typically does or competencies he or she has mastered, the PPVT requires the child to demonstrate competencies in a standardised situation with an unfamiliar examiner. The original version consists of 175 items in which the examiner gives the child a word and asks him or her to identify which of four pictures describes that word. The words are arranged according to increasing difficulty. To shorten the time for test administration, the examiner finds the child's „critical range“ which is defined as the range of those items that provide maximum discrimination among individuals of similar ability. Testing begins at the point where the child gets 8 consecutive items correct and stops after the child makes 6 mistakes in a series of 8 consecutive items.

The PPVT has been published and standardised in Spanish (Bracken & Prasse, 1984; D'Amato, Grey & Dean, 1987; Evans & Kirchmann, 1993). Using the traditional method of minimum and maximum, this version was administered to the Spanish children in the ECCE study. However, no German version was available. Based on the first 150 items of the original version, for the data collection in the pre-school phase, a German adaptation of the PPVT was developed and pretested. Because some of the translated items did not meet the criteria of increasing difficulty, they had to be reformulated in order to keep the original item order. Analyses using data of 4-year-olds showed that even then, the goal of increasing difficulty was not reached perfectly in the German adaptation. As a consequence, administration procedures of the PPVT were changed for use with 8-year olds in Germany and Austria. Instead of determining a „critical range“ all items in the range of item 61 to 160 were administered. In pretests, this range had been found to cover the receptive abilities of both the weakest and the most advanced children in the sample.

To assess reliability split-half coefficients were determined. Coefficients for split-half reliabilities were .83 in Austria, .82 in Germany, and .81 in Spain for the 8-year-old children. The respective coefficients for 4-year olds in these countries were similar with .95 in Austria, .96 in Germany, and somewhat lower, .67, in Spain.

7.2.5 Children's school achievement

To measure children's school-related abilities the Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R, Woodcock & Johnson, 1989, 1990) was used. This test battery is a wide-range, comprehensive set of individually administered tests for measuring cognitive abilities, scholastic aptitude, and achievement. The Test Battery is composed of two major parts: the Woodcock-Johnson Tests of Cognitive Ability (WJ-R COG) and the Woodcock-Johnson Tests of Achievement (WJ-R ACH). The WJ-R ACH provides the most relevant information for determining educational progress and the presence of achievement discrepancies.

For the purpose of the ECCE study five subscales from the WJ-R ACH were administered: Passage Comprehension, Calculation, Applied Problems, Science and Social Studies. The separate tests measure various aspects of scholastic achievement. In particular, the *Passage Comprehension Test* requires the subject to state a word that would be appropriate in the context of a passage by identifying a missing word. The *Calculation Test*

measures the subject's skill in performing mathematical calculations such as addition, subtraction, multiplication, division, and combinations of these basic operations. The *Applied Problems Test* measures the subject's skill in analysing and solving practical problems in mathematics. In order to solve the problems, the subject must recognise the procedure to be followed and then perform relatively simple calculations. The *Science Test* measures the subject's knowledge in various areas of biological and physical science. The *Social Studies Test* measures the subject's knowledge of history, geography, government, economics, and other aspects of social studies. For the latter two tests (Science, and Social Studies), the subject responds orally to questions that are read by the examiner.

The original version of the WJ-R was adapted for use in the three participating countries. The process of adaptation consisted of several steps, including translation, checking national validity of individual items, and the development of preliminary versions of the test manuals and administrations procedures. The preliminary Spanish and German versions were pre-tested, providing information about item probabilities (to estimate the discriminative power of the items and the overall test) and the practicality of the test procedure, in terms of testing time and children's responses to the testing procedure. Based on those results, the Spanish and German final versions for the five tests were completed.

With regard to the testing procedure, all of the tests were started using an age-appropriate starting point which was fixed at six years for this study. This starting point is represented by an item with a high probability of being solved by children of the respective age (e.g., 6 years, and even more likely for 8-year-olds). Scores were calculated for each of the five WJ tests used in this study by summing the number of correct responses. In addition, a total raw score was calculated representing the number of correct responses for all five subtests.

Table 7.8 summarises reliability coefficients of the Woodcock-Johnson Total Scale and of the five subscales administered to 8-year olds. Values for data from Austria, Germany, and Spain are given. Coefficients were calculated by the split-half procedure, using odd and even raw scores, and corrected for length by the Spearman-Brown formula. Coefficients seen for the total raw score in the .90s indicate high reliability. Generally, coefficients for the individual WJ-Tests, range between .70 and .85. However, lower coefficients can be observed for a few of the tests, including Passage Comprehension and Science in the Austrian sample (.66, .50 resp.), Social Studies in the German sample (.60) and Calculation in Spain (.65).

Table 7.8 Split-half reliability coefficients for Woodcock-Johnson-R Tests

	Total Scale	Passage Comprehension	Calculation	Applied Problems	Science	Social Studies
Austria	.90	.66	.79	.80	.50	.71
Germany	.93	.82	.81	.81	.69	.60
Spain	.91	.73	.65	.85	.79	.69

Correlations among the WJ-Tests are reported in Table 7.9 indicating interrelationships mainly of moderate size. Correlations of subtests belonging to a common curriculum area (e.g., Calculation and Applied Problems) are higher than those of subtests belonging to different curriculum areas (e.g., Calculation and Social Studies). In general, similar patterns of correlations can be observed in the three countries, with the exception of Austria, where correlations are substantially lower than in the other two countries.

7.2.6 Final selection of developmental outcome measures for longitudinal analysis

The final selection of outcome variables for the longitudinal analysis was based on two requirements. First, sufficiently high reliability was required for an outcome variable to be included in the analyses. Second, it was required that the limited number of outcome variables selected would well represent a variety of outcomes. Based on these requirements, only total rather than subscale scores were used for the VABS, CBI, the WJ and the FAS in further analysis. The interrelationships of the outcome measures selected for further analyses are depicted in Table 7.10.

Reliabilities (internal consistencies, split half reliabilities) of these measures range in Austria from .87 to .93 (median .90), in Germany from .82 to .95 (median .90), and in Spain from .81 to .93 (median .90). Correlations between the outcome measures are of moderate size in each of the countries. They range in Austria from .11 to .69 (median .24), in Germany from .07 to .75 (median .34), and in Spain from .04 to .67 (median .33). These correlations indicate sufficiently high „independence“ of each measure on the one hand and a sufficiently high cohesion on the other for being included in a common set of developmental outcomes.

The moderate correlations for the mothers and teachers assessments on both the VABS and CBI are in line with the conceptual framework that assumes the family and the classroom are different settings and setting specific competencies of children should be considered.

Table 7.9 Correlations of WJ-subcales

	Passage Comprehension	Calculation	Applied Problems	Science	Social Studies
Austria					
Calculation	.09				
Applied Problems	.39**	.36**			
Science	.45**	.02	.38**		
Social Studies	.52**	-.04	.39**	.33**	
Total Score	.74**	.47**	.80**	.62**	.65**
Germany					
Calculation	.55**				
Applied Problems	.57**	.59**			
Science	.55**	.33**	.47**		
Social Studies	.48**	.33**	.44**	.56**	
Total Score	.83**	.75**	.83**	.73**	.68**
Spain					
Calculation	.30**				
Applied Problems	.59**	.47**			
Science	.58**	.33**	.50**		
Social Studies	.49**	.20**	.48**	.59**	
Total Score	.78**	.64**	.86**	.77**	.63**

**p<.01, *p<.05

Table 7.10 Intercorrelations of outcome measures selected for analyses

	VABS Family- Version	VABS Teacher- Version	CBI Family Version	CBI Teacher Version	PPVT	WJ
Austria						
VABS-T	.43**					
CBI-F	.50**	.25*				
CBI-T	.24*	.69**	.37**			
PPVT	.14	.25*	.26**	.21**		
WJ	.20*	.40**	.11	.28**	.53**	
FAS	.15	.23*	.23**	.32**	.12	.17
Germany						
VABS-T	.38**					
CBI-F	.55**	.34**				
CBI-T	.28**	.75**	.43**			
PPVT	.24**	.39**	.19**	.32**		
WJ	.35**	.50**	.30**	.42**	.67**	
FAS	.23**	.24**	.26**	.29**	.07	.07
Spain						
VABS-T	.15					
CBI-F	.51**	.36**				
CBI-T	.16**	.67**	.37**			
PPVT	.22**	.34**	.30**	.30**		
WJ	.22**	.43**	.30**	.41**	.62**	
FAS	.04	.39**	.26**	.42**	.28**	.33**

**p<.01, *p<.05

For five out of seven outcome measures there is matching information that was collected when the children were four years old. The correlations between the assessments of children’s developmental status at the two measurement points are depicted in Table 7.11.

Correlations range from .14 to .65 with most coefficients of an expected moderate size. Two of the measures, the CBI and the VABS were assessed by both mothers and teachers. As can be seen, teacher assessments over time are less related than parental assessments. This result corresponds to findings of other researchers (e.g., Deater-Deckard et al., 1996) and may reflect the fact that the pre-school and the school settings are different, and that the teachers who assessed children at the two measurement points changed to represent different views, while parents (i.e., mothers) of course, did not. The lower correlations for teacher assessments over time is consistent for both measures, CBI and VABS, for all three countries. Altogether, patterns of correlations of outcome measures, both cross-sectional and longitudinal, are generally similar in the three countries indicating that a common construct of developmental outcome dimensions supports the subsequent analyses in the countries.

Table 7.11 Correlations of developmental outcome measures at age 4 and 8

	VABS Family- Version	VABS Teacher- Version	CBI Family- Version	CBI Teacher- Version	PPVT
Austria	.65**	.20	.58**	.14	.36**
Germany	.57**	.38**	.52**	.34**	.44**
Spain	.44**	.37**	.47**	.22**	.53**

**p<.01, *p<.05

7.3 Research questions and analyses strategy

7.3.1 Research questions

The research questions to be examined in this chapter incorporate the four major settings that are assumed to have a major influence on children’s development at 8-years of age (see Chapter 2):

1. Educational quality in the family setting during the pre-school period,

2. Educational quality in the institutional setting of ECP classrooms children attended during the pre-school period,
3. Educational quality in the family setting during the primary school period, and
4. Educational quality in the primary school classes the children are attending.

In addition, it is assumed that child characteristics, such as age and gender, and developmental status at an earlier age may have an impact on later development. Also viewed as influential are the contextual conditions in which the child's family and institutional settings are embedded. Even conditions at the macro-level may be related to child development. Developmental outcomes of interest thereby will cover a range of dimensions, including variables in the cognitive-achievement related domain, such as language development and academic achievement as indicators of children's developmental status as well as their daily living skills and social competencies as indicators of children's social development. Assessments of the domain of social development cover ratings by mothers for children's behaviour in the family setting as well as ratings by teachers for children's behaviour in the school setting. Furthermore, indicators of children's perceptions of their situation in school as indicators of their self-reported well-being are included.

The research questions to be addressed in more detail may be summarised as follows:

1. What is the magnitude of influence on the various developmental domains, that can be accounted for by the model of explanation? Are there differences for the various developmental outcome measures? Do differences exist in the model when explaining children's development in the three countries Austria, Germany, and Spain?
2. How does the amount of variance in child outcomes accounted for by quality characteristics related to children's pre-school phase compare to the amount of variance in child outcomes accounted for by quality characteristics related to children's primary school phase?
3. What are the relative potential influences of the family setting (pre-school and school period) compared to the institutional settings? Does educational quality experienced by children in their pre-school period have enduring influences when children are primary school aged (age eight)? Is a relation observable between educational quality in the primary classroom setting and children's developmental status at age eight?
4. To what extent does domain specific early development assessed at age four relate to the developmental status at age eight?

5. Do differences exist for the impact of educational quality on children's development with regard to children's behaviour and competencies in the family compared to the school setting?
6. Can the influences of the predictor blocks on children's developmental status at age eight be sufficiently explained by testing main effects (e.g., individual predictor blocks)? Or, do we find interaction effects of individual predictor blocks (e.g., is an interaction effect of educational quality in the family setting and ECP quality observable)?
7. What is an appropriate characterisation of educational quality in the four settings (family in pre-school and school period, ECP and primary school classroom) that promotes child development?

For all questions, similarities or differences in the various developmental outcome measures and in the three countries Austria, Germany, and Spain will be investigated.

7.3.2 Operationalising the conceptual framework

Potential results on the effects of quality in the settings will heavily depend on how educational quality is conceptualised and measured. In these analyses we continue the approach used in the cross-sectional part of the study (see ECCE Study Group, 1997) where „educational quality“ in the different settings was conceptualised as a larger construct which subsumes the following three components:

1. educational beliefs of teachers and/or parents (orientations);
2. structural characteristics of the ECP and/or home (structures); and
3. process or interactional activities that happen in the ECP and/or home (processes).

All three of these components of educational quality can be identified in both the family and institutional settings (ECP, primary class). Each of these components was assessed in each of the four settings targeted in this study by a number of different measures. Descriptive results for the family setting (primary school period) and school setting are provided in earlier chapters of this report (see chapters 4, 5, 6). Descriptive results on educational quality in the family and ECP settings during the pre-school period are presented in the previous report for Work Package #1 (ECCE Study Group, 1997).

According to our concept, quality is a multi-faceted construct; therefore we are not interested in the relation of a specific qualitative measure to child development, but rather in

the role played by the combination of various qualitative aspects of a setting to influence child development. Thus, analyses presented here are based on a consolidated approach to representing educational quality, in which variables representing each of the three components of educational quality (e.g., orientations, structures and processes) are collapsed into blocks of predictor variables. By consolidating variables in this way, the information summarised in each block can be used to investigate the relation of educational quality in each setting to children's development.

The *selection of variables* used to represent educational quality in each of the child environments (family setting: pre-school and primary school periods; institutional settings: pre-school and primary school periods) was guided by the following: First, from a theoretical point of view it seemed useful to have predictors which are often cited in the literature as good indicators of educational quality in family and the institutional settings. Thus, variables were included to meet this criteria, such as educational status of families; teacher-child ratio, educational status of lead teachers in the ECP setting; number of hours of instruction in the primary school classroom setting.

