KINDERGARTEN TEACHERS' PERCEPTIONS OF DEVELOPMENTAL DELAY IN TAIWAN

THE CONCEPT, PREVALENCE AND RELATIONSHIPS BETWEEN TEACHER IDENTIFICATION, SCREENING TESTS AND CLASSROOM BEHAVIOUR

by

Kuen-Ying TSAI

Thesis submitted in accordance with the requirements for the degree of

Doctor of Philosophy

The Institute of Education

The University of London

1999

ABSTRACT

The term 'developmental delay' has been introduced in Taiwan Early Childhood Special Education to refer to young children with difficulties in learning and development. The purpose of this research is to describe kindergarten teachers' perceptions of this term, the prevalence and characteristics of children with developmental delay in kindergartens in Taiwan, and the relationships between teacher identifications, screening tests and children's classroom behaviours.

A three stage study was conducted. Stage One investigated teachers' understandings of 'developmental delay'. The methods employed included individual interviews with 52 teachers and a characteristics rating scale completed by the teachers. Stage Two consisted of a prevalence survey and individual interviews with teachers about current and future special provision for children with developmental delay and teachers' experiences in coping with such children. Prevalence was established using teachers' nominations of children. Stage Three concentrated on the classroom experiences of the children and the relationships between teacher identifications, screening tests and classroom behaviours. Fifty children (half regarded by teachers as having developmental delay and the other half not) in eleven classes took part in this stage. The Chinese version of the Denver Developmental Screening Test (DDST) was adopted for the screening tests.

The main findings suggest that the teachers tended to perceive developmental delay from within-child perspectives, with preference for the normative and developmental models. Of the kindergarten children, 9.2% were regarded by teachers as having developmental delay, with most having multiple domains of delay. Current special provision for these children was limited, but more provision from inside or outside the kindergarten was seen to be needed. There were distinctive differences in classroom behaviour patterns between children regarded as having developmental delay and other children in class. Where there was a certain degree of mismatch between the teacher and test identifications (using DDST results) these discrepancies can be accounted for in terms of the classroom behaviour patterns. The findings, both theoretical and practical, and the research implications of this thesis are discussed.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGEMENTS

This thesis would never have been completed without the support, guidance and assistance of many people and institutions. Since there are so many, I am not able to mention everyone by name. However, I would like to give special thanks to the following:

- The Ministry of Education of Taiwan for offering me a four-year scholarship to study in the UK.

- The Stanley Segal Research Studentship Award of the UK 1997/98 for their financial support to this research.

- The children and the teachers in the selected kindergartens participating in this research for their time and cooperation.

- Professor Brahm Norwich, my supervisor at the Institute of Education, University of London, who guided me carefully throughout this research, offering me important insights and feedback at every stage of my work.

- Professor Bei-Li Chang at the National Taiwan Normal University for her help in initiating this research in Taiwan.

- Professor Mei-Guei Lu at the Taipei Municipal Teachers' College for her valuable comments and help in accessing the sample teachers.

- Mr. Roger Bristow at the University of Manchester for his detailed and constructive comments on this thesis.

My heartfelt thanks also go to my personal friends Roland Tay and Andrew Mai for their encouragement and support throughout my work on this thesis. Finally, I would like to dedicate this thesis to my parents for their enduring love.

CHAPTER ONE
STATEMENT OF THE PROBLEM

1 INTRODUCTION

The purpose of this thesis is to explore the nature of young children with 'developmental delay' in ordinary kindergartens in Taiwan and how teachers understand and perceive this developmental concept within early childhood special needs.

This research within the context of Taiwan has its origins in recent policy intentions within early childhood special education in that country, and the introduction of 'developmental delay' as a new legal category of preschool eligibility in the Children's Welfare Law of 1993. This new category is intended to include children under six years of age who need special education and related services because of having significant problems in their development. In essence, developmental delay is a broad category and nonspecific in nature when contrasted with the traditional statutory categories employed previously under the Special Education Law of 1984, such as mental retardation, hearing impairment, or physical disability. The introduction of this new and broad category for services raise a number of concerns, regarding the population to be served, which are described later in this chapter.

With a particular reference to the children in kindergartens, this research sets out to respond to this new policy direction and to address some of these issues, particularly on the identification of potential target populations. As such it has three initial concerns: how many kindergarten children might have developmental delay, what are their difficulties and what is their current status in kindergartens in Taiwan. Recognizing the significant role of classroom teachers in child identification and referrals, as well as the difficulties in using other kinds of screening methods, an approach based on teacher identifications has been adopted for an investigation of the prevalence and profiles of kindergarten children with developmental delay. Following this decision a preliminary investigation was essential to confirm what this term 'developmental delay' meant to Taiwanese teachers. Furthermore, the data from the teachers' perceptions of the

prevalence and characteristics of developmental delay provided a springboard which suggested a need for a more sophisticated study to explore the teachers' identifications.

This research has been carried out in three stages in Taiwan. The first stage was a study of the teachers' understandings of the term 'developmental delay'; the second was a prevalence survey of children with developmental delay in a sample set of kindergartens; and the third concentrated on the relationships between teacher identifications, screening tests and children's classroom behaviours.

Because of its originality in its field in Taiwan, the findings from this research may be of significance to local special needs policy and practice. They may provide directions for teacher training and professional development, as well as the further development of the necessary educational and related services for these children. In addition, this research puts forward useful information for developing theories of developmental delay within the Taiwanese context.

2 BACKGROUND TO THE PRESENT RESEARCH

2.1 Policy Intentions regarding Early Childhood Special Education in Taiwan

During the past two decades there has been increased focus on special education in Taiwan as a part of economic growth and development which has led to a steady rise in national living standard and a remarkable advancement in general education at all levels (Ministry of Education, R.O.C, 1994). In this period, parallel to the global tendency in realising the importance of early intervention, early childhood special education has been one of the main priorities in the recent wave of educational reform in Taiwan.

Within the history of special education in Taiwan, the first special school, a private school for blind and deaf children, was established by an English priest in 1890 (Ministry of Education, R.O.C, 1994). However, since then, there has not been much progress because of the long-term political and social instability resulting from several wars. It was not until the 1960s that some experimental projects were at last launched. In 1968 the implementation of nine-year compulsory education (from six to fifteen) included for the first time governmental recognition of special education. The Special Education Law of 1984, a remarkable step in the development, heralded the first

comprehensive legislation focussed on students with special educational needs. This still remains the principal law in this area. Much has been achieved since the introduction of this law. According to official statistics, nationwide in Taiwan, there were 4,506 students with special educational needs in 469 classes within 16 special schools, and 27, 895 students in 1,956 classes attached to ordinary schools in the 1994/95 academic year (Ministry of Education, R.O.C, 1995).

Despite these achievements, there was still little focus on special needs in the early years. For example, the above statistics indicated that there was still only one special school and nineteen preschool special classes attached to ordinary primary schools providing early childhood special education for 129 children under six years old with intellectual difficulties. In total, only 448 children aged three to six with special needs received special educational provision in 1995 (Ministry of Education, R.O.C, 1995). This was mainly due to the fact that early childhood education was not compulsory and educational targets had been concentrated on students in their elementary and secondary school years. It is only in the most recent years that early childhood special education has been taken seriously, after significant progress in the area for the elementary and secondary school stages. This transfer of attention is now one of the main priorities in the recent wave of special education reforms. The shift in policy can be partly explained as being due to intense lobbying by various local organisations, as well as being a part of the global trend towards early intervention services for young children with special needs.

Although the provision is still limited, there is now a lot of evidence to show that at every level of practice, management and policy-making, special needs in the early years is in receipt of more attention than at any other time in Taiwan. For example, in the Five-Year Special Education Development and Improvement Plan 1993, part of the Six-Year National Development Plan, early identification and intervention for three- to five-year-old children with special needs is one of the priorities. In 1996, an amendment draft of the Special Education Law suggested the lowering of the age of compulsory education for children with special needs to three years old. This amendment was initially passed in the Legislative Yuan and the Ministry of Education planned to implement it initially for five year olds in some areas for the 1997/98 academic year

("Compulsory Education," 1996). Apart from these policy intentions, there have also been a few experimental intervention programmes initiated by educational groups or related foundations. Of all these actions, the passage of the Children's Welfare Law in 1993 can be viewed as one of the most recent major landmarks in the development, and the future of early childhood special education is sure to be affected by this law. The implications and impacts of this law on early childhood special education in Taiwan are discussed below.

2.2 The Impacts of Developmental Delay as a New Category for Young Children with Special Needs in Taiwan

In Taiwan, the Children's Welfare Law of 1993 expanded services to young children with difficulties through the addition of mandatory services, by broadening eligibility criteria, and by extending rights afforded to school age children to infants, toddlers, and preschoolers. This was the first law that paid proper attention to under-sixes with special needs in Taiwan, although it also covered other topics regarding children's welfare. The spirit of this law, in the section of provision for children with special needs, emphasizes the importance of early intervention services and regulates to put it into practice. These provisions include early identification of target children, parental involvement, interdisciplinary cooperation and a complete service provision network.

The Children's Welfare Law also introduces a new discretionary category of preschool eligibility - 'developmental delay'. As defined by the law, potential recipients of early intervention services may include disabled children and their families, as well as those who have 'developmental delay', a term specially introduced and used for children under six years old with special needs. Instead of using eligibility categories commonly used in the area of special education, this new broad category of 'developmental delay' reflects a philosophy and new direction in special needs in the early years. This specifies: (i) viewing every child as a whole person, (ii) viewing young children's special needs based on a developmental perspective, and (iii) avoiding the possible negative effects of inappropriate categorization. Further investigation of the terminology of developmental delay is discussed in the next chapter of literature review.

However, the introduction of this new category raises a number of concerns about

policy and practice. From a special needs education perspective, defining and identifying children with developmental delay, especially those who are between three and six and thus eligible for entrance to early childhood education, constitutes one of the principal tasks facing those charged with implementing the law. While definitions of traditional disability categories exist, there are no clear definitions as yet of developmental delay. Its nonspecific nature raises issues of identification of the target population eg. what kinds of children can be identified as having developmental delay, how to differentiate this category from other existing categories and so on. In fact, there is relatively limited experience nationally so far in Taiwan in identifying young children with developmental delay. Prior to the passage of the Children's Welfare Law, the identification of children under six years old with special needs used to follow the categories and procedures used at the primary school stage. Based on these traditional categories, only those who had hearing and/or visual impairment, intellectual difficulty, physical disability or language disorder were identified and received special education in the kindergartens (Ministry of Education, R.O.C, 1997). This applied as late as the academic year 1996/97.

Now, the government, local educational authorities and kindergartens have begun to confront the critical issues of early identification, including such problems as how many young children might be eligible for early intervention; how to define the developmental delay category; how these children can be found and assessed meaningfully; whether all children with developmental delay should receive services; and what sorts of special educational services they need. These issues apply to various agencies and disciplines including the health service, social welfare agencies and special needs education, and need to be resolved in terms of coordination of these agencies and disciplines. In the field of special education, these issues have become more important since the Ministry of Education announced its aim to achieve a policy of free early childhood special education for five-year-old children with special needs by 1998 (Ministry of Education, R.O.C, 1995).

2.3 The Necessity for Conducting a Prevalence Survey

A prevalence survey of young children with developmental delay is certainly needed at present in Taiwan. An estimate of the prevalence rates of developmental delay

allows parents, professionals, and policy-makers in an area the opportunity to determine the extent of current need for services in order to plan appropriately. In addition, prevalence surveys can be used to evaluate programmes (Sinclair, 1993). Considering the current status in Taiwan mentioned earlier, the government has a strong policy intent regarding developing early childhood special education. However, unfortunately, there is no national census of special needs in the early years to refer to so far. There have been two national surveys of prevalence rates of children with special educational needs, which were finished and reported in 1976 and 1992, but these two surveys targeted only children aged six to twelve (1976) and to fourteen (1992) years old. There is as yet no empirical data available on the prevalence rates for the under sixes with special needs. The policy-makers used to refer to 2% prevalence of preschool aged children with disabilities based on results of a national prevalence survey (Wu, *et al*, 1992), but clearly this kind of estimate is not appropriate. The special education needs of under sixes and over sixes are different and the provision for them needs to be considered on its own. They are also wider than those of specific, easily-recognisable disabilities. Considering developmental delay as a new preschool category of eligibility, it is essential to get prevalence rates based on the new concept rather than following any of the older statutory categories.

2.4 Problems of Identification and The Place of Teachers in Ordinary Kindergartens

As defined by the Implementation Bylaws of the Children's Welfare Law (1994), Article 11, children with developmental delay means:

> those who are under six years of age with exceptionality or being predicted to be exceptional in one or more domains of cognitive, physical, language and communication, social and emotional development, and self-help skills who, as a result of their exceptionality, need early intervention services.

Clearly, this is a broad but not operational definition. When it is used in practice, it is essential to ensure how people involved in this area perceive what constitutes developmental delay and what sorts of children have it. This issue is even more essential when the term is newly introduced and the old statutory categories still exist and are in

use simultaneously.

In addition, it has often been pointed out that identifying special needs in the early years seems difficult for a number of reasons, such as variability in normal development, questionable assessment instruments as well as variability in quality and quantity of environmental experiences (Lessen & Rose, 1980). In particular, as Shackelford (1992) has commented, with a lack of reliable and valid instruments for checking young children and with questionable predictive validity for the available instruments, it can be problematic in determining delay by traditional assessment methods. Given these difficulties, identifying and accounting for this population is at best tenuous. In Taiwan, a further substantive issue is still a lack of appropriate screening tests and assessment instruments which can be used to diagnose young children with developmental delay.

Having considered problems with the definition and identification of developmental delay we can now turn to the classroom teachers. They play a relatively important role in identification for these children. In the USA, as Bay and Bryan (1992) have indicated, the event that usually sets the special education process in motion is a teacher's decision to refer a student. According to the working model of identification and placement procedures for young children with special needs in Taiwan, classroom teachers' referral is an important subject for us to look at in order to find out which children might need early childhood special education, particularly for those with mild difficulty or who might be termed as being 'at-risk'. Not surprisingly, as an early study of Algozzine, Christenson and Ysseldyke (1982) indicated, most referrals are submitted by classroom teachers, and in that study 73% of the referred children were declared eligible for special services. Furthermore, the most significant factor leading to classification is the teacher's reason for referral (Ysseldyke & Algozzine, 1983). Given the significance of classroom teachers' roles upon the referral decision, their perceptions about any particular eligibility category are undoubtedly critical to the identification of target children, especially with a new and broad category such as developmental delay.

On the other hand however, although teachers are recognised for their essential role in the identification and referral procedures, their judgements of children's performance or difficulties seem to be commonly assumed to be questionable. There

seems to be a general assumption amongst education researchers and professionals that teachers' perceptions of the their pupils' attributes are often subject to bias and error. This assumption is rarely given explicit acknowledgement, but it has been discussed within the assessment, expectancy and decision-making literature (Hoge & Coladarci, 1989). Such a presumption represents a negative criticism of teachers, and it therefore requires both empirical examination and firm evidence for its conclusions.

2.5 Limited Research in Taiwan

Until very recently, little attention was given in Taiwan to empirical research about kindergarten teachers' roles in identification of young children with developmental delay (or even other types of special needs), and to the systematic study of the characteristics of these children. Reviewing the literature on this field of early intervention in Taiwan, the research can be divided into five approach dimensions: (i) pilot regional surveys of infants with developmental delay conducted by pediatricians (Chuo, 1995); (ii) pilot early intervention projects based on multidisciplinary cooperation (Cheng, Lin & Wang, 1995); (iii) studies on the development of preschool assessment instruments (Wang, Chang, Tan & Chou, 1991; Lin & Lin, 1994); (iv) studies regarding the needs of families with young disabled children (Wang, 1993 and 1994) and (v) studies on the general status of early childhood special education (such as that by the National Taipei Normal College in 1990). However, at the time of writing there is no study undertaken which focuses on the nature of special educational needs in kindergarten settings. In addition, so far, there are few studies investigating issues concerned with the concept of special needs in Taiwan. The problem of there being limited research in this area simply reflects the existing need to conduct research on developmental delay in kindergartens.

3 AIMS OF THE PRESENT RESEARCH

Reflecting on the above problems and concerns about young children with developmental delay in Taiwan, the present research attempts to respond to and investigate these issues and problems. The main intention was first to build up a picture

of developmental delay in ordinary kindergartens as seen from the perspective of classroom teachers, and second to understand in more depth kindergarten teachers' perceptions of developmental delay. The principle research aims were therefore as follows:

(1) to describe kindergarten teachers' implicit concepts of developmental delay;

(2) to describe the prevalence and characteristics of kindergarten children with developmental delay as perceived by teachers;

(3) to describe firstly kindergarten teachers' perceptions of current and future special provision for children with developmental delay, and secondly to discover how they cope with such children in their classes;

(4) to determine the possible classroom behavioural patterns that kindergarten teachers associate with the notion of a child with developmental delay;

(5) to determine the relationships between teachers' identifications and developmental screening tests, and to explore possible moderator variables associated with these relationships.

4 RESEARCH QUESTIONS

Emerging from the practical concerns and research aims so far described were a number of more specific questions to be investigated in the research. Because of the applied nature of this study it seemed most appropriate to summarize the ground to be covered as a series of questions to be answered, rather than as hypotheses to be tested. This had advantages of open-endedness which suited both the methods of investigation described, and the use to which the findings could be put. The resultant questions for the research to investigate are listed below.

Based on research aim (1), one main question and four sub-questions were proposed:

(1) In which ways do kindergarten teachers understand, view and define developmental delay?

1.1 Have teachers heard of the term 'developmental delay'?

1.2 What are teachers' views on the definition, characteristics and aetiology

of developmental delay?

1.3 How do teachers differentiate between the concepts of developmental delay and related terms regarding special educational needs with which they are familiar?

1.4 How characteristic are the features of developmental delay as perceived by teachers?

According to research aim (2), one main question and five sub-questions were raised:

(2) What are the prevalence and characteristics of kindergarten children with developmental delay as identified by teachers?

2.1 In which ways do teachers identify children with developmental delay?

2.2 What is the prevalence rate of children with developmental delay as identified by teachers?

2.3 What are the prevalence rates and nature of the problems of children identified by teachers as having developmental delay?

2.4 What are the demographic features of children with developmental delay, including distributions for age, gender, kindergarten experience and family background?

2.5 What are teachers' explanations for the aetiology of those children with developmental delay?

Considering research aim (3), two main questions and ten sub-questions were submitted:

(3) What are kindergarten teachers' perceptions of current and future special provisions for children with developmental delay?

3.1 Are children identified by teachers as having developmental delay also perceived as needing special provision?

3.2 What strategies do teachers use to deal with children with developmental delay?

3.3 What sorts of special provision from inside the kindergarten do children

with developmental delay receive currently or need to receive in the future?

3.4 What sorts of special provision from outside the kindergarten do children with developmental delay receive currently or need to receive in the future?

3.5 What types of educational placement are viewed by teachers as appropriate placements for children with developmental delay?

(4) What are kindergarten teachers' experiences in coping with children with developmental delay in their classes?

4.1 What do kindergarten teachers perceive as the effects of having such children in their classes?

4.2 What difficulties do kindergarten teachers have in coping with these children?

4.3 What help have teachers received concerning these children? What future help do teachers expect to receive?

4.4 What are kindergarten teachers' attitudes towards keeping these children in their classes?

4.5 What are teachers' attitudes towards transferring these children for further identification?

In accordance with research aim (4), the following question was proposed:

(5) Is there a distinctive classroom behavioural pattern which differentiates children identified by teachers as having developmental delay from others in class?

On the basis of research aim (5), one main question and three sub-questions were raised:

(6) What are the relationships between teacher identifications and developmental screening test identifications?

6.1 To what extent do teacher identifications match developmental screening test identifications?

6.2 Is there any association between classroom behavioural patterns and the relationships between teacher and screening test identifications?

6.3 Are child characteristics (including gender, age position in class and delayed domains) the moderator variables on relationships between teacher and screening test identifications?

5 DEFINITIONS OF TERMS

(1) *Developmental delay*

The statutory definition of developmental delay as in the Implementation Bylaws of the Children's Welfare Law 1994 in Taiwan has been quoted earlier in section 2.5 of this chapter. Paralleling this official definition, in the present research the term developmental delay refers to children who have problems of nonspecific or specific etiology, in one or more major developmental domains. For the purposes of this research, the precise concept of developmental delay was left to become classified in detail by the outcomes of investigating both the teachers' views and the type of data to be collected.

(2) *Kindergarten*

In Taiwan early childhood education is provided in kindergartens. According to the Early Childhood Education Law (1981) and the Implementation Bylaws of the Early Childhood Education Law (1983), there are two types of kindergarten - both public and private. Public kindergarten are those established by local governments or teacher training institutes, or attached to public primary schools. Others are private kindergarten. The target pupils of kindergarten are children from four years old to before entering primary school (normally six years old). There are two kinds of classes, grouped according to the age of the children - classes for 4 year olds and classes for 5 year olds. Generally the size of each class is under thirty and there are two teachers in a class. The classes can be part-time (half day) or full-time (whole day).

In the present research the kindergarten investigated were those accredited in Taipei and complying with the regulations of the Early Childhood Education Law of 1981 and its Bylaws (1983). For the purpose of this research the kindergarten only refers

to ordinary kindergarten, i.e. those mainly for typically developing children, and this definition is used to distinguish them from those intended solely for children with specific difficulties or disabilities (e.g., special kindergarten for children with hearing impairment or intellectual difficulty).

(3) *Kindergarten children*

As mentioned earlier, the entry age to kindergarten is four years old to before primary school. For the purpose of this research kindergarten children means those who are five years of chronological age (60 months to under 72 months) attending kindergarten in Taipei, Taiwan.

(4) *Kindergarten teachers*

The qualification requirements for kindergarten teachers in Taiwan include: (a) graduating from a junior teachers college with a major in early childhood education; (b) graduating from a university or college with a major in sciences related to early childhood education; or (c) graduating from a senior high school and having earned at least 20 credits from a designated school on early childhood education.

In the present research kindergarten teachers means those who were qualified and teaching in public or private kindergarten in Taipei, Taiwan.

(5) Teacher identification

For the purposes of this research, the term 'teacher identification' refers to an identification method directly based on teacher's nomination which identifies children with developmental delay in a teacher's class, and which is used personally by that teacher.

6 CONCLUSIONS

This thesis comprises twelve chapters. The present chapter has introduced the general background to the research, the preliminary nature of the problems surrounding the topic, the research aims and the specific research questions. To provide the theoretical context

Chapter Two reviews the literature which directly relates to this research. Chapter Three presents the research design, whilst Chapters Four and Five look at in detail the research procedures and methodology for each major stage of the study. Findings from this research form Chapters Six to Ten inclusive; Chapter Six deals with the results of the first interviews and the rating scale on teachers' concepts of developmental delay, and the results of the prevalence survey are presented in Chapters Seven and Eight. Chapters Nine and Ten report the findings from the developmental screening tests and the classroom observation studies. These results are then summarised and discussed in Chapter Eleven. Chapter Twelve, the concluding chapter, reflects on the research as a whole. It offers a summary of the major findings and a series of general implications and recommendations developed from this research. A bibliography and appendices are also included at the end of this thesis.

CHAPTER TWO
REVIEW OF THE LITERATURE

1 INTRODUCTION

This chapter presents a review of previous studies and literature related to the investigation of this research. It serves to emphasise and expand on the research questions posed for this study. For the purposes of this research, the review begins by presenting literature regarding the concept of developmental delay and then moves on to an examination of existing prevalence estimates of young children with developmental delay and issues related to these prevalence estimates. Next, the general principles of early childhood special education and the current status of early childhood special education in Taiwan are reviewed. Empirical research associated with teacher perceptions and identifications of special educational needs are then discussed, followed by an outline of some models to conceptualise special needs. The chapter then concludes with several general implications highlighted from this review.

In order to review the literature as completely as possible, the literature search covered journals, books, theses, papers, and official documents over the last three decades using databases including the ABCEI (Australia, British and Canada Education Information), the ERIC (Educational Resources Information Centre), the Psychological Abstracts and other library facilities in the UK and Taiwan. The subjects used for this search included combinations of the following keywords: developmental delay/disabilities, special educational needs, preschool/young children, early childhood special education, early identification/intervention, assessment, teacher perceptions and so on. Because of the comprehensive nature of this study, it should be noted that this chapter mainly examines the literature directly associated with the major research themes, whilst some other supplementary literature is referred to in the rest of the chapters with respect to other more specific questions.

2 THE CONCEPT OF DEVELOPMENTAL DELAY

2.1 The Evolution of the Concept of Developmental Delay

The term 'developmental delay' has appeared with increasing frequency in clinical and research literature regarding young children with special educational needs since the 1970s. In educational practice, it is also now a new discretionary category of preschool eligibility, introduced in the Individuals with Disabilities Education Act in the USA in 1991 (Bernheimer, Keogh & Coots, 1993) and, as noted in the previous chapter, in the Children's Welfare Law in Taiwan in 1993.

The evolution of the concept of developmental delay reflects a known philosophy and tendency in the development of special education and related services for young children. This can be summarised as two principal aspects: one concerning the concept of preventive intervention that was originally used in the field of public health, whilst the other relates to the emergence of noncategorical procedures in early childhood special education.

A. The concept of preventive intervention

Traditionally, health services have been conceptualized as encompassing three levels of prevention: primary, secondary and tertiary (Mausner & Kramer, 1985). These three levels can be viewed as three progressively narrowing nets, with the largest number of individuals caught in the primary net, fewer in the secondary, and the least in the tertiary (Upshur, 1992). Primary prevention involves providing services to the broadest group of individuals in order to prevent risk conditions of illness and psychosocial problems from occurring. The well-baby clinic and health screenings are examples of primary prevention services. Secondary prevention involves services provided once a condition is identified, but before symptoms or problems become evident. Early identification, detection, and intervention are the major strategies of this level. Tertiary prevention, the third level, is concerned with the management of a disease, disability or problem once it has occurred. This level of prevention is thus not really prevention but a treatment model. Along this continuum of service delivery, as Graham and Scott (1988) indicate, most special education has been concerned with tertiary services because

it primarily targets children with clearly identified medical or developmental problems i.e., intervention made only after the condition has become obvious.

During the last decade, however, the concept of preventative intervention has been discussed as it might be apply to early childhood special education (Scott & Carran, 1986) and has been used in practice (Graham & Scott, 1988). There are two reasons leading to this movement. One is because clear-cut arguments have been made for the cost-effectiveness of preventive intervention programmes in public health services (Graham & Scott, 1988; Upshur, 1992). The other reason is that, whilst tertiary prevention is a form of rehabilitation, special needs education itself can be seen increasingly as a form of education in its own right for children with difficulties or disabilities. Reflecting this movement, the introduction of the category of developmental delay implies a move of special needs education from being restricted to services for the treatment of existing handicaps to a general prevention position. That is, this broad and nonspecific category can and should extend special education to provide secondary prevention programmes, or primary level in some instances, to young children, who at the time of referral do not exhibit specific deficits or developmental problems.

B. Noncategorical procedures in early childhood special education

The other rationale leading to the evolution of this category of 'developmental delay' concerns the emergence of noncategorical procedures in early childhood special education. The debate over whether to label children with terms for disabling conditions has been raging for many more than thirty years. Several articles and research studies have reported the stigmatizing impact of labels on children through the effects on the perceptions and expectations of the adults who work with them (e.g., Foster, Ysseldyke, & Reese, 1975; Foster, Schmidt & Sabatino, 1976; Foster & Ysseldyke, 1976; Alfozzine, Mercer & Countermine, 1977), although the wisdom of generalizing from these results has been questioned (Palmer, 1979; Reschly & Lamprecht, 1979; Mallory & Kerns, 1988). At the preschool level, in addition to this uncertainty about the possible harmful effects of labelling, the other concern is about the possibility of mislabelling a child. As the literature has indicated, the potential for misdiagnosis is believed to be much greater at earlier ages because of a lack of precision in assessment instruments and procedures

for this age group, the preschooler's lack of the sophisticated response skills required in many assessment procedures, and the inconsistencies of responses in these children (Ulrey & Schnell, 1982; Smith & Schakel, 1986). With the growth in special education services to young children, programme administrators, educators and professionals have therefore begun to reconsider categorical policies and procedures (Smith & Schakel, 1986). One solution to this problem is the addition of a noncategorical option specific to children aged under five or six years.

It is appropriate that such a special option for young children be stated in terms of 'developmental' rather than 'educational' performance. The main reason is that the adverse effect of a disability or difficulty on educational performance cannot be documented for young children who have no prior formal educational experience. As McLean *et al* (1991) point out, what is generally available for young children is developmental status rather than the existing status of educational performance. Developmental delay is therefore recommended to be an appropriate eligibility category for this particular population.

2.2 The Definitions and Implications of Developmental Delay

A review of the literature suggests that various definitions have been used by practioners and researchers to define the term 'developmental delay'. In general, most of the definitions are based on a normative model (i.e. with reference to the typical development of children at the same age) or a developmental model (i.e. with reference to successive stages in a child's development). For example, Grossman (1983) defines it as the 'observed disparity between a child's actual development, particularly in language and cognition or motor skills, and the level usually seen in children developing normally' (p.168). Wilson (1998) refers this term to '...delayed or slow progress in reaching developmental milestones in one or more areas of development' (p.50). Whilst the normative or developmental model can be regarded as a kind of 'within-child' model, the definition given by McLean *et al* (1991) implies an 'interactive' model. They define developmental delay is 'an indication that the process of development is significantly affected and that without special intervention, it is likely that educational performance at school age will be affected' (p.2).

Being a legal category in the USA, in general developmental delay has frequently been defined by states as a delay in one or more of the following areas of a child's development: cognitive, physical (including fine motor and gross motor), communication, social/emotional or adaptive development (Harbin, Danaher, Bailer & Eller, 1991). However, a different perspective on definition is given by the Division of Developmental Disabilities in the USA, where the definition is:

> ...those under age six who are limited in major life activities due to any condition other than the four statutory conditions from Definition A (note: the four conditions are mental retardation, cerebral palsy, epilepsy and autism). These include chronic conditions such as sensory losses, paralysis, learning disabilities and psychiatric disorders; disabling conditions such as juvenile arthritis and bronchitis; and long-term illnesses such as cancer and AIDS. (Kohlenberg *et al*, 1996, p.6)

The influence of recent American thinking and practice on developmental delay is immediately apparent when we note that in Taiwan, as quoted earlier in Chapter One, in the Implementation Bylaws of the Children's Welfare Law 1994 the government has introduced the term 'developmental delay' and defined it in terms of 'under six years of age', 'being exceptional in one or more developmental domains' and 'needing early intervention services'. These definitions are similar to those commonly used in most states in the USA.

Generally the term 'developmental delay' serves two broad functions. Firstly, it is frequently used as an umbrella category to describe a continuum of problems. Secondly, it is used as a more agreeable label for the traditional categories, such as mental retardation (Bernheimer & Keogh, 1986; Bernheimer, Keogh & Coots, 1993). The word 'delay' implies that such children will with time catch up with those who are not delayed. Their problems are the differences in rates of development and not deficits in development. This interpretation is a positive one for parents and professionals and is widely accepted (Bernheimer & Keogh, 1988). In the literature some other terms have sometimes been used interchangeably to describe the same group of children, such as developmentally at-risk, developmental difficulties, developmental disabilities, developmental disorders, and developmental delay under age six (Bernheimer & Keogh, 1986; Coker, 1989; Kohlenberg *et al*, 1996).

In clinical practice the term 'developmental delay' is often used in place of more accurate diagnosis. It therefore may lack diagnostic value. On the other hand, the broad and nonspecific nature of the term, as Bernheimer and Keogh (1986) indicate, enables physicians to describe developmental problems in the absence of medical diagnosis, especially for those with unclear aetiology. Developmental delay may be suggested when a problem is first suspected, thus preparing the parents for a later and more specific diagnosis. There are two reasons for avoiding premature diagnosis here. Firstly there are concerns about the predictive validity of infant and young child assessment measures, and secondly the physicians may hope for a spontaneous improvement, taking into consideration the wide intra-individual variations in development during infancy and early childhood (Bernheimer & Keogh, 1986).