Second, it was felt that the analysis would be strengthened if the conceptual approach and comprehensiveness with which educational quality was measured in each of the four settings was similar but adapted to the specific setting. We considered each of the three sub-domains to be valid representations of educational quality in each of the four settings. To achieve consistency of measurement across the four settings, the same number of measures and the same types of variables were used in each (even if they are not identical in the settings). Thus, for each of the four settings, three variables to represent educational orientations, three variables to represent structural quality and two variables to represent process quality were selected.

To appropriately evaluate the relevance of educational quality to children's development, other potentially influential factors also needed to be considered. In the conceptual framework of the study (see Figure 7.1) we distinguished additional domains that are expected to influence children's development. One factor consists of the more immediate community context in which family and institutional settings are embedded. Another factor consists of the societal or regional conditions in which a child is being raised. In addition, characteristics of the children, themselves, are certainly likely to have an impact on the developmental status of 8-year olds, and this factor was also considered. We differentiate

more general child characteristics (age, sex), from specific characteristics, in particular the developmental status children had achieved at age four in the developmental domains targeted in this study (e.g., language development, social-emotional development).

Altogether, eight domains (blocks), were included in the conceptual framework, all of which are expected to have a potential influence on children’s primary school age development. The domains and the variables used as indicators in each block are shown in Table 7.12.

Table 7.12 Blocks of variables used for predicting child development

<p>Block #1: General characteristics of child</p> <ul style="list-style-type: none"> - age - sex
<p>Block #2: Child care quality in the family (pre-school period)</p> <p>Educational beliefs of parents:</p> <ul style="list-style-type: none"> - developmental expectations of mother - mother’s Guiding-adult educational attitudes - mother’s Facilitating-adult educational attitudes <p>Structural quality:</p> <ul style="list-style-type: none"> - number siblings in household - educational level mother - number of rooms per person <p>Process quality:</p> <ul style="list-style-type: none"> - degree of developmental stimulation (HOME-Total) - activities of children in families (ACT-Total)
<p>Block #3: Child care quality in the ECP</p> <p>Educational beliefs of teachers:</p> <ul style="list-style-type: none"> - developmental expectations of teacher - teacher’s Guiding-adult educational attitudes - teacher’s Facilitating-adult educational attitudes <p>Structural quality:</p> <ul style="list-style-type: none"> - child-teacher ratio - educational level teacher - square meters per child <p>Process quality:</p> <ul style="list-style-type: none"> - developmental appropriateness of classroom practices (ECERS-Total) - quality of interactions (CIS-Total)

Block #4: Developmental status at age 4 in developmental domains of interest
Block #5: Educational quality in the family (school period) Educational beliefs of mothers: - developmental expectations of mother - mother's Achievement-oriented educational attitudes - mother's Creativity-oriented educational attitudes Structural quality: - mother is working - child has own room - monthly income of household Process quality: - degree of developmental stimulation (HOME-Total) - activities of children in families (ACT-Total)
Block #6: Educational quality in primary school classroom Educational beliefs of teachers: - developmental expectations of teacher - teacher's Achievement-oriented educational attitudes - teacher's Creativity-oriented educational attitudes Structural quality: - Number of hours of instruction per week - Number of hours per week children spend doing homework - Number of different materials Process quality: - Classroom management - Relevance of content
Block #7: Contextual conditions of family and institutional settings (ECP, primary school) Family: - availability and usage of places to play (pre-school period) - availability and usage of places to play (school period) ECP: - ECP size - type of ECP (public vs. private) - social structure of catchment area School: - number of classes grade 1 to 4 in school
Block #8: Characteristics of macro system -affiliation to culturally and/or politically different regions of sample (Austria: Salzburg, Upper Austria, Tennengau; Germany: East vs. West; Spain: Ciudad-Real, La Coruna, Barcelona, Seville)

The sequence in which these eight domains appear in the table in our model to predict child development outcomes was determined by two considerations: (1) *proximity* to the child, and (2) *time*. With regard to „proximity“ to the child, general biological characteristics of children that are relevant to development are entered first: age and sex. With regard to educational quality in the two pre-school settings, family and ECP, we assume that the family setting is more proximal to the child than the ECP setting. The family setting is viewed as the child's primary developmental context with very early and enduring influences on children's development, even after entry into the institutional setting of the ECP. Likewise, for

children's school-period, educational quality in the family setting is considered to be influential *before* educational quality children experience in primary school. The four educational settings as children's immediate developmental conditions are embedded in more distal contextual conditions, including the family's community or the classroom's centre, and regional (macro system) conditions. The most distal, in terms of children's development are represented by macro system conditions. Thus, the block of variables representing contextual conditions are added in the last two steps of the regression, with the macro system block, which is most distal from the child's experiences, added last.

With regard to „time“, we determined that predictor blocks representing educational quality in earlier settings (pre-school period) of children's biography would be entered first, while variables that occur later would follow. Consistent with this approach, the block representing children's developmental status at age four is entered between blocks representing the pre-school and the school-age influences on the child's development. This is based on the assumption that children's developmental status reached at age four has been influenced by the pre-school educational quality in the family and ECP setting, while the variable is also a good predictor of children's further development during the primary school years.

The sequence in which the eight blocks of variables are listed above generally represents *decreasing proximity* to the child, with characteristics of the child, followed by conditions in the family being most proximate, and the macro system conditions being most distal. This hierarchy is based on Bronfenbrenners' model (1979), where the child is seen as the focal point embedded in various systems that have more or less influence on the child's development, depending on the proximity to the child.

7.3.3 The statistical model

To determine the relative contributions of the eight blocks of variables in predicting the seven child outcomes a series of hierarchical regression analyses were performed, entering successive blocks of variables into the prediction equation, starting with factors most directly affecting the child (as described above) and ending with factors most removed from the child. The amount of variance being explained by each block provides a measure of how strongly the block of variables is related to the respective outcome.

The statistical approach is a model of additive effects in the sense that any variance in child outcomes which is *shared* by blocks of predictor variables will be accounted for in the block that is entered earlier in the model. Thus, the explained variance at any given step is really the *unique variance* accounted for by variables entered at that step, and any shared variance with variables at subsequent steps. For example, because the variables describing the quality of child care in the ECP are entered at the third step of the analysis, this analytical approach results in a relatively conservative estimate of the influence of ECP quality on children's development - the strength of the relationship between ECP quality and child development will be somewhat underestimated when relationships with former blocks occur. The same is true for the impact of educational quality in the primary school setting on children's development.

In other words, the analyses focus only on those effects which are *independent* from effects of other blocks which have been tested earlier in the model. The fact that only the unique variance is accounted for when a new block is entered should be kept in mind when possible effects of the developmental status children have attained at age four are considered for later development. Predictive effects of earlier developmental status on later developmental outcomes (age eight) can only account for the amount that is not influenced by preceding variable blocks (such as age and sex, family and ECP quality).

The model of hierarchical regression analyses underlying our analytical approach focuses on identification of *main effects*, which will be estimated according to the theoretically based hierarchical ordering of blocks. This point of view sets the stage for all subsequent analyses. However, based on a selection of additional analyses we will test for certain *interaction effects*. By doing so, we will focus on first-order interactions which - according to results in the common literature - might be expected. For example, we will follow the question of interaction effects of quality in families and institutional settings, in particular by asking if quality in the institutional settings has a specific effect for children in families where low educational quality is found (e.g., Burchinal et al., 1989; Ramey & Ramey, 1992). To test for interaction effects we will built on interaction terms by connecting the linear combinations of the two blocks of interest resulting from regression analyses by multiplication. These interaction terms will be introduced in subsequent regression analyses to test for main effects and for interaction effects.

Since analyses are focused on determining the contributions of each individual block of variables in predicting child outcomes, we report the amount of variance explained by each block included in the model. This indicates the relative contribution of explained variance by each block. However, focusing on explained variance does not tell us anything about the content-related characterisation of the predicting linear combination resulting from the original variables in the block to receive maximal explanation of the criterion. To describe each block, i. e. its development-predicting quality dimension, we will use Regression-factor-structure-coefficients (RFS-C). These coefficients represent the correlations of the linear combination of one block with the original variables included in the block. High coefficients point to marker variables by which the predicting quality dimension (linear combination) of a block can be characterised. RFS-coefficients may be interpreted comparable to factor loadings in factor analyses.

7.4 Results

In this section we present an overview of results related to the various research questions. According to the two major domains of child development conceptualised in the study, results for cognitive- and achievement-related outcomes and results related to children's social and emotional development will be presented in separate paragraphs.

7.4.1 Cognitive and achievement-related development

To assess children's cognitive and school-achievement related development at age eight, two measures were used: The Peabody Picture Vocabulary Test (PPVT) for receptive vocabulary, as well as the Woodcock-Johnson Test (WJ) for school-related abilities (total score of the five subtests, Passage Comprehension, Calculation, Applied Problems, Science and Social Studies). Table 7.13 depicts the results.

7.4.1.1 Effects of the various predictor blocks

Total effects. As can be seen, the total variance explained by the eight predictor blocks ranges from 43.7 to 65.4%. This means that in the three participating countries the model explains about a half of inter-individual differences in children's cognitive- and school achievement-related developmental status at age eight. The explained variance for language

development (PPVT) ranges from 43.7% (Germany) to 58.8% (Austria), for the school-achievement total score (WJ), from 47.2 (Germany) to 65.4% (Spain). In all three countries school-achievement is predicted somewhat better than language development by the model. The amount of variance explained by the model is highest for the Austrian sample, followed by the Spanish sample and lowest for the German sample. However, this result does not necessarily reflect country specific differences but seems to be due to the considerably smaller sample sizes in Austria (n=106) and Spain (n=173), compared to Germany (n=306). When R^2 are adjusted for sample sizes highly similar amounts of variances emerge, e.g., for the PPVT 30.2% in Austria, 35.1% in Germany, and 36.1% in Spain.

Phase-specific effects. Looking at the variable blocks belonging to the pre-school period on the one hand and to the school-period on the other (including context and macro system conditions), it is apparent that the predominant contribution of explained variance is found in the pre-school period blocks. For example, in Germany 33.8 of 43.7% of the total explained variance in language development can be accounted for by these blocks, in Austria 42.2 of 58.8% and in Spain 43.1 of 52.5%. Similar relations can be observed for school-achievement outcomes.

Altogether results related to cognitive- and school achievement-related development in all three countries can be summarised as follows. According to this model, about three quarters of explained variance in the developmental status of eight year olds can be explained by characteristics seen at age four: educational quality in the family setting, educational quality in the ECP setting, developmental status at age four, and chronological age and sex. Another 20% of the variance is explained by quality of the family setting during the children's school period and by the quality of primary school (although the effect of the primary classroom is less pronounced in Spain). The additional 5% of variance explained by the model can be accounted for by contextual and macro-system conditions.

Setting-specific effects: Family vs. institutional settings. A specific topic examined in this research is the contribution of educational quality children experience in their *institutional settings*, ECP and primary school, to their developmental status at age eight. Table 7.13 shows that after controlling for child characteristics (Block #1) quality of the home environment (Block #2) accounts for 16.5 to 32.6% of variance, and *ECP quality*

accounts for another 3 to 15.1% of differences in children's cognitive development and school-achievement abilities. Whereas the family-effect is highly significant consistently across countries, the ECP-effects reaches statistical significance (5-10% probability) in only four of six analyses completed in the countries. In two other cases (WJ, Germany; PPVT, Spain) this effect is not significant. Furthermore analyses show that additional aspects of *family educational quality* for 8-year olds (Block #5) have further effects on children's cognitive and school-related development. However, the relative contribution of this dimension is less important (1.1% to 11.3% explained variance in the countries). In four of six analyses statistical significance is reached. Educational quality of *primary school classes* (Block #6) has significant contributions only in Germany with 4.4% explained variance for the PPVT and 6.2% for the WJ. Corresponding (non-significant) explained variances are 4.7% and 7.3% resp. in Austria and 2.3% and 2.1% resp. in Spain.

Summarising the effects of the pre-school and school-period with regard to the impact of family educational quality on the one hand and the institutional setting on the other, it appears that family educational quality in the pre-school and school period accounts for about twice the additional explained variance than does institutional educational quality, for both achievement-related and cognitive developmental outcomes.

Effect of earlier developmental status. Among the effects allocated to the pre-school phase, children's developmental status achieved at age four (PPVT), accounts for 3.0 to 12.7% of variance explained in the achievement- related outcome measures of the Peabody and the Woodcock-Johnson test. As depicted in Table 7.13 these effects reach statistical significance in all cases and are more pronounced for language development at age 8 than for children's academic achievement at age 8.

Table 7.13 Variance explained by regression of PPVT and WJ scores on measures of child characteristics, family environment in pre-school period, ECP quality developmental status at age 4, family environment in school-period, classroom quality, contextual variables, and the macro system

	Austria		Germany		Spain	
	PPVT	WJ	PPVT	WJ	PPVT	WJ
<i>Block #1: Characteristics of child</i>						
variance explained	3.7	2.2	4.4*	10.7*	1.2	2.3
<i>Block #2: Educational quality in the family (pre-school period)</i>						
variance explained (changed)	20.4*	24.7*	17.9*	16.5*	25.5*	32.6*
<i>Block #3: Quality of child care in the ECP</i>						
variance explained (changed)	15.1*	11.4 ⁺	3.6 ⁺	3.0	3.7	8.8*
<i>Block #4: Developmental status at age 4</i>						
variance explained (changed)	3.0*	5.3*	7.9*	4.2*	12.7*	6.8*
<i>Block #5: Educational quality in the family (school-period)</i>						
variance explained (changed)	6.1	11.3*	3.0	4.7*	1.1	7.2*
<i>Block #6: Educational quality in the classroom</i>						
variance explained (changed)	4.7	7.3	4.4*	6.2*	2.3	2.1
<i>Block #7: Contextual conditions</i>						
variance explained (changed)	5.5	5.7 ⁺	2.1	1.8	4.5 ⁺	3.4 ⁺
<i>Block #8: Characteristics of macro system</i>						
variance explained (changed)	0.1	0.5	0.3	0.0	1.4	2.3*
Total variance explained	58.8*	68.4*	43.7*	47.2*	52.5*	65.4*
Total variance explained (adjusted)	(30.2)	(46.8)	(35.1)	(39.1)	(36.1)	(53.5)

*p<.05, +p<.10

Interaction effects. According to results reported in the literature, one might assume interaction effects in addition to main effects of educational quality on children's development. For example, there is some evidence that ECP quality plays a much greater role for children experiencing lower family educational quality in order to make developmental progress (e.g., Burchinal et al., 1989; Ramey & Ramey, 1992).

To test for such potential interaction effects the following steps were performed: Based on the hierarchical regression analyses just reported we built the linear combinations for each

block (factor variables). Then interaction terms of the factor variables for the blocks of interest were built and introduced in the model as additional predictors.

In particular, for each of the six regression analyses completed with data from the three countries interaction terms of the following blocks were tested: #2 by #3; #2 by #4; #2 by #5; #2 by #6; #3 by #4, #3 by #5; #3 by #6; #4 by #5; #4 by #6, and #5 by #6. For none of these interaction effects was a statistically significant contribution of explained variance found (without tables). Thus, according to the analyses completed, we do not find any evidence in our European sample that ECP or classroom quality has a special promoting effect for the development of children from less advantaged families (no effect for interaction terms block #2 by #3; #2 by #6 or #5 by #6). Accordingly, we assume that the effects of educational quality in the individual settings on children's developmental status at age eight can be described sufficiently by the main effects tested in our basic hierarchical regression model.

7.4.1.2 Characterisation of educational quality in the variable blocks

In the model of analyses completed here, for every block entered in the model a linear combination is built that, after controlling for all effects entered previously and thus independently of them, is able to maximally explain the criterion. Thus, these linear combinations are artificial variables, for each of which a more concise description is needed. Such a description can be provided by looking at the correlations of the linear combinations with the individual variables representing each block. Accordingly we built on correlations of the linear combinations as they emerge by entering a block in the regression model with the variables of the block. The resulting Regression-factor-structure-coefficients (RFS-C) are depicted in Table 7.14. Only coefficients $|\geq .20|$ are reported.

Educational quality in the family (pre-school period). As described earlier, the block of variables that maximally predicts children's developmental status at age eight is educational quality in the family during the pre-school period. According to Table 7.14, mother's educational level is the individual variable that best characterises the predictive power of the block. This is true for both measures, language development and school achievement, and for all three countries (RFS-C: .63 to .78). In addition, two of the other structural quality variables can also be used to characterise this family quality dimension. These two variables are favourable spatial conditions at children's homes (RFS-C: .35 to .63) and few or no siblings (RFS-C: -.28 to -.54). In addition to these structural quality variables,

educational quality in families can be characterised in all three countries by *less* Guiding-adult educational attitudes (i.e., the definition of this variable is that adults tend to more actively guide the child by emphasising cognitive and school-related abilities) (RFS-C: -.24 to -.63). Conversely, with regard to language development the block is characterised by *more* Facilitating-adult educational attitudes (i.e., adults emphasising social and creative abilities and child's initiative) (RFS-C: .21 to .24). For Spain, educational quality in the family setting can also be well described by earlier developmental expectations (RFS-C: -.65 to -.76). In addition to the structural variables that make up the block, this quality dimension can also be described by process quality variables, the HOME (RFS-C: .60 to .71) and, to a minor degree by the activities in homes (RFS-C: .31 to .43). This is true for both Germany and Spain and for both measures of cognitive development.

Educational quality in the ECP. While we find a reasonably consistent picture of the way in which the family setting for pre-school-aged children can be characterised, in all three countries and for both developmental outcomes (PPVT, WJ), the characterisation of educational quality in the ECP setting is less clear. One of the best descriptors of the ECP quality block, in Germany and Spain, is the ECERS variable, especially for school achievement (RFS-C: .72 to .80) and somewhat lower for language development (RFS-C: .23 to .37). In Spain the sensitivity of teacher-child interaction, measured by the CIS, is also useful in characterising the ECP quality block. Earlier developmental expectations of German and Spanish teachers also seems to represent the block (RFS-C: -.28 to -.50); while in Austria and Spain teacher's higher educational level also plays a role (RFS-C: .24 to .49). An inconsistent picture arises for other quality indicators (e.g., teacher-child ratio). However the lower impact of educational quality in ECPs on children's development must be considered in interpreting the result of a less clear-cut picture compared to the picture emerging from the family block.

Educational quality in the family (school-period). This quality dimension can be characterised for both measures, language development and school achievement in Germany and Spain, by the variable children having their own room (RFS-C: -.23 to -.51) while the opposite is true in Austria where the block is characterised by children *not* having their own room (RFS-C: .31 to .54). For other structural characteristics of children's homes (e.g.,

mother's occupational status and monthly income) a less consistent picture emerges. However, regarding maternal educational beliefs, results indicate that educational quality in families fostering language development and school achievement can be described by parents holding earlier developmental expectations (RFS-C: -.23 to -.48) and, in Austria and Germany, holding less achievement-related educational attitudes (RFS-C: -.28 to -.55). In all three countries the predictive power of educational quality in families can be quite consistently described by an indicator of process quality, the HOME (RFS-C: .21 to .61). In German families we find a similar relationship for process quality as measured by the questionnaire for children's activities (RFS-C: .46 to .54).

Educational quality in primary school classroom. The predictive power of the primary school classroom quality block for language development and school achievement can be described, first, by the variable number of hours of instruction per week (RFS-C: .22 to .62). In Austria and Spain a higher number of different materials available in the classroom (RFS-C: .29 to .58) also characterises the block for both, language development and school achievement, while less homework also plays a role in terms of better school achievement (RFS-C: -.20; -.33). In Germany, by contrast, fewer available materials (-.24) and more homework characterise the predictive power of the block for language development outcomes (.38) with more homework also playing a substantial descriptive role in terms of school achievement outcomes (.46). For teacher's educational beliefs we find country-specific results. In Germany the predictive power of primary school classrooms is characterised by teacher's earlier developmental expectations (RFS-C: -.26 to -.33), which is not true in Austria and Spain. Furthermore, teacher's educational attitudes that focus on the development of creativity help to describe primary school quality that is associated with both assessments of cognitive development in Germany (RFS-C: .27 to .46), but is important only for school achievement in Austrian children (.27). In Spain, the variable less achievement-oriented educational attitudes (-.35) is part of the description of school quality that promotes language development.

For all three countries a consistent pattern emerges, with the variable Relevance of content as a descriptor of the classroom process quality block. For language development, higher levels of Relevance of content in school lessons, characterises the predictive power of the primary classroom educational quality block for language development (RFS-C: .25 to

.30) and, even more strongly, for school achievement (RFS-C: .38 to .50). In Austria, and partly in Germany, this quality dimension can also be described by a higher degree of Classroom management, while in Spain Classroom management indicates a lower degree of educational quality that promotes school achievement (-.21).

Altogether, in characterising the predictive power of educational quality in terms of fostering language development and school achievement in the different quality settings, a relatively comparable picture emerges in the three countries. Such a result pattern is not surprising since both assessments used, PPVT and WJ, are measures of children's cognitive development. Regarding the high degree of agreement in the descriptors that characterise the educational quality blocks, it can be stated that indicators that best described educational quality in one setting in one country are usually good descriptors of educational quality in another, or in both other countries. The highest degree of correspondence across countries is found for the block family educational quality in the pre-school period, especially with regard to structural quality variables, but also for process quality and educational beliefs. In the other settings - beside basic common descriptors - higher country-specific differences can be observed (i.e., for individual quality indicators country-specific meanings appeared). For example, in Germany, a higher degree of homework is associated with higher educational quality in the school setting, while in Spain the opposite is true. However, it can be stated, that - in all countries - indicators of *process quality* appear to belong to the best descriptors of educational quality in all settings.

Table 7.14 RFS-Coefficients for blocks of variables to predict PPVT and WJ

	Austria		Germany		Spain	
	PPVT	WJ	PPVT	WJ	PPVT	WJ
Block #2: Child care quality in the family (pre-school period)						
Educational beliefs of parents:						
- developmental expectations of mother	--	--	--	--	-.65*	-.76*
- mother's Guiding-adult educational attitudes	-.45	-.24*	-.58*	-.63*	-.36*	-.61*
- mother's Facilitating-adult educational attitudes	.21	.28*	.24*	--	.23*	--
Structural quality:						
- number of siblings in household	-.45*	-.39*	-.38*	-.28*	-.54*	-.28*
- educational level mother	.78*	.64*	.77*	.72*	.73*	.63*
- number of rooms per person	.46*	.63*	.35	.41*	.58*	.34*
Process quality:						
- degree of developmental stimulation (HOME-Total)	--	--	.62*	.60*	.69*	.71*
- activities of children in families (ACT-Total)	--	--	.31*	.42*	.39*	.43*
Block #3: Child care quality in the ECP						
Educational beliefs of teachers:						
- developmental expectations of teacher	.46*	--	-.47*	--	-.28*	-.50*
- teacher's Guiding-adult educational attitudes	--	--	--	.21+	--	-.20*
- teacher's Facilitating-adult educational attitudes	-.39*	--	.29*	--	--	-.28
Structural quality:						
- child-teacher ratio	-.37*	-.71*	-.21*	--	.59*	--
- educational level teacher	.49*	.41*	--	--	.24*	--
- square meters per child	--	.35*	--	--	-.35*	-.30
Process quality:						
- developmental appropriateness of classroom practices (ECERS-Total)	--	--	.37*	.72*	.23*	.80*
- quality of interactions (CIS-Total)	--	-.25*	--	--	.66*	.39*
Block #5: Educational quality in the family (school period)						
Educational beliefs of mothers:						
- developmental expectations of mother	-.34*	-.23*	-.23*	-.34*	-.48*	-.28*
- mother's Achievement-oriented educational attitudes	-.55*	-.37*	-.28*	--	.20*	--
- mother's Creativity-oriented educational attitudes	--	-.33*	--	--	.37*	--
Structural quality:						
- mother working no/yes	--	--	-.28*	--	.34*	.42*
- child has own room no/yes	-.31*	-.54*	.45*	.23*	.39*	.51*
- monthly income of household	-.38*	--	--	.34*	--	--
Process quality:						
- degree of developmental stimulation (HOME-Total)	.27*	--	.37*	.61*	.21*	.50*
- activities of children in families (ACT-Total)	--	--	.54*	.46*	--	--
Block #6: Educational quality in primary school classroom						
Educational beliefs of teachers:						
- developmental expectations of teacher	--	.23*	-.27*	-.33*	--	--
- teacher's Achievement-oriented educational attitudes	--	.23*	.37*	--	-.35*	--
- teacher's Creativity-oriented educational attitudes	-.25	.27*	.46*	.26*	--	--
Structural quality:						
- # of hours of instruction per week	.41	--	.39*	.62*	.22*	--
- # of hours per week children spend doing homework	.25	-.20	.38*	.46*	--	-.33*
- Number of different materials	.41	--	-.24*	--	.58*	.29*
Process quality:						
- Classroom management	.41*	.51*	.27*	--	--	-.21*
- Relevance of content	.25*	.50*	--	.50*	.30*	.38*

*p<.05, RSF-C <|.20| omitted

7.4.2 Social-emotional development

To investigate the impact of educational quality on children's social-emotional development, six measures were used, including The Vineland Adaptive Behavior Scale (VABS) to assess children's daily living skills, the Classroom Behavior Inventory (CBI) to assess children's social competence with peers and adults, and the Young Children's Feelings About School Measure (FAS) to assess children's perception of their school situation. Two versions of the VABS and CBI were used - one adapted to assess children's competencies and behaviour in the primary school setting (teachers' ratings), and another adapted to assess children's competencies and behaviour in the family setting (mothers' ratings). The FAS was used once, with the children, themselves, to assess their self-perceived well-being in primary school. Results of regression analyses are shown in Table 7.15.

7.4.2.1 Effects of the various predictor blocks

Total effects. For all six criteria and all three countries, the eight predictor blocks explain 18 to 70% of variance¹¹. For the three countries two tendencies are observable. *First*, it appears that the model is more successful at explaining adaptive behaviour of eight-year old children in daily living situations and their social competencies, both in the family and school settings, than children's own reported feelings about school. To better understand this result we need to remember that the FAS is a very short scale with limited reliability. Furthermore it seems reasonable that due to the specific character of the FAS, which is based on children's self perception, the predictor blocks used in our model are less able to explain inter-individual differences compared to teachers' or mothers' ratings of children's behaviour. The *second* tendency observed from the overall pattern of results in each country shows that children's abilities and behaviour in the family can be consistently better predicted than in the school setting.

Effects in the pre-school versus primary school period. As with the cognitive and school achievement outcomes, it appears that children's daily living skills (VABS) and social competencies (CBI) are better predicted by the blocks belonging to the pre-school than the school-period. About two thirds of the variance explained by the model in 12 regression

¹¹ Adjusted R² range from 4 to 49%.

analyses (2 for VABS and 2 for CBI in three countries) is accounted for by predictor variables representing the *pre-school period*. For the three analyses conducted to predict children's feelings about school, however, different relations emerge. Here, the blocks belonging to the school-period explain a higher amount of variance than those belonging to the pre-school period. However, we did not use the FAS to assess children's feelings about ECPs at age four, so there is a missing predictor for the pre-school period. Thus, unlike other outcome measures examined during the primary school period, the FAS at school age is not affected by a pre-school score on this measure. Nevertheless, results indicate that children's well-being seems to be better predicted by the concurrent conditions in the school-phase (i.e., family-setting, setting of primary school classroom as well as context) than by the corresponding conditions during their pre-school phase.

Family settings versus institutional settings of ECP and primary classroom. In all three countries the *quality of child care in ECPs* accounts for 1.0 to 14.9% of variance in children's daily living skills, social competencies and feelings about school. However, only four of the fifteen effects tested in the regression analyses reach statistical significance. The pattern of results shows country-specific tendencies. Two of four significant predictor blocks for ECP quality can be found in Austria for VABS-Family and CBI-Family. Also, ECP quality shows marginal significant contributions for CBI-Family in Spain, whereas in Germany the effect reaches significance for CBI-School.