2.3 Criteria for Defining Developmental Delay

Historically, eligibility for special needs education has relied on whether a child meets certain criteria for a particular disabling condition. When developmental delay, a broader category is employed, the eligibility criteria for diagnosis are not so easily readily apparent. In Taiwan, although 'having or predicted to be exceptional in one or more domains of development' and 'needing early intervention services as a result of the exceptionality' are mentioned in the statutory definition, there are not at present more objective criteria for identification and diagnosis of this target population.

In the USA, several surveys have indicated that states are expressing criteria for delay in various ways (e.g., Smith & Schakel, 1986; Shackelford, 1992). In general, the criteria used can be divided into two types: quantitative criteria and qualitative criteria. The quantitative criteria refer to the use of some types of 'numbered' measurement such as 'the difference between chronological age and actual performance level expressed as a percentage of chronological age', 'delay expressed as performance at a certain number of months below chronological age', 'delay as indicated by a standard deviation below the mean on a norm referenced instrument' (Shackelford, 1992). The levels of delay required for eligibility are also wide ranging, such as 25% delay or 2 standard deviations (SD) in one or more developmental domains, or 20% delay or 1.5 SD in two or more domains (Harbin & Helm, 1985, cited in Smith & Schakel, 1986, p.83). On the other

hand, some states include qualitative criteria such as 'delay indicated by atypical development or observed atypical behaviours', 'one or more significant delays,' 'impairment or high probability of impairment,' or 'in need of prolonged services' (Smith & Schakel, 1986; Shackelford, 1992). Whether the criteria are stated in quantitative or qualitative, objective or subjective, terms influences the number of children included and treated within this broad category.

2.4 Aetiology and the Nature of the Problem

Reviewing the literature, the aetiology and problems contributing to developmental delay in young children can be attributed to (a) biological or within-child factors, (b) non-biological or environmental factors, or (c) a combination of the two. All these factors have been described widely elsewhere (e.g. Willis & Holden, 1990; and Meisels & Shonkoff, 1992). The goal here is to explore the current status through an examination of some selected studies.

Biological factors include pre- or postnatal influences on development (e.g., infectious diseases), prematurity or small-for-gestational age, nutritional and emotional status of the pregnant mother, substance abuse (e.g., drugs and alcohol), birth defects, genetic disorders, and temperament (Willis & Holden, 1990). Amongst these factors, neurological determinants of developmental delay have been the subject of extensive medical research conducted over the past few decades. Growing bodies of data have also recognized the immediate and long-term impact of brain abnormalities and injuries on a child's early development (Freeman, 1985; Shonkoff & Marshall, 1992). On the other hand, although a number of studies have hypothesized the direct relationship of certain perinatal factors to the appearance of later developmental problems, as Upshur (1992) concluded, this conclusion has met with only limited success. For example, Rogers in 1968 found that 41% of children from a birth register had to be followed in order to accurately identify only 65% of the children who later developed chronic handicaps (Upshur, 1992).

Non-biological factors refer to the child's family social environment, such as maladaptive parenting and social-cultural influences on development. This category of factors has been commonly discussed in the context of psychosocial etiology in social

science literature (Willis & Holden, 1990; Beckwith, 1992; Garbarino, 1992). Researchers have identified a number of familial factors that influence children's development, such as parenting style, family size (e.g. single- or two-parent family, number of children), birth order, parents' marital relationship and so on (Crnic & Harris, 1990). In a summary of several British studies, Chamberlin (1984) indicated that childhood problems occur in families with little experience or knowledge about childbirth or child care, with limited emotional support for parents, and under conditions of economic, health, or emotional stress. However, attempts to identify the environmental factors for developing later problems are not very precise. For example, in the USA Ramedy and MacPhee (1986) reported that about 75% of mildly mentally retarded children were from low-income families, but only 2-10% of children from low-income families had mental retardation. Furthermore, as Upshur (1992) comments, recent sociodemographic changes (e.g., increased employment of mothers, increased divorce rates, decreasing family size, family mobility etc.) have created different, more stressful conditions for child rearing than existed in the past.

Instead of isolating either biological or environmental factors, there is evidence that by considering the interplay between these two groups of factors one can better understand the nature of childhood developmental problems (Lindsay, 1988; Willis & Holden, 1990; Upshur, 1992). For example, Alberman found that birth order and social class were better predictors of reading problems in school than was birth weight alone (1973, cited in Upshur, 1992, p.636). Additionally, research on stabilities and discontinuities in children's development has also provided evidence for this kind of perspective. In general, such research focuses mostly on the macro level of factors like family sociodemographic status. As Lindsay (1988) indicated, however, examination of school as an influence is rarely brought into this debate. Furthermore, beyond the major influence of socioeconomic status, more recent literature has indicated that developmental delay may best be explained by multiple risk factors rather than single ones. These factors, for example, include maternal mental health status, level of anxiety, and educational level; number of children in the family; racial status; father absence; and stressful life events (Upshur, 1992). Moreover, as Upshur (1992) noted, other levels of factors such as the broader impacts from institutional background, society and culture

have been brought into the debate.

2.5 Research on Characteristics of Children with Developmental Delay

As an umbrella category, children identified as having developmental delay may comprise a significant number of paediatric and educational problems in cognition, language, motor, behaviour or affective domains; some may have delay or disturbance in all areas. However, a review of the literature suggests that although there has been extensive work on characteristics of children with identified disabilities such as Down syndrome or autism (e.g., Essen & Wedge, 1982; Share & Silva, 1986), to date little is known about the developmental patterns of those with mild delay or with difficulties of unknown etiology. As Keogh, Bernheimer, Haney and Daley (1989) noted, this is partly because of the considerable heterogeneity of child characteristics within this subgroup of children.

Nevertheless, accumulating evidence suggests that children with developmental delay have pervasive problems in development which are relatively stable over time. As an example, in a prospective longitudinal study of the development of children with delay of unknown etiology by Bernheimer and Keogh (1988), the findings suggested a considerable stability of the cognitive/developmental test scores over time for children with developmental delay. Only 11% of the subjects (4 of 44 children) improved more than one SD in the 6-year period of the study, and for the majority of children there was little evidence of 'catch-up' or increased rate of development over time. The results can be seen as having clinical implications. It suggests the need to consider developmental delay in the early years, particular those of unknown etiology, as signalling a high probability of continuing problems.

In addition, a growing literature documents that as a group children with developmental delay present a higher number of behavioural and adjustment problems than do their non-referred peers (Keogh *et al*, 1989). Despite this, Thompson (1985) pointed out, however, that there is considerable variability in adjustment and in the pattern of problem behaviours within groups. Clearly, developmental delay is such a broad term that it is easy to see how two children with very different problems could both be described correctly as having developmental delay.

For example, in another longitudinal study of 35 six-year-old children with developmental delay of unknown aetiology, Keogh *et al* (1989) found that, as a group, these children were perceived by their parents as having serious behavioural problems, especially as related to immaturity, dependence, acting out and aggressive behaviours. On the other hand, Keogh *et al* also found that the range and intensity of behavioural problems varied widely, and these individual differences were not strongly related to children's developmental, cognitive or language abilities, nor to their self-help competencies. These results were similar to the findings of an early study of children with intellectual difficulty by Rutter, Tizard & Whitmore (1970). Their findings suggested that these children were rated by their parents as having poor concentration and tantrums; being fidgety, overactive, fearful, fussy and miserable; and fighting. Yet there was also significant difference in frequency and expression of problems within this group. In addition to the behavioural problems, temperament, personality and educational failure were also seen as characteristics of these children.

3 EXISTING PREVALENCE ESTIMATES OF YOUNG CHILDREN WITH DEVELOPMENTAL DELAY AND SOME IMPORTANT ISSUES

3.1 Existing Prevalence Estimates of Young Children with Developmental Delay

As noted earlier, there is not a single, universally accepted, operational definition of the term developmental delay. Thus, it should be understood from the outset that in the absence of a functional working definition, there is no means by which the real or true prevalence of such problems can be established in an absolute sense. Therefore, all prevalence estimates must be considered relative to the context in which they are derived.

Although several prevalence studies have been completed to determine the number of children with a particular difficulty, few studies provide data on developmental delay in children under six years old. Most estimates of the number of young children who have special needs have typically employed categorical definitions of the disorders. A longitudinal study of development screening conducted by Drillien and Drummond (1983) reveals that 12% of preschool children in Dundee, Scotland were

identified as having 'neurodevelopmental disability' (including categories such as global delay, mental retardation, motor disorder, speech disorder, behaviour disorder, hearing loss, visual handicap etc) (9% moderate or more severe). Verharren and Connor (1981) estimated that there were 400,000 children with cerebral palsy in the USA, Hayden and Beck (1980) reported that there were three to five severely mentally retarded children born out of every 1,000 live births, and Shapiro and Shapiro (1980) suggested that there were one to five children with Tourette's Syndrome out of every 10,000 born (cited in Fine & Swift, 1986). Prevalence estimates for other identified handicapping conditions have also been reported.

In addition, rates have been estimated on the basis of figures extrapolated from census data or school-age data. For example, according to the United States Department of Education (P.L. 94-142), 12% of school-aged children are handicapped (Fine & Swift, 1986). Due to difficulties in detecting problems amongst young children , Garland, Stone, Swanson and Woodruff (1981) have suggested that 7.5% of preschool children have a handicapping condition. This lower prevalence rate for younger children is consistent with Abromowicz and Richardson (1975), who also found that the rate of mental retardation is lower for preschool children than for the school-age population.

However, the inappropriateness of using estimates based on categorical or school-age data has been pointed out, which will be discussed in the next section. Recent attempts have therefore employed non-categorical and functional identification of children's difficulties (Fine & Swift, 1986; Smith & Schakel, 1986). According to this approach, children are defined as having special educational needs only if their conditions place limits on their growth and development rather than focusing on a particular category of disability. For programme planning, this approach is very useful in that it allows for non-overlapping estimates of the number of children needing services. However, prevalence rates using non-categorical/functional definitions are rare and vary considerably according to the definitions employed. One example of using this approach is a survey by Fine and Swift (1986). Using a telephone interview procedure with parents, they suggested that 6.1% of young children had functionally handicapping conditions. The functional definition they employed to identify a young children as handicapped included three factors: (1) chronicity, (2) restriction of normal child

development, and (3) the resultant need for special attention as a result of the condition.

Consistent with the trend of functional identification, in the UK the Warnock Report in 1978, derived from epidemiological studies, estimated that between one in five and one in six children have special educational needs. This estimate contrasted with a 1.8% prevalence rate based on traditional disable categories. The contrast is mainly due to application of a broad concept of special educational needs to include a substantial proportion of children in ordinary school with educational difficulties requiring some form of special provision, but not falling into one of the old statutory categories of disability. Matching the estimates contained in the Warnock Report, a survey of 428 teachers in 61 junior/primary schools by Croll and Moses (1985) also suggested that there were 18.8% of pupils with special educational needs as estimated by class teachers. Amongst them, 81.9% had learning difficulties of some kind, 41.9% had behavioural difficulties and 23.3% had health problems, sensory impairment and physical difficulties.

One particular question typically arises when special educators consider non-categorical procedures: will the broad and nonspecific category of eligibility such as developmental delay serve as a catch-all for high-risk children, leading to an increase in the number of children identified for services? In the USA research has indicated that the percentage of all preschool children identified as handicapped in states that use a non-categorical procedure (1.2% to 3.4%) did not differ appreciably from states that use only categorical definitions (Straley, 1980). In addition, Smith & Schakel (1986) argued that overidentification does not seem to be a result of non-categorical approaches, since the USA were identifying about 3% of the preschool population as disabled, which is significantly below the 10% prevalence figure for the school-age population.

3.2 Problems in Prevalence Estimates

Attempts to estimate accurate prevalence rates for special needs amongst young children have been frustrated for a variety of reasons. The reasons which are commonly discussed in the literature are explored below.

One reason lies with measurement issues, including the status and usefulness of standardized tests and limitations in the assessment of young children. Developmental screening tests should meet a number of criteria: they should be brief, norm-referenced,

inexpensive, standardized in administration, objectively scored, broadly focused across all areas of development, reliable, valid, as well as being of high sensitivity and specificity (Lichtenstein & Ireton, 1984). However, relatively few existing screening tests can be used reliably and validly (Meisels & Wasik, 1992). One reason for the lack of effective tests , as Meisels and Wasik (1992) indicated, is that developmental status is so vulnerable to environmental and familial influences. Additionally, another measurement issue is concerned with the limitations of assessment procedures. These limitations have been described by Simeonsson in 1986 and are shown in Table 2.1 (Thurman & Widerstrom, 1990).

Table 2.1
Limitations in the assessment of young children

Source of limitation	Key issues considered
Definitional issues	Lack of agreement on definitions of basic terms Need for designations that will reflect both presence of handicap and degree of impairment
Child	Impaired function in more than one area Performance and functioning affected by medication and state Presence of idiosyncratic behaviours Variability in rate of development across areas
Examiner	Lack of knowledge/experience with special children Personal biases and expectations Invalid assumptions concerning effects of the handicap Difficulty interpreting a child's response Lack of special communication skills (i.e., signing skills)
Measurement	Standardization populations exclude handicapped Extreme normative values cannot be derived Test assumptions violated when used with handicapped Difficult to compare results from different tests Insufficient data base for the various handicapping conditions
Setting	Inadequate or inappropriate setting in terms of ambient light, sound, other physical features Artificial nature of setting Failure to consider positioning needs of child

Note: from Simeonsson, R. (1986). *Psychological and Developmental Assessment of Special Children.* Boston: Allyn & Bacon. (cited in Thurman & Widerstrom, 1990, P.171)

A second reason for difficulty in obtaining accurate prevalence rates for young children with special needs concerns the categories used for reporting handicapping conditions. As Meisels and Wasik (1992) indicated, many of the traditional categories used for school-age population are generally inapplicable to preschool children. For example, some kinds of learning difficulty and language disorder cannot be identified accurately in the very early years (Lindsay, 1988). In addition, children with special needs often have more than one type of problem, making it impossible to simply aggregate prevalence rates for individual categories (Fine and Swift, 1986).

A third reason, and perhaps more important, is the difficulty in adequately defining the population of preschool children with special educational needs. This is partly because the adequacy of a child's functioning or behaviour is related to situational demands and to expectations of other individuals (Lichtenstein & Ireton, 1984). In addition, although a number of factors contribute to an infant or young child being at risk, being at risk does not necessarily make a child disabled. Since many disabilities manifest themselves, at least in part, through deficits in academic performance, it is only when children reach school age that they are clearly identified as having special educational needs. Thus, accurate prevalence figures for school age populations are easier to develop than for preschool ones (Thurman and Widerstrom, 1990).

Limitations in conducting this type of research introduce other reasons accounting for the lack of definite prevalence estimates. As Thurman and Widerstrom (1990) mentioned, prevalence surveys are difficult to conduct, especially at a national level, and are therefore costly. Fine and Swift (1986) also indicated that different investigators have employed varying methods for obtaining their prevalence estimates, which makes comparison across studies difficult.

4 THE PRINCIPLES OF EARLY CHILDHOOD SPECIAL EDUCATION

In tracing the history of early childhood special education, Edouard Seguin, a hospital director in Paris in the late eighteenth century, is generally acknowledged as the most important pioneer in this area. Seguin developed a 'physiological method of education' for disabled children, which was based on an individual assessment and specific

sensorimotor activities to correct difficulties. Through observation he described the early signs of developmental delay and emphasized the importance of early education. His methods were later adapted by Montessori for the education of poor preschool children in Rome (Shonkoff and Meisels, 1992).

Inspired by Seguin's work, the attitudes and practices regarding special education for children with disabilities or difficulties have undergone major shifts: from rejection to acceptance, from segregation to integration, and from treatment to early prevention and intervention. At the present day, as Shonkoff and Meisels (1992) have pointed out, the goals are 'to contain the consequences of disabling conditions, prevent the occurrence of more severe disorders, assist the families of children with difficulties, and increase the opportunities for all children to grow to their full potential' (p.11). The review of literature suggests that in its current form, the practice of early childhood special education is mainly based on three fundamental and significant principles: interdisciplinary service cooperation, integration or mainstreaming, and parental involvement. These principles, or assumptions, are discussed briefly below.

A. Interdisciplinary service co-operation

There has been growing emphasis and research on the necessity for interdisciplinary cooperation for service delivery to young children with developmental delay. Clearly, since the problems facing young children with developmental delay are potentially very diverse, the range of services required to meet their needs should reflect this breadth. Thus provisions for this population incorporate a host of service providers across multiple disciplines, including medicine, early childhood and special education, child care, social services, public health, rehabilitation and psychology. The rationale underlying the interdisciplinary work is the 'whole child approach' to development, which considers a child as a complete and multifaceted entity (Zigler, 1992). Indeed, as Meisels and Shonkoff (1992) have noted, with such a heterogeneous population of early childhood intervention it must be recognized that no single formula or prescription can be applied universally.

The idea and practice of co-operation have developed significantly in several countries. From identification to intervention there have been a number of legislative

changes and many early childhood special education programmes now operate within the context of interdisciplinary links. For example, in the UK since the implementation of the 1981 Education Act, there have been more welfare assistants and school nurses with a special educational needs brief (Wolfendale, 1994). The Education Act 1993 and the 1994 Code of Practice have also suggested that local authorities develop procedures for interdisciplinary links (Hobson, 1997). A HMI (Her Majesty's Inspectorate) survey in 1989-90 indicated that there were instances of emerging effective interdisciplinary support, although practice was then still very variable (Wolfendale, 1994).

B. Inclusion/integration

It has been widely acknowledged in this field that inclusion is a fundamental value that should play a major role in developing programmes and services for children with special needs (Walter & Vincent, 1982; Bailey, McWilliam, Buysee & Wesley, 1998). In a survey by UNESCO (United Nations Educational, Social and Cultural Organisation) in 1988 of many member nations, it was reported that the principle of inclusion was a declared educational policy in most of the responding countries (43 out of 58) (Leyser, Kapperman & Keller, 1994). Increasingly, early childhood education programmes also include children with special needs and typically developing children, and the research base on early childhood inclusion in the mid- to late-1990s is extensive (Odom & Diamond, 1998). Some of the most frequently cited benefits are that: (a) these children can acquire learning skills in a 'least restrictive' setting, (b) social interaction between children with special needs and others can be developed, (c) these children's self-concepts can be improved and (c) these children can observe and imitate typically developing children's language, behaviours and skills (Walter & Vincent, 1982; Odom & Diamond, 1998). Inclusion is more essential considering the broad category of developmental delay, which includes those who have no specific disabilities but are developmentally at risk and can be placed in ordinary kindergartens and classrooms.

C. Parental involvement

Based on the assumption that early stimulation could offset subsequent developmental delay, the infant and young child used to be the primary targets of early

childhood special education. Parental involvement however is becoming one of the major features of early childhood intervention programmes in this decade and is likely to further emphasized in future years (Odom & Warren, 1988; Braun, 1992; Ketelaar, Vermeer, Helders & Hart, 1998). The increased emphasis on working co-operatively with parents has been reflected in legislation in several countries. In the UK the concept of partnership with parents is central to the 1989 Children Act. Both the 1989 Children Act and the 1988 Education Reform Act oblige local authorities and schools respectively to consult with and inform parents on their services (Pugh, 1992). Likewise, in the USA recent federal legislation for early childhood intervention programmes (Public Law 99-457) also mandates a stronger emphasis on parental and family involvement (Gallagher, 1992). These programme regulations reflect a recognition of the important role parents have in the success of early childhood special education.

In short, the above principles have highlighted the need for ordinary kindergarten teachers to adjust their roles to work co-operatively with parents and other professionals, and to provide a more balanced focus on the educational needs of those with and without developmental delay in their classrooms.

5 A BRIEF REVIEW OF THE CURRENT STATUS OF EARLY CHILDHOOD SPECIAL EDUCATION IN TAIWAN

5.1 A Sketch of General Education and Early Childhood Education in Taiwan

Taiwan is an island about 100 miles off the southeast coast of mainland China, bordered by Japan to the north and the Philippines to the south. The size is approximately 13,900 square miles, or about the same size as Holland. The population is about 21.12 million. In the academic year 1996/97 approximately 5.19 million students (i.e. about 241 students per 1000 population) were enrolled in the 7,357 schools at all levels in Taiwan, and as high as 99.94% of school-age children were enrolled in school (Ministry of Education, 1997). On average, 203 schools could be found on every 1,000 square kilometres of land, 706 students in a school, 38 students per class and 21 students per full-time teacher (Ministry of Education, R.O.C., 1997).

5.1.1 School System and Length of Education

In Taiwan, it takes a minimum of 22 years to complete the entire education process from the kindergarten through to postgraduate programmes although the length is flexible, depending on individual cases. Normally, the education process includes two years of preschool education, six years of primary education, three years of junior high school education, three years of senior high school education, four years of undergraduate education, two to four years of postgraduate study pursuing the master degree, and two to seven years of postgraduate study for the doctoral degree. All children aged six to twelve are required to receive compulsory education with tuition free. Nine years of compulsory education covers six years of primary school and three years of junior high school and students with disabilities are included in this regulation.

5.1.2 Early Childhood Education

The early childhood education in Taiwan aims to promote healthy physical and mental development of children. It basically offers physical education, living skills education, and ethical education. The preschool programme, provided in kindergarten and using a voluntary enrolment system, offers one to two years of education for children aged four to six years old. There are both public kindergartens and private kindergartens. Ninety percent of the private kindergartens are independently operated, whereas a great majority, or 98%, of public kindergartens are affiliated with public primary schools. According to the statistics on education (Ministry of Education, R.O.C., 1997), in the academic year 1996 the total number of kindergartens was 2,660 with 235,830 children, 12.8 times more than in the academic year 1950. Then, there were only 28 kindergartens accommodating 17,111 children. This growth of the number of children enrolled into kindergartens is because of factors such as social stability, economic prosperity, increase in female employment, and prevalence of education prompted parents to emphasize education for children at preschool age. The present ratio of students to teachers in this sector is 15:1 (Ministry of Education, R.O.C., 1997).

5.2 Early Childhood Special Education in Taiwan

5.2.1 Special needs education system

Figure 2.1
Special needs education system in Taiwan

	Early childhood education	Nine-year compulsory education		Senior secondary education	Higher education
(Age)	4 - 5	6 - 11	12 - 14	15 - 17	18 - 21
• General education	Kindergarten	Primary school	Junior high school	Senior high school or vocational school	University and college
				Junior college (2, 3 or 5 years)	
• Special class	Kindergarten	Primary school	Junior high school	Senior high school or vocational school	
• Special school	Kindergarten	Primary school	Junior high school		
		Primary school	Junior high school	Senior vocational school	
			Junior high school	Senior vocational school	

Special educational provision in Taiwan currently ranges from placement in an ordinary classroom with no additional help, through to placement in a residential special school or institution. The main types of provisions for special students include special schools and classrooms, resource rooms, tutoring and itinerant teachers. The curriculum used is similar to that offered in ordinary classes. Many students with special educational needs are mainstreamed in ordinary schools at the primary and junior high school levels. Most of the teacher training universities and colleges have established special education

training programmes within the regular primary and secondary teacher training programmes. Qualification requirements for teachers in special education are the same as those for teachers in general education, except that they are requested to complete at least 20 credits on special education (Ministry of Education, R.O.C., 1997). Figure 2.1 summarizes the current special education system in Taiwan.

5.2.2 Statutory categories of children eligible for special education

Since the implementation of the Special Education Law in 1984, the following categories of exceptionality have been used to classify children who are eligible for special education in Taiwan: (a) mental retardation, (b) visual impairment, (c) hearing impairment, (d) language disorder, (e) physical handicap, (f) health impairment (g) personality and behavioural disorder, (h) learning difficulty, (i) multiple disabilities, (j) other significant disabilities (e.g., facial injuries, autism, emotional disorder etc.), and (k) giftedness. Additionally, as noted earlier, after the passage of the Children's Welfare Law in 1993, the category of developmental delay is a new eligible option for children under six years old with special needs.

5.2.3 Legislation regarding early childhood special education

Taiwan has a myriad of laws and regulations related to special education. The following are some of those which form the basis of the current policy and practice for early childhood special education:

(1) *The Constitution of the Republic of China, 1947.* Article 159: All national citizens shall have an equal opportunity to receive education.

(2) *The Early Childhood Education Law, 1981.* Article 12: The heads and teachers of kindergartens shall principally be graduated from early childhood teacher's preparation institutes.

(3) *The Implementation Bylaws of Early Childhood Education Law, 1983.* Article 4: The teaching of kindergartens should be in accordance with the curriculum standard. If there are needs for special education, kindergartens shall set up special classes under the auspices of the educational authority.

(4) *The Special Education Law, 1984.* Article 1, 10,15: The subjects of special

education shall include two main categories, the gifted and the disabled. Article 4: Special education shall be implemented in three stages. In addition to primary and secondary school, it extends down to preschool stage. Its practice can be at home, in kindergartens, special kindergartens/classes, or kindergartens attached to special schools. Article 5: The administration of early childhood special education is, in general, the duty of educational authorities of special municipalities, counties or cities.

(5) *The Implementation Bylaws of Special Education Law, 1987.* Article 6 and 9: Special schools can set up kindergartens for children of three to six years of age. Article 7: Special school or general school with special classes or integrated classes should collaborate with medical and social welfare institutes to ensure students receive appropriate health care and vocation guidance.

(6) *The Criteria of Identification and Schooling Consulting for Children with Special Educational Needs, 1974.* Every city/town should set up an 'identification and schooling consulting committee' for children with special educational needs. The Criteria also rules the main points of identification and schooling guidance for children with hearing impairment, visual impairment, intellectual difficulties or physical disabilities.

(7) *The Draft of City, Village and Community Setting up Nursery School Law, 1984.* Community nursery schools accept young children of two to six years of age but excluding those with mental retardation or statutory infectious diseases.

(8) *The Children's Welfare Law, 1993;* and *The Implementation Bylaws of the Children's Welfare Law, 1994.* These two pieces of legislation are the latest laws that relate to special needs in the early years in Taiwan. They have set the stage for the development of new and expanded services for children under six years of age with special needs. Central to the part on early childhood intervention in the two laws is the updated emphasis and revised principles in this field, such as early identification and intervention, interdisciplinary co-operation in service delivery and family involvement. Particularly, as noted in the last chapter, it introduces the term 'developmental delay' as a new eligible option for this population.

In general, as pointed out elsewhere (Ministry of Education, R.O.C., 1995; National Taipei Normal College, 1990), most of the above laws are rather dated and need

revision, as there have been many changes in society as well as in the philosophy and policy of early childhood special education. For example, the Early Childhood Education Law specifies that special education can be implemented at preschool stage, however there are no guidelines on how to implement such educational provision. In addition, although there are laws on health and child care of infants and young children, these laws are at present advisory in nature rather than compulsory. Therefore it is difficult to attain the aim in Taiwan of prevention of and early intervention in early childhood difficulties or disabilities.

5.2.4 Current provisions for young children with special needs

Due to the non-availability of formal statistics, it is difficult to estimate the actual situation currently regarding the educational placement of young children with special educational needs in Taiwan.

In Taiwan early childhood education is provided in two settings: kindergarten and nursery school. The kindergarten has been discussed earlier. The nursery school, also including both public and private, accepts infants and children of one month to six years old. Most public nursery schools are community-based and accept children of two to under six years of age. According to Article 5 of the Draft of City, Village and Community Setting Up Nursery School Law, children with mental retardation or chronic disease shall not be accepted. Thus young children with special needs can be rejected by nursery schools, especially while early childhood education is not compulsory at present. A recent study by Shu (1994) has reflected this issue. According to the findings of that study, parents who had young children with mild mental retardation complained of difficulty in receiving appropriate placements for their children. One of the main factors that contributed to the difficulty was that it was reported that most kindergartens and nursery schools would not accept their children.

For preschool-age children with difficulties or disabilities in Taiwan, kindergartens attached to special schools are still the main form of special educational provision. Although there were 2,241 special classes and resource rooms attached to ordinary primary schools or junior high schools in academic year 1996/97 (Ministry of Education, R.O.C., 1997), there were only a few of this type of class for preschool

children and all of them were experimental programmes. For example, in Taipei city, there were seven ordinary primary schools with preschool special classes for those with mental retardation, hearing impairment and visual impairment. There were about ten children in a class. Furthermore, the number of kindergartens attached to special schools is still very limited. As shown in Table 2.2, in the academic year 1996/97, there were seventeen special schools with 523 classes and 5,203 students in Taiwan. Amongst them, there were only 173 (3.3%) preschool children in 25 (4.8%) kindergarten classes. Obviously, these figures were much less than the real number of children who need early childhood special education. Additionally, these kindergartens solely provided for children with certain traditional categories of disabilities. Most of the classes were set up for the hearing impaired (n=20), with a few for the visually impaired (n=3), the physically impaired (n=1) and the mentally retarded (n=1). As for young children who have difficulties or disabilities of other kinds, they have even less opportunity to receive this type of special education.

Table 2.2
Number of special schools in Taiwan, R.O.C. (academic year 1996/97)

	Visually impaired	Hearing impaired	Physically handicapped	Mentally retarded	Total
No. of schools	3	4	1	9	17
No. of classes (Total)	64	158	36	265	523
Kindergarten	***3***	***20***	***1***	***1***	***25***
Primary	39	60	16	62	177
Junior high	12	38	11	93	154
Senior vocational	10	40	8	109	167
No. of students (Total)	504	1,255	396	3,048	5,203
Kindergarten	***11***	***150***	***5***	***7***	***173***
Boys	***6***	***79***	***2***	***4***	***91***
Girls	***5***	***71***	***3***	***3***	***82***
Primary	251	316	136	470	1,173
Junior high	101	325	141	1,040	1,607
Senior vocational	141	464	114	1,531	2,250

Source: Educational Statistics of the Ministry of Education, R.O.C, 1997

In addition to the above educational placement, some residential institutes and child training or developmental centres set up by social welfare or medical research institutes also provide services for young children with difficulties or disabilities. According to a survey by Wu *et al* in 1990, these types of provision were mainly for children with mental retardation, multiple handicaps, hearing impairment and visual impairment (cited in National Taipei Normal College, 1990). However, formal statistics for these types of provision are not available.

In short, comparing with progress in the primary and secondary school educational stages, early childhood special education in Taiwan is presently inadequate. Both the quantity and the quality of provision is currently limited. Most programmes still follow traditional and inappropriate concepts and practices. For the past five years, nevertheless, both government and private organizations have noticed this as a weakness and a gap in the development of special education. There has therefore been an increase in policy intention and research in this field lately, which has been mentioned in the previous chapter.

5.2.5 Prevalence of children with special educational needs

Unfortunately, no prevalence data are available nationally for preschool-age children with developmental delay in Taiwan. Two national prevalence surveys on school-age children with special educational needs were completed in 1976 and 1992. The results of the first prevalence survey indicated that an overall of 34,001 or 1.27% of six to twelve year old children were identified as being disabled (Kuo & Chen, 1976).

The second national prevalence survey in 1992 documented 75,562 or 2.12% of the 3,561,729 school aged population as disabled children. The disabling conditions of these children followed the traditional epidemiological order of prevalence: mental retardation, learning disability, multiple handicap, behavioural disorder, physical handicap, language disorder, hearing impairment, health impairment, visual impairment, autism and facial impairment. These findings are shown in Table 2.3 (Wu *et al*, 1993). The obtained figure is lower than the theoretical prevalence. As Wu (1996) indicated, the low rates of identification were likely to have been because of the casual exclusion of many of the mild cases during the survey. However, with the Children Welfare Law

requiring local governments to establish 'early identification centres', and the Health Insurance Law offering six free health checks for newborn babies and infants, these may lead to more availability and accuracy of prevalence figures in the future for children under six years of age with disabilities.