Regarding the impact of *educational quality in primary classrooms* four of 15 are statistically significant. In Austria and Germany such an effect can be observed for children's daily living skills as rated by mothers in the family setting (VABS-Family); in Germany such an effect also appears for teacher's ratings of children's daily living skills (VABS-School) and in Austria for mothers' ratings of social competence (CBI-School). Variance explained by educational quality in primary school classrooms reaches 0.6 to 9.8%.

Comparable to results related to cognitive development and academic achievement, the impact of *child care quality in the family* (both, in pre-school and school phase) on children's social-emotional development compared to the impact of the institutional settings is more pronounced. The quality of children's family environment in the pre-school phase reaches significant contributions in all three countries and has an considerable impact on daily living skills as well as social competencies (except CBI-School in Austria) of eight-year

old children. A different picture emerges for children's well-being, for which only in Germany, but not in Austria and Spain, a statistically significant effect (10% level) of child care quality in the family (pre-school phase) is observed. Also, only in Germany, a significant impact of the current educational quality children experience in their families is observable for the social-emotional development of 8-year olds. Yet, this impact is quite consistent and is true for both VABS and CBI, as rated by teachers and mothers in the school and family setting.

The comparison of variance explained in children's social-emotional development by the family setting in both pre-school and school period on the one hand and of the total variance explained by the institutional settings in the two phases targeted in the study on the other reveals a picture similar to that seen in the prediction of cognitive/achievement-related outcomes. The amount of variance explained by both blocks of family environmental indicators together are at least twice the variance explained by the two blocks of institutional quality. For daily living skills (VABS, both in the family and the school setting), the two family blocks explain 22.3 to 28.4% of interindividual differences compared to 4.1 to 22.9% explained by the two blocks of institutional settings. For the measures of social competence (CBI) the variance explained by the two blocks of child care quality in the family reaches 19.7 to 25.3%, for ECP and classroom quality 2.8 to 23.0%. Differences in children's well being are explained 7.7 to 11.0% by the two family blocks and, in contrast, 4.8 to 21.5% by qualities in the institutional environments. These results show that the ranges of variances explained by the family settings are more narrow, thus, indicating relatively high stability across countries and for ratings of both daily living skills and social competence (school, family). By contrast, a less homogenous picture emerges for the explained variances by ECP and school quality where we find a higher variation in the amounts of explained variance across countries and outcome measures.

Children's development in two contexts: family vs. school setting. According to the conceptual framework of the study we assume that children's daily living skills and social competence may well be dependent on the context in which children need to deal with life situations and interact with friends (peers) and adults. Based on this assumption children's daily living skills and social competence were assessed by two measures, ratings by teachers

of children's behaviour in their primary school class and ratings by mothers of children's behaviour at home and outside the school.

A comparison of the blockwise regression analyses results for the VABS and the CBI shows that the model is more powerful in predicting mothers' VABS and CBI ratings in the family setting than teachers' ratings in the school setting. Nevertheless, no specific pattern is observable to indicate that these differences might be attributable to educational quality in the family or institutional settings (blocks). However, as Table 7.14 indicates, the impact of children's developmental status at age four seems to differ systematically for mothers' and teachers' VABS and CBI scores at age eight. The variance explained in the criteria variables are consistently higher for mothers' ratings of children's behaviour than for the corresponding teacher's ratings. VABS- and CBI-Family in pre-school and school period are assessed by children's mothers, thus by the same person, whereas VABS and CBI in the pre-school phase was assessed by ECP teachers and in the school-phase by primary school teachers, thus by two different people with different perspectives. The effects of block 4 (developmental status at age 4) on VABS -family and on CBI-family are statistically significant in all countries so it can be assumed that children's daily living skills and social competence in the family setting at 4-years of age have a substantial impact on their further development in these domains during school-time. This relation seems to be less important or even not present for children's behaviour in the institutional settings in the 4-year period considered in this study.

Effect of earlier developmental status. Among the effects allocated to the pre-school phase, children's developmental status achieved at age 4 accounts for 0.1 to 18.5% of variance explained in the social outcome measures of VABS and CBI across the countries.

Interaction effects. As with the variables in the domain of cognitive development and school achievement, we also tested for interaction effects (in addition to the main effects just reported) in the social-emotional domain. None of the interaction terms tested in these analyses reached statistical significance. The highest amount in additional explained variance is 2.1% (without table). Thus, we assume, that children's social-emotional development at age eight, again, can be explained sufficiently by the main effects tested in the model.

Table 7.15 Variance explained by regression of VABS, CBI and FAS scores on measures of child characteristics, family environment in pre-school period, ECP quality, developmental status at age 4, family environment in school-period, classroom quality, contextual variables, and the macro system

Predictors	Austria					Germany					Spain				
	VABS		CBI		FAS	VABS		CBI		FAS	VABS		CBI		FAS
	School	Family	School	Family		School	Family	School	Family		School	Family	School	Family	
<i>Block #1: Characteristics of child</i>															
Variance explained	17.2*	10.0*	8.3*	12.8*	0.0	5.1*	5.9*	0.8	0.1	1.7+	1.4	1.1	1.0	2.4	0.6
<i>Block #2: Educational quality in the family (pre-school period)</i>															
Variance explained (changed)	16.8*	16.7*	10.6	14.4*	5.9	20.5*	14.3*	16.9*	12.3*	4.6+	24.1*	24.0*	16.1*	20.7*	4.6
<i>Block #3: Quality of child care in the ECP</i>															
Variance explained (changed)	2.9	13.1*	6.9	14.9*	13.4	2.1	1.0	3.7*	2.2	2.4	6.3	4.3	2.5	6.7+	6.3
<i>Block #4: Developmental status at age 4</i>															
Variance explained (changed)	0.1	10.2*	0.3	11.5*	--	4.4*	16.1*	3.6*	18.5*	---	3.3*	3.8*	0.0	6.9*	---
<i>Block #5: Educational quality in the family (school-period)</i>															
Variance explained (changed)	8.1	5.6	9.8	5.3	5.1	5.0*	12.3*	7.1*	13.0*	3.1	1.9	4.4	4.9	4.5	5.8
<i>Block #6: Educational quality in the classroom</i>															
Variance explained (changed)	5.1	9.8*	7.4	8.1*	8.1	4.3*	3.1*	1.7	0.6	2.4	3.7	5.6	5.4	4.4	5.0
<i>Block #7: Contextual conditions</i>															
variance explained (changed)	12.7*	0.9	5.7	2.7	10.5+	1.6	0.5	1.4	1.8	4.0*	5.8+	5.8*	4.4	2.3	5.3
<i>Block #8: Characteristics of macro-system</i>															
variance explained (changed)	0.7	0.6	2.3	0.0	2.4	0.6	0.0	0.1	0.1	0.1	2.5+	2.9*	3.8*	0.2	0.3
Total variance explained	63.7*	66.9*	51.4*	69.7*	45.5	43.5*	53.1*	35.6*	48.7*	18.2*	49.0*	51.9*	38.0*	48.2*	27.9
Total variance explained (adjusted)	(35.7)	(44.3)	(13.9)	(30.2)	(9.4)	(33.3)	(45.8)	(24.0)	(40.8)	(6.0)	(30.1)	(35.2)	(15.0)	(30.3)	(3.8)

*p<.05, +p<.10

7.4.2.2 Characterisation of educational quality in the predictor blocks

In this paragraph we will investigate the extent to which the individual variables characterise the four educational quality dimensions (i.e., pre-school and school-phase family settings, and ECP and primary school setting) with regard to the dimension's predictive power for children's social-emotional development. Again, we will consider RFS-Coefficients (i.e., correlations of linear combination of each quality dimension with its representing variables), that are shown in Table 7.16.

Educational quality in the family (pre-school period). As seen in findings related to predicting children's language and school achievement, the variable that best characterises the pre-school family educational quality dimension for the different measures of social-emotional development is, in almost all cases, mothers educational status. For 12 of these 15 quality dimensions in the three countries RSF-Coefficients reach .26 to .81. The role that the variable, Mother's educational level, plays in representing the predictive power of the block family educational quality varies, depending on the outcome being considered. In all three countries a coherent picture emerges showing that mother's educational level better characterises this block when predicting children's daily living skills and social competencies in the *school* setting rather than in the family setting. Furthermore, several other structural variables in the family educational quality block are also important representatives of the block's predictive power--more favourable spatial conditions (.22 to .38 in Germany and Spain) and fewer siblings (-.23 to -.58 in Germany and Spain). This is not true for the Austrian sample, however, in which also relations in the opposite direction are present.

In addition to the indicators of *structural quality* (educational level mother, spatial situation, siblings) indicators of *process quality* characterise this quality dimension in most cases--the HOME (.23 to .75) and activities in the families (ACT) (.25 to .88). Regarding the parent's educational attitudes variables, the family quality dimension that predicts children's social-emotional development is characterised by less Guiding-adult educational attitudes (i.e, adults tend to more actively guide the child by emphasising cognitive and school-related abilities) (-.31 to -.81). In part, the quality dimensions can be described by higher Facilitating-adult educational attitudes (i.e., adults emphasising social and creative abilities and child's initiative) and earlier developmental expectations. However, the relations are somewhat inconsistent, especially within the Austrian sample. The early developmental expectations

variable plays a more consistent role in characterising this quality dimension when predicting Spanish children's development, but varies in importance in its relationship to the linear combination of the block in the two other countries.

Educational quality in the ECP. The characterisation of educational quality in the ECP setting across countries and different outcome measures appears to be less consistent. There is a tendency for the quality dimensions to be characterised by more favourable spatial conditions (.34 to .68), partly by higher educational status of lead teacher, as well as by teacher's later developmental expectations. However, for most variables inconsistent relations emerge. This result seems reasonable since the variance explained by the respective predictor blocks (i.e., child care quality in ECP) is quite low and in most cases does not reach statistical significance (see Table 7.14). Based on this information, the result that the quality dimensions for VABS and FAS are predominantly characterised by positive relations with indicators of process quality (ECERS, CIS) (.22 to .58) while for CBI they are predominantly characterised by negative relations with these measures (-.27 to -.63) should be interpreted cautiously.

Educational quality in the family (school-period). A similarly inconsistent picture of RSF-Coefficients is apparent for the family educational quality dimension in the school-period. In most cases this quality dimension can be characterised by favourable process quality, as assessed by the HOME (.31 to .63) and the ACT (.30 to .78). The latter is especially and consistently true for the German family setting.

Educational quality in primary school classroom. The quality dimensions of the primary school classroom setting that have an impact on children's social development (VABS, CBI) are mainly characterised by a higher number of hours of instruction (.23 to .54), a higher number of different materials available in the classroom (.35 to .45) and by teacher's who are less likely to emphasise good marks and achievement but more likely to emphasise a higher degree of sociability and co-operation among children (teacher's Achievement-oriented educational attitudes; -.24 to -.52).

Table 7.16 RFS-Coefficients for blocks of variables to predict social-emotional developmental outcome measures

	Austria					Germany					Spain				
	VABS		CBI		FAS	VABS		CBI		FAS	VABS		CBI		FAS
	School	Family	School	Family		School	Family	School	Family		School	Family	School	Family	
Block #2: Child care quality in the family (pre-school period)															
Educational beliefs of parents:															
- developmental expectations of mother	.30*	--	.39*	--	-.25*	--	-.41*	.21*	--	.66*	-.48*	-.78*	-.47*	-.75*	-.58*
- mother's Guiding-adult educational attitudes	-.36*	-.42*	-.81*	--	-.31*	-.58*	---	-.49*	-.56*	--	-.76*	--	-.50*	-.44*	-.62*
- mother's Facilitating-adult educational attitudes	-.50*	.41*	-.39*	.44*	--	.40	--	.45*	.61*	.29*	.33*	--	--	.41*	.41*
Structural quality:															
- number of siblings in household	--	--	.38*	.30*	.25*	-.36*	-.25*	-.23*	--	--	-.26*	-.52*	-.36*	-.58*	-.35*
- educational level mother	.42*	--	.59*	.41*	.37*	.77*	--	.81*	.49*	--	.72*	.26*	.64*	.36*	.44*
- number of rooms per person	.60*	-.23*	--	--	-.51*	.29*	.26*	.31*	.30*	--	.25*	.36*	--	.27*	.38*
Process quality:															
- degree of developmental stimulation (HOME-Total)	.25*	--	.23	.44*	.75*	.61	.64*	.44*	.55*	.49*	.72*	.68*	.56*	.61*	.37*
- activities of children in families (ACT-Total)	--	.76*	--	.58*	--	.25*	.88*	.27*	.51*	--	.69*	.66*	.73*	.50*	.59*
Block #3: Child care quality in the ECP															
Educational beliefs of teachers:															
- developmental expectations of teacher	.35*	.83*	-.31*	.65*	.36*	--	.24*	--	--	-.32*	-.26*	.44*	--	.56*	-.60*
- teacher's Guiding-adult educational attitudes	-.34*	--	-.30*	--	-.67*	--	--	.42*	.22*	-.36*	--	.24*	-.22*	--	--
- teacher's Facilitating-adult educational attitudes	--	.25*	.31*	--	--	--	.20*	.23*	-.52*	--	-.25*	-.24*	-.44*	-.33*	-.36*
Structural quality:															
- child-teacher ratio	--	-.20	.47*	.37*	--	.47*	--	.49*	--	--	--	-.41*	--	--	-.35*
- educational level teacher	-.74*	--	.45*	.34*	.25*	--	-.67*	.35*	-.27*	--	-.32*	--	--	.32*	--
- square meters per child	.36*	--	--	--	--	.34*	--	.64*	.37*	.48*	--	.68*	-.33*	--	--
Process quality:															
- developmental appropriateness of classroom practices (ECERS-Total)	--	--	-.26*	--	--	.55*	.58*	-.42*	-.63*	.23*	.45*	--	--	--	.22*
- quality of interactions (CIS-Total)	-.35*	--	.21	--	--	.26*	.53*	-.27*	-.27*	--	--	-.55*	-.36*	-.63*	--