Table 2.3
Number of children with disabilities identified by the second national prevalence survey study in Taiwan, R.O.C. (1992)

Categories	n	% of target population	% of general population
Mental retardation	31,440	41.46	0.883
Visual impairment	1,931	2.56	0.054
Hearing impairment	2,876	3.81	0.081
Language disorder	2,916	3.86	0.082
Physical handicap	3,456	4.57	0.097
Health impairment	2,111	2.79	0.059
Behavioural disorder	7,089	9.38	0.199
Learning difficulty	15,512	20.53	0.436
Facial impairment	318	0.42	0.009
Autism	598	0.79	0.017
Multiple handicap	7,315	9.68	0.205
Total	75,562	100.00	2.121

6 RESEARCH ON TEACHER PERCEPTIONS OF SPECIAL EDUCATIONAL NEEDS

6.1 Research on Teacher Identifications of Special Educational Needs

Parallel to the conceptual shift on special educational needs, a small but growing body of research has been reported on how teachers think about and identify children who need special education provision.

In an early study in the UK, Croll and Moses (1985) undertook a large scale survey on the assessment and prevalence of special educational needs based on primary school teachers' perceptions. Apart from the prevalence rate cited previously in this

chapter, they also suggested that teachers perceived considerable overlap between the three main categories of problems - learning, behaviour and health. About two-fifths of the children nominated by their teachers as having special educational needs presented problems that fell into more than one of these categories. In particular, two-thirds of the children described as having behavioural and/or health-related difficulties also had learning problems. 'Slow learners' and 'poor readers' were the most common ways that teachers used to categorize children with learning problems.

In a recent questionnaire survey by Cheng (1996) in Hong Kong, 44 primary school teachers were interrogated about their definition and concept of learning difficulties, and experiences in dealing with pupils with such difficulties. Her findings indicated that the average prevalence rate viewed by the teachers was 8.6%, but in a range from 2% to 20% with considerable variability (SD=5.7). 60% of the teachers preferred the definition offered by the National Joint Committee on Learning Disabilities of the USA in 1988, and 19% opted for the definition used in Taiwan. It was a narrower view than the UK perspective. According to these two definitions, learning difficulties were conceptualized as (a) manifest difficulties in the process of learning; (b) discrepancy between ability and achievement; (c) presumed neurological or psychological process dysfunction, and (d) exclusion of other handicapping conditions. Most of the teachers preferred medical causes for learning difficulties, but family influences were also mentioned by 60% of the respondents. Additionally, developmental deficits including problems in attention, cognitive and memory processes, information processing, lack of learning strategies, and intellectual impairment were viewed by the teachers as major characteristics of students with learning difficulties.

6.2 Research on Teachers' Explanations for Special Educational Needs

Intense research evidence has suggested that teachers tend to explain their pupils' difficulties in terms of factors 'outside' the school rather than those 'inside' the school, mainly including (i) the child's inherent ability and personality traits and (ii) the characteristics of the home and parents.

In their survey of teachers' views on special educational needs, Croll and Moses (1985) indicated that for almost all of the difficulties described, the teachers were

prepared to offer a causal explanation, i.e. generally teachers were able to explain the difficulties of children in their classes. In addition, their results also suggested that teachers' explanations were dominated by factors related to children's innate qualities and the characteristics of their home and parents rather than those of their schools, teachers or teaching methods.

In a survey by Dawson (1987), teachers were asked to identify children who were causing them an unusually high level of concern and to indicate the areas in which the concern was rooted. The results also suggested that teachers' concerns were based primarily on 'within-child' variables and home environments. Few of the responses could be interpreted as expressions of the child's educational needs. Similar results were also revealed in a study by Conway (1989) which analysed teachers' written reports of children with learning difficulty. The results showed clear tendencies for the teachers to attribute children's difficulties to factors within the child and to ignore features of the curriculum organisation.

6.3 Research on Classroom Behaviour associated with Teacher Identification

In the study by Croll and Moses (1985), children identified by teachers as having learning problems were found to have distinctive behavioural patterns from those of other children. These children spent less time working on curriculum activities and more time distracted. Besides, all children identified as having special educational needs in their study received higher levels of attention from the teachers than other children in class. In the US some researchers have been interested in identifying children's characteristics which are critical to the teacher's decision to refer. Ysseldyke *et al.* (1983) and Shinn *et al* (1987) reported that the main reason for teachers' referral was low achievement. Using the stimulated recall method Bay and Bryan (1991) have suggested that in addition to low achievement, poor work-related behaviours such as disorganization, noncompliance, inattentiveness and low level of involvement in instructional activity were also significant factors. Likewise, in their classroom observation study, Bay and Bryan (1992) tried to differentiate children who were identified by their teachers as at risk for referral from others, based on classroom factors including attentiveness, level of involvement and type of feedback from the teacher. The

results indicated that children who were at risk for referral were not called on as frequently and did not receive as much corrective feedback from teachers as did average achievers or other low achievers.

6.4 Research on the Relationships between Teacher Identification and Standardised Assessment

A relevant issue regarding teacher identification is its accuracy or validity. Reflecting on this concern, some researchers have focused on the match between teacher assessments of children and the child's actual performance on objective measures. With a comparison of reading scores and teacher nominations of poor readers, Croll and Moses (1985) yielded data indicating a strong relationship between teacher nomination and children's test performances. Over three-quarters of the children who were described as poor readers were at least one year behind and nearly a half were two years behind their chronological ages on school-administered reading tests. Because the test data were from a whole variety of different types of tests administered in different circumstances, their findings however have to be treated tentatively. A study by Leinhardt (1983), using teacher assessments on an item-by-item basis for students with learning difficulty, reveals a moderate level of validity of teacher assessments - a 'hit rate' of 64% on a reading comprehension test. That is, for roughly two thirds of test items, teachers were correct in determining whether sufficient instruction had been provided for the student to answer the item correctly. Other studies by Gresham, Reschly and Carey (1987) for pupils with and without learning difficulty and Silverstein, Brownlee, Legutki & MacMillan (1983) for pupils with educatable mental retardation also suggest a moderate correspondence between teacher assessments and student achievement. In addition, in the general education field, with an examination of sixteen empirical studies on the relationship between teacher-based assessment levels and objective measures of student learning, Hoge and Coladarci (1989) indicated generally high levels of validity for teacher-judgement measures.

The above review suggests an overall positive conclusion regarding the accuracy of teacher assessments. However, the literature also suggests that this conclusion needs to be interpreted in the light of the operation of moderator variables (Hoge and

Coladarci, 1989). Some researchers have explored possible moderators related to the accuracy of teacher assessments, such as teacher differences (Hopkins, George & Williams, 1985), student gender (Croll & Moses, 1985; Sharpley & Edgar, 1986), student ability (Leinhardt, 1983) and subject matter differences (Hopkins *et al*, 1985). However, there is not much convincing evidence available for moderator factors. For example, Croll and Moses (1985) found that at particular levels of reading difficulty, boys were more likely to have it than girls, children with behavioural problems were more likely than those without them, and younger children within a class were more likely than older children to be identified by teachers as poor readers but not identified in reading tests. Conversely, Hoge and Coladarci (1989) indicate that in the studies they reviewed, student gender failed to show up as a significant effect on the variations between teacher and criteria assessments.

6.5 Research On Teachers' Experiences in Dealing with Children with Special Needs

It has been emphasized in expert opinion that teacher attitudes towards students with special educational needs are one of the critical components necessary to ensure the success of provision (Hannah & Pliner, 1983). The review of literature on teachers' perceptions of including young children with special needs in classes suggests inconsistences amongst the findings. Some studies suggest that ordinary classroom teachers perceive settings which include children with and without special needs as having benefits for both groups. For young children with special needs, teachers perceive them as full and participating members of the class, who can make friendships and model cognitive, linguistic and social behaviour from their more competent peers (Marchant, 1995). For the typically developing children, teachers view that inclusive programmes provide them an opportunity to learn to accept and help others' needs, and serve as models of appropriate behaviour and skills for children with special needs (Marchant, 1995; Lieber, Capell, Sandall, Wolfberg, Horn & Beckman, 1998). On the other hand, however, in their review of past studies Leyser, Kapperman and Keller (1994) concluded that ordinary class teachers had not developed an empathetic understanding of the disabling conditions and in general did not support the placement of disabled students

in their classrooms.

In Taiwan, a survey by the National Taipei Normal College (1990) indicates that about 70% of head teachers and classroom teachers had had children with difficulty or disability in their classes or kindergartens. Learning difficulties, intellectual difficulties, personality or behaviour disorders, and language impairment were seen as the most common problems in the kindergartens (with 36% to 21% of responses). Children with giftedness, physical disabilities, and learning difficulties were the categories that teachers would most like to accept in their classes or kindergartens, whilst few teachers would like to accept children with multiple disabilities, or visual or hearing impairment. The main reasons for them to reject these children included a lack of appropriate facilities, teachers' insufficient knowledge about special needs and unavailability of specialist support. In addition, the teachers' most common difficulties in coping with these children were difficulty of identification, using appropriate teaching material and methods and no additional time for individual instructions.

The survey by Cheng (1996) in Hong Kong, mentioned earlier, suggested that 77% of the primary school teachers had experiences in dealing with children with learning difficulties. Amongst these teachers personal observations, formal diagnosis by educational psychologists and other teachers' comments were the most often used ways of identification. The teachers also responded that they would usually refer the child who was suspected as having learning difficulties to the Education Department for further assessment. In addition, giving the child individual tuition was the most often used means of informal intervention reported by the teachers (74%). Other informal interventions included arranging a peer tutor to help the child, asking him/her to seek private tuition, or persuading him/her to change school.

7 SOME MODELS IN CONCEPTUALIZING SPECIAL EDUCATIONAL NEEDS

Several models such as the within-child model, the normative model, or the syndrome model have been used to conceptualize a child's special educational needs. These models can also be applied in this study to investigate teachers' concepts of developmental

delay. Wedell (1981) has suggested a two-way framework to classify these models. One way is by distinguishing models which are solely concerned with difficulties 'within' the child, and those which also include consideration of the 'interaction' between the child and his environment. The other way is by dividing models which are mainly 'descriptive', and those which aim to be 'explanatory'. The two-way framework including some examples of models for each group are shown in Figure 2.2.

Figure 2.2
Some models in special education (Wedell, 1981)

	Descriptive	**Explanatory**
Within-child	Normative Developmental Syndrome	Organic Process or Functional Attitudinal
Interactive	Classroom interaction analysis Sociometry	Instructional Attitudinal Systems

The 'within-child' models, for example, include the 'normative', 'developmental' and 'syndrome' models. This category of models can be viewed as traditional perspectives of special needs. According to Wedell's definitions, the 'normative' models are those concerned with a child's standing in comparison to other children of the same age in terms of norm-reference test results. The 'developmental' models describe children in relation to successive stages in development. The 'syndrome' models refer to groups of symptoms which occur together frequently, and so are to be used in categorising those individuals who manifest these groups of symptoms. These three types of models can also be viewed as 'descriptive' models. Other 'within-child' models such as 'organic', 'functional or process' or 'attitudinal' models fall into the 'explanatory' category. The 'organic' models are most likely to be related to physical and sensory defects. The 'functional or process' models are those built up either from attempts to analyse the task the child is required to do, or from the stages of development the child goes through, up to the stage where he manages to do the task successfully. The

'attitudinal' models focus on the child's attitude towards his work. They refer to the 'will or won't?' rather than 'can or can't?' types of questions (Wedell, 1981).

Within the 'interactive' models, the 'descriptive' models such as those of 'classroom interaction analysis' and 'sociometry' are concerned with the communication patterns between the child and the teacher as well as other children in a class. As regards the 'interactive' and 'explanatory' models, this category refers to those that focus on providing the child with specific feed-back on the adequacy of his performance. For instance, the 'systems' models is within this category, which means those concerned with the analysis of the interaction between individual aspects of an organisational structure such as a school or a family (Wedell, 1981).

The variety of the conceptual models reflects the uncertainties and complexity of the concept of special educational needs. People working in different disciplines have different preferences regarding which models to use. On the other hand, the variations in models also imply that each of them has its own limitations in completely explaining the concept of special educational needs. The 'systems' models, for instance, seem to appear to be the more popular and comprehensive approach, since it requires description and explanation from different dimensions and levels. As Norwich (1990) has pointed out however, there are still problems in determining which levels to choose.

8 CONCLUSIONS

In summary, the literature review in this chapter highlights several implications. First of all, given the concern for the potentially harmful effects of labelling a child at the early age of under five or six years, coupled with a lack of confidence in assessment procedures for young children and the lack of a good fit between traditional categories of disabilities, developmental delay appears a useful noncategorical eligibility option for ensuring early intervention services. However, there are uncertainties existing about this term in both theoretical and practical aspects. No clear and consistent definition has been established to determine whether a young child has 'developmental delay'.

The problems of definition and the limitations of early identification also raise a second implication. Very little is known about the epidemiology of developmental

delay. This issue appears to be more important in Taiwan, since this term has acquired legislative meaning and the government as well as professionals may now use it as an optional category for early childhood special education.

Thirdly, an approach based on teachers' perceptions and identifications can be an alternative and useful way to explore the terminology and epidemiology of developmental delay. It is not only because of the consideration of limitations in using standardised screening tests, but also because of the consideration of teachers' important roles in special needs educational referral and the shortage of empirically-based educational research in this field. Although many studies on teacher perceptions of special educational needs have been reported in the literature, most of them have been concerned with primary and secondary school levels and very few were focused on the views held by kindergarten teachers. Although some researchers have identified classroom behavioural patterns associated with teacher identifications, little research so far examines behavioural patterns as a possible moderator of teacher identifications.

As reviewed, the nature and aetiology of developmental delay in young children is growing more complicated as new research findings emerge. It is of interest to explore what and how teachers perceive this term and the population it refers to. For instance, are teachers' explanations for this term based on within-child models, which would be consistent with previous findings in other categories? In short, in the light of limited existing educational research and not having well-founded answers regarding the concept, identification and profiles of young children with developmental delay, a study based on kindergarten teachers' perceptions in this area is therefore required.

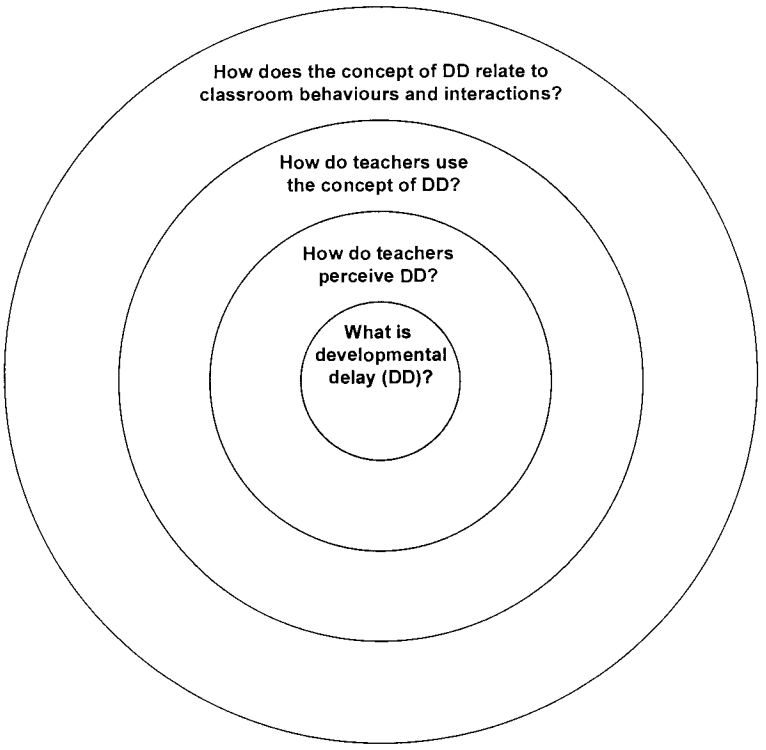
CHAPTER THREE
RESEARCH DESIGN

1 INTRODUCTION

Following the descriptions of the research problems and the literature review, the focus of this chapter is to introduce the overall research design, from the evolution of the conceptual research ideas to the research procedures actually followed. The first section describes the theoretical model that underpins this research, whilst the second looks at the research design in terms of a summary of the actual research process followed.

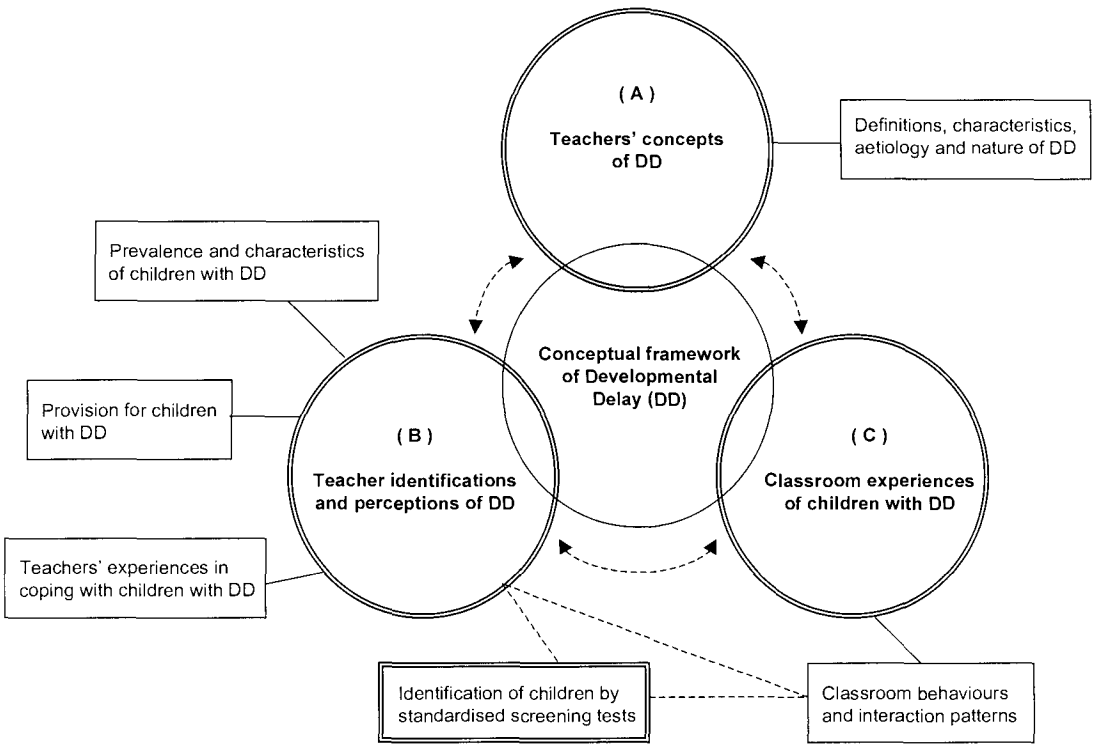
2 THEORETICAL FRAMEWORK OF THE RESEARCH

Figure 3.1 ***Conceptual model of this research***



As stated in Chapter One, this research aims to describe the prevalence and characteristics of kindergarten children with 'developmental delay' in Taiwan, what and how teachers perceive this category, and the relationships between teacher identifications, screening tests and children's classroom behaviours. At the initial stages of this research, four concerns formed the basis of the research interest. These consisted of four general questions: what is developmental delay? how do teachers 'perceive' the term 'developmental delay'? how do they 'use' the concept of 'developmental delay'? and, how do their perceptions of this concept relate to classroom behaviours and interactions? As shown in Figure 3.1, these four initial concerns can be seen as a conceptual model which can be illustrated by four concentric circles. Beginning with a central concern about the meanings of developmental delay, this research intends to explore this concept of developmental delay through teachers' perceptions to real classroom practices. The concentric circles indicate a hierarchy which suggests different levels of dimension from concept to practice, and from inside perceptions to the outside world.

Figure 3.2 ***Theoretical linkages in this research***



The conceptual circle model described above is a starting point but not sufficient to form any real basis for significant study. To develop the initial ideas further Figure 3.2 shows the more complicated theoretical model that was developed from the original conceptual model. Figure 3.2 illustrates the theoretical linkages in this research. Three outside circles indicate the three main themes of this research. Circle A concerns teachers' understandings of the terminology of developmental delay including definitions, characteristics, aetiology and other variations of this term. Circle B focuses on teachers' identifications and perceptions of children with developmental delay in their classes. Topics generating from this theme include prevalence and characteristics of children regarded by teachers as having developmental delay, and teachers' views on provisions for these children and experiences of having these children in classes. An extensive topic following the theme of teacher identification is the relationship between teacher identification and external structured assessments. Circle C concerns the links between teachers' perceptions and children's classroom experiences. This part concentrates on classroom behaviour and interaction patterns of children regarded as having developmental delay.

These relationships are in fact interchangeable between each pair of the three circles, that is teachers' understanding of developmental delay, their identifications and perceptions of these children, and the children's own classroom experiences are all theoretically interrelated. The central theme to link the three circles is the 'conceptual framework of developmental delay', that locates at the centre of the model. All the issues investigated in the research are in fact related to and linked under this central concept of developmental delay. In short, this research aims to explore the concept of developmental delay and its relationships with contemporary Taiwanese educational practice in terms of empirical evidence uncovered by survey.

3 RESEARCH PROCESS

Following this conceptual development, an appropriate research framework for the research process was designed. Traditionally there are two distinct methodological paradigms in social and educational research: the quantitative and the qualitative.

Reviewing the literature, the relationships between the two categories of research approach have been explored on several dimensions from the philosophical underpinning of the social science method to the practicalities of collecting empirical data (e.g., Burgess 1984; Scott & Usher, 1996). However, some literature such as Brannen (1992) and Bullock et al (1992) argue that there is little benefit in seeking a definitive choice between a quantitative or qualitative approach to a particular research problem. This is not surprising, because specific research methods such as an interview can have a quantitative or qualitative dimension and data produced can be analysed by a variety of methods. As Burgess (1984) has suggested, 'researchers ought to be flexible and therefore ought to select a range of methods that are appropriate to the research problem under investigation' (p.22). Accordingly, in designing the present research, the researcher neither emphasized nor neglected quantitative or qualitative paradigms but chose both approaches depending on the nature of the inquiry, the types of information required and the effectiveness of analysis. The broad aim and result therefore was that while the open-ended questioning of teachers necessarily resulted in qualitative information, wherever possible the data obtained was reformulated to allow the evaluative rigour of quantitative analysis.

Briefly there were two main research questions in the research. One question is: how do teachers perceive the category of developmental delay? The other general question is: how valid is it to deal with developmental delay through teachers' identification? Concerning the first question, a qualitative approach such as an open-ended interview is suitable to explore teachers' implicit concept, whilst a quantitative approach like questionnaire survey could be appropriate to collect teachers' views on issues related to children with developmental delay. As regards the other question, quantitative approaches could be suitable to determine the validity of teachers' identification.

Drawing from these two initial questions, a series of more detailed research questions were also to be answered (as listed in Chapter One). To provide evidence for answering these research questions the research involved in gathering various types of data from different sources. The main types of data required included:

(1) background information about the study groups including official statistics

on kindergartens, classes, teachers and children;

(2) data from kindergarten teachers including (a) background information on themselves and their classes, (b) their understanding of the category of developmental delay, (c) their identifications of numbers of children in their classes with developmental delay, (d) demographic characteristics and problems of these children, (e) current and further special provision for these children and (f) the teachers' experiences in coping with these children;

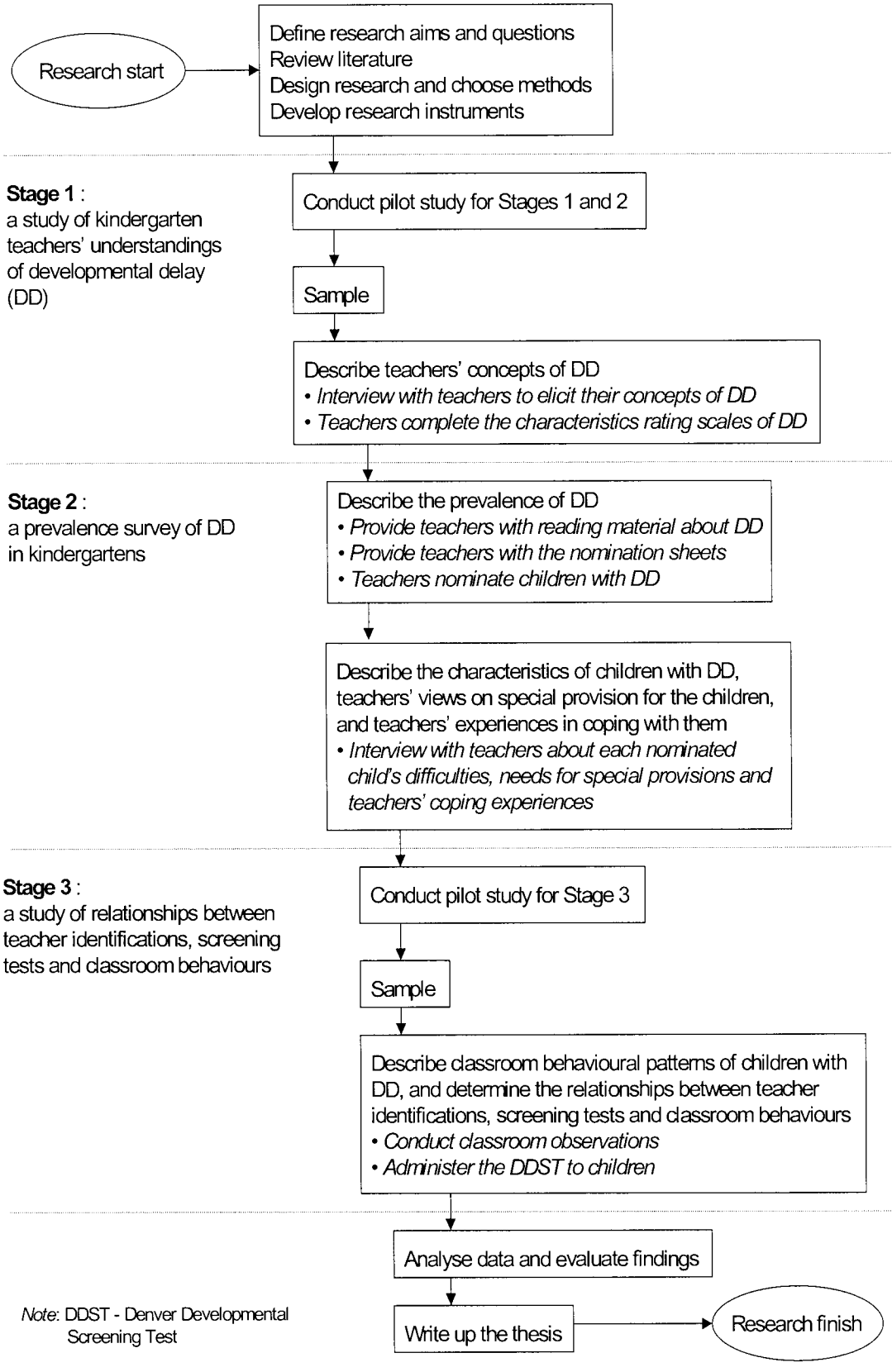
(3) data about classroom experiences and behavioural patterns of children with developmental delay, and their developmental levels as measured by standardised tests.

A three stage study was therefore designed to gather the various types of data. Stage One was a study of kindergarten teachers' understandings of developmental delay; Stage Two was a prevalence survey of developmental delay in kindergartens; and Stage Three was a study of relationships between teacher identifications, screening tests and classroom behaviours. It should be noted here that the three studies were always viewed as being constituent parts of a whole and that some of the questions which were addressed in each study linked with data drawn from the other studies. Figure 3.3 sets out the process for the entire research according to the three stages. The process is summarised below, and given in more detailed in Chapters Four and Five.

3.1 Stage One: A Study of Kindergarten Teachers' Understandings of Developmental Delay

As indicated in the research background in Chapter One, considering that developmental delay is a new eligibility category and limited research has been done in the pertinent areas in Taiwan, it was essential to understand whether or not this was a term familiar to teachers, and in what ways they perceived it, before asking them to identify children whom they thought to have developmental delay. The Stage One study was therefore set as an exploratory study to determine teachers' implicit concepts about developmental delay. The data then formed the basis for the prevalence survey undertaken at the next survey stage. The methods of data collection included individual interviews with teachers to elicit their understanding of this category, and giving out a characteristic rating scale of developmental delay to be completed by teachers in order

Figure 3.3 ***Research process - a three-stage study***



Note: DDST - Denver Developmental Screening Test

to examine their perceptions in a different approach from interview. Further details are in Chapter Four.

3.2 Stage Two: A Prevalence Survey of Developmental Delay in Kindergartens

The main purposes of the Stage Two study were twofold: (1) to describe the prevalence and characteristics of kindergarten children with developmental delay as identified by teachers; (2) to examine the views of teachers on current and further special provisions for these children, and their experiences in coping with these children in classes. At this stage, teachers' nominations of children whom they considered as having developmental delay were employed as the method of providing prevalence estimates. Individual interviews with teachers were also then used in the collection of data about details of children's characteristics and special provisions for these children. Again, further details of these surveys follow in Chapter Four.

3.3 Stage Three: A Study of Relationships between Teacher identifications, Screening Tests and Classroom Behaviours

The first two stages of study were designed to provide complete descriptions of teachers' perceptions of developmental delay in terms of their concepts of this category, their identifications of prevalence, and their views on the status of provisions for children with such a type of special need. However, the data were all based on teachers' descriptions without reference to any other sources of information about the children. Although this kind of teachers' identification is a common way of considering children's special needs and a type of classification which is frequently applied to children, it can be regarded as subjective and abstract. Additionally, although summaries of teachers' perceptions would provide valuable information regarding who has developmental delay and why, it can only be taken at a surface level so far resulting from the data provided from the first two stages. Data from teachers' descriptions can however form the basis of exploring the nature of classroom experiences between children and teachers.

To further advance the line of research a third stage was, therefore, developed to better understand the grounds of teacher's perceptions using systematic approaches to compare their perceptions and provide evidence for them - these exploring the grounds

for teachers' perceptions more concretely. This stage of study was carried out in two parts. One part was classroom observations of children's behaviours and interactions, and the other was using developmental screening tests administered to the same children. The purposes here were to describe the classroom behavioural patterns that teachers associate with the notion of a child with developmental delay, and to determine the relationships between teacher identifications and structured assessment. Further details of this stage are presented in Chapter Five.

Having undertaken the three studies, the data gathered were then analysed according to data types and the research issues investigated. The findings are then evaluated in the context of the past literature reviewed in Chapter Two, and the themes of this research. Finally, the thesis presents some policy evaluations for Taiwan in this area of educational practice.

4 CONCLUSIONS

This chapter outlines the initial research strategy. Due to the various types of data required, complex problems needed to be considered when drawing up the sampling and methods of data collection and analysis. Detailed descriptions of this research practice methodology are presented in the next two chapters; the methodology for the Stage One and Stage Two studies is presented in the following chapter, and that for the Stage Three study is presented in Chapter Five.

CHAPTER FOUR
RESEARCH METHODOLOGY AND PROCEDURES FOR THE FIRST TWO STAGES OF THE STUDIES

1 INTRODUCTION

As indicated in the previous chapter, the Stage One and Stage Two studies address three major themes: (i) teachers' understandings of developmental delay, (ii) the prevalence and characteristics of kindergarten children with developmental delay and (iii) the special provisions for these children and teachers' experiences in coping with them in classes. There were two important considerations in the research design that needed to be considered. The first was gathering sufficient information from a suitably large and representative sample of children. The second was using data collection methods which would accurately reflect the teachers' own views and would also obtain a high response rate from the sample. This chapter presents the research methodology and procedures used in the first two stages of the studies. The details of sampling and method used at each stage, including their essential content, purposes, advantages and disadvantages are discussed. In addition, how the procedures were conducted in the course of this research at each stage are also described.

2 SAMPLING

2.1 Some Preliminary Considerations in Sampling

A main purpose of the present research was to survey the prevalence and characteristics of young children with developmental delay in ordinary kindergartens as identified by class teachers. In a survey of this kind an important consideration in sampling is to obtain a large and representative sample of children.

In general, there are three key elements in a sample survey: the population being sampled, the sampling scheme and the parameters being estimated (Manly, 1994). In the present research, the total population being sampled was all of the five-year-old children

in kindergartens in Taipei. In Taiwan the year range for entrance to kindergarten is from four years old to that age just before entering primary schools, normally six years (Early Childhood Education Law, 1981). For the following reasons however, it was decided that the target population of this research should concentrate on a single age group. Firstly, considering the time, energy and persons available for this research, it was more practical to focus on a single age group rather than across various ages as the latter was likely to require a relatively bigger sample size and more complicated sampling to cover the population effectively. Secondly, focusing on a single age group avoided the additional complication of different year groups in the analysis, since developmental status between children of four, five and six years old is known to be significantly different. Within these constraints, the age of five was chosen because this is the main and largest age group of kindergarten children in Taipei. In practice, due to the limited numbers of classes available, priority of acceptance for public kindergartens is given to five year olds.

However, the population of five-year-old kindergarten children is still large and widely dispersed. According to statistics provided by the Educational Bureau of Taipei, in 1996 there were 24,317 five-year-old children in 943 classes within 418 kindergartens in Taipei (Educational Bureau of Taipei, 1996) (see Table 4.1).

Table 4.1
Number of 5-year-old pupils, classes and kindergartens in Taipei by administrative district

Administrative districts		Kindergartens	Classes	5-year-old pupils
01	Sungshan	35	71	1,837
02	Shinyi	38	76	1,720
03	Daan	55	113	2,707
04	Jungshan	24	57	1,412
05	Jungjeng	23	62	1,530
06	Datung	21	63	1,824
07	Wanhua	32	81	2,203
08	Wenshan	39	94	2,383
09	Nangang	21	43	1,239
10	Neihu	31	62	1,605
11	Shrlin	55	120	3,045
12	Beiyou	44	102	2,812
Total		418	943	24,317

Source: Educational Bureau of Taipei (1996). *The List of Public and Private Kindergartens in Taipei.*

With such a big and wide-spread population, an initial decision was necessary as to sampling procedures should focus on kindergartens or on individuals such as teachers or children. In theory it is reasonable to focus on children since the research is attempting to estimate the prevalence rates of kindergarten children with developmental delay. In practice however the education administrative system provides a convenient access to large numbers of teachers and children with secure cooperation more easily on a whole kindergarten basis rather than individually by person. On the other hand, this sampling procedure has risks introducing a strong clustering effect into the research design. This has meant that the teachers and children are likely to be sampled in group rather than individually.

Nevertheless, the issue is not merely one between convenience and statistical efficiency. Factors like location of school not only can have an influence on the results but may also be important variables in themselves. For instance, the classroom context should be taken into consideration when thinking about a child's special educational needs. Similarly, teachers' views on special educational needs should be considered in the context of external factors which undoubtedly influence them.

Another consideration in a prevalence survey is that the population (i.e., total kindergarten children in Taipei in this research) should be well represented by the sample. In this case simple random sampling is not suitable, as there is no control over how sampled items are spread through the population (Manly, 1994). For example, in sampling children in a city the sampled children may mostly be concentrated in a small area, rather than being well spread out. Certainly in this case we cannot assume that they are evenly spread.

One way of ensuring that a population is well covered by sampling is to use stratification. As Manly (1994) has indicated, generally there is nothing to lose by using this more complicated type of sampling and there are some potential gains. Firstly, if the individuals within the strata are rather more similar than individuals in general, then the estimate of the overall population mean will have a smaller standard error than that obtained with a simple random sample of the same size. Secondly, there may be value in having separate estimates of population parameters for the different strata. Thirdly, stratification makes it possible to sample different parts of a population in different ways,

which may make some cost savings possible. In this research the types of stratification were mainly based on administrative districts within which some socioeconomic characteristics were known to be more similar. In fact, the stratified sampling approach has already been widely-used in past prevalence research on special needs (e.g., Croll & Moses, 1985; Matsuura, Okubo, Kojima, Takahashi, Wang, Shen & Lee, 1993; Sonnander, Emanuelsson & Kebbon, 1993; and Ramasut & Papatheodorou, 1994).

Finally, having considered some analytical and practical advantages, to ensure that the population was well covered, as well as for convenience and cost reduction, a multistage sampling method including stratified, cluster and opportunity sampling was used for this research. Briefly, the sampling procedures involved taking a random sample of kindergartens from each administrative district based on stratification (socioeconomic and demographic characteristics), and then taking teacher and child samples from the selected kindergartens. It should be explained that within this strategy of sampling kindergartens, the emphasis of the research was on finding a proper way to represent the experience of individuals in the whole of Taipei city (the total population). The sampling strategy therefore drew on kindergartens in proportion to the numbers of children within each administrative district. It was not the intention that sampling should be representative of the kindergartens themselves. The detailed sampling procedures are described in the following Section.

2.2 Estimates of Sample Size

Following the above considerations, the other main question remains in the sampling as to what constitutes an adequate, or sufficient, size for a sample. Scanning through the literature on research methodology, there is no clear-cut answer to this question. It depends upon the purpose of the study and the nature of the population under investigation (Cohen & Manion, 1994; Fraenkel & Wallen, 1996; Manly, 1994). Nevertheless, there are two guidelines which are commonly referred to in determining the sample size for research. One is that a sample should be as large as the researcher can obtain with a reasonable expenditure of time and energy (Fraenkel & Wallen, 1996). The other is that a sample size of thirty is held by many to be the minimum number for each category if the researcher plans to use some form of statistical analysis on the data

(Cohen & Manion, 1994).

As indicated before, the total population of this research was five-year-old children in kindergartens in Taipei. Taipei is the capital city of Taiwan, R.O.C. and divided into twelve administrative districts. There was a child population of 24,317 aged five in 943 classes within 418 kindergartens in the 1996/97 academic year (see Table 4.1) i.e., there were an average 25.8 children in a class and 2.3 classes in a kindergarten across the city. In an attempt to estimate the prevalence rates and taking into consideration the time, human resources and cost available for the research, the initial estimate for an adequate number of sample children was between 1,000 and 2,000, which means about 40 to 80 teachers would also be interviewed. Based on official statistics and the agreed sampling plan mentioned earlier, the possible number and distribution of sample kindergartens, classes, teachers and children for sample sizes of 1,000, 1,500 and 2,000 children were generated and are shown in Table 4.2. The final sample size of 1,499 children and 57 teachers was selected for analytical and practical reasons.

Table 4.2
Initial estimates of sample size

District	N of 5-year-old pupils	If sample 1,000 chi				If sample 1,500 chi				If sample 2,000 chi			
		Chi	Cla	Tea	Kin	Chi	Cla	Tea	Kin	Chi	Cla	Tea	Kin
01	1,837	76	3	3	2	113	4	4	2	151	6	6	3
02	1,720	71	3	3	2	106	4	4	2	141	5	5	3
03	2,707	111	4	4	2	167	6	6	3	223	9	9	5
04	1,412	59	2	2	1	87	3	3	2	116	4	4	2
05	1,530	63	2	2	1	94	4	4	2	126	5	5	3
06	1,824	75	3	3	2	113	4	4	2	150	6	6	3
07	2,203	91	4	4	2	136	5	5	3	181	7	7	4
08	2,383	98	4	4	2	147	6	6	3	196	8	8	4
09	1,239	51	2	2	1	76	3	3	2	102	4	4	2
10	1,605	66	3	3	2	99	4	4	2	132	5	5	3
11	3,045	125	5	5	3	188	7	7	4	250	10	10	5
12	2,812	116	4	4	2	173	7	7	4	231	9	9	5
Total	24,317	1,002	39	40	22	1,499	57	57	31	1,999	78	78	42

Note: 1. Chi: children, Cla: classes, Tea: teachers, Kin: kindergartens.
2. Population data according to the statistics of Educational Bureau of Taipei for the 1996/97 academic year.
3. Estimates based on 25.8 pupils per class, 1 sample teacher in each class and 2 sample classes in each kindergarten.

2.3 Sampling Procedures

Having drawn up the sampling plan and the sample size, the List of Public and Private Kindergartens in Taipei (Educational Bureau of Taipei, 1996) was used as the basic reference for sampling.

Twenty-two kindergartens were sampled at random within a stratification system designed to produce 52 classes determined by the size of administrative district. This was to avoid the under-representation of children in large administrative districts. In addition, the type of kindergartens (i.e. public or private) was also taken into account. As indicated earlier, the number of teachers and classes involved was constrained by the time-consuming nature of individual interviews and the adequate sample size for the children to enable appropriate statistical estimation of prevalence rates.

Table 4.3
Comparison of sample with statistics of Educational Bureau of Taipei (EBT) for the 1996/97 academic year

AD	Sample			EBT statistics 1996		
	kinder-gartens	classes	children	kinder-gartens	classes	children
01	3	5 (9.6%)	114 (7.7%)	35	71 (7.5%)	1,837 (7.6%)
02	2	4 (7.7%)	126 (8.6%)	38	76 (8.1%)	1,720 (7.1%)
03	2	6 (11.5%)	177 (12.0%)	55	113 (12.0%)	2,707 (11.1%)
04	1	3 (5.8%)	101 (6.9%)	24	57 (6.0%)	1,412 (5.8%)
05	1	3 (5.8%)	89 (6.0%)	23	62 (6.6%)	1,530 (6.3%)
06	1	3 (5.8%)	89 (6.0%)	21	63 (6.7%)	1,824 (7.5%)
07	3	6 (11.5%)	159 (10.8%)	32	81 (8.6%)	2,203 (9.1%)
08	2	5 (9.6%)	156 (10.6%)	39	94 (10.0%)	2,383 (9.8%)
09	1	2 (3.8%)	52 (3.5%)	21	43 (4.6%)	1,239 (5.1%)
10	1	3 (5.8%)	87 (5.9%)	31	62 (6.6%)	1,605 (6.6%)
11	3	7 (13.5%)	194 (13.2%)	55	120 (12.7%)	3,045 (12.5%)
12	2	5 (9.6%)	129 (8.8%)	44	102 (10.8%)	2,812 (11.6%)
Total	22	52	1,471	418	943	24,317

Note: AD: administrative district

As shown in Table 4.3, the sampling pattern was designed to represent the experience of children from the different administrative districts. Once the numbers of sample children and classes of each district were determined, it was decided that two or three classes would be sampled in each kindergarten, depending on the availability. For example, the administrative district 3 represented 12.0% of the classes and 11.1% of the children. Consequently six (11.5%) of the fifty-two sample classes were from this administrative district. The similarity in sampling pattern between classes and children was due to similar class size. As for slight differences, these were due to differences between real class size and average class sizes. Of the twenty-two kindergartens originally sampled, twenty-one or 95.5% agreed to participate. The other kindergarten was replaced in the sample due to a lack of five-year-old classes.

In each selected kindergarten, the head teacher was contacted to take part in the research and arrange teachers, one for each class, to be participants. Sampling of this kind can only be described as 'opportunistic'. Such a sampling strategy was considered adequate, since the research purpose was only to survey teachers' opinions rather than to attempt an inter-teacher comparison. As Verma and Beard (1981) note, opportunistic sampling is a widely used strategy in this type of educational research. Finally, a total of fifty-two teachers were involved in the sample. The total child sample, from which prevalence rates were calculated, was 1,471. This was approximately 6.05% of the total 24,317 five-year-old kindergarten children in Taipei.

Particular emphasis was given to the importance of obtaining high response rates, and this was reflected in the overall level of response. The response rate amongst kindergartens was 95.5% and no teacher refused to take part, i.e. 100.0% amongst teachers (or classes). As noted earlier, the non-responding kindergarten was a result of having no five-year-old classes, and was replaced.

2.4 Characteristics of Samples

Following the sampling procedure described above, the sample of this research therefore involved fifty-two teachers and 1,471 children from fifty-two classes of twenty-two kindergartens in twelve administrative districts. Some basic characteristics of the sample are presented below.

2.4.1 The Kindergarten Sample

Table 4.4 reveals that of the 22 kindergartens, 12 (54.5%) were public and 10 (45.5%) were private. Half of these kindergartens had 101 to 200 pupils (modal class) (n=11, 50.0%). Most of them had no special class (n=19, 86.4%), since only 3 (13.6%) attached special classes for children with special needs.

Table 4.4
Characteristics of sample kindergartens

Characteristics of kindergartens	Sample	
	n	%
Public or private kindergarten		
Public	12	54.5
Private	10	45.5
School size (N of pupils):		
0 - 50	1	4.5
51 - 100	4	18.2
101 - 200	11	50.0
201 - 300	3	13.6
301 - 400	2	9.1
401 +	1	4.5
Attach special classes:		
Has special classes	3	13.6
Doesn't have special classes	19	86.4
Total	22	100.0

Note: Number of pupils includes four to six years olds and those in special classes.

2.4.2 The Class Sample

Table 4.5 shows some characteristics of the 52 sample classes. About one-half of the classes (n=29, 55.8%) belonged to public kindergartens. Approximately seven out of ten of the classes had 25 to 30 children in a class (n=36, 69.2%) and only 3 classes (5.7%) had under 20 children. The mean number of children in a class was 28.3. In 37 classes (71.1%) half or more than half of the children were boys, whilst only about a quarter of classes (n=15, 28.8%) had more girls than boys. The mean proportion of boys

in a class was 54.2%. Most of the classes had two teachers (n=45, 86.5%). According to findings from the interviews, the two teachers in these classes share similar roles and responsibilities. The two main class types based on the children's attendance times were full-time classes (n=27, 51.9%) or mixed classes with both full-time and part-time children (n=23, 44.2%). There were only two part-time morning classes in the sample (3.8%). In general, full-time classes started at about 8am and finished at about 4pm, whilst part-time classes finished at noon.

Table 4.5
Characteristics of sample classes

Classes	Sample	
	n	%
Public or private kindergartens:		
Public	29	55.8
Private	23	44.2
Class sizes (numbers of children):		
<10 children	1	1.9
10 - 19	2	3.8
20 - 24	4	7.7
25 - 29	15	28.8
30	21	40.4
31 - 34	9	17.3
Mean = 28.3		
% of boys in a class:		
30% - 49%	15	28.8
50%	5	9.6
51% - 69%	28	53.8
70% - 89%	4	7.7
Mean = 54.2		
Number of teachers in a class:		
1 teachers	7	13.5
2 teachers	45	86.5
Class types according to children's attendance:		
Part-time morning class	2	3.8
Full-time class	27	51.9
Mixed part-time and full-time	23	44.2
Total	52	100.0

2.4.3 The Teacher Sample

Table 4.6
Demographic characteristics of sample teachers

Teachers		Sample	
		n	%
Gender:			
	Female	52	100.0
	Male	0	0.0
Age:			
	20 - 24 years	6	11.5
	25 - 29	17	32.7
	30 - 34	19	36.5
	35 - 39	8	15.4
	40 - 44	1	1.9
	45 - 49	1	1.9
	Mean = 30.4		
Years of teaching experiences:			
	< 1 year	2	3.8
	1 - 4	13	25.0
	5 - 9	16	30.8
	10 - 14	12	23.1
	15 - 19	8	15.4
	20 - 24	1	1.9
	Mean = 8.1		
Training courses in special educational needs:			
	Never undertake any course	8	15.4
	Completed 2 credits	8	15.4
	Completed 3-19 credits	33	63.5
	Completed 20 credits	3	5.8
Total		52	100.0

A total of 52 kindergarten teachers were involved in this research. The basic demographic characteristics of the teachers are shown in Table 4.6. All of the 52 teachers were female. This reflects the current phenomenon in Taiwan that nearly all kindergarten teachers are female, except a few male physical-education teachers. Most of the teachers were twenty-five to thirty-four years of age (n=36, 69.2%) and few were over forty (n=2, 3.8%). Amongst the teachers, 37 (30.8%) had been teaching for five to nine years and 21 (40.4%) had been teaching for more than ten years. In addition, the majority of the teachers had undertaken some training courses in special educational needs. More than half of them had completed three to nineteen credits of modules (n=33, 63.5%), whilst only 8 (15.4%) had never undertaken any module.

2.4.4 The Child Sample

A total of 1,471 five-year-old kindergarten children were involved in this research. As shown in Table 4.7, the gender distribution of the sampled children was nearly balanced. About half of them were boys (n=785, 53.4%) and the other half were girls (n=686, 46.6%).

Table 4.7
Gender distributions of sampled children

Pupils		Sample	
		n	%
Gender:			
	Boys	785	53.4
	Girls	686	46.6
Total		1,471	100.0

3 RESEARCH METHOD FOR THE STAGE ONE STUDY: TEACHERS' UNDERSTANDINGS OF DEVELOPMENTAL DELAY

3.1 Data Collection

Two kinds of information were to be collected at this stage: (i) background information on the teachers and the classes they teach, and (ii) teachers' perceptions of the term 'developmental delay'. The main methods of data collection were individual interviews with teachers and a rating scale of characteristics of developmental delay completed by teachers.

3.1.1 Individual Interviews with Teachers: the First Interview

Individual interviews with teachers were undertaken at the early stage of the research with a view to attempting to elicit information about teachers' interpretation of the concepts of developmental delay, including the definition, characteristics, causes and distinctive features of this term.

As a research technique, the interview is a method which involves the gathering of data through direct verbal interaction between individuals (Cohen & Manion, 1994). The direct interaction of the interview has been seen as a distinctive feature of this method and was the main reason for it being selected in the present research. It was assumed that an interview would be suitable for eliciting information about teachers' concepts of developmental delay as it allows for greater depth than is the case with other methods of data collection. In addition, as Richmond and Smith (1990) noted, teachers do quite informally and naturally give accounts on professional issues in conversation to other people. The interview is a more formal way of obtaining these natural accounts. This method has the benefit of providing the opportunity of encouraging teachers to expand and explain their perceptions and ideas.

In general, the research interview can be divided into two categories depending on the structured and unstructured formats. However, as Breakwell, Hammond and Fife-Schaw (1995) noted, few real interviews fall into either poles of this continuum. The interview employed in this stage of study can be classified as semi-structured, i.e. the content and procedures such that each interviewee is asked an identical set of questions

but is allowed free-reign answers - that is the answers are open-ended. This kind of interview approach is frequently used in social and educational research. There are a number of advantages of using this approach as a research tool, particular with the present study. Firstly, in terms of a standardized (structured) procedure, less personal bias and greater consistency in the data gathered can be ensured. Secondly, responses can be compared with more consistency and data analysis is simplified. However, within open-ended answers the respondent is free to answer in any way chosen and thus it allows for a more personal and original opinion. On the other hand, as Coolican (1994) pointed out, there are still some possible disadvantages of using the more structured, open-ended interview - e.g. flexibility of interviewer's response to different individuals and contexts is lost, wordings of questions may reduce richness, answers become less natural, and coding of answers may not be high in reliability and may limit generalisation.

Like any research method, the interview has its weakness and has to be used with care. When it was adopted as a research tool for the present research, problems surrounding question construction, possible biases introduced by the researcher and the interviewee, and the adequacies of the available media of communication and recording mechanisms had to be taken into account. Details of the procedures and related issues are further described and discussed in the following sections of this Chapter.

3.1.1.1 The Interview Schedule

The sequence and wording of the interview questions was predetermined by means of an interview schedule. The questions in the schedule were divided into two parts. The first part was background information about the teachers and their classes. The second part concerned the concepts of developmental delay. The final schedule used is included at Appendix I.

In order to collect background data on the teachers and classes, the teacher was asked at the beginning of each interview: (i) her personal background, including gender, age, years of teaching experience and amount of training in special educational needs completed; (ii) some background information about the class she was teaching, including class size and type, and number of boys, girls and teachers. There were a total of ten

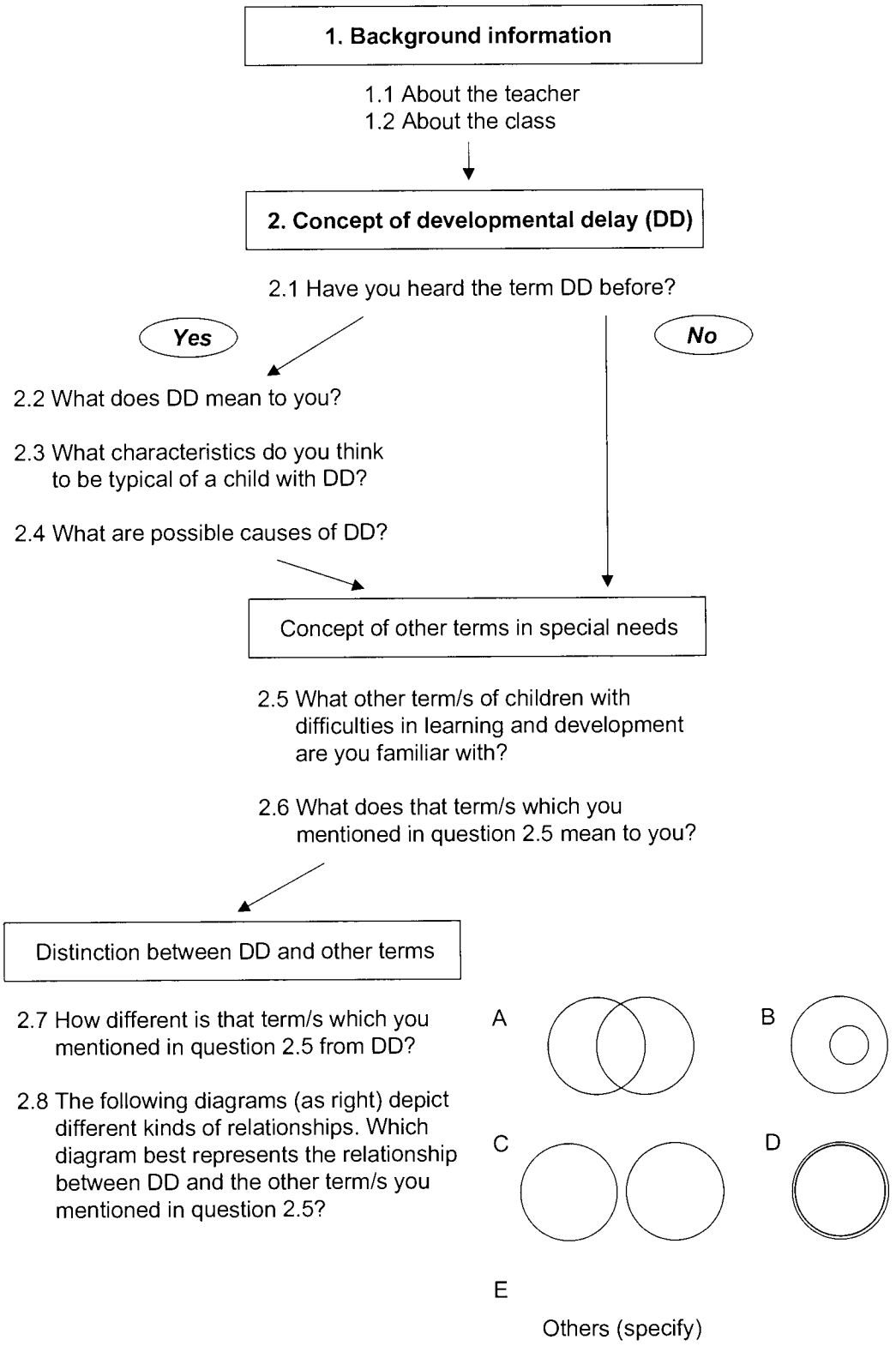
questions in this part of the schedule and all of them were closed questions.

The main part of the interview schedule concerned teachers' concepts of developmental delay. In order to elicit information about these concepts, this part of the schedule consisted of a series of open-ended questions. At first, to examine whether developmental delay was a familiar term to teachers, each teacher was asked a common question 'Have you heard the term developmental delay before?' If the teacher had heard the term before, the following questions were then asked: 'What does developmental delay mean to you?', 'What characteristics do you think to be typical of children with developmental delay?' and 'What are possible causes of developmental delay?' In order to assist teachers' thinking, at least three characteristics and two causes were asked for.

Furthermore, to further explore the teachers' constructs about developmental delay, the following four questions about the distinction between developmental delay and other terms in special education were asked: (i) What other term/s for children with difficulties in learning and development are you familiar with? (ii) What does that term/s mean to you? (iii) How different is that term/s from developmental delay? (iv) Which set of relationship diagram best represents the relationships between developmental delay and that term/s? (see question 2.8 in Figure 4.1). Teachers were allowed to create their own relationship diagram if none of the figures given to them represented their concept properly. For teachers who had never heard of developmental delay only the first two of these four questions were asked in order to know which other terms they are familiar with. The sequence of questions for this interview schedule is summarized in Figure 4.1.

For the purpose of assessing the wording, order and structure of the questions, the interview schedule was piloted with twelve kindergarten teachers who were attending on in-service training course in early childhood education at the Taipei Municipal Teachers' College between 7th August 1996 and 14th August 1997. Following the pilot study, some amendment was made and the final version of the interview schedule was confirmed (see Appendix I).

Figure 4.1 *The question sequence of the first interview schedule*



3.1.1.2 Conducting the Interviews

All of the individual interviews with the 52 teachers were carried out by the researcher during the period 20th September to 17th October at the beginning of the first kindergarten semester in the academic year 1996/97.

Every interview was arranged at a time most convenient for teachers, usually in the afternoon. Forty-nine teachers were interviewed in a quiet room, whilst three teachers were interviewed in their classrooms whilst monitoring pupils. Each interview was conducted in Mandarin and lasted for about 20 minutes.

The researcher, who was also the interviewer, started each interview with a short briefing on the purpose of the interview and the study. The questions were presented in the sequence as in the interview schedule, in an informal and conversational atmosphere. The researcher was aware of possible interviewer effects in using interview as a research method. These may include characteristics of the interviewer and the respondent as well as the content of the interviews (Breakwell, 1995; Cohen & Manion, 1994). Care was taken to control for these effects. Because all interviews were conducted by the researcher i.e. the same interviewer, the stimulus provided by the interviewer was hopefully constant. This was also helpful to control the interviewer effects, although, as Breakwell (1995) indicates, it will not wipe out the possibility that the same interviewer has different effects across different interviewees as a result of some dynamics of interpersonal relationships, anymore. Thus it results in a constant basis in only one direction.

For the purpose of eliciting teachers' personal and original perceptions, the words developmental delay were deliberately avoided to be mentioned at initial contacts with schools and teachers. During the proceedings of each interview no further definitions of developmental delay or of any other terms that teachers mentioned were offered. In order to ensure that the teachers gave accurate and complete answers to the questions posed, the researcher was careful not to give any guidance, judgement and comment on their answers. The teachers were also told that there were no right or wrong answers and they were also reassured of confidentiality.

All fifty-two interviews were taped with the permission of the participants. There were several reasons for using audio taping as a method to record responses. Firstly,

audio taping is a good way to exclude interviewer bias from the recording of responses. Secondly, it is cheap and easy. Thirdly, the record is permanent and open to verification by other researchers. Moreover, there is no good evidence to show that audio taping constrains what respondents are willing to say (Breakwell, 1995).

Overall, the teachers were friendly and cooperative at the interviews. No teachers were unable to understand or answer all questions, although some teachers experienced initial confusion and had difficulty in answering the last two questions about distinctions between developmental delay and other terms.

3.1.2 Characteristic Rating Scale for Kindergarten Children with Developmental Delay

To examine which characteristics teachers perceived regarding the features of developmental delay, a characteristics rating scale for kindergarten children with development delay was designed to be completed by teachers. The rating scale, as compared with an interview, is an approach to provide teachers with concepts rather than eliciting their concepts. The researcher was therefore interested in comparing the two different approaches to explore the teachers' concepts.

3.1.2.1 The Rating Scale

The rating scale used here was designed solely to obtain a clearer picture of teacher perceptions of characteristics of children with developmental delay in kindergartens. The possible problems in main domains of child development, including cognitive, language, social, emotional/behaviour, motor, self-help skills and basic learning skills constituted the construct of the scale. The items initially selected for each domain were based on current assessment instruments, including the Infant Rating Scale for Screening and Intervention (Lindsay, 1988) and the Preschool Behaviour Checklist (McGuire & Richman, 1988), research and clinical experience of the characteristics and behaviours causing concern in five-year-old children with developmental problems. Some characteristics and behaviours such as sleeping were not selected because although these are important, they cannot be observed in all kindergarten settings. At this stage, finally, there were 45 items designed into the initial English drafts.

The English drafts were then translated into Chinese by the researcher and given to three professors of early childhood education area in Taiwan for their assessment of appropriateness. The researcher then amended and revised the rating scale once more according to their comments. Next, to further assess whether it was appropriate for kindergarten teachers and adequately addressed the research aim, the scale was piloted with the same subjects during the same period as the pilot study for interview schedules. Following this, the scale was revised again and some common comments from the subject teachers in pilot interview were added to the items. Thus is how the final Chinese version of the scale was compiled.

In total there were 38 items in the formal scale. Each of the items was rated on a 5-point scale to indicate the degree to which each is seen as characteristic of developmental delay. A particular item was scored 1 if it was considered very uncharacteristic; 3, moderately characteristic; 5, very characteristic. The final English version of this rating scale can be found at Appendix II.

The test-retest method was adopted to evaluate the reliability of this rating scale. The subjects of the reliability estimate study were 76 kindergarten teachers who were attending an in-service training course in Taipei Municipal Teacher's College during the summer vacation in the academic year 95/96. With permission of the head of the department and lecturers of the classes, the researcher was able to take advantage of the presence of these kindergarten teachers as respondents. The time interval between the two tests was three weeks. The reliability coefficient was 0.82.

3.1.2.2 Administration of the Rating Scale

Following the first interview, the rating scale was administered to the teachers who had heard of developmental delay, was completed and then collected immediately. The teachers were asked to use the entire 5-point scale for their ratings according to their own judgements on how characteristic it is of kindergarten children with developmental delay. Teachers were reminded that there were no right or wrong answers to any item and were required to rate all items.

Overall, three teachers who had never heard of the term developmental delay did not complete this test. The other 49 teachers completed the rating scale. Upon

completion of the rating scale by each teacher the researcher checked it immediately and asked them to rate any missing items. Finally the 49 rating scales were collected and the response rate was 100%, no item was missed in each scale.

3.2 Data Analysis

The data obtained in the Stage One study included those gathered through the first interviews and those from the rating scales.

Data collected from the rating scales were coded on the computer first for analysis by the Statistical Package for the Social Sciences [SPSS] programme for Windows, release 6.0. Following statistical procedures, the mean rating of each item was calculated to generate the distribution and ranks of the characteristics rated by the teachers.

The first interview data included as we have seen earlier two parts: (i) the background data of the teachers and classes, and (ii) the teachers' explanations of the term developmental delay. The background data, which were gathered from closed questions, were also coded for analysis by the SPSS programme. The frequencies, percentages and means were generated to display the demographic distribution of the samples. Data regarding concepts of developmental delay, which were gathered from the open-ended questions and recorded by audio taping, were first transcribed into text by the researcher. Then, content analysis in terms of frequency counts was adopted to analyse the transcribed data.

Content analysis is a method that has been widely used to translate qualitative data for quantitative interpretation. As Miles and Huberman (1994) indicate, there are several good reasons to use this method: to see rapidly what is being obtained in a large batch of data; to verify a hunch or hypothesis; and to keep the researcher himself analytically honest, protecting against bias.

In this study, in order to conduct the content analysis of the first interview data, the units for coding and the coding categories of each question were first defined by the researcher. The coding categories were formulated according to the purpose of investigation and the themes and patterns that emerged from the interview data. For instance, to analyse data from the question about causes of developmental delay two

general coding categories were formed: 'biological causes' and 'environmental causes'. The biological cause category was then broken into smaller coding categories such as pregnancy or perinatal problems, hereditary or genetic problems, illness after birth etc. Furthermore, each small category, e.g. pregnancy problems, could be broken into even smaller coding units such as problems of child-birth or mother's state during pregnancy. In practice, it should be noted that it could be a reverse process in formulating the coding categories, i.e. small coding units were formed initially and bigger categories were then built up from them.