	Austria					Germany					Spain				
	VABS		CBI		FAS	VABS		CBI		FAS	VABS		CBI		FAS
	School	Family	School	Family		School	Family	School	Family		School	Family	School	Family	
Block #5: Educational quality in the family (school period)															
Educational beliefs of mothers:															
- developmental expectations of mother	--	-.22*	.46*	-.33*	.24*	--	-.22*	--	-.28*	--	--	--	--	--	.30*
- mother's Achievement-oriented educational attitudes	-.36*	.38*	-.53*	-.29*	--	.26*	--	--	--	--	.76*	-.32*	--	--	--
- mother's Creativity-oriented educational attitudes	--	--	--	--	--	-.54	--	-.34*	-.22*	--	.35*	.41*	.57*	.35*	.62*
Structural quality:															
- mother working no/yes	.20	.27*	--	--	--	--	--	.50*	.24*	--	-.36*	--	-.24*	--	-.21*
- child has own room no/yes	-.64*	-.29*	.39*	-.40*	--	--	--	--	-.25*	--	--	--	.39*	-.24*	.32*
- monthly income of household	--	--	-.25*	.26*	.47*	-.29*	-.27*	-.51*	-.57*	-.23*	.29*	-.29*	--	--	--
Process quality:															
- degree of developmental stimulation (HOME-Total)	-.39	-.30*	--	--	.60*	.51*	.43*	.42*	.31*	.38*	-.52*	.63*	-.36*	.54*	.31*
- activities of children in families (ACT-Total)	--	.45*	--	.64*	--	.40*	.73*	.46*	.56*	.78*	--	--	--	--	.30*
Block #6: Educational quality in primary school classroom															
Educational beliefs of teachers:															
- developmental expectations of teacher	.33*	--	.27*	--	.26*	-.27*	-.58*	--	--	-.22	--	--	.53*	.69*	-.30*
- teacher's Achievement-oriented educational attitudes	.23*	.25*	-.27*	.31*	--	-.24*	.28*	--	.59*	.58*	-.41*	-.37*	-.52*	-.34*	--
- teacher's Creativity-oriented educational attitudes	--	-.26*	.52*	--	-.21*	.20*	--	.50*	--	--	.26*	-.34*	-.24*	-.23*	-.26*
Structural quality:															
- # of hours of instruction per week	.36*	.43*	.41*	.23*	--	--	.29*	-.20*	--	-.49*	.54*	-.60*	--	--	-.23*
- # of hours per week children spend doing homework	-.46*	--	--	.26*	.23*	--	.34*	--	--	-.39*	.26*	.41*	--	--	-.35*
- Number of different materials	.35*	.36*	--	.39*	.46*	.45*	--	--	--	--	--	-.25*	--	--	.52*
Process quality:															
- Classroom management	--	--	--	.29*	--	.74*	--	.70*	-.45*	.29*	--	--	--	--	.43*
- Relevance of content	.23*	-.36*	.21*	--	-.46*	--	-.27*	--	-.50*	-.39*	--	--	--	--	.27*

*p<.05, RFS-C<|.20| omitted

In terms of fostering children's well being (FAS) in the three countries this quality dimension can be best described by a lower number of instruction hours (-.23 to -.49), less homework (-.35 to -.39), higher diversity of materials available in the classroom (.46 to .52), higher degree of classroom management (.29 to .43) and less emphasis on the relevance of content in school lessons (-.39 to -.46). However, it can not be ignored that the structure of this quality dimensions tends to be inconsistent in the different countries.

7.4.3 Comparison and summary of results

Based on the blockwise hierarchical regression model with its implications as outlined in chapter 7.3.3 the results can be summarised as follows:

1. The total variance explained by the eight predictor blocks ranges from 18 to 70% for the various outcome measures in the three countries. Thus, 18 to 70% of differences in children's developmental status measured at age eight can be accounted for by the predictor blocks in the models. In general, the amount of explained variance is higher in Austria than in Spain and in Spain higher than in Germany. However, this result pattern can not be attributed to country-specific characteristics of the model that explain differences in child outcome measures. Rather, the much lower sample sizes for Austria and Spain must be considered in interpreting the higher amounts of explained variances in these countries. When comparing adjusted R^2 for the variances explained, systematic country-specific differences in the predictive power of the regression models are no longer observable. For example, the adjusted R^2 for children's language development (PPVT) is 30.2% in Austria, 35.1% in Germany and 36.1% in Spain. Thus, the results of regression analyses indicate that the basic model conceptualised in this chapter explains children's developmental status in the three participating countries in a comparable way.
2. Differences in the predictive power of the model are, however, observable for the various developmental outcome measures used. While children's developmental status in the domains of language (PPVT), school achievement (WJ), daily living skills (VABS) and social competence (CBI) can be explained in comparable ranges of magnitude, the amount of variance explained for children's well-being in school (FAS) is much lower in all countries. This result provides some evidence for the assumption that children's subjective perception of their school situation can be explained to a comparable lesser degree by the „objective“ characteristics of educational quality considered in the explanatory model.

Furthermore two differential results can be stated: First, in the domain of cognition and school-achievement, in all countries school-achievement is predicted somewhat better than language development by the model. This result is expected when assuming an immediate impact of educational quality in the different settings on the closer aspects of school achievement than on language development that represents a much broader and more general developmental construct. The second differential result consistently shows, across countries, higher exploratory power for both measures of social-emotional development (VABS, CBI) as rated by mothers in the family setting than by teachers in the school setting. However, it needs to be considered that children's developmental status in the family setting was rated by mothers, thus the same person, in both the pre-school and the primary school phase. By contrast, children's developmental status in the institutional setting (ECP, primary school) was first rated by their pre-school teachers in ECP and, at eight years, by their primary classroom teachers, thus by two different people. In the latter case two changes need to be taken into account: change of the rater and change of the situation, while in the family setting the rater (mother) as well as the situation (setting family) remain constant. Thus, it seems reasonable that differences in the amounts of explained variance might be more a function of procedures than of the predictive power of the model.

3. The comparison of blocks, representing educational quality in the pre-school phase and those representing the school-phase, shows that about three quarters of explained variance in the developmental status of eight year olds can be explained by predictors of the pre-school phase. Thus, children's developmental status at age eight can be accounted for to a great extent by characteristics of pre-school educational quality in family setting, the educational quality in the ECP setting, the developmental status achieved at age four as well as chronological age and gender. Children's self-perceived well-being in school is obviously an exception. Apart from the relatively small explanatory power of the whole model the blocks belonging to the school-period (including contextual conditions) explain a higher amount of variance than those belonging to the pre-school period. Thereby, the concurrent well-being of children in the primary school phase is relatively less determined by predictor blocks representing educational conditions in their pre-school phase.
4. The consistently most important predictor is the block of variables related to quality of child care in children's family during the pre-school phase. In most cases the influence of

family environment reaches statistical significance for various indicators of children's development at age eight, except for children's self-perceived well-being in school (FAS). Additional relevant effects for children's development can be accounted for by educational quality in children's family settings at age eight. However, the magnitude of these effects is substantially smaller (as would be expected) and only reach significance in the German sample, which is of greater size.

5. Compared to the impact of both family settings (pre-school and school period), the contribution of educational quality in the institutional settings ECP and primary school to children's development is much smaller. The variances explained differ depending on the predicted variables. In most cases, however, the family setting accounts for at least twice as much (and often more) of inter-individual differences than that seen for the institutional settings.
6. In 8 of 18 analyses (in all three countries, excluding FAS) ECP quality accounts for a statistically significant amount of differences in children's developmental status at age eight (i.e., in about half of the analyses a substantial influence of ECP quality children have experienced at age four can be seen). Statistically significant effects are mainly found in the domain of cognition and school-achievement, where 4 of 6 analyses reach significance. Effects are less marked for the social-emotional domain (daily living skills, social competence) and are more apparent in mothers', compared to teachers', ratings.
7. The educational quality in primary school classrooms, which was investigated at the same measurement point as children's developmental status at age eight, reaches significance in 6 of 18 analyses (all three countries, excluding FAS). For the cognitive and achievement-related measures significant effects are only found in the German sample. In the social-emotional domain, effects are, again, primarily observable for mothers' ratings. Regarding country-specific characteristics it appears that in Spain an effect of educational quality in primary school classrooms on children's development at age eight can be demonstrated in none of the developmental domains.
8. The comparison of the amounts of variance explained by ECP quality and by primary classroom quality reveals that the variance accounted for by ECP quality ranges from 1.0 to 15.1% (across countries and outcomes) and variance accounted for by primary classroom quality ranges from 0.6 to 9.8%. In 12 of 21 regression analyses the block educational quality in ECP explains a higher amount of variance than the block quality of

primary school classroom. In eight cases we find opposite results, in one case the explained variance is the same. This result which indicates more predictive power for ECP quality is surprising since children were studied at age eight, and were immersed in their primary school classrooms, which represent a much more proximal environment (at least temporally) to the assessment of children's developmental outcomes. Outcomes were measured about two years (three years in Spain) after children had left their ECP settings, and still the power of ECP quality was evident in its effects.

9. Children's early development assessed at age four accounts for 3.0 to 12.7% of interindividual differences in children's academic achievement and receptive vocabulary and 0.1 to 18.5% of interindividual differences in children's social-emotional outcomes at age eight. In all countries, this impact is statistically significant in almost all analyses.
10. The attempt to characterise the *structure* of those quality dimensions that are predictive for children's development (linear combinations of variables representing one block) by using Regression-Factor-Structure Coefficients (RFS-C) leads to consistent result patterns only for the educational quality of the family in children's pre-school period. Here, we found that educational quality in the family setting that appears to foster children's development can be characterised by mother's educational level. This is especially true for children's development in cognitive functioning and school-achievement, but is also apparent in the domain of social-emotional development. Furthermore, a favourable spatial situation and fewer siblings as well as a higher degree of stimulating interaction (HOME) and frequency and diversity of activities (ACT) in educational processes with the child are significant descriptors of educational quality in families. Educational quality can also be characterised by earlier developmental expectations (especially in Spain). In addition, this domain of quality can be characterised by parents who consider school-related and cognitive abilities to be less important for pre-school children while ascribing low value to controlling educational principles (Guiding-adult). These parents consider social and creative skills and self-regulated behaviour to be highly important for pre-school aged children and indicate high importance to intrinsic motivation and to social competence (Facilitating-adult).

The characterisations of the development-predictive quality dimensions in the family setting are similarly valid for both domains of development: cognitive/school-related and social-emotional, as well as among the three countries. In Austria, a few exceptions to the

result patterns appear for which, however, the small sample size in Austria should be taken into account.

11. The development-predictive quality of the family setting in the primary school-phase shows a less consistent and well-structured picture for the various outcome measures and across countries. However, children who have their own room, earlier developmental expectations of mothers, stimulating processes in the family (HOME) and higher diversity and frequency in children's activities (ACT) may be identified as common indicators of this quality dimension. Regarding the other characteristics of this dimension, country-specific tendencies and deviations according to the various outcome measures are apparent. Because the unique influence of educational quality in the families during the primary school phase is relatively small, it is not reasonable to give a more exacting interpretation of these rather heterogeneous results.
12. Based on the rather small amount of explained variance, likewise the relatively unclear structure in the predictive dimensions of educational quality in ECPs and primary classrooms can be seen. The predictive dimension of ECP quality - especially for developmental outcomes in cognition and school achievement - can be characterised by process quality as assessed by ECERS and, partly, by CIS. With regard to social-emotional development, in particular for social competence as assessed by the CBI, a reversed picture becomes apparent. Therefore, highly sensitive and involved teacher-child interactions do *not* seem to be descriptive of a quality dimension associated with positive influences on children's social competencies at age eight.

The educational quality dimension in the *primary school setting* that fosters children's cognitive development and school-achievement can be characterised by a higher number of instruction hours per week, more homework, higher diversity of materials as well as a higher degree of teacher's classroom management, more emphasis on the relevance of content in school lessons and teachers who are less likely to emphasise good marks and achievement but more likely to emphasise a higher degree of sociability and co-operation among children. The quality dimensions of the primary classroom setting that are associated with predicting children's daily living skills and social competence are in some cases similarly structured. However, the structure is less clear with some exceptions. Thus, more emphasis on the relevance of content in school lessons seems to be a more negative

characteristic of educational quality in the school setting that promotes children's social development.

13. While somewhat similar structures exist, with some exceptions, in the quality dimensions that predict children's outcomes in cognition/school-achievement and social-emotional development (VABS and CBI), the structure of the quality dimension that predicts *children's well being* in school (FAS) differ substantially. Not only is the educational quality in the four settings less predictive, but opposite structures become apparent for the quality dimension of the primary school setting. We have seen that for cognition/school-achievement outcomes, a higher number of instruction hours per week, more homework as well as more emphasis on the relevance of content in school lessons characterise the predictive power of educational quality in the primary school setting, but for outcomes related to children's self-perceived well-being rather opposite relations seem to be true. Yet, higher diversity of materials and a higher degree of teacher's classroom management seem to be descriptors of educational quality in this domain that promote both children's school achievement and their perceived well-being.

8. SUMMARY, DISCUSSION, AND RECOMMENDATIONS

8.1 Introduction

The present study, referred to as European Child Care and Education Study (ECCE) was designed as a cross-national study to examine the quality characteristics and effects, both concurrent and long-term, of early childhood programmes on the increasing numbers of children who participate in them. The study was completed by research teams in four European countries (Austria, Germany, Portugal, and Spain) and came about as part of an informal network of researchers from the participating countries who had been working together since the early 1990's.

Reports for the ECCE Study include two work packages. The first work package targeted the pre-school phase of 4-year old children and provided a detailed description of educational quality experienced by children in their ECPs and in their families as well as the relationship of these quality characteristics to the children's concurrent developmental outcomes across Austria, Germany, Portugal, and Spain. Results of this part of the study are summarised in the final report of Workpackage I completed by the ECCE Study Group (1997).