A careful count was then made of the number of times the units that fit the various categories were found in the responses. Finally, descriptive statistical procedures were used to summarize and interpret the content analysis data, including the frequencies and the percentage of particular occurrences to total occurrences.

In addition, in order to ensure objectivity and reliability in the coding of data, cross-reliability (inter-corder agreement) was evaluated by two independent coders, the researcher himself and the second coder, a Taiwanese postgraduate student here who had taught in kindergartens for more than ten years in Taiwan. The second coder coded a quarter of the transcribed data for each question. The formula for establishing an acceptable level of agreement between the two corders was: Reliability = Number of agreements / (Total number of agreements + disagreements) × 100%. According to Miles and Huberman (1994), initial coding by a second coder usually generates around 70% reliability. Thus, 75% and above was set for this study as an acceptable level of agreement. As shown in Table 4.8, the inter-coder reliability for each coded question was above this acceptable level.

Table 4.8
Inter-coder reliability for the first interview data analysis: percentage of agreement

Coded questions	Percentage of agreement
• Definitions of developmental delay	83.6%
• Characteristics of children with developmental delay	85.5%
• Possible causes of developmental delay	91.3%
• Definitions of teachers' familiar terms (including learning difficulty and disfunction in sensory integration)	89.2%
• Distinctions between developmental delay and other terms	78.5%

4 RESEARCH METHOD FOR THE STAGE TWO STUDY: THE PREVALENCE OF DEVELOPMENTAL DELAY IN KINDERGARTEN

The second major aspect of the present research was an attempt to draw a picture of developmental delay in ordinary kindergartens. Two questions in particular were addressed in this study: the first concerned the prevalence and characteristics of developmental delay in kindergarten children; the second was concerned with current and further special provision for young children with developmental delay in kindergartens. In addition to these two main questions, possible relationships between teacher identification and their perceptions of developmental delay, which was examined at Stage One, were to be further investigated at this stage.

4.1 Data Collection

The main methods of data collection at this stage were teacher nomination and individual interview. To conduct teacher nomination, reading material on developmental delay was created. The procedures of gathering data included providing teachers with the reading material, teacher nomination and then, individual interview with each teacher. Each of the methods is to be discussed in detail in the following sections.

4.1.1 Reading Materials of Developmental Delay

As indicated before, developmental delay is a new eligibility option for young children who need special education and related services in Taiwan. Before asking teachers to identify the pupils with developmental delay, it is essential to consider some teachers who might not have sufficient knowledge or experience in this new category. Hence, reading material was created, and was meant to introduce teachers to some brief ideas of what counts as developmental delay today.

4.1.1.1 The Reading Material

There were two parts that constituted this reading material: the official definition of developmental delay and the case illustration. At first, while editing the reading material, it was decided that except for the statutory definition described in the Children's

Welfare Law, which has been quoted in Chapter One, no further definition was to be provided at this stage. Thus basically the decision as to what constitutes a developmental problem is left to the individual teacher.

Table 4.9
Characteristics of cases introduced in the reading material

Cases	Gender	Areas of difficulty	Degree of observability
Case 1	Boy	Social, emotion, behaviour, self-help, reading	Moderately obvious
Case 2	Girl	Down's syndrome, intelligence, behaviour, social, language,	Obvious
Case 3	Girl	Fine motor skills, reading	Not obvious
Case 4	Boy	Cerebral palsy, motor, visual impairment, language, task	Obvious

In addition, four cases were provided in the reading material for teachers' further references. These cases were edited by the researcher but with reference to books and articles which describe some cases of young children with developmental delay. When editing the cases, gender, areas of developmental delay and degree of observability were taken into account. As shown in Table 4.9, the distribution of gender was equal: two boys and two girls. This was to avoid gender effect. All possible areas of developmental delay were included in these cases: cognitive, language, social, emotional, behaviour, motor and self-help skills. Two of them had no obvious difficulties while the other two had Down's syndrome, cerebral palsy and visual impairment. It was assumed that through reading about these case studies teachers could obtain some brief ideas on what sort of children this research was concerned with. However, it was also noted in the material that these four cases are not exhaustive representations of all the various types of developmental delay.

The reading material was in Chinese. In order to encourage teachers' willingness to read, it was laid out in a sheet of two pages. The contents were checked by three professors in the pertaining areas (the same persons as mentioned in section 3.1.2.2.) and

piloted with 12 kindergarten teachers (the same subjects as mentioned in section 3.1.1.2.). Some amendments were subsequently made to the wording . The version given in Appendix III is a literal English translation of the amended material.

4.1.1.2 Administration of the Reading Material

Following the first interview at Stage One and after completing the rating scale, each teacher was given the two pages of reading material on developmental delay. The researcher briefly went through the contents of the material with the teachers and asked them to read it carefully before they made any nominations regarding children in their classes.

4.1.2 Teacher Nominations

In the present research, the prevalence rate of developmental delay was obtained in terms of teachers' nominations of children whom they thought might have developmental delay.

There were some preliminary considerations in conducting the teacher nominations. Firstly, it was considered that a nomination should not be attempted until a child had attended the kindergarten long enough to have adjusted to the new experience of kindergarten life and the teacher knew the child well enough. As some assessment manuals for early childhood education have suggested, approximately six weeks can be allowed for this (Bate & Smith, 1978). Secondly, it was deemed important not to direct the teachers too rigidly during all processes of nomination because their own nominations and explanations are of prime importance, since the estimate prevalence was meant to be based on teachers' perceptions. Teachers' opinions about which children had developmental delay are therefore of particular interest and should be unbiased. In addition, care should be taken to exert no pressure to nominate either as few or as many children as possible and no surprise was expressed about the number of nominations nor the individual children nominated. Moreover, teachers had to be able to feel free and safe to nominate, and confidentiality of children's names had to be ensured.

4.1.2.1 Administration of Teacher Nomination

A nomination sheet (Appendix IV) was given to teachers, together with the reading materials. Each teacher was asked to nominate children in their class whom she considered might have developmental delay. To ensure all children in the class were screened, teachers were required to refer to a name list of all the pupils and consider everyone while making nominations. Teachers were also reminded that there was no upper or lower limit in the numbers of children whom they could nominate. In case some teachers might try not to nominate as many children as they actually thought due to inconvenience in filling the nomination form, only the name of each nominated child was required, as any further information about them was not required at this stage. Confidentiality of children's names was ensured. As an appointment for the next interview was arranged after a month, teachers were asked to complete the nomination sheet during their free time and returned it to the researcher at the second interview.

4.1.3 Individual Interview with Teachers: the Second Interview

Following the above steps, personal interviews with teachers were adopted again as the major method of data collection for the prevalence survey. Although interviewing is a relatively time-consuming approach to data gathering, compared for example with a postal questionnaire, the following considerations made it essential: the necessity to maximise response rates and the kind of information required. In addition, interviews were considered to have the potential for gathering background information relating to the immediate context of the classroom and to children with developmental delay in the classes.

4.1.3.1 The Interview Schedule

The interview schedule was divided into three parts, including the background of each nominated child, their difficulties in development, as well as current and future provision for them.

(1) Background information on each nominated child:

In order to describe the demographical characteristics of children with developmental delay in kindergartens, for each child identified by a teacher her/his

background information about gender, age, schooling history (i.e., whether or not attended a kindergarten before), attendance type (part-time or full-time) as well as family background including family structure, seniority and parental educational level and employment status were asked. All of the questions were structured questions.

(2) Details of the child's difficulties:

In addition to obtaining the prevalence rates of developmental delay in kindergartens, this survey also sought to explore the special needs of these children. In order to collect detailed information about children's difficulties, for each child identified by a teacher the following questions were also discussed.

(i) Firstly, teachers were asked the approaches which they used to identify the child as having developmental delay. Some possible approaches (e.g. observation, parents' reflection, other teacher's comments, and formal assessment) were mentioned to help teachers to answer.

(ii) Teachers were then asked an open-ended question to describe the child's difficulties in development and learning.

(iii) The other question about the child's difficulties was asked in a different way: 'Does the child have difficulties in the following areas: (a) cognitive/intellectual development, (b) physical/sensory development, (c) language/communication development, (d) emotional/behaviour development, (e) social development, (f) self-help skills, (g) motor development and (h) any other problems?' Further descriptions for each area of difficulties were also given if necessary. It was thought that this question was specific enough for the teacher to know the types of children that were of interest, but also gave them enough scope to express their own opinions about developmental delay. Moreover, it could recall for teachers some children's difficulties which they had forgotten to mention in the previous broad question.

(iv) The last, in this set of questions, was to ask teachers to explain possible factors which they thought caused the child's delay. A classified list of factors, i.e. biological and environmental factors, was provided for discussion.

(3) Special provision for the child and the teacher's coping experiences:

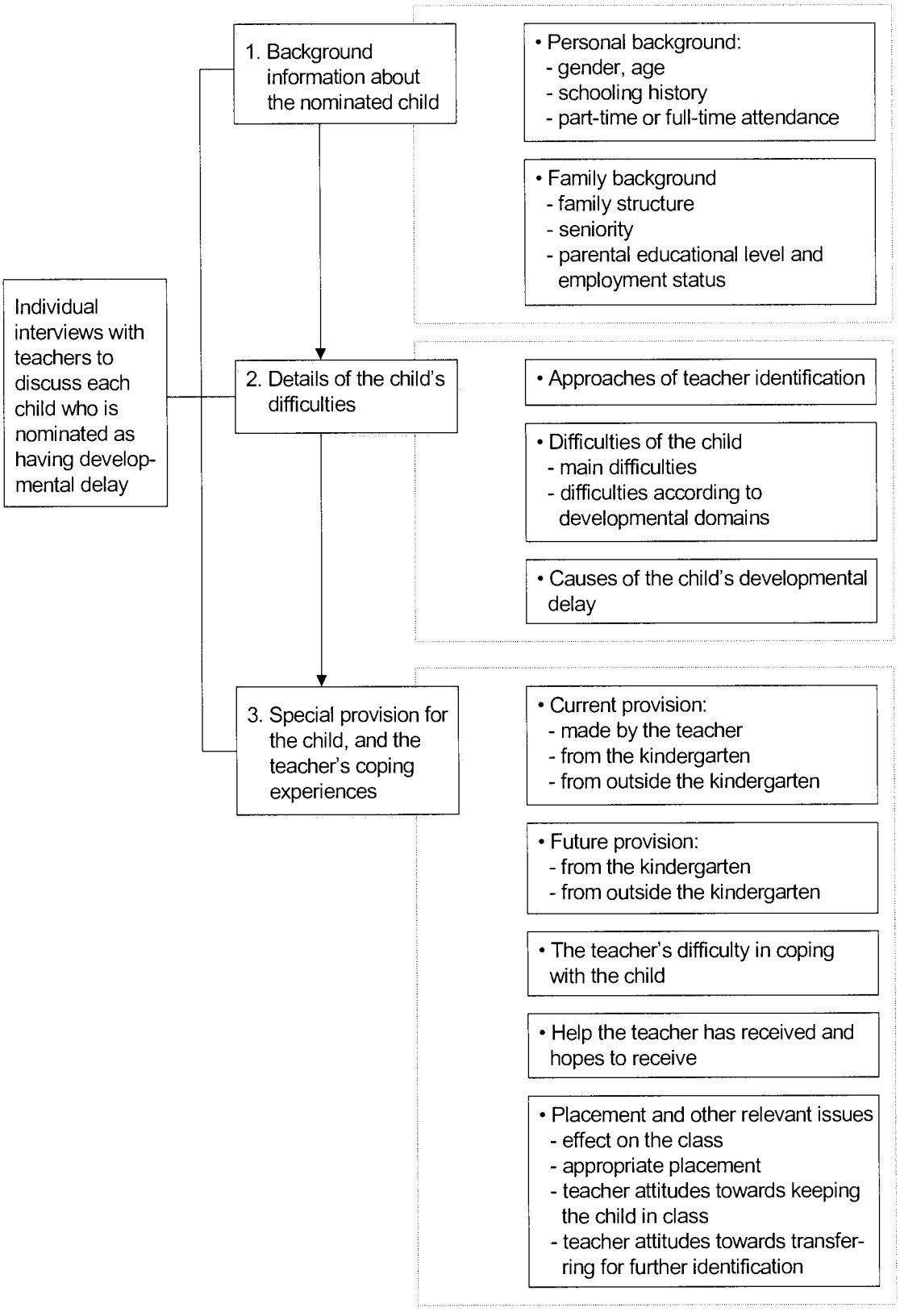
This part of the interview schedule was designed as a structured questionnaire to examine teachers' perceptions of current and future provision for children with

developmental delay in kindergartens, and of having those children in class. The questions and items used in the questionnaire were derived from various related literature. The final selection was based on the aims of this study, the researcher's own experience, and supplemented by consultations with teachers and specialists. Five groups of questions constituted this part of the schedule: (i) any special provision the child needed to receive and what he/she had received; (ii) any teaching strategies the teacher had adopted or would adopt to meet the child's special needs; and (iii) the teacher's difficulty in coping with the child in class; (iv) any special help or advice the teacher needed to receive and what she had received concerning the child; and (v) the teacher's attitude towards educational placement for the child. Most of this set of questions were fixed choice questions, but which allowed teachers' further explanations if necessary (see Appendix V).

Finally, having described the children initially nominated in terms of the above questions, teachers were asked one more question: 'In addition to these children we have discussed, are there any further children you wish to nominate and describe?' It was considered that through discussion on the nominated children teachers might recall some other children also with developmental delay that they did not nominate initially.

The interview schedule was originally designed in English and then translated into Chinese by the researcher. Drafts of the schedules were amended and revised once more after being given to three professors in Taiwan for their assessment of its appropriateness. The interview schedules as well as the reading material and nomination sheet were, then, piloted on twelve kindergarten teachers who were attending the in-service training course at the Taipei Municipal Teachers' College during the summer vacation in 1996. The purpose was to assess the wording, order, length and structure of the questions, and whether the issues to be investigated were adequately covered. The time taken to implement each procedure was measured so that the fieldwork could be carefully planned and efficiently conducted. The construction of the interview schedule is outlined in Figure 4.2 and the final version is attached in Appendix V.

Figure 4.2 ***Construction of the second interview schedules***



4.1.3.2 Conducting the Interviews

All of the 52 individual interviews with teachers were carried out by the researcher during the period 21st October to 29th November in the first kindergarten semester in the academic year 1996/97.

As indicated earlier, the interview schedule consisted of three parts: the background information on the nominated child, the problems posed by the child and finally the provision (for each nominated child). In conducting the interview about provision for the nominated children, a consideration was whether the questions should be targeted at each child individually or as a group. It was decided that it should be carried out by each nominated child as individual needs were various between children, although this approach was more time-consuming than discussing the children as a whole once.

All interviews were arranged at times most convenient for teachers and held at the same place as the first interview. Prior to embarking on each interview, the completed nomination sheet was collected first. The researcher assured the teachers that all their responses would be confidential. The researcher then discussed with teachers each nominated child, following the sequence of questions as on the interview schedule. During the process of discussion, as mentioned earlier, care was taken not to direct the teachers too rigidly because their own nominations and explanations were seen as being prime importance. No surprise was expressed about the number of nominations nor the individual child nominated. In addition, possible problems of using interviews as a research method, as mentioned in section 3.1.1.2, were also carefully controlled.

Overall, the teachers were cooperative, although each interview lasted for about one to one and half hours, depending on the number of children to be discussed. However, one of the teachers was interviewed twice as 17 nominated children needed to be discussed. Additionally, three teachers who did not nominate any child were asked about the reasons to confirm the results again. It took about ten minutes for these three interviews. Each interview was conducted in Mandarin. All the responses and information given during the interviews were recorded on tape and later transcribed.

4.2 Data Analysis

In this research the prevalence rates of developmental delay were established in terms of the percentage of children nominated by the teachers as having developmental delay. The number of nominated children in each class and the domains of their delays were coded for analysis by SPSS programme. Then, the percentages of children with delays in whole sample children, in a class, and in each delayed domain were generated for the prevalence estimates. Data from closed-ended questions concerning the nominated children's problems and demographical characteristics, teachers' responses on the special provision for these children and teachers' experiences in coping with them were also coded on SPSS, and then frequencies and percentages of each items in each question were produced. The teachers' further responses to each question were also summarized.

5 CONCLUSIONS

This chapter has presented the research methodology used for the sampling, the data collection and the analysis for the first two stages of this research. The samples included responses from 52 teachers regarding 1,471 children in 52 classes within 22 kindergartens. The individual interviews and rating scales were used to gather data about teachers' understanding of the term 'developmental delay'. Teachers' nominations and the second individual interviews were then adopted for the prevalence survey and examining teachers' perceptions of provision for children with developmental delay. In the next chapter we will deal with the research methodology concerning the third and final stage of this research.

CHAPTER FIVE
RESEARCH METHODOLOGY AND PROCEDURES FOR THE THIRD STAGE STUDY

1 INTRODUCTION

This chapter presents the research methodology for the Stage Three study: a study of relationships between teacher identifications, screening tests and classroom behaviours. This stage of the research is aimed at better understanding the basis of teacher's perceptions through using more formalised systematic approaches to developmental delay identifications and comparing these with teachers' own identifications of children and to provide evidence on teachers' identifications. Two main research methods were devised for this part of the study: (i) standardised screening tests and (ii) classroom behavioural observations. The chapter is presented in three main sections. Section One describes the sampling procedure and characteristics of the subjects. Section Two deals with the methodology of the standardised screening tests. Section Three addresses the methodology for the classroom observation studies.

2 SAMPLING

2.1 Sampling Procedures

Considering the limitations of time and research resources it was not practicable to conduct the Stage Three study on the same scale as the prevalence survey. This stage of study was therefore carried out in just eleven classes from five kindergartens in Taipei during the period between 7th November and 3rd December in the first semester of the academic year 1997/98 (almost one year after Stages One and Two). The classes were chosen from the original sample at random. The kindergartens' and teachers' agreement to participation were sought prior to commencement of study. The limits to the number of classes involved were determined by the time-consuming nature of observational research, the number of children tested and observed, and the limited human resources

available for study.

The subjects were 5-year-old kindergarten children, the same as the target age of the previous two stages of study. Two groups of children were selected for tests and observation on the basis of their teachers' nominations. One group was the 'nominated group'. These consisted of 25 children who were nominated as having developmental delay, but not if their only problems were connected with physical or sensory impairment or health-related problems. The method of teachers' nomination was the same as that used in the prevalence survey described in Chapter Four. For each nominated child the teachers were also asked to identify domain/s of delay that they perceived the child as having. Consequently, a total of 25 children were nominated as having developmental delay in the 11 classes; 8 classes with two nominated children each, and the remaining 3 classes with three nominated children each.

The other group of subjects was the 'non-nominated group'. These consisted of children who were not regarded by their teachers as having developmental delay. For the purpose of comparison, this group also had 25 children which was the same number as the nominated group. A one-to-one matching procedure, based on the nominated children's chronological age and gender, was employed in sampling the non-nominated group. That is, a non-nominated child was chosen from the remaining children in class who were not considered by the teacher as having developmental delay but had the same gender and same or similar chronological age as a nominated child. If more than one remaining child had same gender and chronological age as a nominated child, to avoid teachers' personal bias the matched non-nominated child was then selected at random by the researcher rather than by the teacher.

2.2 Characteristics of Subjects

As shown in Table 5.1, the distributions of age, gender and kindergarten types of the two groups of children were similar. The mean chronological age on the test date for the total sample was 66.7 months (SD=3.5); 66.2 months (SD=3.6) for the nominated group and 67.2 months (SD=3.4) for the non-nominated group. Of the nominated children, 18 (72.0%) were boys and only 7 (28.0%) were girls; whereas the non-nominated group was designed to meet the matched gender distribution. About half of

the children were from public kindergartens (n=26, 52.0%) and the other half were from private kindergartens (n=24, 48.0%); whilst the distribution was consistent between the two groups.

Table 5.1
Characteristics of the child sample in the screening test and classroom observation studies

Characteristics		Nominated children		Non-nominated children		Total sample	
Mean chronological age on test date (in months)		66.2 (SD=3.6)		67.2 (SD=3.4)		66.7 (SD=3.5)	
		n	%	n	%	n	%
Gender:							
	boy	18	72.0	18	72.0	36	72.0
	girl	7	28.0	7	28.0	14	28.0
Type of kindergarten:							
	public	13	52.0	13	52.0	26	52.0
	private	12	48.0	12	48.0	24	48.0
Total		25	100	25	100	50	100

In addition, Table 5.2 shows the distributions of delayed domains of the 25 nominated children as described by their teachers. About half of the children had *delay in only one domain* (n=13, 52.0%). *Delay only in cognitive development* was the largest pattern, which made up a quarter of the children (n=7, 28.0%); whereas *delay in social development* (n=3, 12.0%) and *delay in emotional or behavioural development* (n=3, 12.0%) were the two other patterns. Nine children (36.0%) had delay in two domains. The patterns of two-domain delay included *delay in cognitive and self-help skills development* (n=2, 8.0%), *delay in social and emotional/behavioural development* (n=2, 8.0%), *delay in cognitive and emotional/behavioural development* (n=1, 4.0%), *delay in cognitive and motor development* (n=1, 4.0%), *delay in social and motor development* (n=1, 4.0%), *delay in social and self-help skills development* (n=1, 4.0%), and *delay in motor and self-help skills development* (n=1, 4.0%). There was one child (4.0%) who had delay in three domains including *cognitive, motor and self-help skills development*. In

addition, the remaining two children (8.0%) were described as having *delay in all domains*.

Table 5.2
Domains of delay described by teachers for the nominated children in the screening test and classroom observation studies

Domains of delay	n	%
Children with delay in only one domain	13	52.0
Domain of delay identified by teacher		
• Cognition	7	28.0
• Social	3	12.0
• Emotion/behaviour	3	12.0
Children with delay in two domains	9	36.0
Domains of delay identified by teacher		
• Cognition, self-help skills	2	8.0
• Social, emotion/behaviour	2	8.0
• Cognition, emotion/behaviour	1	4.0
• Cognition, motor	1	4.0
• Social, motor	1	4.0
• Social, self-help skills	1	4.0
• Motor, self-help skills	1	4.0
Children with delay in three domains	1	4.0
Domains of delay identified by teacher		
• Cognition, motor, self-help skills	1	4.0
Children with delay in all domains	2	8.0
Domains of delay identified by teacher		
• Cognition, motor, language, social, emotional/behavioural, self-help skills	2	8.0
Total	25	100.0

3 DEVELOPMENTAL SCREENING TESTS

3.1 Instrument: the Denver Developmental Screening Test

The Chinese version of the Denver Developmental Screening Test (DDST) was employed as the standardised screening test in this study. Relatively few screening tests can be used reliably and validly with young children (Meisels & Wasik, 1992). The

DDST is the test most widely used by physicians, clinicians and other related professionals in Taiwan. It was originally introduced by Frankenburg and Dodds in 1967 and has since been revised twice. The Chinese version of DDST was revised by Shiu, Liau and Yu in 1983.

The DDST was designed and standardized to meet the need of having a simple, useful tool to aid in the early discovery of children with developmental problems. The test consists of 105 items that are arranged in a developmental sequence. It includes items that are intended to sample four behavioural domains: personal-social, fine motor-adaptive, language and gross motor. The DDST can be used with children from two months to six years of age. As reported in the manual, it was standardized on 1,036 normal Denver children between the age of 2 weeks and 6.4 years. The test-retest reliability was 0.96 and the reliability among examiners was 0.90. It was validated against the Stanford-Binet and the Revised Bayley Scales of Infant Tests. Grouping the normal and questionable DDST ratings and all quotients of 70 and above together resulted in co-positivity of 0.73, a co-negativity of 0.92, 7.2% over referrals and 2.95% under referrals. The interpretation of abnormal with the DDST is designed to identify those children with IQs and DQs below 70 (Frankenburg *et al*, 1973).

In practice the DDST has a number of positive features. Firstly, administration of the test requires a minimal amount of training, so people with varying degrees of experience can learn to give the test. Secondly, the test gives practitioners an excellent overview of developmental milestones in the first six years of life. Thirdly, the portion of the DDST appropriate for a particular age range can be administered in approximately twenty minutes.

Being a screening test, the DDST has a high 'specificity', that is, it has been found to correctly identify children who are not at risk for developmental problems (Cadman, Walters, Feldman, Smith & Ferguson, 1984; Meisels & Wasik, 1992). On the other hand, however studies have highlighted the problem of its low 'sensitivity' for identifying potential developmental delay, i.e. only a small proportion of at-risk children are correctly identified. Reviewing findings of previous studies, Meisels and Wasik (1992) summarised that the pool sensitivity and specificity of the DDST for the concurrent studies were 0.41 and 0.93, and for the longitudinal studies were 0.18 and

0.98. Walker, Bonner and Milling (1984) reanalysed Frankenburg's data and reported that although the DDST had an over-referral rate of only 2%, its under-referral rate was 46%. In short, as Meisels & Wasik (1992) note, the DDST appears to be constructed in such a way that its high specificity comes at the cost of only referring children at very high risk, and also at the cost of a low sensitivity. Thus, the test has to be used with considerable caution.

3.2 Administration of the DDST

The sampled children were administered the DDST in the kindergartens with the permission of parents and teachers. The DDST is an individual test. All tests for each child were administered and scored by the researcher himself in the usual manner as in the manual. In order to be skilled in administration of the test, the researcher had carefully read the manual and practised many times before using it as a formal test.

Since the DDST requires active cooperation of children, every effort had been made to make each child feel comfortable during the test. All tests were conducted in a quiet room or a quiet corner in a classroom. The child was sitting high enough and close enough to the table so that he or she could easily reach the test materials. The teacher, if available, was asked to be present to enable the child to feel comfortable and to provide assistance when necessary.

Ideally, according to the DDST manual, a child who is 'abnormal', 'questionable' or 'untestable' on the first test should be rescreened two or three weeks later. But, having considered the limited time and personnel, it was not practicable to conduct rescreening for this study. As an alternative, the teacher was consulted to check whether or not the child's performance was typical of his or her performance at other times. Overall, it took an average of fifteen to twenty minutes to test a child. All of the 50 children completed the test items successfully. The scoring and interpretation of the DDST are described below.

3.3 Interpretation of the DDST

(A) The norms

Although the DDST has been widely used in Taiwan, there are no norms

available for Taiwanese children so far. However, according to findings of some pilot studies and clinical experiences, there is no difference in developmental level between Taiwanese children and Denver children (Shiu, Liau & Yu, 1989). Therefore, as Taiwanese child norms have not yet been established, the Denver original norms were used in this study, although some possible differences might exist because of time and cultural context variations.

(B) Rating of test results

In accordance with the manual (Frankenburg *et al.*, 1973), each child's DDST result was rated as 'normal', 'questionable', 'abnormal' or 'untestable', based on the number of delays on the test. A delay in development means any item failed which is completely to the left of the age line. That is, the child failed an item which 90% of the children normally can pass at a younger age. As stated in the manual, the four categories of test results are operatively defined as follows:

(1) 'Abnormal': (i) 2 or more sectors with 2 or more delays, or (ii) 1 sector with 2 or more delays plus 1 or more sectors with 1 delay and in that same sector no passes intersect the age line.

(2) 'Questionable': (i) 1 sector with 2 or more delays, or (ii) 1 or more sectors with 1 delay and in that same sector no passes intersect the age line.

(3) 'Untestable': when refusals (i.e. the child refuses to do an item) occur in numbers large enough to cause the test result to be 'questionable' or 'abnormal' if they were scored as failures.

(4) 'Normal': any condition not listed above. (Frankenburg *et al.*, 1973; p26)

3.3 Analysis of the DDST Data

The children's DDST results were coded for analysis via the SPSS programme. The frequency and percentage distributions were calculated to describe the differences between groups. As the DDST results were nominal and the samples were independent, Chi-square tests was then conducted in the investigations of the association of teachers' identifications with DDST results, and the associations of children's characteristics with teachers' identifications and DDST results. The level of significance was set at $p<0.05$

level (two-tailed) in applying the Chi-square tests.

4 CLASSROOM OBSERVATION STUDY

The major aspect of the classroom observation study was an attempt to understand in depth the contributions of children's classroom and learning behaviours on their developmental delay and teachers' identifications. When comparing with methods which rely on teachers' descriptions of children, such as questionnaires, rating scales, written reports or the interview used in the previous stage of the research, classroom observation of a child's particular minute-by-minute activities is more likely to reflect characteristics of individual children and of the overall classroom settings (Croll & Moses, 1985). Two questions in particular were addressed in this part of the observation study. The first concerned the patterns of classroom behaviour of children regarded as having developmental delay and the degree to which these behavioural patterns differed from those of other children. The second was concerned with the association of the children's classroom behaviour with teachers' identifications.

4.1 Setting

The observations were mainly conducted in kindergarten classrooms. Outdoor settings such as the playground were excluded from the study after taking into consideration the technical and environmental difficulties. In each class there were two teachers, one was the main teacher and the other was the assistant. Though there were slight variations in the physical layout of each classroom, all contained similar areas where activities took place. These locations included: (i) a work area with tables and chairs, each table sitting two to four children; (ii) a group activity area where all children sat facing a large blackboard and piano; (iii) a play area enclosed by shelves containing toys and books; (iv) a teacher work area containing a desk and bookshelves; and (v) an adjacent area with shelves for children's shoes and personal possessions. Some music and gymnastic activities took place in the gymnasium, where there was a larger space and appropriate equipment.

4.2 Observation Procedure

In order to obtain detailed information about child and teacher behaviour observation data were collected by videotaping classroom instruction. The teachers were asked to conduct a normal lesson. They were also assured that the tape contents and all information they provided would be used only for this research and treated as strictly confidential. To acclimatise children and teachers to the camera, each class was videotaped for approximately 5 minutes before formal filming. All children viewed themselves on tape.

Following this orientation, to eliminate camera person bias a set procedure was developed for the videotaping. One child at a time was the focus of videotaping and to distinguish him or her from the rest of the class he or she was described as the 'target child'. The videotaping of the lessons began with a one-minute pan of the classroom, followed by time-sampled observation, a one-minute shot of each target child. After all of the target children were videotaped, the focus was returned to the first target child. The cycle was repeated until the end of an observation period, which lasted for 30 minutes for classes with four children observed and 45 minutes for classes with six children observed. The one minute time was chosen to minimise the duration between two observations.

In addition to individual children, the teacher herself was also videotaped directly in order to provide more detail of teacher contacts with the target children and to help provide an overall view of the classroom. However, she was not informed about this. It was expected that to some extent this could prevent or reduce possible unwanted influences in the level of teacher interaction with their children. Moreover, the size and the gender composition of the class, together with the time of a day at which the taping took place was also noted. Details of the curricular area during the period of taping was also recorded by the teacher's identification.

In order to obtain a representative sample of the children's performances, each class was videotaped for two observation periods. The duration between the two observation periods was about two weeks. This made up a total of 60 or 80 minutes of observation per class, depending on four or six children observed in class. All of the taping was done by the researcher using a JVC Compact VHS camcorder (GR-HF700).

Although the researcher was not blind to the classifications of the children, it was expected that possible bias could be overcome in two ways. One was through the systematic videotaping procedures. The other was in terms of an examination of the inter-recorder reliability between the researcher and the other recorder who was blind to the classification of the children.

Overall, videotapes of a total of 750 minutes (12.5 hours) were collected. In other words, each child was observed for a total of fifteen 1-minute observations. The nominated and non-nominated groups shared the same amount of data collected.

4.3 Observation Code

The code was developed to assess classroom behaviour of the child and his/her interaction with the teacher and peers in class. There were three considerations in selecting the behaviour observed: (i) the teachers' responses during previous interview to characteristics of children with developmental delay; (ii) the literature on the classroom and learning behaviour of children with special educational needs; and (iii) the observability of behaviour for videotaping.

The specific classroom behaviours on which this study focused and the observational code are listed in Table 5.3. To make the observation and recording easily and clearly, the behaviours were divided into four groups: (i) child-alone behaviour, (ii) behaviour directed by the child towards the teacher, (iii) behaviour directed by the teacher towards the child and (iv) behaviour between the child and peers. In the child-alone, child→teacher and child↔peer groups, behaviour was also classified as on-task and off-task behaviour. The observation was centred on the target children. When teacher→child behaviour was coded therefore, the child's behaviour for that moment was also coded. That is, a child's behaviour was coded at every interval observed, whereas the teacher's behaviour was only coded when she performed behaviour towards a target child within an observational interval.

Table 5.3

A summary of the observational code

Content of Curriculum	Context of Classroom Activities
1. Free play **(FP)** 2. Art and craft **(AC)** 3. Gross motor **(GM)** 4. Concept development **(CD)** 5. Music and movement **(MM)** 6. Living skills **(LS)** 7. Snack **(S)**	1. Whole class **(WC)** 2. Working in a group with the teacher **(GT)** 3. Working cooperatively with peers but not the teacher **(GP)** 4. Working individually **(WI)** 5. Transition time **(TT)**

Classroom Behaviour			
	On task	**Off task**	**Others**
Child alone	1. Working individually on task **(WT)** 2. Working individually on task-related activity **(WTR)**	3. Distracted from work or class business **(DW)** 4. Aggression towards property **(AgO)**	5. Waiting **(Wait)**
Child → Teacher	6. Listening to teacher or following teacher's instruction **(LsT)** 7. Asking teacher questions or comments **(Ask)** 8. seeking teacher's help (related to task) **(Seek)** 9. Responding to teacher voluntarily **(RTV)** 10. Responding to teacher Involuntarily **(RTI)**	11. Aggression towards teacher **(AgT)**	12. Not responding to teacher's call **(NRT)**
Child ↔ Peer	13. Interacting with peers directly on task **(IDT)** 14. Interacting with peers on task-related activity **(ITRA)** 15. Listening to peers as an audience in a group, task related **(LPT)**	16. Interacting with peers, distracted from work **(DstP)** 17. Aggression towards peers **(AgP)**	
Teacher → Child	18. Calling on child who has volunteered **(CV)** 19. Calling on child who has not volunteered **(CNV)** 20. Providing individual instruction **(II)** 21. Disciplining the child **(DC)** 22. Not responding to the child **(NRC)**		

In addition to the classroom behaviour, the activity context was also recorded according to the type of activity the target child was supposed to be engaged in. Tables 5.4 and 5.5 show further description of categories in the observational code. A description of the categories of classroom content and context is shown in Table 5.4, and description of the behavioural categories is shown in Table 5.5. Moreover, some broad categories of behaviour which combine various behaviours also recorded are listed in Table 5.6. These categories of behaviour include on-task, off-task, direct one-to-one contact between the child and teacher, interactions between the child and teacher as well as between the child and peers, and total interactions in class.

Table 5.4
Description of categories of classroom content and context in the observational code

Activities observed	Description
Classroom content	
• Art and craft	Puzzles, cutting, pasting, colouring, drawing, stringing beads etc.
• Gross motor	Gymnastic activities like climbing jumping, rolling etc.
• Concept development	Weather, geography, festivals, reading stories, numbers and counting etc
• Music and movement	Singing, playing instruments, musical games etc.
• Living skills	Dressing, zipping, buttoning, washing hands etc
• Snack	Eating and drinking.
• Free play	Children chose from a variety of indoor play materials such as house, table games, large blocks, cut-and-paste materials, or reading books. The role of the teacher was to respond to children's requests rather than to structure or facilitate play.
Classroom context	
• Whole class	Entire class lesson directed by teacher, e.g., teacher reads story or shows film to all children
• Teacher-directed group	Child works in a group with the teacher, but not the whole class as a group
• Non-teacher-directed group	Child works cooperatively with other children in a group but not the teacher
• Working individually	Child works on his or her own
• Transition time	Time between two activities, e.g., rearranging tables, cleaning up, queuing to see teacher.

Note: 'Classroom content' was coded according to teachers' identifications, whilst 'classroom context' was coded by the observer.

Table 5.5

Description of categories of classroom behaviour in the observational code

Category	Description and examples
• On task	The child makes observable oral, written, or manual response to instructional stimuli; child's eyes are oriented toward teacher or lesson props (e.g. child reads, draws, listens to a lecture, raises hand)
• Working on task-related activity	The child working on activities not directed but part of a task (e.g. fetching or preparing materials)
• Off task	Disruptive and non-disruptive behaviour indicating that the child is not engaged in the task or instruction, including: • Distracted from work - e.g. the child walks around or talks to peers during a lecture; day dreaming • Aggression - The child shows negative physical behaviours directed at peer, property or teacher (e.g. hitting, pushing or pinching a peer)
• Waiting	The child has started a task, but is waiting for information, guidance, assistance from the teacher; non-disruptive (e.g. the child finishes an assignment and waits for others or teacher's attention)
• Listening to teacher	The child pays attention to the teacher while teacher is talking; including following teacher's instruction (e.g. listening to teacher's reading story; singing or moving following teacher's direction)
• Asking questions or comments	The child directs a verbal question or comment to teacher (e.g. the child asks 'why is the dog wearing a hat?' or 'Am I doing right?')
• Child responding to teacher	The child verbally or nonverbally responds or tries to respond to teacher's call or questioning, including responding voluntarily or involuntarily. • Voluntarily - e.g. the child raises hand and is either called on or not called on; calls out response before the teacher gives permission • Involuntarily - e.g. the child does not raises hand or shows any sign to respond, but responds after teacher's calling
• Child seek teacher's help	The child verbally or non-verbally asks for teacher's help (e.g. the child on finding difficulty in an activity approaches teacher for help)
• Not responding to teacher's call	The child does not show any observably verbal or nonverbal sign to to respond to teacher's call (e.g. the child carries on with activity despite teacher's call)
• Teacher calling on child	The teacher verbally addresses the child by name with or without other message included; not for disciplining the child (e.g. the teacher says "Tom!" or "Tom, would you like to read this for us?")
• Teacher disciplining child	The teacher's verbal or non-verbal direction to the child to perform a good behaviour or not to perform a disciplinary action (e.g. the teacher says "Sit well!" or "Stop making such noise!")
• Providing individual instruction	The teacher gives personal instruction to the child no matter whether the child is working individually or in a group (e.g. the teacher approaches the child to help with the drawing)
• Not responding to the child	The teacher does not show any observably verbal or nonverbal response to the child's call (e.g. the teacher carries on with activity despite the child's call)

Table 5.6
Broad categories of behaviour which combine various observational codes

Categories	Combination of observation codes
• Total child-alone behaviour	WT+WTR+DW+AgO+Wait
• Total child responding to teacher	RTV+RTI
• Total teacher calling on child	CV+CNV
• Direct child→teacher one-to-one contact	Ask+Seek+RTV+RTI+AgT
• Direct teacher→child one-to-one contact	CV+CNV+II+DC
• Total direct child↔teacher one-to-one contacts	'Direct child→teacher one-to-one contact' + 'Direct teacher→child one-to-one contact'
• Total child↔ teacher interactions	LsT+'Total direct child↔teacher one-to-one contacts'
• Total child↔peer on-task interactions	IDT+ITRA+LPT
• Total child↔peer off-task interactions	DstP+AgP
• Total child↔peer interactions	'Total child↔peer on-task interactions' + 'Total child↔ peer off-task interactions'
• Total interactions in class	'Total child↔teacher interactions' + 'Total child↔peer interactions'
• Total on-task behaviour	WT+WTR+LsT+Ask+Seek+RTV+RTI+IDT+ITRA+LPT
• Total off-task behaviour	DWt+AgO+AgT+DstP+AgP

4.4 Recording Strategy of Videotapes

All videotapes were coded by the researcher. A time-sampling technique was employed as the coding strategy for two reasons. Firstly, it allows large amounts of information to be gathered while maintaining high inter-observer agreement. Secondly, because time sampling allows the information gathered to be converted into proportions or percentages, comparisons across observation sessions of unequal length can also be made (Wilkinson, 1995). As Walter and Vincent (1982) have suggested this is crucial in kindergarten classrooms since activities are scheduled for varied amounts of time.

The time-sampling procedure entailed the observer recording the observed behaviour via a paper and pencil coding system every 10 seconds; at the end of a 10-second interval a tone sounded through an earphone connected to a bleeper. The observer recorded only the behaviours occurring when the tone sounded.

In an attempt to check the suitability and feasibility of the observation schedules, a pilot classroom observation was conducted in a year-one/reception class at a primary school in London in September 1997. Some amendments were made according to the

pilot study. A formal observation recording sheet is attached in Appendix VI. Overall, a total of 90 10-second intervals were observed for each child.

4.5 Reliability

As described above, the observation data were collected by the researcher himself. Inter-rater reliability was established using the percentage agreement method as a formula (Cohen & Manion, 1994):

$$\text{Reliability} = \frac{\text{Number of agreements}}{\text{Number of agreements} + \text{Number of disagreements}} \times 100\%$$

A female postgraduate student in early childhood education, who was blind to the classification of the children, acted as the other independent recorder. Before actual reliability checks, she had practised the coding system by randomly coding some of the tapes. Actual reliability checks were conducted after the researcher and the other recorder had averaged 80% agreement across the various behaviours.

The reliability data were collected by the researcher and the other recorder simultaneously coding the same tapes of 22 children in five classes (22% of the total observations), who were selected randomly. Consequently, the obtained agreements for the categories coded were all above 80% and well within the range of acceptable. The inter-rater reliability for activity context averaged 97.6%; for the child's behaviour (including child-alone, child→teacher and child↔peers behaviours) was 89.7%; and for the teacher's behaviour (i.e., teacher→child behaviour) was 93.5%.

4.6 Analysis of the Observation Data

For the purpose of investigation, the occurrences of behaviours were calculated separately for each observed behaviour in terms of the mean percentage of intervals. Independent sample t-tests were conducted to test the differences in the behaviour-occurrence between the nominated and non-nominated children. A series of analyses of variance - One-Way ANOVAs were computed to compare (i) the children nominated and having behaviour problems and children nominated but not having behaviour problems with non-nominated children; (ii) the children nominated but DDST 'normal', children nominated and DDST 'questionable' or 'abnormal' with children non-nominated and DDST 'normal'. The dependent variables included the various aspects of classroom

behaviour observed. The Tukey's honestly significant difference (Tukey-HSD) tests were then adopted for multiple pairs comparison if the One-way Anova test indicated significance. The level of significance was set at $p<0.05$ level (two-tailed) in applying the t-tests, One-Way ANOVAs and Tukey-HSD tests. All data analysis was conducted via the SPSS programme.

5 CONCLUSIONS

The present chapter has described the research methodology for the final stage of this research. Fifty children (half nominated as having developmental delay and the other half otherwise) from eleven classes in five kindergartens took part in this stage of the classroom observations and screening tests study. Chapters Six to Ten report the research results. The following chapter begins with the data concerning teachers' understanding of developmental delay.

CHAPTER SIX
TEACHERS' CONCEPTS OF THE TERM 'DEVELOPMENTAL DELAY': RESULTS OF THE FIRST INTERVIEWS AND RATING SCALES

1 INTRODUCTION

Chapters Three to Five have dealt with the methodological issues and procedures regarding the conduct of the present study. The data arising from the Stage One study are presented in this chapter. As mentioned previously, this stage aims to discover and describe teachers' concepts of the term 'developmental delay' through semi-structured interviews and the use of rating scales. This chapter therefore consists of three sections. Sections 1 and 2 look at the results from the interviews concerning teachers' understandings of the definitions, characteristics and causes of developmental delay as well as the distinctions between this term and other terms in special needs with which they were familiar, whilst Section 3 looks at the findings from the rating scales about the features of developmental delay.

2 TEACHERS' UNDERSTANDINGS OF THE DEFINITIONS, CHARACTERISTICS AND CAUSES OF DEVELOPMENTAL DELAY

2.1 Definitions of Developmental Delay

Table 6.1
Numbers and percentages of teachers who had heard of the term developmental delay

	n	%
Heard developmental delay	49	94.2
Never heard of developmental delay	3	5.8
Total	52	100.0

Table 6.1 shows that most teachers in this study had heard of the term 'developmental delay'. Of the 52 teachers interviewed, 49 (94.2%) had heard of developmental delay and only 3 (5.8%) had never heard of this term.

The 49 teachers who had heard of developmental delay were then asked the question: "What does developmental delay mean to you? Please try to give your own definition." In general, most of the teachers were able to give a complete definition during the interviews. For example, one teacher's definition was: '*Children with developmental delay means that he falls behind in learning and development, that is his development is not as mature as his age should suggest. We can also say that his development cannot reach a normal level after some learning.*' On the other hand, it is not surprising that some of the teachers experienced some difficulty in giving a complete definition due to their limited ideas on the topic or expressive skills during the interviews. For instance, another teacher answered: '*development can be viewed from two angles: qualitative and quantitative. From a qualitative angle, developmental delay could mean learning difficulty. As from the quantitative angle.....Sorry, it's too abstract. I cannot explain it.*'

Using the method of content analysis mentioned previously in Chapter Four, the main features of the teachers' definitions are summarized in Table 6.2. The most frequently mentioned features in their definitions were as follows:

- *Development lags behind other children of the same age* (n=22, 44.9%),
- *Has not reached the developmental milestone of his or her age* (n=16, 32.7%),
- *Development is below the norm for his or her age* (n=13, 26.5%), and
- *Not necessary to have delay in all developmental areas, just one or some areas will do* (n=8, 16.3%).

In order to better understand teachers' perceptions, the teachers' responses were grouped into some conceptual models of developmental delay with taken from main references to the literature in this field (e.g. Wedell, 1981). As shown in Table 6.2, almost all of the teachers' definitions were based on models of a '*within-child*' dimension (n=76, 96.2%) rather than an '*interactive*' dimension (n=3, 3.8%). Under the '*within-child*' dimension, the '*normative model*' (i.e. with comparison or reference to the developmental status of other children of the same age) is the largest category, which

Table 6.2

Teachers' definitions of developmental delay according to number and percentage occurrences of responses

Conceptual models		Feature of definition	n	proportion	%
Within-child	**Normative model**	• Development lags behind other children of the same age	22	22/49	44.9
		• Development below the norm for his/her age	13	13/49	26.5
		• Significant difference in development from other children	3	3/49	6.1
		• Learning ability behind normal children	3	3/49	6.1
		Sub-total (37 37/49 75.5)	**41**	**41/79**	**51.9**
	Developmental model	• Hasn't reached the developmental milestone of his/her age	16	16/49	32.7
		• Cessation in learning and development	2	2/49	4.1
		Sub-total (17 17/49 34.7)	**18**	**18/79**	**22.8**
	Syndrome model	• Not necessary to have delay in all areas, just one or some areas will do	8	8/49	16.3
		• Not only slight but significant slowness	3	3/49	6.1
		• Has learning difficulties	2	2/49	4.1
		• Including mild and severe delay	1	1/49	2.0
		• Normal IQ and has no intellectual problem	1	1/49	2.0
		Sub-total (14 14/49 28.6)	**15**	**15/79**	**19.0**
	Causal model	• Unable to develop normally due to physical deficiency or medical-related problems	2	2/49	4.1
		Sub-total (2 2/49 4.1)	**2**	**2/79**	**2.5**
	Total	(48 48/49 98.0)	**76**	**76/79**	**96.2**
Interactive	**Instructional model**	• Requires more time or assistance in learning	2	2/49	4.1
		• Unable to reach normal developmental level even after education	1	1/49	2.0
		Sub-total (3 3/49 6.1)	**3**	**3/79**	**3.8**
	Total	(3 3/49 6.1)	**3**	**3/79**	**3.8**
Total		(49 49/49 100.0)	**79**	**79/79**	**100.0**

Note: 1. Percentage of each item is based on 49 teachers responding to this question.

2. Bold categories were inferred by the researcher and percentages are based on the total frequency.

makes up more than half of the responses the teachers gave (n=41, 51.9%). The '*developmental model*' (i.e. focusing on the child's own developmental status but not compared with other children) forms the second largest model, where more than one-fifth of the definitions feature this model (n=18, 22.8%). Nearly one-fifth of the responses (n=15, 19.0%) can also be categorized into a '*syndrome model*' (i.e. concerned with a child's problems, such as having significant slowness in development or having learning difficulties). The remaining model under the '*within-child*' dimension is the '*casual model*' (i.e. referring to the cause of developmental delay in the definition), which only had two responses (n=2, 2.5%).

Under the '*interactive*' dimension there were only three responses (n=3, 3.8%) - which can be classified as an '*instructional model*' (i.e. concerned with the interaction between the child's needs and the instruction given).

Overall, the teachers' definitions show a clear tendency towards a '*within-child*' dimension rather than any '*interactive*' dimension. Under the '*within-child*' dimension, their definitions were dominated by the '*normative*' and '*developmental*' models.

2.2 Characteristics of Children with Developmental Delay

In an attempt to examine teachers' perceptions of characteristics of kindergarten children with developmental delay, the teachers (who had heard of the term) were also asked to identify three or more characteristics that they thought to be typical of children with developmental delay. Table 6.3 lists the characteristics that these teachers mentioned.

First of all, the content analysis revealed eight main areas of characteristics in teachers' responses. These areas included difficulties in learning and major developmental domains (including cognitive, motor, language, social, emotional/behavioural, and self-help skills development) as well as appearance characteristics. Of these areas, the three largest areas of characteristics identified by the teachers were difficulties in *learning* (n=46, 24.6%), *emotional/behavioural development* (n=33, 17.6%) and *motor development* (n=33, 17.6%). About three-fifths of the characteristics were those of these three areas (n=112, 59.8%). Other areas each only made up about or under one-tenth of the responses; 11.8% for *language development*

Table 6.3

Characteristics of children with developmental delay: number and percentage occurrences of teachers' responses

Note: 1. Percentage for each item is based on 49 teachers responding to this question.
2. Bold categories were inferred by the researcher and percentages are based on the total number of answers that the teachers gave.

Characteristics	Mentions n	proportion	%
Difficulties in learning	**46**	**46/187**	**24.6**
• **Poor learning performance**	**44**	**44/187**	**23.5**
- Inability to keep pace with learning	13	13/49	26.5
- Slow to respond	7	7/49	14.3
- Poor task performance	6	6/49	12.2
- Slow in completing tasks	4	4/49	8.2
- Needing special or one-to-one teaching	4	4/49	8.2
- Slow in learning	3	3/49	6.1
- Need frequent repetition in teaching	2	2/49	4.1
- More frustration in learning	2	2/49	4.1
- Unable to involve and assimilate in teaching activities	2	2/49	4.1
- Unable to complete instruction	1	1/49	2.0
• **Poor learning attitude**	**2**	**2/187**	**1.1**
- Lacking in curiosity in learning	1	1/49	2.0
- Passive in learning, does not seek assistance when needed	1	1/49	2.0
Difficulties in emotional/behavioural development	**33**	**33/187**	**17.6**
• **Poor emotional development**	**11**	**11/187**	**5.9**
- Withdrawn, lacking in confidence and security	6	6/49	12.2
- Unable to express emotion appropriately	3	3/49	6.1
- Stubborn	1	1/49	2.0
- More self-centred	1	1/49	2.0
• **Poor behaviour development**	**22**	**22/187**	**11.8**
- Inattentiveness	12	12/49	24.5
- Disturbing others or interrupting teaching	2	2/49	4.1
- Unable to control behaviour	2	2/49	4.1
- Slow in behaviour	2	2/49	4.1
- Poor eye contact	1	2/49	2.0
- Often cries or screams	1	1/49	2.0
- Often shows lost expression	1	1/49	2.0
- Often destroys things	1	1/49	2.0
Difficulties in motor development	**33**	**33/187**	**17.6**
• **Poor motor development** (no further description)	**7** (7	**7/187** 7/49	**3.7** 14.3)
• **Poor gross motor development**	**18**	**18/187**	**9.6**
- Problems in walking eg. tip-toe, unstable, often falls over	7	7/49	14.3

- Clumsy	6	6/49	12.2
- Poor or uncommon manner for climbing, running or hopping	3	3/49	6.1
- Poor balance in movement	1	1/49	2.0
- Unable to hop on one foot	1	1/49	2.0
• **Poor fine motor development**	**8**	**8/187**	**4.3**
- Difficulty in manipulating scissors	4	4/49	8.2
- Difficulty in holding pencils, writing and drawing	3	3/49	6.1
- Difficulty in connecting pearls	1	1/49	2.0
Difficulties in language development	**22**	**22/187**	**11.8**
• **Poor language development** (no further description)	**2** (2	**2/187** 2/49	**1.1** 4.1)
• **Poor language expression**	**19**	**19/187**	**10.2**
- Incomplete sentences in speaking	5	5/49	10.2
- Single word or limited vocabulary in speaking	4	4/49	8.2
- Poor expressive language (no further description)	4	4/49	8.2
- Poor articulation, slurred speech	3	3/49	6.1
- Difficult to understand what he/she says	2	2/49	4.1
- Confusion with you, he/she and I in speaking	1	1/49	2.0
• **Poor language comprehension**	**1**	**1/187**	**0.5**
- unable to understand what teacher says	1	1/49	2.0
Difficulties in cognitive development	**16**	**16/187**	**8.6**
- Poor cognition level (no further explanation)	5	5/49	10.2
- Poor thinking	3	3/49	6.1
- Poor conception of number and counting ability	3	3/49	6.1
- Poor cognitive comprehension	2	2/49	4.1
- Poor memory	1	1/49	2.0
- Less knowledge	1	1/49	2.0
- Poor awareness of his own body	1	1/49	2.0
Difficulties in social development	**14**	**14/187**	**7.5**
- Poor relationship with peers	13	13/49	26.5
- Poor social skills	1	1/49	2.0
Difficulties in self-help skills development	**14**	**14/187**	**7.4**
- Unable to wear clothes, shoes or to button up by him/herself	5	5/49	10.2
- Poor eating skills and habits	3	3/49	6.1
- Unable to clean table or toys after use	3	3/49	6.1
- Problems in toileting, often wet	2	2/49	4.1
- Does not know how to wash hands	1	1/49	2.0
Appearance characteristics	**9**	**9/187**	**4.8**
- Thin, small and weak	6	6/49	12.2
- Drooling, running nose	2	2/49	4.1
- Unusual appearance	1	1/49	2.0
Total	**187**	**187/187**	**100.0**

(n=22), 8.6% for *cognitive development* (n=16), 7.5% for *social development* (n=14) and *self-help skills development* (n=14) each, and 4.8% for *appearance characteristics* (n=9).

Looking at each area individually, most of the characteristics related to difficulties in learning can be referred to as a sub-category of '*poor learning performance*', which made up nearly a quarter of the responses (n=44, 23.5%); whereas the other sub-category of '*poor learning attitude*' only formed a small proportion (n=2, 1.1%). Overall, the most frequently mentioned characteristics in this area included *inability to keep pace with learning* (n=13, 26.5%), *slow to respond in learning* (n=7, 14.3%), *poor task performance* (n=6, 12.2%), *slow in completing tasks* (n=4, 8.2%) and *needing special or one-to-one teaching* (n=4, 8.2%).

In the area of emotional/behavioural development, more characteristics were related to '*poor behavioural development*' (n=22, 11.8%) than '*poor emotional development*' (n=11, 5.9%). The most typical characteristic in this area was *inattentiveness*, which was mentioned by almost a quarter of the teachers (n=12, 24.5%). Other frequently mentioned characteristics included *withdrawn or lacking in confidence and security* (n=6, 12.2%) and *unable to express emotion appropriately* (n=3, 6.1%).

In the area of motor development, characteristics regarding '*poor gross motor development*' (n=18, 9.6%) were mentioned more frequently than those of '*poor fine motor development*' (n=8, 4.3%), whilst some teachers only mentioned *poor motor development* but did not give further description (n=7, 3.7%). The most typical characteristics in this area were: *problems in walking (e.g. tip-toe, unstable and often falls over)* (n=7, 14.3%), *clumsy* (n=6, 12.2%) and *difficulty in manipulating scissors* (n=4. 8.2%).

In the area of language development, the majority of the characteristics concerned '*poor language expression*' (n=19, 10.2%), whilst only one response related to '*poor language comprehension*' (*unable to understand what teacher says*) (n=1, 0.5%). The most typical characteristics in this area were *incomplete sentences in speaking* (n=5, 10.2%) and *single word or limited vocabulary in speaking* (n=4, 8.2%).

In the area of social development, only two types of characteristics were mentioned. However, the characteristic '*poor relationship with peers*' was mentioned by more than a quarter of the teachers (n=13, 26.5%), which made up the most common

characteristic of all the responses given. The other characteristic was '*poor social skills*', which was only mentioned by one teacher (n=1, 2.0%).

In the area of cognitive development, the most frequent answers were: *poor cognition level* (n=5, 10.2%), *poor thinking* (n=3, 6.1%) and *poor conception of number and counting ability* (n=3, 6.1%).

As regards the area of self-help skills, the most frequently mentioned characteristics were: *unable to wear clothes, shoes or to button up by him/herself* (n=5, 10.2%), *poor eating skills and habits* (n=3, 6.1%) and *unable to clean table or toys after use* (n=3, 6.1%).

In addition, some teachers were concerned with the child's appearance. More than one-tenth of the teachers mentioned the feature '*thin, small and weak*' (n=6, 12.2%). Other appearance characteristics were *drooling or running nose* (n=2, 4.1%) and *unusual appearance* (n=1, 2.0%).

Table 6.3a
Characteristics of children with developmental delay: the ten most frequently mentioned items

Rank	Characteristics	Mentions	
		n	% (N=49)
1	Inability to keep pace with learning	13	26.5
1	Poor relationship with peers	13	26.5
3	Inattentiveness	12	24.5
4	Slow to respond	7	14.3
4	Problems in walking eg. tip-toe, unstable, often falls over	7	14.3
6	Poor task performance	6	12.2
6	Clumsy	6	12.2
6	Thin, small and weak	6	12.2
10	Incomplete sentences in speaking	5	10.2
10	Poor cognition level (no further explanation)	5	10.2
10	Unable to wear clothes, shoes or to button up by him/herself	5	10.2

Note: Percentage for each item is based on 49 teachers responding to this question.

Finally, as shown in Table 6.3a, of the 58 types of characteristics mentioned by the teachers, the ten most typical characteristics (most frequently mentioned) were as follows: '*inability to keep pace with learning*', '*poor relationship with peers*', '*inattentiveness*', '*slow to respond*', '*problems in walking*', '*clumsy*', '*poor task performance*', '*thin, small and weak*', '*incomplete sentence in speaking*', '*poor cognition level*' and '*unable to wear clothes, shoes or to button up by him/herself*'.

2.3 Causes of Developmental Delay

Table 6.4 shows the results for the question: "What are possible causes of developmental delay? Please try to identify more than one cause." The factors mentioned by the teachers were coded according to detailed categories which were then grouped into the two broader categories of biological causes and environmental causes (including home, school and other environmental factors).

In general, almost all of the teachers (47 out of 49) mentioned both '*biological causes*' (n=49, 100.0%) and '*environmental causes*' (n=47, 95.9%). Under the category of '*biological causes*' the largest factor was '*pregnancy or perinatal problems*', which made up about half of the teachers (n=24, 49.0%). This sort of problem included '*problems during child-birth*' (n=9, 18.4%) and '*mother's state during pregnancy*' (e.g. prescribed drugs, emotion, exercise and age) (n=8, 16.3%). The next two most frequently mentioned biological causes were '*hereditary or genetic problems*' (n=17, 34.7%) and '*illness after birth*' (n=13, 26.5%). Other biological causes also indicated by some of the teachers were '*brain damage*' (n=6, 12.2%), '*child's own nature*' (n=6, 12.2%) and '*malnutrition*' (n=2, 4.1%).

As regards the '*environmental causes*' the results suggest that the teachers' views were strongly dominated by '*home* factors' rather than '*school* factors'. More than 95% of the teachers (n=47, 95.9%) indicated factors regarding the child's parents and home background, whereas only two teachers (4.1%) mentioned factors related to the teachers or kindergartens. According to the teachers' responses the '*home factors*' consisted of three groups. The first group was factors related to the '*parenting style*' (n=30, 61.2%), including '*over-protection*' (n=11, 22.4%), '*inadequate care*' (n=10, 20.4%), '*lacking verbal interaction*' (n=5, 10.2%) and '*lacking sensory stimulation*' (n=5, 10.2%). The

Table 6.4

Causes of developmental delay: number and percentage occurrences of responses

Note: The percentage of each item is based on 49 teachers responding to this question (N=49).

Causes			n	proportion	%
Biological causes (49, 100%)		• **Pregnancy or perinatal problems**	**24**	**24/49**	**49.0**
		- Problems during child-birth	9	9/49	18.4
		- Mother's state during pregnancy (eg. prescribed drugs, emotion, exercise, age)	8	8/49	16.3
		- Pregnancy or perinatal problems (no further description)	7	7/49	14.3
		• **hereditary or genetic problems**	**17**	**17/49**	**34.7**
		• **Illness after birth**	**13**	**13/49**	**26.5**
		• **Brain damage**	**6**	**6/49**	**12.2**
		• **Child's own nature**	**6**	**6/49**	**12.2**
		• **Malnutrition**	**2**	**2/49**	**4.1**
Environmental causes (47, 95.9%)	**Home factors** (47, 95.9%)	• **Parenting style**	**30**	**30/49**	**61.2**
		- Over-protection	11	11/49	22.4
		- Inadequate care	10	10/49	20.4
		- Lacking verbal interaction	5	5/49	10.2
		- Lacking sensory stimulation	5	5/49	10.2
		• **Lacking cultural stimulation**	**28**	**28/49**	**57.1**
		- Lacking cultural stimulation at home	22	22/49	44.9
		- Enforced isolation	5	5/49	10.2
		- Upbringing by grandparents	1	1/49	2.0
		• **Family background**	**10**	**10/49**	**20.4**
		- Only child or small family size	3	3/49	6.1
		- Lacking role model	2	2/49	4.1
		- Single parent	1	1/49	2.0
		- Order among siblings	1	1/49	2.0
		- Low socioeconomic status	1	1/49	2.0
		- Poor family atmosphere	1	1/49	2.0
		- Poor parents' relationship with others	1	1/49	2.0
	School factors (2, 4.1%)	- Strict teaching style	1	1/49	2.0
		- Poor relationship with peers	1	1/49	2.0
	Other environmental factors (8, 16.3%)	- Missed learning opportunity during critical period of development	5	5/49	10.2
		- Overcrowded environment in the city	2	2/49	4.1
		- No relationship with others outside the family	1	1/49	2.0

second group was concerned with '*lacking cultural stimulation*' (n=28, 57.1%), including '*lacking cultural stimulation at home (no further description)*' (n=22, 44.9%), '*enforced isolation*' (n=5, 10.2%) and '*upbringing by grandparents*' (n=1, 2.0%). The third group of home factors was those relevant to the child's '*family background*' (n=10, 20.4%), including '*single parent*' (n=1, 2.0%), '*only child or small family size*' (n=3, 6.1%), '*lacking role model at home*' (n=2, 4.1%), '*order among siblings*' (n=1, 2.0%), '*low socioeconomic status*' (n=1, 2.0%), '*poor family atmosphere*' (n=1, 2.0%), and '*poor parent's relationship with others*' (n=1, 2.0%).

Of the only two teachers who mentioned '*school factors*', one indicated the factor of '*teachers' strict teaching style*' (2.0%) and the other mentioned '*children's poor relationship with peers*' (2.0%). In addition to the home and school factors, eight teachers mentioned other environmental causes including '*missed learning opportunity during critical period*' (n=5, 10.2%), '*overcrowded environment in the city*' (n=2, 4.1%) and '*no relationship with others outside the family*' (n=1, 2.0%).

3 TEACHERS' EXPLANATIONS FOR THE DISTINCTIONS BETWEEN DEVELOPMENTAL DELAY AND OTHER CATEGORIES

In order to explore in depth the concepts of developmental delay, the teachers were also prompted to differentiate between developmental delay and other categories in special needs education with which they were familiar. This section deals with the data arising from this part of the interviews.