The current phase of the study, which is described in this report (Workpackage II), is a longitudinal extension of the data collection phase originally completed with 4-year-old children in ECPs (pre-school phase). The longitudinal extension examines another important point in the educational lives of children, which is their adaptation to the new demands of the more academic schooling that 8-year-olds have experienced across Austria, Germany, and Spain¹². At this time information is presented about how well children have coped with the new developmental tasks required of students in school. The continuation of the original study adds to what we understand about how children progress educationally during four of the earlier formative years. As in the previous phase, this part of the study focuses on

¹² Portugal did not participate the primary school phase of the study.

educational quality, and particularly on the relevance of educational quality to the development of 8-year old children at the end of the transition to primary schooling (second grade in Austria and Germany and third grade in Spain).

This concluding chapter provides a condensed overview of the main issues examined in the study, including the concept of educational quality underlying this study, the general design, the sample, the major research questions and results, and the implications of the findings. Although this summary can not replace the contents and discussions of the preceding chapters, it will provide basic information to be considered. Based on this summary, implications in various areas will be discussed.

8.2 Conceptual framework

By the time children, who have been enrolled in a pre-school programme, reach 8 years of age, they have usually experienced three major settings, the pre-school, the primary school and the home. To better understand and explain the effects of ECP quality on long-term differences in children's developmental outcomes, the relative influences of educational quality must be considered with regard to both *classroom* and the *family settings*.

The quality of the ECP classroom has been found to exert an influence on children during their pre-school careers (see ECCE Study Group, 1997), and that influence is expected to continue into, at least, the first years of primary school. Once a child has entered the more academically oriented primary school, the quality of that setting is also likely to create effects in children's development. Thus, in examining the long-term effects of ECP quality on children's development at age 8, the quality of both these institutional settings must be assessed.

In addition, it is assumed that the relationship between ECP and primary classroom quality and children's development is mediated by conditions in the child's family environment. The quality of the home setting is expected to have a significant continuous and permanent impact on the child. However, not only does the home setting, itself, affect children's developmental trajectories, but also, the family, with its needs and preferences, may determine the kind of care and education the child may receive in pre-school as well as

in primary school. Thus, the quality of all three environments was systematically considered in this study in an attempt to account for major educational influences in children's lives.

To assess quality of the institutional classroom environments experienced by children participating in this study, educational quality was measured twice, once to assess pre-school quality during the kindergarten year (1993/94) when children were 4 years of age, and once in the primary school (1997/98) when children were 8. Children almost always remained in the same family environments (their homes) between ages 4 and 8. However, it was possible that changes might have occurred in families during this time, affecting the quality of the home environment. In addition, families make adjustments as children age and require different types of care and experiences. Thus, the quality of the family setting was also measured twice, during the same years in which classroom quality was assessed.

Theoretically, educational quality, both in the family and in institutional settings, is a multi-faceted construct, including structural features, process quality characteristics, and adult attitudes and orientations. Therefore, a deliberately broad approach was taken in conceptualising and measuring educational quality in children's educational contexts to include these major components of quality. This approach is equally valid for both phases targeted in the ECCE Study, children's pre-school and primary school phase. Accordingly, educational quality was assessed in the four settings that are assumed to have an influence on children's development: the family setting in the pre-school and primary school phase, the ECP and primary school class setting.

In our concept of educational quality, the following components of quality are included:

- **Structural quality** characteristics relate to relatively stable frame conditions such as class size, teacher training and kind of instruction in ECP and primary school classes. Those frame conditions are often politically regulated and can usually not be changed by teachers. For families, structural conditions, such as parents' income, education, size of home, employment status and family status are somewhat parallel to the types of structures found in ECP and primary school classrooms.
- **Process quality** is related to the quality of all educational processes occurring in the classroom or in the family. The term includes the kinds of interactions the child has with adults and peers, the stimulation and support the child receives and the activities and experiences in which the child participates in the physical and social environment.

- **Quality of orientations** relates to the educationally relevant belief systems teachers and mothers of primary school-aged children may have. These orientations include adults' conceptions of the developing child, their developmental expectations for children, and their educational goals. The orientations also include their ideas about the primary school as an educational setting.

The institutional and family settings provide strong influences on the child. However, based on Bronfenbrenner's approach to development (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998) it is assumed that these settings do not exist in isolation, but are embedded in contexts and macro-systems that may affect the development of the child due to the economic, political, and cultural characteristics found in each.

According to the *conceptual framework* followed in our study (see Figure 2.1), the family and school settings are conceptualised as sole *micro-systems*, each with the same basic components of educational quality (i.e., structures, processes, and orientations). These basic components differ for each child. The different *contexts* in which these settings are embedded are also assumed to influence developmental outcomes. For example, the *family* is embedded in a specific living environment, that can provide a range of possible developmental contexts for children (e.g., from poor to excellent) which vary in the extent to which they promote positive development. The family is also embedded, to a varying extent, in a social network of neighbours, friends and relatives that can also be related to the effect of the family on the child (e.g., Peek, 1995). Similarly, the *primary school class* is embedded in different contextual conditions as the social and regional features of the catchment area of a primary school may determine to some extent classroom processes.

In our study, these conditions which are related to the micro-systems of family and school are conceptualised as *contexts*. It should be noted that these two micro-systems (family and classroom) are not isolated units because reciprocal interactional processes occur between the two of them. For example, parents may have specific expectations toward ECPs and schools, which are responded to by the schools in the specific expectations of teachers. In these interactional processes there are concrete exchanges of educational and child related information which influence the two systems.

Since Bronfenbrenner (1979) it has become usual in work on socialisation and development to postulate, at least theoretically, the importance of the *macro-system* in which

all lower systems and contexts are embedded and experience a certain similarity. Empirical studies on the care of young children, as well as on their socialisation, usually do not specify explicitly the conditions of the macro-system because these studies are usually completed in only one given macro-system. However, the cross-national character of the present project provides for different macro-systems according to the national conditions in each participating country.

The quality concept underlying this study assumes a strong link to the immediate and future development of the child. To assess these *outcomes* a broad approach was deliberately used which included assessment of several developmental areas: mastery of daily living skills, social competence, (receptive) language development, school achievement, and, as indicator of children's well-being, children's feelings about school. To account for the fact that children often behave differently in different environments, daily living skills and social skills were assessed in both the family (using ratings of mothers) and the primary classroom setting (using ratings of teachers).

Structural conditions and educational orientations in both families and classrooms as well as context conditions were assessed by a sequence of interviews with mothers and teachers. Process quality in families and classrooms were collected primarily through observational methods. Child development outcomes were ascertained by ratings from mothers and teachers, and through tests of language abilities and school-related achievement.

The sampling and data collection procedures established in the primary-school phase of children resulted in data being collected for 73 to 77% of children and families who had participated in the pre-school data collection phase. In particular, data from 107 children and families in Austria, 306 in Germany, and 173 in Spain who were enrolled in 73 (Austria), 214 (Germany), and 103 (Spain) primary school classrooms were collected in the second half of the 1997/98 school year.

8.3 Summary of results

8.3.1 Children's educational careers

After an introduction into the systems of pre-school and primary education in each of the three countries participating in the school-phase of the ECCE study was given, the results

related to children's educational careers dealt with findings illustrating in detail various characteristics of the care and educational careers of the children in the sample. The main research questions addressed in this context were to describe (1) the typical general pattern of pre-school and primary school educational careers, (2) characteristics of children's transition to primary school, (3) their adjustment to the requirements actually given in their grades (grade 2, grade 3) and (4) forms of co-operation between teachers and parents.

Pre-school school educational careers

- On average children in all countries are enrolled in out-of-home care at about 3 years, with Austrian children starting about half a year later.
- German children spend on average 3 years, 7 months; Austrian children 3 years, 1 month and Spanish children 2 years, 5 months in out-of-home care before they enter primary school.

School entry and transition phase

- When entering primary school, according to school laws, on average, German students are 10 months older and Austrian students 8 months older than their Spanish counterparts.
- Spanish students usually enter school on a regular schedule, while in Germany (and Austria to a minor degree) a higher percentage of children begin compulsory school on a schedule that deviates from the norm.
- In all countries mothers perceive the transition phase from ECP to primary school as mostly being positive, although a less positive picture seems to apply for some 10-15% of children.

Primary school educational careers and current adjustment to school year

- In all three countries grade retention or skipping a grade are almost non-existent during the first years of primary school.
- Children's adjustment to the requirements of school in the current school year, as perceived by mothers, is estimated quite positively.
- Within this framework, however, German students are rated by their mothers as consistently less well adjusted than their counterparts in the two other countries. In addition, the German students score lower in school-achievement.

Co-operation between teachers and parents

- Teachers from all countries offer, on average, 1-2 parent meetings in one half school year, which are attended by 74-85% of parents. However, more teacher consultation hours are offered to Spanish parents than to parents in the other two countries.
- According to teachers' estimations, Spanish students spend 3 hours per week doing homework, while Austrian and German children spend 2.5 hours per week. However, mothers report a substantially higher amount of time.
- During about two thirds of the total time children spend on homework, parents are helping them, with the highest proportion of parent time in Germany.
- Mothers in all three countries rate their relationship to the classroom teacher as "rather good", with Austrian mothers giving significantly higher ratings than German and Spanish mothers.
- In all three countries, positive relationships between parents and teachers are positively associated with better school adjustment of students.

8.3.2 Quality in primary school classes

In Workpackage I of the ECCE study, targeting the pre-school phase, structural and process quality of ECPs were investigated. In this report, a parallel approach to investigate the quality of children's primary school classrooms was used. Research questions focused on describing the structural and process quality of primary school classes in the three countries and looking for similarities and differences between the countries. Furthermore, the influence of structural aspects and educational orientations on process quality, as a key element of quality, were considered. In line with the longitudinal approach of the ECCE study, continuity and change in quality aspects experienced by children in their out-of-home settings, (i.e. ECP and primary school), were taken into consideration.

Similarities in structural quality in primary school classes across countries

- In all three countries, on average, teachers are in their 40s and have an average of 20 years experience. Usually they started their professional experience at about 25 years of age and spend four to six days a year in in-service training. Usually teachers report being quite satisfied with their jobs.

- The class sizes in all countries are about of 22 to 24 students and the students in almost all classes experiences some form of extra curricular activities. Most of the instruction is provided by the classroom-teacher. Whole group instruction is the prevalent form of instruction and only a tenth to a seventh of instruction time is spent in small group work.
- Assigned homework appears to be a routine part of the school experience of primary school students in all three countries with 30 to 45 minutes of homework expected by the class teachers per day.

Differences in structural quality in primary school classes between countries

- Although female teachers are predominant in all countries, a quarter of all Spanish teachers are male, while only 1 in 12 Austrian and German teachers are male.
- The Austrian and German primary classrooms are more heterogeneous with respect to age of students than the Spanish classrooms with an age span of 1.1 years in Spain compared to 1.5 to 1.9 years in Austria and Germany.
- In Austria and Germany, about every seventh student is of foreign origin (with about one out of four foreign students having language problems) whereas foreign students are quite rare in Spanish classes (only 1%).
- Spanish students (third graders) experience substantially more instruction hours per week than Austrian and German students (second graders).
- Spanish teachers give about the same number of instruction hours per week (on average 4) in language, mathematics, and science, while Austrian and German teachers allocate more time to language (6-7) and mathematics (4-5) than to science (3).
- Although there are differences between Austrian, German and Spanish classrooms it should be noted that for almost all structural aspects there was considerable variation within each of the three countries found.

Process quality in primary school classrooms in the countries

- Although country differences in process quality (measured by the IEOS total score) occurred, these differences are small in size and only 11% of all differences in process quality can be attributed to the country factor. On average, the measured process quality is lowest in Spain, followed by Germany and Austria, where the highest quality is observed.

- According to measures of process quality using the IEOS, the average primary school classroom has reasonably good process quality with respect to classroom management (e.g., safe climate, social support for learning, effective transitions, engaged learning time) in all countries.
- Process quality with respect to the relevance of content of the instructional situation (e.g., cross-disciplinary connections of instructional material, connection to concerns beyond classroom) is substantially lower in all countries than process quality with respect to classroom management.

Prediction of process quality in primary school classrooms in the three countries

For explaining process quality as measured by the IEOS, structural conditions of classrooms and teachers' educational orientations were used.

- Considering the tentative character of results due to small sample sizes, structural conditions of the classrooms and the educational orientations of the teachers are only weakly predictive of process quality. Only about a sixth (Germany, Spain) and a tenth (Austria) of the variance in IEOS process quality is explained by the predictors.
- In the three countries, no specific set of structural aspects and orientations of teachers are found to consistently influence process quality, with the exception that better space-material conditions (indicated by the number of different materials available in the classroom) are consistently associated with better process quality across countries.

Comparison of structural and process quality between ages 4 and age 8

- In the three countries, classroom teacher characteristics experienced by a child at age 4 in the ECP are independent of those teacher characteristics experienced at age 8 in the primary classroom.
- In some classroom characteristics correlations between what a child experienced at age 4 and age 8 were found. Coefficients, however were rather low. Continuity of classroom conditions reflected by the correlation seems to be mainly due to contextual conditions (e.g., common catchment area, common systems or common philosophy or policy of ECP and primary school systems).

- In Austria and Germany, the process quality experienced in ECPs and in primary school classrooms are independent, whereas in Spain, a small positive relation is found indicating a certain degree of continuity in process quality.

8.3.3 Quality in family settings

The basic research questions aim at the description of children's families and the experiences children have when they are not in school. In particular, analyses completed were guided by questions about the structural characteristics of children's family settings when children are 8 years of age, the educational stimulation children are most likely to receive at home, children's daily schedule and daily routines, and the availability and usage of physical and social resources for children at home and in their communities. Another important research question dealt with similarities and differences in the family environments of children at ages 4 and 8 years.

Similarities in structural characteristics of children's families across countries

- In all countries, complete families (e.g., two adults, father and mother) are the norm.
- It is common for both of the parents to be working, with fathers working considerably more outside the home (on average 50 hours) than mothers (on average 27-36 hours).
- Most of the children have their own bedroom; where this is not the case, they normally share the room with a brother or a sister.
- 8-year-old children spend about 5 hours a day at school, but when including their homework responsibilities, they spend on average up to 50% of their waking time on school and school-related issues.
- In all three countries, the children usually have opportunities for activities and entertainment apart from school such as sports or walking near home as well as family trips and theatre or cinema.
- Children usually have daily to weekly opportunities to play with friends or neighbours.
- The majority of families have arrangements for appropriate child care when parents cannot be with them.