3.1 Terms Other Than Developmental Delay which are Familiar to Teachers

To examine teachers' familiarity with other special needs terms and to explore their concept of developmental delay more deeply, all of the teachers were asked the question: 'what other term/s for children with difficulties in learning and development are you familiar with?' As shown in Table 6.5, some of the terms which the teachers mentioned are statutory categories in the Special Education Law (1984) in Taiwan (eg. *learning difficulty*, *intellectual difficulty*, *emotional disorder*, *hearing impairment*) and

some are specific syndromes (eg. *hyperactivity*, *autism*, and *cerebral palsy*). The most frequent answers were '*learning difficulty*' (n=21, 40.4%) and '*dysfunction in sensory integration*' (n=19, 36.5%). In addition to *learning difficulty* and *dysfunction in sensory integration*, '*special children*' (n=2, 3.8%), '*disability*' (n=1, 1.9%) and '*developmental* disabilities' (n=1, 1.9%) were other broad categories which some teachers mentioned as a familiar term. Two teachers (3.8%) indicated that there were no other terms with which they were familiar in addition to developmental delay.

Table 6.5
Number and percentage occurrences of teachers' familiar terms in special needs other than developmental delay

	Terms	Mentions	
		n	% (N=52)
√	Learning difficulties	21	40.4
	Dysfunction in sensory integration	19	36.5
√	Intellectual difficulties	4	7.7
	Hyperactivity	4	7.7
√	Emotional disorder	3	5.8
	Autism	2	3.8
	Special children	2	3.8
√	Hearing impairment	1	1.9
	Cerebral palsy	1	1.9
	Disability	1	1.9
	Developmental disabilities	1	1.9
	No familiar terms	2	3.8

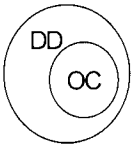
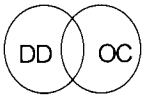
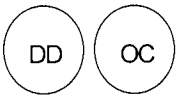
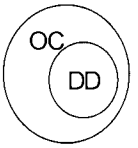
Note: 1. Percentages are based on 52 teachers. Some teachers gave more than one answer. The total frequencies and percentages were not calculated.
2. "√" means statutory category in the Special Education Law (1984) in Taiwan

3.2 Teachers' Views on the Relationships between Developmental Delay and Other Categories

With an attempt to help in the teachers' thinking and discussion, the researcher asked each of the teachers who had heard of developmental delay to choose a relationship figure which best represented their views on the relationship between developmental delay and other categories with which they were familiar. Table 6.6

Table 6.6

Number and percentage occurrences of teachers' responses to the suggested relationships between developmental delay (DD) and other categories (OC)

	Relationships					
	A	B	C	D	E	
						
Categories	n	n	n	n	n	Total
• Sensory impairment	18 (60.0%)	3 (10.0%)	9 (30.0%)	0	0	30
• Learning difficulty	7 (35.0%)	6 (30.0%)	1 (5.0%)	5 (25.0%)	1 (5.0%)	20
• Dysfunction in sensory integration	8 (44.4%)	9 (50.0%)	1 (5.5%)	0	0	18
• Intellectual difficulty	11 (73.3%)	3 (20.0%)	1 (6.7%)	0	0	15
• Emotional disorder	0	3	0	0	0	3
• Hyperactivity	2	1	0	0	0	3
• Special children	0	0	1	0	1	2
• Autism	1	0	0	0	0	1
• Cerebral palsy	1	0	0	0	0	1
• Disability	0	1	0	0	0	1
• Developmental disability	0	1	0	0	0	1
Total n	48	27	13	5	2	95
%	50.5	28.4	13.7	5.3	2.1	100.0

Note:
1. Figure A means that the category is included in developmental delay.
2. Figure B means that the category and developmental delay are different but have some overlap.
3. Figure C means that the category and developmental delay are completely different and without any overlap.
4. Figure D means that developmental delay is included in that category.
5. Figure E means that the category is the same category as developmental delay.

shows the results of the teachers' choices. It should be noted that the total number of responses for *sensory impairment* and *intellectual difficulty* are more than shown previously in Table 6.5. This is because these two categories were brought up by the interviewer for discussion even though they were not identified as familiar terms in the previous question. In addition, due to excluding three teachers who mentioned their familiar terms but had never heard of developmental delay, the total number of responses of some categories eg. learning difficulty, dysfunction in sensory integration etc. are fewer than shown in Table 6.5.

In general, the most frequent choice was *Relationship A*, that is that *the other categories are seen as being included in the term developmental delay* (n=48, 50.5%). The next most common choice was *Relationship B*, which indicates *the other categories and developmental delay as being different but with some overlap* (n=27, 28.4%). *Relationship C* was the third most common perception, which represents *developmental delay as being completely different from the other categories and without any overlap at all* (n=13, 13.7%). There were few choices indicating developmental delay as other kinds of relationships - *included in the other categories* (*Relationship D*, n=5, 5.3%) or *the same as the other categories* (*Relationship E*, n=2, 2.1%).

However, as also can be seen in Table 6.6, the responses varied if viewed under individual categories, i.e. depending on which category was to be compared. For example, with '*sensory impairment*' and '*intellectual difficulty*', most teachers (n=18, 60.0% for sensory impairment; n=11, 73.3% for intellectual difficulty) viewed them as being included in the category of developmental delay i.e., *Relationship A*. On the other hand, this kind of relationship was not chosen to represent the relationship between *developmental delay* and '*emotional disorder*', '*special children*', '*disability*' or '*developmental disability*'. With '*emotional disorder*', '*disability*' and '*developmental disability*' all teachers chose *Relationship B* as the appropriate response. As regards the term '*special children*' one teacher considered it as completely different from *developmental delay* but the other teacher viewed them as the same category. In addition, with '*learning difficulty*' and '*dysfunction in sensory integration*', *Relationships A* and *B* were the most frequent choices, and shared almost the same proportions of responses (7 and 6 of 20, and 8 and 9 of 18). *Relationship D* was only chosen by five teachers to

represent their perceived relationship between *developmental delay* and '*learning difficulty*'.

Having described the teachers' responses to about their perceived relationships between developmental delay and other familiar categories, their differences and similarities are reported on in the following sections in terms of individual categories.

3.3 Developmental Delay and Learning Difficulty

For the 21 teachers who mentioned learning difficulty as a familiar term, their descriptions of definitions of learning difficulty and the distinctions between learning difficulty and developmental delay are reported below.

3.3.1 Definitions of learning difficulty

Although teachers' definitions of other terms were not the direct focus of this research, it was relevant to examine the teachers' thinking about the distinctions between developmental delay and those other terms. Table 6.7 summarizes the definitions of learning difficulty which were given by the 21 teachers who mentioned this as a familiar term. As shown in this Table features which were more frequently mentioned in these teachers' definitions were as follows:

- *Inability to learn* (n=8),
- *Inattentiveness* (n=5),
- *Inability to receive information* (n=4), and
- *Needs individualized teaching* (n=4).

The conceptual models used previously in analysing the definitions of developmental delay were also used to categorize the teachers' definitions of learning difficulty. Similar to the findings from the definitions of developmental delay, most of the definitions here also emphasized a '*within-child*' dimension (n=36) rather than an '*interactive*' dimension (n=7). Under the '*within-child*' dimension, three quarters of the answers focused on a '*syndrome model*' (n=27) e.g. '*inability to learn*', '*inattentiveness*', '*inability in receiving information*', '*difficulty in one area but the rest are normal*' etc. The remaining one quarter of the answers can be categorized into three other models: the '*normative model*' (n=2) e.g. *'some abilities lag behind children of the same age*'; the

Table 6.7
Teachers' definitions of learning difficulty: occurrences of responses

Features of definitions	n
Within-child dimension	**36**
• **Normative model**	**2**
- Some abilities lag behind children of the same age	2
• **Syndrome model**	**27**
- Inability to learn	8
- Inattentiveness	5
- Inability in receiving information	4
- Difficulty in one area but the rest are normal	3
- Problems in learning ability or learning process	2
- Not necessary to include intellectual difficulties	2
- Inability to read	1
- Low intelligence but not mild intellectual difficulty	1
- Differing degree of difficulties eg. mild and severe	1
• **Causal model**	**6**
- Caused by emotional factors	3
- Related to dysfunction in sensory integration	3
• **Attitudinal model**	**1**
- Disinterest in learning	1
Interactive dimension	**7**
• **Instructional model**	**7**
- Needs individualized teaching	4
- Inability to achieve teacher's requirements	3
Other dimensions	**2**
- A broad category including other sub-categories of difficulty	2

Note: There were only 21 teachers responding to this question and some teachers gave more than one answer. The total frequencies and percentages were not calculated.

'*causal model*' (n=6) e.g. '*caused by emotional factors*', '*related to dysfunction in sensory integration*'; and the '*attitudinal model*' (n=1) e.g. '*disinterest in learning*'. As regards the '*interactive*' dimension, the answers can be categorized as an '*instructional model*' (n=7) including '*needs individualized teaching*' and '*inability to achieve teachers' requirements*'. In addition to the above two dimensions, two teachers mentioned that '*learning difficulty is a broad category including other sub-categories*

of difficulties'.

Overall, in a comparison between the definitions of learning difficulty and those of developmental delay, the teachers tended to define both two terms based on a '*within-child*' dimension rather than an '*interactive*' dimension. However, the teachers' definitions of developmental delay had a more '*normative*' orientation, whilst their definitions of learning difficulty were more '*syndrome*' oriented. However, this part of the findings has to be generalized carefully since only 21 teachers provided the necessary data.

3.3.2 Distinctions between developmental delay and learning difficulty

Of the 21 teachers who were familiar with learning difficulty, 20 who had also heard of developmental delay were also asked to differentiate between these two categories. Table 6.8 summarizes the teachers' responses to this sort of distinction. The content analysis revealed six perspectives which could usefully structure the teachers' responses: syndrome, cause, educational effect, intervention approach, target age, and degree of identification.

I Differences

As shown in Table 6.8, most of the teachers differentiated developmental delay from learning difficulty based on a '*syndrome*' point of view (n=18). Within this model the teachers' descriptions were as follows.

- *Developmental delay is only delay with no physical deficiency, whereas learning difficulty has physical deficiency* (n=6).
- *Children with developmental delay can have problems in one or more areas of development, but those with learning difficulty only have problems in learning* (n=4).
- *Children with developmental delay also have learning difficulties, but those with learning difficulty do not necessarily have developmental delay* (n=4).
- *Children with developmental delay do not necessarily have learning difficulty and vice versa* (n=2).
- *"Children with developmental delay do not look dull whereas those with learning difficulty do"* (n=1).

Table 6.8

Distinction between developmental delay (DD) and learning difficulty (LD): occurrences of teachers' responses

Distinctions	n
Differences	34
• **Syndrome**	**18**
- DD has no physical deficiency whereas LD has that	6
- DD has problems in one or more areas whereas LD has problems in learning only	4
- DD must also have LD whereas LD does not necessarily have DD	4
- DD does not necessarily have LD and vice versa	2
- DD children do not look dull whereas LD looks dull	1
- DD means not excellent in any area or subject whereas LD might be	1
• **Cause**	**4**
- DD is caused by biological factors whereas LD is caused by environmental factors	3
- DD is caused by biological and environmental factors whereas LD is caused by environmental factors only	1
• **Educational effect**	**8**
- DD is more readily improved than LD	4
- DD is less readily improved than LD	4
• **Intervention approach**	**1**
- DD mainly needs education whereas LD relies on medical treatment	1
• **Target age**	**1**
- DD only means young children whereas LD can involves any age group	1
• **Identification**	**2**
- DD is easier to identify than LD	1
- DD is more difficult to identify than LD	1
Similarities	7
• **Syndrome**	**4**
- Both have problems in learning	1
- Both are most likely to involve intellectual difficulty	1
- Both involve slowness	1
- Both have the same syndromes in young children	1
• **Educational effect**	**3**
- Both need education and are improvable	3
Other concepts of DD	
- DD has various degrees of difficulty, and cessation in development is a kind of severe DD	1

Note: There were only 21 teachers responding to this question and some teachers gave more than one answer. The total frequencies and percentages were not calculated.

- *"Children with developmental delay are not excellent in any area or subject, but those with learning difficulty maybe excellent in some subjects"* (n=1).

Grouped under the educational effect dimension, 4 teachers thought that '*developmental delay is more readily improved via education than learning difficulty*'. On the other hand, the other 4 teachers thought that '*developmental delay is less readily improved via education than learning difficulty*'.

Under the '*cause*' perspective, 3 teachers indicated that '*developmental delay is mainly caused by biological factors, while environmental factors are the main causes of learning difficulty*'. The other teacher indicated that "*developmental delay is caused by biological and environmental factors, whereas learning difficulty is caused by environmental factors only*".

In addition to the above views, other differences mentioned by a few teachers included the following:

- "*Children with developmental delay are easier to identify than those with learning difficulty*" (identification perspective) (n=1).
- *"Children with developmental delay are more difficult to identify than those with learning difficulty"* (identification perspective) (n=1).
- *"Developmental delay only happens in young children, but learning difficulty happens in any age"* (target age perspective) (n=1).
- *"Children with developmental delay mainly need educational services, but those with learning difficulty need medical intervention"* (intervention approach perspective) (n=1).

II Similarities

Some teachers mentioned similarities between children with developmental delay and learning difficulty. Three teachers indicated that '*they both need education and are improvable*'. This can be categorized as an '*educational effect*' perspective. The other answers which can be grouped under a '*syndrome*' perspective are as follows:

- *"Both have problems in learning"* (n=1).
- *"Both are likely to involve intellectual problems"* (n=1).
- *"Both involve slowness"* (n=1).
- *"Both have the same syndromes in early years"* (n=1).

In addition to the above opinions on the differences and similarities between developmental delay and learning difficulty, one teacher mentioned that "*developmental delay has various degrees of difficulty, and cessation in development is a kind of severe developmental delay*".

3.4 Developmental Delay and Dysfunction in Sensory Integration

For the 19 teachers who mentioned dysfunction in sensory integration as a familiar term, their definitions of this term and explanations of the distinctions between this term and developmental delay are reported next.

3.4.1 Definitions of dysfunction in sensory integration

Table 6.9
Teachers' definitions of dysfunction in sensory integration: occurrences of responses

Features of definitions		n
Within-child		**40**
•	**Syndrome**	**35**
	- Poor balance, fear of height	8
	- Difficulty in motor development including gross and fine motor, eg. clumsy	7
	- Dysfunction in various kinds of sense including senses of taste, touch, hearing etc., eg. tactile defence	7
	- Has difficulty in learning	2
	- Must be a serious dysfunction	2
	- Aggressive, often beats other children	2
	- Has emotional and behavioural problems	1
	- Inattentiveness	1
	- Poor relationship with peers	1
	- Differing degree of difficulties eg. mild and severe	1
	- Cannot control him/herself, similar to hyperactive children	1
	- Can be attentive if interested	1
	- Difficulty in certain areas but the rest are normal	1
•	**Causal**	**5**
	- Caused by brain deficiency	3
	- Includes biological and environmental causes	1
	- Caused by insufficient stimulation of language	1
Interactive		**0**

Note: There were only 17 teachers responding to this question and some teachers gave more than one answer. The total frequencies and percentages were not calculated.

Of the 19 teachers who mentioned dysfunction in sensory integration as a familiar term, two had difficulty in defining it. The definitions that were given by the other 17 teachers are summarized in Table 6.9. As shown in that Table, some features that were more frequently mentioned in these teachers' definitions are as follows:

- *Poor balance, fear of heights* (n=8).
- *Difficulty in motor development including gross and fine motor, eg. clumsy* (n=7).
- *Dysfunction in various kinds of senses including sense of taste, touch, hearing etc., eg. tactile defence* (n=7).
- *Caused by brain deficiency* (n=3).

Furthermore, as in the responses to the definitions of developmental delay, all of the answers emphasized the '*within-child*' dimension (n=40) rather than the '*interactive*' dimension. Under the '*within-child*' dimension, the most frequent answers focused on the '*syndrome*' model (n=35) e.g. '*poor balance*', '*difficulty in motor development*', '*dysfunction in various kinds of senses*' and so on. A few answers can however be categorized into a '*causal*' model (n=5) e.g. '*caused by brain deficiency*', '*biological and environmental causes*', and '*caused by insufficient stimulation of language*'.

Overall, in the comparison between the definitions of dysfunction in sensory integration and developmental delay, the teachers tended to define both terms in the 'within-child' dimension rather than the 'interactive' dimension. However, the teachers' definitions of developmental delay were more diverse including normative, developmental, syndrome, causal and instructional models, whilst the definitions of dysfunction in sensory integration only consisted of the two syndrome and causal models. Generally speaking, the teachers' definitions for developmental delay were more of a 'normative' and 'developmental' orientation, whilst those for dysfunction in sensory integration were more of a 'syndrome' orientation. Nevertheless, again because of the limited sample size of the teachers (N=17), this kind of comparison in this research has to be generalized carefully.

3.4.2 Distinctions between developmental delay and dysfunction in sensory integration

Table 6.10

Distinctions between developmental delay (DD) and dysfunction in sensory integration (DSI): occurrences of teachers' responses

Distinctions	n
Differences	20
• **Syndrome**	**13**
- DD only means lag - slow or insufficient, but DSI includes excess	4
- DD has problems in one area only, but DSI has problems across various areas	2
- DD has problems across various areas, but DSI has problems in one area only	2
- DD includes physical and psychological problems, but DSI only means psychological problems	2
- DD does not necessarily have DSI and vice versa	1
- DD is most likely to have intellectual difficulty, but DSI does not necessarily have it	1
- DD children are attentive but cannot learn, whilst DSI children have poor attention	1
• **Educational effect**	**4**
- DD is more readily improved than DSI	3
- DD is less readily improved than DSI	1
• **Cause**	**3**
- DD is caused by environmental factors, but DSI is caused by biological deficiency	1
- DD is caused by biological or environmental factors, but DSI is caused by environmental factors only	1
- DD is caused by various factors, but DSI is caused by brain deficiency only	1
Similarities	15
• **Syndrome**	**14**
- DD is a broad category and DSI is a kind of DD	8
- Both have problems of learning and development	5
- Both have similar problems of emotion and movement	1
• **Educational effect**	**1**
- Both are improvable	1
Other responses related to the concepts of DD	
- DD does not necessarily have problems in lots of areas, any one area of delay will do	1
- DD must have more than two areas of delay	1

Note: There were only 17 teachers responding to this question and some teachers gave more than one answer. The total frequencies and percentages were not calculated.

Amongst the 19 teachers who were familiar with dysfunction in sensory integration the 18 who had also heard of developmental delay were asked to differentiate between these two categories. With the exception of one teacher who had difficulty in answering this question, responses of the other 17 teachers are summarized in Table 6.10. As in the previous analysis, some perspectives were revealed to categorize the teachers' answers about the differences and similarities between these two categories.

I Differences

As shown in Table 6.10, most of the teachers' responses to the differences between developmental delay and dysfunction in sensory integration emphasized a '*syndrome*' perspective (n=13). From this perspective the teachers' views were as follows.

- *Developmental delay only means lag - often slow or insufficient progress, but dysfunction in sensory integration includes excess* (n=4).
- *Problems of developmental delay are only in one area, whereas dysfunction in sensory integration has problems across various areas* (n=2).
- *Problems of developmental delay cross various areas but dysfunction in sensory integration has problems in one area only* (n=2).
- *Developmental delay includes both physical and psychological problems, but dysfunction in sensory integration only means psychological problems* (n=2)
- *"Children with developmental delay might not have dysfunction in sensory integration and vice versa"* (n=1).
- *"Most children with developmental delay also have intellectual difficulty but those with dysfunction in sensory integration do not necessarily have it"* (n=1).
- *"Children with developmental delay can be attentive but cannot learn, whilst those with dysfunction in sensory integration usually have poor attention"* (n=1).

Grouped under the '*educational effect*' perspective, the teachers' opinions were as follows:

- *Developmental delay is more readily improved via education than dysfunction in sensory integration* (n=3).
- *"Developmental delay is less readily improved via education than dysfunction in sensory integration"* (n=1).

The remaining explanations for the differences can be categorized as a 'cause' perspective. These explanations include:

- *"Developmental delay is only caused by environmental factors, whilst dysfunction in sensory integration is caused by biological deficiency"* (n=1).
- *"Developmental delay is caused by biological and environmental factors, whilst dysfunction in sensory integration is caused by environmental factors only"* (n=1).
- *"Developmental delay is caused by various factors, but dysfunction in sensory integration is caused by brain deficiency only"* (n=1).

II Similarities

The similarities between developmental delay and dysfunction in sensory integration as seen by the teachers were mainly based on a '*syndrome*' perspective, whilst only one response related to an 'educational effect' perspective (e.g. *both are improvable*). The syndrome-based views included:

- *Developmental delay is a broad category and dysfunction in sensory integration is a kind of developmental delay* (n=8).
- *Children with dysfunction in sensory integration could have developmental problems* (n=5).
- *"Both have similar problems of emotion and movement"* (n=1).

In addition, two teachers did not explain the differences or similarities but gave descriptions regarding the concept of developmental delay. One teacher indicated that "a*ny one area of delay will be sufficient for identification of developmental delay"*. On the other hand, the other teacher thought that "*it must have more than two areas of delay"*.

3.5 Developmental Delay and Sensory Impairment

Only one teacher mentioned hearing impairment as a familiar term and gave a simple definition: *"having problems of hearing"*. However, in order to understand the teachers' views on the distinctions between developmental delay and sensory impairment, some discussion was focused around the relationship between sensory impairment (eg. hearing impairment, visual impairment etc.) and developmental delay.

The following were responses to the differences between these two categories:

- *Developmental delay is not a kind of physical deficiency, but sensory impairment is* (n=9).
- *Developmental delay mainly needs educational intervention, but sensory impairment mainly needs medical treatment* (n=3).
- *"Developmental delay is only delay and still has possibility of development, but sensory impairment is cessation"* (n=1).

Referring to the similarities between these two categories, the teachers' opinions were as follows:

- *Both have problems of learning and development* (n=3).
- *Both have biological causes* (n=3).
- *"Both are improvable via education"* (n=1).
- *"Developmental delay has various degrees from mild to severe, and sensory impairment is a kind of severe developmental delay"* (n=1).

3.6 Developmental Delay and Intellectual Difficulty

Four teachers mentioned intellectual difficulty as a familiar term. One of them simply defined it as *"intelligence falling behind the level which his/her age should have"*. The other three teachers' definitions were similar. They defined it as '*slowness and difficulty in learning, poor cognition and self-help skills*'.

In addition to the above 4 teachers, 11 more teachers mentioned intellectual difficulty in the interview although they did not identify it as a familiar term. It was also of interest to understand these teachers' opinions on the distinctions between developmental delay and intellectual difficulty. The following were some of the teachers' responses to the differences between these two categories:

- *Developmental delay is more readily improved via education than intellectual difficulty* (n=2).
- *Mild intellectual difficulty can be a kind of developmental delay, but severe intellectual difficulty is not* (n=2).
- *"Developmental delay is not a kind of physical deficiency, but intellectual difficulty is related to brain damage"* (n=1).

- *"Problems of developmental delay cross various areas, whilst intellectual difficulty only focuses on intellectual problems"* (n=1).

As for the similarities between these two categories, the teachers' opinions were as follows:

- *Both have problems of learning and development* (n=3).
- *Both have biological causes* (n=3).
- *"Both have no obvious syndromes in appearance"* (n=1).
- *"Both are the same in young children"* (n=1).

3.7 Developmental Delay and Emotional Disorder

Three teachers mentioned emotional disorder as a familiar term. One of them had difficulty defining it. The following were the definitions given by the other two teachers:

- *"Problems in behaviour, eg. very aggressive or reject learning"* (n=1).
- *"Emotional disorder includes various problems of emotion and personality. Autism is also a type. It could be caused by family factors"* (n=1).

The differences mentioned by these teachers are as follows:

- *The syndromes of developmental delay and emotional disorder are different in some ways* (n=2).
- "*Developmental delay is only of slowness and is improvable via education, but emotional disorder is a kind of disease and needs medical treatment"* (n=1).

As for the similarities, the teachers' responses included the following:

- *"Both have problems of learning and development"* (n=1).
- *"Both are improvable via education"* (n=1).
- *"Both have problems only in one area and other areas are all right"* (n=1).

Although hyperactivity and autism can be categorized as emotional disorders they are presented here as separate sections. This is because relationships amongst the three terms is not the focus of this research, and also the teachers mentioned them in isolation.

3.8 Developmental Delay and Hyperactivity

The definitions of hyperactivity given by four teachers who mentioned it as a familiar term were as follows.

- *"Poor attentiveness; understanding teachers' instructions but cannot finish the task; very stubborn"* (n=1).
- *"Cannot keep pace in learning due to inattentiveness and impatience but not low intelligence"* (n=1).
- *"Cannot sit for a long time, always busy, and doesn't know his/her behaviour is interrupting others. Teachers have to pay attention to him/her all the time for you never know when he/she will cause trouble or an accident"* (n=1).
- *"Hardly stops moving and cannot concentrate"* (n=1).

Of the four teachers 3 had heard of developmental delay. Only one teacher gave her opinion on the differences between these two categories as follows: "*Children with developmental delay generally have intellectual problems, but hyperactive children do not necessarily have it*".

The similarities between these two categories mentioned by these teachers included the following:

- *Both have problems of learning and development* (n=2).
- *Both are exceptional and need special services* (n=2).
- *"Both have problems not just in one area but across various areas"* (n=1).

3.9 Developmental Delay and Autism

Two teachers mentioned autism as a familiar term. One of them tried to define it in terms of two cases she had taught before: "*one child was very aggressive and the other was very quiet, only played on his own and had no interaction with others*". This teacher had never heard of developmental delay. The other teacher defined autism as "*having difficulty in communication with the outside world*" and thought that "*autistic children might be excellent in some area, but those with developmental delay might not and their problems generally cross various areas*".

3.10 Developmental Delay and Cerebral Palsy

Only one teacher mentioned 'cerebral palsy' as a familiar term. This teacher defined it as "*inability in motor control*". She thought that "*children with cerebral palsy normally also have developmental problems*". On the other hand, she also mentioned that "*children with cerebral palsy might not have intellectual problems, but those with developmental delay generally do have them*".

3.11 Developmental Delay and Special Children

Two teachers mentioned 'special children' as a familiar term. One of them identified it as "*developmental delay*". This teacher viewed developmental delay and special children both as broad categories but the former is specifically used for young children. The other teacher defined special children as "*being different from normal children*". This teacher differentiated it from developmental delay as follows: "*Problems of developmental delay are very mild, non-physical and in one area only, but problems of special children are of obvious physical deficiency and across various areas*".

3.12 Developmental Delay and Disability

The only teacher who mentioned 'disability' as a familiar term defined it as "*a kind of biological deficiency*". She differentiated this term from developmental delay as follows: "*Problems of children with developmental delay are milder and more readily improved with education, but those with disability have more serious problems and need other interventions in addition to education*".

3.13 Developmental Delay and Developmental Disability

Only one teacher mentioned 'developmental disability' as a familiar term. This teacher defined this term as "*focusing on physical problems only, whereas developmental delay includes both physical and psychological problems*". In addition, she thought that "*developmental delay is more readily improved via education than developmental disability*".

3.14 Summary: Concepts of Developmental Delay revealed from Differentiating this Category from Other Categories

Table 6.11 summarizes the teachers' concepts of developmental delay that were revealed from their responses to defining the distinctions between developmental delay and other categories which were familiar to them. Two judges independently classified the teachers' responses into six categories. The six categories, or perspectives, can be viewed as the structure of teachers' perceptions about differentiating developmental delay and other terms. In general, the teachers tended to differentiate based on '*syndrome*', more than half of the responses were focused in this way (n=96, 70.1%). Less than one-fifth of descriptions were based on '*educational effect*' (n=24, 17.5%), about one-tenth were based on '*cause*' (n=13, 9.5%) and only a few were '*identification*' (n=2, 1.4%), '*intervention approach*' (n=1, 0.7%) or '*target age*' (n=1, 0.7%) perspectives.

Under the '*syndrome*' perspective, it is not surprising that the most frequent response indicated that *developmental delay accompanies learning problems* (n=20, 14.6%). It is interesting to note that more responses indicated developmental delay as *having no physical or sensory deficiency* (n=18, 13.1%) than those indicating it as *having physical or psychological problems* (n=2, 1.5%). Other controversial views can also be seen in these responses. Although 6.6% (n=9) of the responses considered developmental delay as *an umbrella category covering any type of difficulty or disability*, there were also 5.1% (n=7) indicating that *not every child with difficulties also has developmental delay*. Whilst 7.3% (n=10) of the responses presented an opinion that children with developmental delay *could have problems in one domain or across various domains of development*, there were also 2.9% (n=4) indicating that these children *have problems in one domain only* and one response (0.7%) indicating that they *"must have delay in more than two domains"*. Moreover, whilst three responses (2.2%) indicated that developmental delay *only means those with very mild degree of difficulty*, there were also two responses (1.5%) considering developmental delay as *a category including various degrees, from very mild to very severe, of problems and cessation in development.*

The responses also showed that some teachers viewed developmental delay as a category which only means children who are *slow or lag in development, but does not*

Table 6.11

Teachers' concepts of developmental delay (DD) revealed from their responses to the distinctions between DD and other categories

Perspectives	Concepts	n	% (N=137)
Syndrome	• Having problems in learning	20	14.6
	• Having no physical deficiency	18	13.1
	• Having problems in one or more developmental domains	10	7.3
	• An umbrella category covering any type of difficulty	9	6.6
	• Not every child with difficulties also having DD (eg. LD or DSI might not be DD)	7	5.1
	• Have problems in one domain only	4	2.9
	• Only means delay and slow but not cessation, and still have possibility in development	4	2.9
	• Only means lag, slow or insufficient but excluding syndromes of excess	4	2.9
	• Only means very mild degree of difficulty	3	2.2
	• Often accompanies intellectual problems	3	2.2
	• Not necessarily having LD or DSI	3	2.2
	• Including physical and psychological problems	2	1.5
	• Sharing the same syndromes as LD and DSI in early childhood stage	2	1.5
	• Having various degrees from very mild to very severe, and cessation in development is also a type of it	2	1.5
	• Not excellent in any area or subject	2	1.5
	• Must have more than two areas of delay	1	0.7
	• Not having obvious syndromes in appearance	1	0.7
	• Not looking dull	1	0.7
	Sub-total	**96**	**70.1**
Educational effect	• More readily improved than other categories	10	7.3
	• Needs education and is improvable	9	6.6
	• Less readily improved than other categories	5	3.6
	Sub-total	**24**	**17.5**
Cause	• Caused by biological and environmental factors	9	6.6
	• Only caused by biological factors	3	2.2
	• Only caused by environmental factors	1	0.7
	Sub-total	**13**	**9.5**
Identification	• Easier to identify than other categories of difficulty	1	0.7
	• More difficult to identify than other categories	1	0.7
	Sub-total	**2**	**1.4**
Intervention approach	• Educational provision is the main intervention approach rather than medical services	1	0.7
	Sub-total	**1**	**0.7**
Target group	• Specifically used for young children	1	0.7
	Sub-total	**1**	**0.7**
Total		**137**	**100.0**

include those who have problems of excess (eg. overactive) (n=4, 2.9%) or *cessation in development* (n=4, 2.9%). This kind of thought can be understood as being more likely based on a superficial understanding of the word 'delay'. The other responses under this angle included: *not excellent in any area or subject* (n=2, 1.5%), *"not having obvious syndromes in appearance"* (n=1, 0.7%) and *"not looking dull"* (n=1, 0.7%).

Under the '*educational effect*' perspective more responses indicated developmental delay as *more readily improved than other categories of difficulties* (n=10, 7.3%) than the other five responses (3.6%) which viewed it as *less readily improved than other categories*. Although only nine responses (6.6%) clearly indicated that these children *need education and are improvable*, the real number of responses may well be more than that. At least some of those teachers who either thought developmental delay is more readily or less readily improved could also share this view.

Within the '*cause*' perspective, the main view indicated that developmental delay is *caused by biological and environmental factors* (n=9, 6.6%), whilst other responses included *only caused by biological factors* (n=3, 2.2%) and *"only caused by environmental factors"* (n=1, 0.7%).