Differences in structural characteristics of children's families between countries

- Not surprisingly, the economic situation of the Spanish families is less favourable than that of Austrian and German families (monthly income 180% more than in Spain). Similar differences are seen with regard to the purchasing power of families.
- Pronounced differences exist between the three countries with regard to mothers' participation in the labour force. About two thirds of mothers in Austria and Germany are employed, whereas in Spain only about one half of the mothers are in labour force.
- The Spanish, compared to Austrian and German families, are more often two-parent families with more grandparents living with the families.
- Spanish children have more public spaces available such as parks or squares, and less private space such as their own garden/yard or that of the neighbourhood.
- Regarding children's daily schedule and daily routines considerable differences between the countries exist: Boys and girls in Austria and Germany get up 1.5 hours earlier and go to bed more than 2 hours before Spanish children, the latter getting an average of 0.5 less sleeping hours (at night).
- Spanish children seem to have more demanding school schedules, as evidenced by the fact that they spend on average 1 hour more in the classroom and also nearly 0.5 hours more on doing homework than Austrian and German children.
- In Austria and Germany one out of ten children spends some hours per week (on average up to 1 hour per day) alone at home when neither mother nor father can be with the child. This is exceptional in Spain, where only 2 children in the whole sample needed to stay alone at home for a certain amount of time.

Similarities and differences in family process quality across countries

- According to the two instruments used to assess process quality in families (i.e., HOME, ACT-PS), children in Austria and Germany seem to receive more educational stimulation at home and participate in more activities than children in Spain.
- Austrian and German children in the sample participate in more after-school activities such as walks around the neighbourhood, playing outdoors, going on family outings, and inviting other children to spend the night at their home.
- Spanish children learn music or languages more frequently and they seem to allocate more time to watching TV and doing some domestic tasks.

- In all countries more or less clear links between socio-demographic background variables (e.g., income, educational level) and indicators of process quality were found. For example, parents with higher levels of education involve their children more frequently in extracurricular learning activities, thus resulting in higher ACT-scores. By contrast, parents who have lower incomes and educational levels allow their children to watch television more often.

Stability and change in family settings of 4- and 8-year olds

- Examining the 4-year period of development considered in the longitudinal design of the ECCE-Study, a substantial amount of continuity was found. Stability is especially seen in process quality indicators such as the HOME and the ACT. This implies stability of favourable developmental conditions for some children and of less favourable conditions for others.
- Observed changes seem reasonable and relevant as they reflect adaptations of children and parents to different requirements given in developmental contexts of 4- and 8-year-olds. For example, primary school children play more often in open spaces (with less protection and adult supervision) and spend less time in dramatic play; they are used to staying alone for (longer) periods according to an increase in autonomy and independence.
- Changes in the experiences and lives of parents are mainly related to an increase in mothers' work force participation and the resultant higher family income.

8.3.4 Quality of educational representations

The research questions examined the educational beliefs and orientations of mothers and teachers, as related to their developmental expectations (i.e., at what age they expect developmental changes and progress in various abilities of children), educational attitudes (i.e., about the importance of characteristics children may possess at age eight) and attitudes toward primary schools (e.g., the relative importance they ascribe to tasks/functions of primary schools and to content areas and educational methods of primary education). The results can be summarised as follows:

Mothers' and teachers' developmental expectations

- Basically, primary school teachers and mothers in the three countries have relatively

similar expectations regarding the age at which children should be able to master specific developmental skills (such as language, social development). However, Spanish mothers and, even more pronounced, Spanish teachers hold later expectations (about 2 to 4 months later) than Austrian and German mothers and teachers do. This result is especially found for expectations concerning children's autonomy, for which both Austrian and German mothers and teachers express substantial earlier expectations than their counterparts in Spain.

Mothers' and teachers' educational goals

- Mothers and teachers from all countries hold relatively similar attitudes about the importance of educational goals, with goals relating to children's personality and sociability given top priority, followed by achievement-related goals and finally, aesthetic goals, to which least importance is ascribed. However, coinciding with their earlier developmental expectations for children's autonomy, Austrian and German mothers and teachers give higher priority to social educational goals (i.e., child should become a confident, sociable, reliable person) than Spanish mothers and teachers.

Mothers' attitudes toward primary schools

- Mothers and teachers from all three countries have generally similar perceptions about the relative importance assigned to primary schools, thus ranking *tasks* related to the encouragement of co-operation among students to be most important, the imparting of the three "R's" to be of medium importance and children's discipline and the value of competitiveness to be least important.
- Mothers from all three countries believe that the most important *characteristics* of a good school are competent and well-trained teachers as well as good classmates and friends. Characteristics that point to relations of the school with its context (e.g., closeness to home) are perceived to be of secondary importance while ideological aspects (e.g., religious orientation) are least important. However, the importance of well-trained staff (as well as provision of child care beyond school) is more highly rated by Austrian and German than Spanish mothers, while Spanish mothers value more highly well-equipped and good school facilities as well as the school being a place to meet good classmates and friends.

- The basic subjects that are traditionally taught in primary schools (e.g., reading, writing, grammar, mathematics) are perceived to be the most important content areas by mothers in all countries.
- When considering teaching methods, Austrian and German mothers give higher importance to methods that enable mothers and teachers to share their responsibility for children's learning (i.e., assign homework) and to more informal methods (i.e., excursions) that enable learning through play outside the school. By contrast, Spanish mothers give higher importance to teacher-implemented methods (i.e., using text or exercise books that are exclusively corrected by teachers) as well as more formal educational learning methods outside school (e.g., visiting museums).

8.3.5 Indicators of child development from a longitudinal perspective

The selected developmental measures included the child's academic achievement (WJ) and children's receptive vocabulary (PPVT) as indicators of children's cognitive and achievement-related development as well as the child's autonomy and ability to cope with daily situations in life (VABS) and the child's social competence and interactions (CBI) as indicators of children's social development. Furthermore, children's feelings about school (FAS) were measured to obtain subjective information about children's situations in school, such as their self-perceptions of competence, concerns about school or feelings about their teachers. VABS and CBI were assessed by both children's mothers and teachers. Thus, altogether seven measures were employed. To predict child development, eight blocks of variables representing (1) a decreasing hierarchy of proximity to the child and (2) an increasing hierarchy of time representing the two educational phases of children (pre-, primary school) were used. The blocks included characteristics of the child, quality in the family during the pre-school phase (orientations, structures, processes), quality in the ECPs (orientations, structures, processes), children's developmental status at age 4; quality in the family during the primary school phase (orientations, structures, processes), quality in the primary school classroom (orientations, structures, processes), contextual conditions of family and institutional settings (ECP, primary school), and macro-system conditions (regions of the country). Blockwise hierarchical regression analyses were used to evaluate the relative contributions of each of the eight blocks of variables to the various child development outcomes. The major research questions examined (1) the magnitude of influences on the

various developmental domains, that can be accounted for by the model of explanation, (2) the impact of characteristics of the pre-school compared to the school-phase, (3) the relative potential influence of the family compared to the institutional settings, (4) the impact of children's developmental status at age four, (5) differences in the impact of educational quality for development in the family compared to the school setting, (6) an appropriate characterisation of educational quality in the family and classroom settings in both phases, the pre-school and primary school period. The following results were found:

Magnitude of impacts

- The model with the 8 predictor blocks accounts for 18 to 70% of the differences (variance) in various developmental outcomes at age 8 across countries. When corrected for sample sizes, the variance explained reaches 6.0 to 53.5%.
- In all countries, in the domain of academic achievement and language, academic achievement is predicted somewhat better than language development by the models. Furthermore the models show higher exploratory power for the two measures of social-emotional development as rated by mothers in the family setting than by teachers in the school-setting.
- For children's self-perceived well-being relatively little explanatory power can be accounted for by the model with the 8 predictor blocks. Despite the results emerging for the measures of school achievement, language and social-emotional development, the blocks belonging to the school-period explain a higher amount of variance than those belonging to the pre-school.

Impact of characteristics of the pre-school compared to the impact of the school-phase

- Blocks representing educational quality in the pre-school phase account for three quarters of the inter-individual differences compared to the blocks representing educational quality in the primary school phase, accounting an additional quarter of variance in various developmental outcome measures at age eight.
- Across countries, the quality of child care in the family during the pre-school phase appears to be the most important predictor for almost all indicators of children's developmental status at age eight, except for children's self-perceived well-being.

Impact of the family compared to the impact of the institutional settings

- The contribution of educational quality in the institutional settings ECP and primary school is much smaller than in the family settings, which account for at least twice as much of inter-individual differences.
- However, the impact of ECP quality accounts for 1.0 to 15.1% of inter-individual differences (with statistically significant contributions in about half of the analyses completed) and shows the most important impacts in the domain of cognition and academic achievement, while effects in the socio-emotional domain are less marked and are more apparent for mothers' than for teachers' ratings.
- The impact of educational quality in the primary school classroom accounts for 0.6 to 9.8% of additional explained variance (with statistically significant contributions only in Austria and Germany). Effects in the social-emotional domain are primarily observable for mothers' ratings and effects for cognition and academic achievement are observable only in Germany.
- Compared to educational quality in primary classrooms, the impact of educational quality in ECPs appears to be more substantial (i.e., explaining a higher amount of variance in more than half of the analyses completed).

Impact of children's developmental status at age four

- Children's developmental status at age four accounts for 0.1 to 18.5% of inter-individual differences in the domains of academic achievement, language and social-emotional development with substantial and statistically significant effects for almost all analyses in all countries.

Characterisation of educational quality

- For the family setting in children's pre-school period, the educational quality dimension can be characterised consistently by mother's educational level, favourable spatial situations, fewer siblings and a higher degree of stimulating interaction and diversity of activities, as well as earlier developmental expectations (especially in Spain), parents who ascribe lower value to controlling educational principles and consider school-related and cognitive abilities to be less important but perceive social and creative skills and self-

regulated behaviour to be highly important. This characterisation is similarly valid for the cognitive/school-related and the social-emotional domains of development.

- The characterisation of educational quality in the family setting of the primary school phase is less consistent. However, results indicate an own room for children, earlier developmental expectations for mothers and more stimulating processes and activities in the family as variables that may be identified as common indicators of this quality dimension.
- For the prediction of development, a less clear pattern is found with regard to quality dimensions of the institutional settings, ECP and primary school classrooms. Considering the rather small amount of variance explained by these blocks, the predictive dimension of ECP quality can best be characterised by process quality as assessed by ECERS and, partly, by CIS with however inconsistent effects for the two domains of development, cognition/achievement and social-emotional behaviour. The predictive dimension of classroom quality in the school setting can be characterised by a higher number of instruction hours per week, more homework, higher diversity of materials as well as a higher degree of teacher's classroom management, more emphasis on the relevance of content and more emphasis on sociability and co-operation among children. This characterisation applies mainly to cognitive and language development at age eight, and partly to children's daily living skills and social competence.

8.4 Discussion and recommendations

The quality characteristics of the various settings conceptualised and operationalised in this study show clear impacts on children's development and school achievement at age 8. This indicates that relevant quality characteristics have been identified and employed in this study. In the final section of this chapter we will discuss some of the major findings and address implications for policy, personnel development, parent education and support as well as for research.

8.4.1 Smooth transition to primary schooling and school adjustment for all students

In all three countries ECPs and primary schools appear to be non-selective systems. This is reflected in the educational regulations in the countries as well as in the data of this study, which show very low selectivity (in a positive as well as a negative sense) in the entrance phase of compulsory schooling. However, according to mothers' perceptions, in all countries a certain number of students tended to have problems in the transition from ECP to primary school.

In the three educational systems in the countries we find different regulations regarding children's entry into primary school. Accordingly, the comparison of countries is also a comparison of educational systems. In Germany, more than in the two other countries (especially Spain), a more flexible school entry can be observed, (i.e., about 10% of students start compulsory schooling on a delayed or early schedule). However, as the data show, this more flexible approach is apparently insufficient in minimising problems experienced by children upon school entry. Despite the flexible school entrance, German mothers still report the same degree of problems when children enter school as do their Austrian and Spanish counterparts. Moreover they rate children's current adjustment to the school requirements as less positive. In addition, German children's school-related achievement is lower than that of their peers in the other two countries. Thus, this country comparison indicates that aspects of external organisation of primary schools (e.g., flexibility in rules for school entry) should not be overestimated as representing the most important factors for successful schooling. There are further data in the study indicating that external organisational issues of schooling should not be overestimated in their importance: Spanish students attend primary schooling one year longer (and ECPs about one year less) than their counterparts in Austria. However, we do not find any differences between these two groups on school achievement-related measures. Such results indicate first, that the contents and the quality of instruction is likely to be far more important for successful schooling than some external features of schools, and second, that the same outcomes in children (of the target age group) can be obtained through different combinations of pre- and primary schooling.

In all three countries we find considerable indications that children's school adjustment does not only depend on school-related conditions by themselves, but that it depends also on the relationship between school and family. Such relations are characterised by formal parent meetings, by continuous opportunities for parent-teacher contacts in the school, and by

parents' opportunities to obtain insight into school-related contents and children's learning progress through their children's homework. The data show that a positive relationship between parents to teachers - estimated by mothers - is related to better school adjustment of children. This background results in the following *recommendation*:

Policy makers should not overestimate the impact of any one change in organisational conditions and factors in attempting to encourage children's school success (i.e., good school adjustment and high school achievement). Rather, they should recognise that school success appears to be highly dependent on high quality practices in both the ECP and primary school educational systems. The organisation and use of these two systems can be flexible, as long as both systems provide the high quality educational experiences that are associated with children's school success. Thus the approach of non-selective and inclusional education in primary schools, as is basically established in the three countries, should be developed and extended. In particular, an emphasis should be placed on broadening the focus to include the minority of children (10-15%) who apparently have problems in the transition into primary schooling as well as in their current school adjustment. For the future, it should be a goal of educational reform to reduce the likelihood for children to show early problems in transition and school adjustment (and for whom serious problems may occur later). In addition to within-school measures, options should be taken that aim systematically at improving parent-school co-operation in its various forms.

8.4.2 Long-term effects of child care quality - Improve child care quality

The core question of the current study (Workpackage 2) is whether relationships between educational quality and children's developmental status found for 4-year old children (cf. ECCE Study Group, 1997) remain true for 8-year old primary school children, when the pre-school experiences occurred about two (Austria, Germany) or three years (Spain) ago. In answering this question a number of aspects must be taken into account, including:

- The students now attend primary school, and thus they are in a different setting with qualitatively different developmental requirements from those found in pre-school.
- During the 4-year period covered by the study, the students experience a number of different influences, which also have an impact on their development.
- The ECPs included in the study are randomly selected facilities, that do not represent specific, supervised intervention programmes, but are, rather, common ECPs.
- Furthermore, children and families participating in the study do not represent a specific target group, but again, are randomly selected with the rather large variations in background conditions as are usually found in the participating countries.

Results indicate that the quality of ECPs, after controlling for effects of child characteristics and characteristics of educational quality in families during the pre-school phase, accounts for 1 to 15% of inter-individual differences in the different measures of cognitive/school achievement and socio-emotional developmental outcomes of 8-year olds.

In about half of the cases these effects are statistically significant, occurring in each of the three countries. Thus, these effects do not depend on a specific system. However, effects of ECP quality are considerably more pronounced in the domain of cognition/school achievement than in the domain of socio-emotional development. The analyses do not show interaction effects of ECP quality and family quality, indicating that children from different social backgrounds profit similarly from educational quality in ECPs.

These results appear to be particularly important, because earlier research on long-term effects of ECP quality showed positive long-term impacts of model and intervention programmes especially for children from low-income family backgrounds (Campbell & Ramey, 1994; Lazar et al., 1982; Schweinhart et al., 1993). Results of the present study show that the quality of ECPs, as it occurs in typical provisions of the early child educational systems in the participating countries, has a considerable influence on children's development. This impact appears independent of the family background of children, i.e., *all* children profit from quality.

The relationship between educational quality of ECPs with children's developmental status at age 8 is, however, smaller, than the relationship found for 4-year olds (cf. ECCE Study Group, 1997). Such a decrease in the potential influence is expected and reasonable when considering the number of other different influences and experiences children are exposed to in the four years since the measurement of ECP quality during the pre-school phase. The limitations in the magnitude of the ECP quality effect, however, should not be used to underestimate the relevance of educational quality in ECPs for children's developmental status at age eight. This is because the impact of educational quality is not smaller than the impact of the quality given in children's current primary school settings. These results lead to the following *recommendation*:

Early Childhood Programmes appear to be an important support system, not only for children's development during the pre-school phase, but also for their development and their school success in primary schools. In the past, especially in the European context, ECPs were viewed very much in terms of the care they provided (i.e., to relieve families of their care functions and to improve the

compatibility of family and jobs for women in the labour force¹³.) Without ignoring this care function, ECPs must also be viewed as having an important *educational* function because of their obvious substantial impact on children's short- and long-term development. Independent of the ECPs administrative anchorage (in the educational system in Spain or the welfare systems in Austria and Germany), the education-related relevance can not be ignored. This function must be clearly recognised and better understood by policy makers if children's developmental success is to be maximised. ECPs should be viewed as important components in building more successful national educational systems. For this purpose certain requirements are needed including a solid financial basis, well-trained professionals, appropriate frame conditions, and efficient efforts and support to use the educational potential given by the frame conditions by in-service training (see also European Commission Network, 1995).

8.4.3 Primary schooling – Various approaches to improvement

A main goal of the ECCE study was not only to investigate the relevance of ECPs for children's developmental status at age 8, isolated and thus context-free. The goal also included an investigation of the educational quality provided in primary school settings since these settings followed the child's ECP setting and theoretically contributed to the children's development. By examining both institutional settings, the relevance of each, to children's developmental status at age 8, can be investigated from a comparable perspective. Furthermore, the common impact of educational quality in the two public settings for inter-individual differences in children's development can be viewed.

The connection between the two educational levels, ECP and primary school, is organised differently in the three countries. In Spain, ECPs and primary schools administratively belong to the same educational system and usually are organised as two sections of a common unit which are located in the same facility (building). In Austria and Germany, by contrast, the two settings belong to two separated administrative systems; ECPs are under the welfare system administration, primary schools administered by the educational system. Accordingly, in Germany and Austria there is no organisational relationship between ECPs and the primary schools with regard to accommodation, curriculum and educational practice. As a consequence of these two different organisational forms differences are found in the continuity of educational quality experienced by children. In Spain, compared to Austria and Germany, higher stability can be seen in the quality of the two educational levels.

¹³ The dissemination of the European Child Care Network established by the European Commission for the period of 1985-1995 as European Commission Network on Child Care and Other Measures to Reconcile Employment and Family Responsibility reflects this limited perspective.

Spanish children who have experienced lower educational quality during pre-school are more likely to again experience lower educational quality in their primary school. The same is true for Spanish children in higher quality pre-school settings, who are more likely to experience higher quality in their primary schools. Because of the organisational separation of the systems in Austria and Germany, such a relationship cannot be seen in these two countries. Both of the organisational forms seem to have advantages and disadvantages. In Spain, the system that provided continuity of quality between ECPs and primary schools is obviously advantageous to children in higher quality ECPs that move onto higher quality primary schools, but for the children in the lower quality settings, the system works to their disadvantage. In Austria and Germany, children who have completed their ECP experiences (of either higher or lower quality) are provided with a more equal opportunity of moving into either a higher or lower quality primary school. Since there is no continuity between the ECP and primary school systems in these two countries, higher quality educational opportunities are shared among the population more evenly.

As already found for ECP quality in the pre-school phase (cf. ECCE Study Group, 1997), again greater within-country differences in primary-school quality are seen than between-country differences. Such differences relate to aspects of structural quality (e.g., class sizes, number of instruction hours) as well as to aspects of process quality, i.e. instructional quality (classroom management, relevance of content). Furthermore it appears that, similar to what was found for ECP quality, process quality in primary school classrooms depends on structural conditions, although the impact of the structures is small, only accounting for less than 20% of differences in process quality. The interrelationship between structural and process quality characteristics has, no doubt, implications for strategies for improving primary schools. As is true for ECP quality improvement efforts, strategies for improving process quality in primary schools must include not only the indirect steps of upgrading frame conditions (structures), but also the direct measures required to upgrade process quality itself (i.e., better educational actions of teachers). To improve primary schools, an efficient, integrated intervention strategy needs to consider both types of quality.

In the three countries, educational quality in the primary school settings (educational orientations, structural conditions, process quality) accounts for between 0.6 and 9.8% of inter-individual differences in the developmental status of 8-year-olds. In close to a half of the analyses these effects reach statistical significance. Statistically significant effects,

however, are only present for the Austrian and German students, not for the Spanish. The Spanish result may be due to the correlation between ECP quality and primary school quality, which was found in Spain, but not in Austria and Germany. Because of this correlation, the power to predict children's development, that is shared by ECPs and primary schools in Spain, appears only in the ECP-block of hierarchical regression. In other words, there is no additional quality effect of the Spanish primary schools independent of the educational quality already captured by the ECP.

The quality of the primary school setting, that is associated with children's developmental outcomes, can be described in more detail. This quality is characterised by better structural conditions as well as by more favourable processes in the classrooms. Better quality is indicated by more instruction hours per week and by a higher number of various materials in the classrooms. Instruction processes are characterised by a more favourable classroom management of teachers and, with regard to the development in the cognitive-achievement related domain, by an emphasis on the „relevance of content“ (i.e., by an emphasis on the application of what is taught in various contexts and on its transfer). According to these results, the following *recommendation* is made:

In the future, basic elements of successful primary schooling, as identified in this study, should be emphasised. Students should be given the „opportunity to learn“ in order to support desirable developmental progress. Students need opportunity, time, and a variety of materials that allow different ways of learning. From this perspective, it should be ensured that the number of instruction hours in the first grades of primary schooling are sufficient, and that a sufficient number and variety of materials are available to students (and teachers). Teachers should be aware of the importance of good classroom management (i.e., they should be enabled to effectively organise social order in the classroom, make best use of the time they have to instruct, and to provide appropriate instruction to give students the opportunity to learn). Students should be provided with sufficient time for contextualised learning, with the possibility of applying and transferring learning as important elements. Furthermore, close co-operation between parents and teachers should be regarded as an important element of successful primary schooling.

8.4.4 Impact of the family – Strengthen the family

Of all the settings where influences on children have been investigated, the children's family setting was found to be most powerful in predicting children's developmental outcomes. This developmentally predictive quality of the family setting was found to be strongest for the family environment of 4-year-olds, while its later measurement, when

children were 8 years of age (primary school age), accounts for relatively few better predictions of children's development at age 8. These results were consistently found in all three countries.

The conditions of the family setting for the children in our sample differ to a significant degree. For example, results indicate relatively large differences in the spatial conditions and resources of families (i.e., apartment size, own room for child), in the economic conditions and resources (i.e., income per person), as well as in social conditions and resources (e.g., compared to 2-parent families, a 1-parent family has available fewer social resources). In most families, children need to share the social resources with siblings, and sometimes also with grandparents living in the household who often need care. Families also show differences in educational conditions and resources, as documented, for example, in parents' educational levels, their educational beliefs and ideas, as well as in the stimulation and activities children experience in their families and in their environments.

The separate domains of conditions and resources in the families are not independent from each other, but interrelated. Irrespective of the relations between the different condition and resource domains, however, analyses highlight the importance of *educational resources and characteristics* of the family setting to children's cognitive, school-achievement related, and social-emotional development. Quality in the family that best promotes children's development can best be characterised by mothers' educational level, the degree of stimulation assessed by the HOME, children's activities in the family and the family environment, as well as by relatively early developmental expectations of parents.

Using the different quality aspects of the family setting, as assessed in the pre-school phase, children's developmental status at age 8 can be predicted to a substantial degree. During children's primary school phase, additional aspects appear to be important, but their impact on children's development at age 8 is considerably less. Taken together, developmental influences emerging from the quality of the family setting are substantially stronger than those influences emerging from the quality of the institutional settings (ECP and primary school). Based on this background, the following *recommendation* can be made:

In all three countries (and probably also for the other European countries), strengthening the *educational resources* available to all families must be considered a very important task.

No doubt, family educational conditions and resources are not solely responsible for the family setting's power in predicting children's development as they are strongly related to other resource domains in the family (i.e., economic, spatial,

and social resources). Thus, a comprehensive approach is needed in forming policy and developing strategies aimed at improving educational quality in families. However, the development of education-related conditions and resources in families should be the primary goal of family-support measures.

Strengthening education-related conditions and resources in families should be started as early as possible. Thus, support of families should be initiated before a child's birth and should be organised as a process that accompanies the growth of the child. Such support should be available at least until children make the transition into primary schooling to ensure that a close relationship between families and their primary schools is established.

These measures are not meant as special programmes or facilities, which parents utilise only under special conditions, but rather as an accompanying network in which parents and educational experts have the opportunity to interact, focusing on the characteristics of a development-promoting family setting.

In all three countries forms of parent-education do exist, which may be used and extended to establish a system of accompanying parent education. In this context, incentives should be considered to encourage parent's co-operation in such programmes. For example, financial incentives, similar to those found in the health system, might be provided to stimulate an enduring participation of parents.

8.4.5 Different education settings - Towards a more comprehensive understanding and improvement of educational quality

In many studies investigating the impact of educational quality of institutional settings (ECPs, schools) on children's development, the quality of the respective target setting is operationalised in detail while other influential settings in which children are simultaneously involved are represented by less specific variables such as proxies or other control variables. This approach appears to be sufficient when the quality impact of the non-target settings is not of genuine interest but is only needed for unbiased estimations of the effects of the target setting. However, using such an approach, no comparisons of the predictive power of the various settings can be made with regard to development. Accordingly, results appear to be limited in scope insofar as the context, and their *relative* contribution from a more comprehensive perspective is not explicitly addressed.

In the present study a different approach was employed. In the conceptualisation of the study, all four settings children are involved in during the period of 4 to 8 years of age were considered explicitly (i.e., children's family setting during pre-school and primary school phases, children's ECPs and their primary school settings). In addition, educational quality in all four settings was operationalised in a comparable multi-faceted way and to a similar extent in each. This allows for estimating the relative impact of each of the settings in the

context of the remaining settings as well as for describing the quality dimensions predictive for students' development in more detail.

The overall results indicate that quality in each of the four settings contributes to students' development and school achievement, although impacts may vary according to developmental domains and country. There appears a clear dominance of the magnitude to which the educational quality in the family setting as assessed in the pre-school phase is linked to development and achievement outcomes of 8-year-old students, compared to the quality in the other settings.

No doubt, this reflects the fact that we find the highest variation of quality in these family settings. Family settings reflect the full diversity in our societies whereas ECPs and primary school settings under the auspices of a public administration and in a professionalised context are more homogenous in quality. Nevertheless, the variations in quality found in the public settings (ECPs and primary schools) and their links to developmental and achievement outcomes are substantial enough to need thorough consideration with regard to research, policy and practice. Although the approach employed in this study needs refinement in further research, we would like to conclude with a final *recommendation*, pointing to the necessity of linking sufficiently complex and detailed research approaches with appropriately complex and powerful approaches in policy making and practice:

Future research focusing on the educational quality experienced by children in their various settings needs to continue to consider the complexity of children's environments, (i.e. to consider simultaneously the various settings, their specific predominant quality characteristics and their interrelationships). The purpose is not only to acquire more knowledge and reach clearer understandings, but even more important, to provide better information for policy-makers, administrators and practitioners in their attempts to make improvements. A major result of the present study is that primary school students' development and school achievement is linked to educational quality in various settings children have experienced in their lives, especially to educational quality in their pre-school phase. As an implication, policy and practice should recognise the broad scope of the various potentials for improving children's educational environments suggested by this result. Children in the three countries of this study, and maybe all children in the EU, will need policy-makers and professionals who are aware of the complexity of this field and who use the manifold opportunities within this complexity to improve children's educational quality.

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