Within the '*identification*' perspective one response (0.7%) considered developmental delay as *easier to identify than other categories of difficulties*. However the only other response (0.7%) suggested an opposite opinion, which viewed developmental delay as *"more difficulty to identify than other categories"*.

As regards the '*intervention approach*' and '*target group*' perspectives each category only had one response. Regarding intervention the comment was that *"educational intervention is the main intervention approach rather than medical intervention"* (n=1, 0.7%). For the second the response was that *"developmental delay is a term specifically used for preschool children with special needs"* (n=1, 0.7%).

Overall, in addition to the structure developed here concerning the teachers' ways of distinguishing developmental delay from other special needs categories, the above findings suggest that the teachers have rather diverse and inconsistent views on the concept of developmental delay. However, merely based on these findings, it is not appropriate to make a clear-cut conclusion or try to generalize a teachers' common view on some of the controversial issues regarding the concepts. This limitation in the analysis

and results is mainly related to the research methodology followed, and will be discussed later in Chapter Eleven.

4 TEACHERS' RATINGS ON CHARACTERISTICS OF DEVELOPMENTAL DELAY

Table 6.12 presents the teachers' mean ratings for each item in the 'characteristics rating scale for kindergarten children with developmental delay'. Generally speaking, developmental delay was characterized by items which are general in description such as low developmental level, poor gross or fine motor skills, below normal intelligence and slow learning. The top ten rated items were as follows:

- *lower level in some or all areas of development than children of same age* (M=4.14, SD=0.82),
- *poor gross motor skills: awkward, clumsy, often falls over, bumps into things* (M=3.90, SD=0.82),
- *below normal intelligence* (M=3.84, SD=1.01),
- *aimless wandering* (M=3.69, SD=0.85),
- *poor fine coordination and manipulation: difficulty in holding pencils and using scissors* (M=3.67, SD=0.77),
- *uses incomplete sentences and hardly to be understood* (M=3.65, SD=0.78),
- *immature level of counting numbers* (M=3.63, SD=0.93),
- *learns at a slow rate* (M=3.57, SD=0.89),
- *only able to follow single instructions; confused by instructions to the class* (M=3.51, SD=0.85), and
- *has sensory or physical difficulty* (M=3.51, SD=0.98).

On the other hand, the lower rated items were those for specific problems, and items related to social or self-help skills development were also rated lowly. The ten lowest rated items were:

- *wets during the day* (M=2.39, SD=0.86),
- *thin and small* (M=2.43, SD=0.79),
- *often rude and unkind to peers* (M=2.57, SD=0.68),

Table 6.12

Mean ratings for characteristics of developmental delay by rank

Rank	Characteristics	Ratings	
		Mean	SD
1	37. Lower level in some or all areas of development than children of same age	4.14	0.82
2	10. Poor gross motor skills: awkward, clumsy, often falls over, bumps into things	3.90	0.74
3	36. Below normal intelligence	3.84	1.01
4	33. Aimless wandering	3.69	0.85
5	2. Poor fine coordination and manipulation: difficulties in holding pencils and using scissors	3.67	0.77
6	15. Uses incomplete sentences and hardly to be understood	3.65	0.78
7	16. Immature level of counting numbers	3.63	0.93
8	34. Learns at a slow rate	3.57	0.89
9	22. Only able to follow single instructions; confused by instructions to the class	3.51	0.85
9	28. Has sensory or physical difficulty	3.51	0.98
11	27. Immature level of understanding of words	3.47	0.82
12	25. Frequently soils pants	3.41	0.93
13	30. Poor memory for oral information	3.39	0.73
14	3. temper tantrums: with screaming, kicking, or loss of control; often cries	3.33	0.90
15	20. Poor attention and concentration	3.31	0.82
16	7. Low academic achievement	3.27	1.00
17	12. Poor matching and early reading	3.20	0.94
18	6. Poor drawings: unrecognisable/scribbles; unable to draw between straight tramlines	3.17	0.90
19	35. Emotionally withdrawn from teachers and others	3.16	0.77
19	31. Cannot appropriately respond to teacher's questioning	3.16	0.80
21	32. Tries to avoid or resistant to learning	3.14	0.76
22	23. Tasks usually unfinished	3.12	0.83
23	1. Stutters or has poor articulation	3.08	0.67
24	26. Finds difficulty in adapting to new situations	3.06	0.85
24	14. Needs much help to dress	3.06	0.90
26	17. Very active, hardly ever sits still for meals, or always rushing around	3.04	0.91
27	29. Very fearful, shows many marked fear reactions	3.02	0.85
28	4. Prefers to work/play on own most of time in class activity; rarely works/plays with others	2.92	0.64
28	11. Immature vocabulary, mainly limited to single words	2.92	1.02

30	5. Does not talk or reluctant to talk	2.88	0.63
31	19. Unable to tell a comprehensive story	2.86	0.98
32	8. Attitude to teacher is uncooperative and often interrupts during activities	2.84	0.85
33	9. Tends to be disliked and rejected by peers	2.82	0.88
34	38. Cannot form phonetic symbols and numerals or write over teacher's writing	2.74	0.95
35	24. Often wants to be helped, to be carried, follows staff around most of the time	2.61	0.81
36	13. Often rude and unkind to peers	2.57	0.68
37	21. Thin and small	2.43	0.79
38	18. Wets during the day	2.39	0.86

Note: This is a 5 point rating scale and higher scores indicate more characteristic. Items blocked are the top ten and bottom ten rated items.

- *often wants to be helped, to be carried, follows staff around most of the time* (M= 2.61, SD=0.81),
- *cannot form phonetic symbols and numerals or write over teacher's writing* (M=2.74, SD=0.95),
- *tends to be disliked and rejected by peers* (M=2.82, SD=0.88),
- *attitude to teacher is uncooperative and often interrupts during activities* (M= 2.84, SD=0.85),
- *unable to tell a comprehensive story* (M=2.86, SD=0.98),
- *does not talk or reluctant to talk* (M=2.88, SD=0.63),
- *immature vocabulary, mainly limited to single words* (M=2.92, SD=1.02), and
- *prefers to work/play on own most of time* (M=2.92, SD=0.64).

It is interesting to note some of the consistencies and inconsistencies between the findings of the teachers' ratings and those of the interviews. Some items were consistent in both the ratings and the teachers' responses during interview in that they were either highly rated and mentioned frequently, or lower rated and mentioned infrequently or not mentioned at all. For example, the characteristics relating to poor gross motor or fine motor development, slow learning and low intelligent levels were highly rated and also mentioned frequently. On the other hand, for example, the item '*cannot form phonetic*

symbols and numerals or write over teacher's writing' was rated a lowly item and not mentioned during teachers' interviews either.

On the other hand some items were inconsistent, in that they were rated highly but infrequently or not mentioned, or rated lower but mentioned frequently. For instance, 'poor relationship with peers' was the most frequently identified characteristic during the interviews. However, the rating results show that the items related to this characteristic (e.g. '*often rude and unkind to peers*', '*tends to be disliked and rejected by peers*', and '*rarely works/plays with others*') were rated as some of the bottom ten features. In addition, difficulties in emotional/behavioural development were the second largest area of characteristics identified through the teacher interviews, but most of the items related to this area were also rated lowly in the rating scales (e.g., '*attitudes to teacher is uncooperative and often interrupts during activities*', '*very fearful, shows many marked fear reactions*'). Moreover, although '*having sensory or physical difficulty*' was rated amongst the top ten amongst the rated items, 'having no physical deficiency' was a more frequently mentioned feature than 'having physical deficiency' when the teachers were asked to differentiate developmental delay from other categories. However, the rating result is also supported by another finding from the teachers' views on the relationship between developmental delay and sensory impairment, where more than half of the responding teachers (18 out of 30) chose a relationship figure indicating sensory impairment as being included in developmental delay. Such kinds of inconsistent findings between the two parts of studies can perhaps be explained as possible differences between the two research methods, but on the other hand may disclose real uncertainties in the teachers' understandings of developmental delay. This will be evaluated later in the discussion.

5 CONCLUSIONS

The data presented in this chapter have described comprehensively the kindergarten teachers' concepts of developmental delay in terms of the definitions, characteristics, aetiology and distinctions from other special needs categories. These findings were regarded as an essential preliminary to the other phases of the research. There is however

one point to note about some of this data. The research method used (i.e. the semi-structured interview with open-ended questions) was to allow teachers in the kindergartens to respond naturally and informally without prompting. This method resulted in some levels of response to questions about teachers' own definitions and conceptual understanding of developmental delay and other terminology in the field being quite low (Sections 3.3 to 3.13). Where the data sets are small, quoting percentages becomes meaningless (and hence was not done) and limitations in interpreting the data need to be heeded. The next chapter will deal with the data concerning the prevalence and characteristics of kindergarten children with developmental delay.

CHAPTER SEVEN
PREVALENCE AND PROFILE OF DEVELOPMENTAL DELAY IN KINDERGARTEN: RESULTS OF THE PREVALENCE SURVEY

1 INTRODUCTION

As stated in Chapter One, a fundamental purpose of this research was to determine the prevalence of young children with developmental delay in ordinary kindergartens in Taiwan as perceived by teachers. The results of kindergarten teachers' understanding of this term 'developmental delay' has been described in the previous chapter. This chapter will deal with the data arising from teachers' nomination and descriptions of children in their classes whom they identified as having developmental delay. Section 1 will describe the prevalence rates of kindergarten children with developmental delay; Section 2 will look at demographic characteristics of those children; while Section 3 will look at problems associated with developmental delay. Section 4 will describe sources to which teachers refer for identification and Section 5 present teachers' views on the causality of children's developmental delay.

2 AN OVERVIEW OF KINDERGARTEN CHILDREN WITH DEVELOPMENTAL DELAY

2.1 The Prevalence

Using the procedures of sampling, nomination and interview described in Chapter Four it is possible to build up a picture of developmental delay in kindergartens in Taipei. As previously mentioned, in this research the prevalence estimates of kindergarten children with developmental delay were based on teachers' nomination i.e., teacher identification. There were a total of 52 teachers from 52 classes of 22 kindergartens involved in this stage of study, and the total child sample, from which the prevalence rates were calculated, was 1,471.

Table 7.1
Prevalence of kindergarten children with developmental delay as identified by teachers

	n	% of all sample children (N=1,471)
Total children nominated by teachers as having developmental delay	136	9.2

Table 7.1 gives an overall prevalence rate for the developmental delay. When the teachers of ordinary kindergartens were asked to nominate children in their classes with developmental delay, a total of 136 out of the 1,471 sampled children were nominated, that gave a 9.2% prevalence rate.

Table 7.2
Number of children in a class nominated by teachers as having developmental delay

	n (teachers/classes)	%
• *No* children nominated in class	3	5.8
• *1* child nominated in class	12	23.1
• *2* children nominated in class	16	30.8
• *3* children nominated in class	9	17.3
• *4* children nominated in class	8	15.4
• *5* children nominated in class	2	3.8
• *6* children nominated in class	1	1.9
• *17* children nominated in class	1	1.9
Total	52	100.0
Average number of children nominated in a class: 2.6 (SD=2.4)		

Note: The average class size was 28.3 children, with the range from 9 to 34.

Table 7.2 looks in detail at the distribution of the number of children who were nominated in a class. In general, an average of 2.6 children were nominated (with the range from 0 to 17) in an average class size of 28.3 children (with the range from 9 to 34). Most of the teachers (n=45, 86.6%) nominated one to four children in their class;

more than a half nominated one or two children (n=28, 53.9%) and about one-third (n=17, 32.7%) nominated three or four children. There were three teachers (5.8%) who identified no child in their class as having developmental delay. Only a few teachers nominated over four children; two (3.8%) nominated five children, one (1.9%) nominated six and one (1.9%) nominated seventeen children. Further inquiry about the criteria adopted for nomination was made during the interview with the teacher who regarded seventeen children in her class as having developmental delay since there is a clear difference with the outcomes reported by all other teachers. The teacher's responses can be quoted as below:

> '*This class seems more difficult to teach than the class I taught last year. Many of the children have some sort of problem. These seventeen (nominated) children are those I think whose problems are more serious and having developmental delay to some extent. I feel that it is difficult for me to deal with their problems properly. I think they all need some kind of special needs education.*'

While the number nominated clearly seems excessive relative to class size, nevertheless the teacher is still reporting 'developmental delay' and therefore the data must be included in the dataset regarding teachers' perceptions of this term.

Table 7.3
Variation in the proportion of children nominated as having developmental delay across kindergartens and teachers

Proportions of children nominated as having developmental delay	Kindergartens		Teachers	
	n	%	n	%
• None children nominated	0	—	3	5.8
• 0.1% - 5.0%	4	18.2	12	23.1
• 5.1% - 10.0%	11	50.0	18	34.6
• 10.1% - 15.0%	5	22.7	14	26.9
• 15.1% - 20.0%	0	—	2	3.8
• 20.1% - 25.0%	1	4.5	1	1.9
• 25.1% - 35.0%	1	4.5	0	—
• 35.1% - 45.0%	0	—	1	1.9
• 45.1% - 55.0%	0	—	1	1.9
Total	22	100	52	100

In Table 7.3 kindergartens and teachers are classified according to the proportions of children who were nominated as having developmental delay. Half of the twenty-two kindergartens in the sample regarded between 5.1% and 10.0% of their children as having developmental delay (n=11, 50.0%). More than one in five of the kindergartens had 10.1% to 15.0% of children with developmental delay (n=5, 22.7%) and two kindergartens (9.0%) had more than 20% of children with developmental delay. The remaining four kindergartens (18.2%) had 0.1% to 5.0% of children with developmental delay, but no kindergarten was without children considered as having developmental delay. Overall, the distribution indicates that the kindergartens varied considerably in the degree of difficulties their children suffered but also that developmental delay was a general problem for the kindergartens in the survey.

Similarly, the variation in the proportion of nominated children across the teachers or classes also varied significantly. The range of proportions across the classes was greater than the range across the kindergartens. About one-third of the teachers interviewed regarded 5.1% to 10.0% of children in their classes as having developmental delay (n=18, 34.6%). Over a quarter of the classes had nomination rates between 10.1% and 15.0% (n=14, 26.9%), and two (3.8%) classes nominations rates were between 15.1% and 20.0%. Three (5.8%) of the classes had more than one in five children nominated. One of them had as many as approximately half of the children in class seen by their teacher as having developmental delay. As regards classes with nomination rates under 5%, three classes in the survey had no child regarded as having developmental delay, leaving less than a quarter of the classes with 0.1% to 5.0% of children with developmental delay (n=12, 23.1%).

2.2 Patterns of Developmental Delay

In order to provide an overview of developmental delay, the descriptions which teachers gave to the difficulties of nominated children have been placed in six major developmental domains: cognition, language, emotion and behaviour, social, motor, and self-help skills. In addition to the six domains, another category was also used to include physical or sensory impairments or health problems. The delays of nominated children were categorised here in terms of whether or not their teachers described them as having

delay in each of the six developmental domains or as having physical, sensory or health problems.

Table 7.4
An overview of developmental delay in kindergartens by domains of delay

Domains of delay	n	% of nominated children (N=136)	% of sample children (N=1,471)
Emotional and behaviour development	87	64.0	5.9
Cognitive development	76	55.9	5.6
Language development	73	53.7	5.1
Self-help skills development	71	52.2	4.8
Motor development	68	50.0	4.6
Social development	64	47.1	4.4
Physical or sensory impairments or health problems	27	19.9	1.8

Note: Some children had delay in more than one domain. The total percentage is not calculated and the total number of responses is more than the total of nominated children.

As shown in Table 7.4, *emotional and behavioural development* formed the largest domain of developmental delay. Nearly two-thirds of the nominated children were described as having delay in emotional and behavioural development (n=87, 64.0%). Of the total sample 5.9% had delay in this developmental domain; that is one or two children in an average class had developmental delay of this kind. *Cognitive development* was the next common domain. 55.9% (n=76) of the nominated children, 5.6% of the total sample or about one or two children in an average class, were regarded by their teachers as having delay in cognitive development. The third largest domain was *language development.* 53.7% (n=73) of the nominated children, 5.1% of the total sample or about one child in an average class, experienced developmental delay in this domain. Slightly over half of the nominated children (n=71, 52.2%), 4.8% of the total sample or about one child in an average class, had delay in *self-help skills development.* Half of the nominated children (n=68, 50.0%) had delay in *motor development*, which was 4.6% of the total sample or also about one child in an average class. *Social development* made up the smallest of the six major domains of development. Less than

half of the nominated children (n=64, 47.1%) or 4.4% of the total sample, about one child in an average class, were considered as having developmental delay in this domain. However, less than the frequency of social development domain, only one-fifths of the nominated children (n=27, 19.9%) or just under one child in an average class (1.8%) had *physical or sensory impairments or health problems*.

The figures in Table 7.4 also indicate considerable overlap between these major domains of delay as the total response (N=466) was much more than the total number of nominated children (N=136). In other words, this implies that some children had multiple domains of delay. This suggested a further analysis on the distribution of the number of delayed domains which children experienced. The other reason for performing this sort of analysis was based on consideration of various definitions of developmental delay. As some definitions define that children with developmental delay must have delays in more than one domain, it was of interest to examine teachers' views on this issue in terms of this indirect analysis. The results of this analysis are presented in Table 7.5.

Table 7.5
An overview of developmental delay in kindergartens by frequency of one domain and multiple domains of delay

	n	% of nominated children (N=136)	% of sample children (N=1,471)
Children with delay in only one domain	19	14.0	1.3
Children with multiple delayed domains	117	86.0	8.0
Total	136	100.0	
• Children with delay in two domains	21	15.4	1.4
• Children with delay in three domains	29	21.3	2.0
• Children with delay in four domains	35	25.7	2.4
• Children with delay in five domains	17	12.5	1.2
• Children with delay in six domains	12	8.8	0.8
• Children with delay in seven domains	3	2.2	0.2

Note: Domains of delay were divided into cognition, language, emotion/behaviour, social, motor, self-help skills, and physical/sensory impairments or health problems.

In Table 7.5 about six in seven of the nominated children (n=117, 85.9%), 8.0% of the total sample or about two children in an average class, experienced developmental delay in multiple domains (i.e. having delay in two or more of the seven domains listed in Table 7.4); whereas just about one in seven of the nominated group (n=19, 14.0%), or 1.3% of the sample children, had delay in only one domain.

Children with delay in *four domains* made up the largest group of developmental delay as seen by their teachers. Over a quarter of the nominated children were described as having delay in four domains (n=35, 25.7%), which was 2.4% of the total sample. The next largest group was children with *three domains* of delay - over one-fifth of the nominated children (n=29, 21.3%), or a further 2.0% of the total sample. These two groups made up nearly half of the nominated children (n=64, 47.0%). The third large group was those with *two domains* of delay - 15.4% (n=21) of the nominated children, or 1.4% of the total sample. Over one in nine of the nominated children had *five domains* of delay (n=17, 12.5%), which was 1.2% of the total sample. Twelve children, 8.8% of the nominated or 0.8% of the total sample, had delay in *six domains*. In addition, of the 136 nominated children, three (2.2%) were described as having delay in all of the *seven domains*. This made up 0.2% of the total kindergarten children sampled in this study.

In Table 7.6 the extent of overlap is further presented in terms of patterns of developmental delay with respect to various combinations of the seven major domains. Looking at the cells with one domain of delay in the Table, delay in *language development* (L) was the most common pattern, which made up 5.9% of the total nominated children (n=8). The following four domains formed less then 3% of the nominated children: *emotional and behavioural* (E) (n=4, 2.9%), *self-help skills* (H) (n=4, 2.9%), *motor* (M) (n=2, 1.5%) and *cognitive* (C) development (n=1, 0.7%). As in *social development* (S) and *physical, sensory or health problems* (P), no children had delay solely in either of these two domains; that is, all of the children who were described as having difficulty in one of these two domains were also accompanied with difficulties in other domains. Overall, on the other hand, the low rates of one-domain delay in each domain type reflected wide overlap between any one domain and the rest of the six domains. The wide-ranging patterns of multiple domains of delay, as shown in the Table, also provide evidence of this.

Table 7.6 ***Patterns of children's developmental delay identified by teachers according to domains of delay***

n %	E	C	L	H	M	S	P	M/S	M/P	S/P	M/S/ P
E	4 2.9%	1 0.7	1 0.7	1 0.7	2 1.5	4 2.9	1 0.7	1 0.7			
C		1 0.7	2 1.5	1 0.7	1 0.7		1 0.7	1 0.7			
L			8 5.9	2 1.5	1 0.7	1 0.7			1 0.7		
H				4 2.9	1 0.7	1 0.7			1 0.7		1 0.7
M					2 1.5						
E/C			2 1.5	1 0.7	1 0.7	4 2.9		2 1.5			1 0.7
E/L				2 1.5		3 2.2				1 0.7	
E/H					2 1.5	4 2.9		4 2.9	1 0.7	1 0.7	1 0.7
C/L				1 0.7	1 0.7					2 1.5	
C/H					3 2.2				1 0.7		
L/H						1 0.7		1 0.7	1 0.7		
E/C/ L					5 3.7	4 2.9	1 0.7	2 1.5	1 0.7	1 0.7	1 0.7
E/C/ H					2 1.5	3 2.2		2 1.5	1 0.7		
E/L/ H								1 0.7			
C/L/ H					4 2.9	1 0.7		2 1.5	1 0.7		
E/C/ L/H					3 2.2	1 0.7		7 5.1	2 1.5	2 1.5	3 2.2

NOTE: The percentages were based on the total nominated children (N=136)
E- emotion and behaviour development C- cognitive development L- language development
H- self-help skills development M- motor development S- social development
P- physical, sensory or health problems

1 domain | 2 domains | 3 domains | 4 domains | 5 domains | 6 domains | 7 domains

Of the children with two domains of delay, having delay in both *emotional/behavioural* and *social* development made up the main pattern (n=4, 2.9% of the total nominated). In addition, *emotional and behavioural* development formed the largest domain when combined with one of the other domains (n=10, 7.4%). Of those with three domains of delay, having delay in *E/C/S* development (n=4, 2.9%) and that of *E/H/S* development (n=4, 2.9%) were the two main patterns. *Emotional and behavioural* development also formed the largest domain when it combined with two of the other domains (n=10, 7.4%).

Of the patterns combining four domains of delay, the following were the four main patterns: *E/C/L/M* (n=5, 3.7%), *E/C/L/S* (n=4, 2.9%), *E/H/M/S* (n=4, 2.9%) and *C/L/H/M* (n=4, 2.9%). *Cognitive* (n=25, 18.4%) and *emotional/behaviour development* (n=24, 17.6%) were the two main domains which combined with any three other domains. Of the patterns across five domains of delay, *E/C/L/H/M* made up the most common one (n=3, 2.2%). *Cognitive development* was the largest domain when combined with four other domains (n=16, 11.8%). Finally, of the patterns of six domains of delay, seven children (5.1%) were regarded as having delay in *E/C/L/H/M/S* development.

Overall, of the 70 patterns of developmental delay, the three most common patterns were delay in *language development*, delay in *E/C/L/H/M/S* and delay in *E/C/L/M*.

3 DEMOGRAPHIC CHARACTERISTICS OF CHILDREN WITH DEVELOPMENTAL DELAY

3.1 Demographic Characteristics of Teacher-nominated Children

Table 7.7 summarises the demographic characteristics of the kindergarten children identified by their teachers as having developmental delay. As previously mentioned in Chapter Three, the child subjects of the present study were five-year-old children in kindergartens. In this study, a child's age has been calculated from his/her birth date to the date of teacher interview. The average chronological age of the teacher-nominated

Table 7.7

Demographic characteristics of children identified as having developmental delay by teachers

Demographic characteristics		Nominated children (N=136)	
Average chronological age		65.3 months (SD=3.4)	
		n	%
Gender :			
	boys	106	77.9
	girls	30	22.1
Schooling experience :			
	attended kindergartens before	117	86.0
	never attended before	19	14.0
Type of attendance :			
	whole-day class	102	75.0
	half-day class	34	25.0
Adults living together :			
	both parents	109	80.1
	both parents and grandparent/s	15	11.0
	single mother	2	1.5
	single mother and grandparent/s	1	0.7
	single father	1	0.7
	single father and grandparent/s	6	4.4
	grandparent/s	2	1.5
Parent's educational level :			
	no formal education	1	0.7
	primary school	5	3.7
	junior high school	18	13.2
	high school or junior college	69	50.7
	university or college	35	25.7
	postgraduate school or higher	7	5.1
	not known	1	0.7
Parent's employment status :			
	employed	130	95.6
	unemployed	2	1.5
	not known	4	2.9
Order of birth :			
	the only child	29	21.3
	the eldest	35	25.7
	the youngest	56	41.2
	Other ranks	9	6.6
	one of twins	3	2.2
	not known	4	2.9
Total		136	100

Note: For the educational level and employment status data, where parents were found to be the main carer the parent with the highest educational level was included here, as well as any parent in employment.

children was 65.3 months i.e. about 5 years and 3 months old. Of the 136 teacher-nominated children, over three quarters were boys (n=117, 86.0%), whereas less than one in four were girls (n=30, 22.1%). This significant inequality in the distribution of numbers between boys and girls has been investigated further and will be described in the next section. Whether a child had experience in kindergarten before or not can also be a factor in his/her adjustment to current kindergarten life. Most of the nominated children had attended kindergartens before (n=117, 86.0%), whereas only 19 (14.0%) of them had never attended one. This high proportion of kindergarten experience could, in some senses, be useful in explaining that most of these children's difficulties would be less likely to be caused by not having adjusted to kindergartens, as being new to a kindergarten. Three quarters of them were attending whole-day classes (n=102, 75.0%), while the remainder were in half-day classes (n=34, 25.0%).

As is commonly done in epidemiological studies of this kind, some basic family background of the nominated children was examined in the present study, including adults the child was living with, parents' educational levels and employment statuses and the child's order of birth amongst siblings. As shown in Table 7.7, over ninety per cent of the nominated children lived with both parents (80.1% living with parents (n=109) and 11.0% living with parents and grandparent/s (n=15)); whereas only a small proportion lived with a single parent (4.4% with a single father and grandparent/s (n=6), 0.7% with a single father (n=1), 1.5% with a single mother (n=2) and 0.7% with a single mother and grandparent/s (n=1)). In addition, two children (1.5%) lived with grandparent/s but without the parent/s. Over four-fifths of the parents' educational levels were at high school/junior college or higher. About half of them had graduated from high school or junior college (n=69, 50.7%), about one quarter from university or college (n=35, 25.7%), and 5.1% from postgraduate school or higher (n=7). About one-sixth of the parent/s had graduated from junior high school (n=18, 13.2%) or primary school (n=5, 3.7%), whereas one parent had not received formal education and one supplied no information. Of the 136 nominated children, 130 (95.6%) had parent/s who were employed, whereas only two children's parent/s were unemployed (1.5%) and four were not known (2.9%). As regards the order of birth in families, over two-thirds of the nominated children were either the youngest or the eldest child, 41.2% were the youngest

(n=56) and 25.7% the eldest (n=35); whereas over one in five were the only child in the family (n=29, 21.3%), 6.6% were the middle (n=9), 2.2% were one of twins (n=3) and for 2.9% we have no information (n=4).

3.2 Developmental Delay and Gender of children

Previous research has suggested that teachers' expectations for students' performance vary in terms of gender of students. In this study, as shown earlier in Table 7.7, over three quarters of the children that teachers nominated as having developmental delay were boys, whereas less then a quarter were girls. It was therefore of interest to further explore possible variation of developmental delay between boys and girls. Using data collected on the total number of boys and girls in each class, it is possible to consider the prevalence of developmental delay separately for boys and girls.

Table 7.8
Teacher identification of developmental delay and gender of children

	Boys (N=785)		Girls (N=686)	
	n	%	n	%
Total children nominated as having delay	106	13.5	30	4.3
Domains of delay				
Emotional and behavioural development	65	8.3	22	3.2
Cognitive development	56	7.1	20	2.9
Language development	61	7.8	12	1.7
Self-help skills development	59	7.5	12	1.7
Motor development	50	6.4	18	2.6
Social development	49	6.2	15	2.2
Physical, sensory or health problems	22	2.8	5	0.7

Note: Some children had delay in more than one domain. The total percentage is not calculated and the total number of responses is more than the number of nominated children for both boys and girls.

In Table 7.8 teacher nominations of boys and girls are compared with respect to the seven major domains of delay. In general, the ratio of boys to girls amongst the

nominated children is over three to one. Of 785 boys in the sample, 13.5% (n=106) were described as having developmental delay, compared with 4.3% (n=30) of the 686 sampled girls. That is, the nomination rate for boys were 3.5 times that for the girls. Looking at each domain of delay, the ratio of boys to girls was about 2.5-2.8 to one in the following domains: emotional/behaviour (8.3% of boys and 3.2% of girls), cognitive (7.1% of boys and 2.9% of girls), motor (6.4% of boys and 2.6% of girls) and social development (6.2% of boys and 2.2% of girls). The greatest difference was in the following three domains: language, self-help skills and physical, sensory or health problems, where boys outnumbered girls by over four to one. Language domain was attributed to 7.8% of boys and 1.7% of girls, self-help skills to 7.5% of boys and 1.7% of girls, and physical, sensory or health problems to 2.8% of boys and 0.7% of girls.

3.3 Developmental Delay and Types of kindergartens

Table 7.9
Teacher identification of developmental delay and types of kindergartens

	Public kindergarten (N=846)		Private kindergarten (N=625)	
	n	%	n	%
Total children nominated as having delay	61	7.2	75	12.0
Domains of delay				
Emotional and behavioural development	36	4.3	51	8.2
Cognitive development	35	4.1	41	6.6
Language development	39	4.6	34	5.4
Self-help skills development	31	3.7	40	6.4
Motor development	30	3.5	38	6.1
Social development	29	3.4	35	5.6
Physical, sensory or health problems	16	1.9	11	1.8

Note: Some children had delays in more than one domain. The total percentage is not calculated and the total number of responses is more than the number of nominated children for each type of kindergarten.

In addition to the gender of children, another characteristic investigated was the type of kindergartens i.e. public or private. In Taiwan, admission or child selection

policies of kindergarten vary in the public and private sectors. This could make a difference in the prevalence of children with developmental delay between these two types of kindergartens. Table 7.9 shows the variations in the number and percentage of children nominated as having developmental delay in public and private kindergartens with respect to the seven major domains of delay.

Except for those children with physical, sensory or health problems, in each major domain private kindergartens had higher percentage rates of children described as having delay than public kindergartens. The greatest difference was in the domain of emotional and behavioural development, where the ratio of the private to the public was nearly two to one (8.2% of the former and 4.3% of the latter). In the following domains the ratio of the private to public was 1.6 or 1.7 to one: cognitive (6.6% of the private and 4.1% of the public), self-help skills (6.4% of the private and 3.7% of the public), motor (6.1% of the private and 3.5% of the public) and social development (5.6% of the private and 3.4% of the public). In the language developmental domain the ratio was about 1.2 to one (5.4% of the private and 4.6% of the public). As regards the domain of physical, sensory or health problems, the percentage rates were similar between the two types of kindergartens, although the public was higher than the private (1.9% of the former and 1.8% of the latter).

Overall, the results suggest a higher rate of children with developmental delay in private kindergartens than in public ones. Of the 625 children from the private kindergartens 12.0% (n=75) were nominated as having developmental delay, whereas only 7.2% (n=61) of the 846 children from the public kindergartens were nominated. The ratio of private kindergarten to public kindergarten in the nomination rate was 1.7 to one.

4 PROBLEMS ASSOCIATED WITH DEVELOPMENTAL DELAY

In order to describe in depth the difficulties of children with developmental delay and to better understand what constituted teachers' concerns about children they regarded as having developmental delay, teachers were also asked during the interviews to describe the difficulties for each nominated child in each domain of delay she had identified. This next section presents the details which teachers gave of the children's delays and

difficulties in each domain.

4.1 Problems Associated with Delay in Cognitive Development

Table 7.10
Problems associated with children identified by teachers as having delay in cognitive development

Problems	n	% of children with delay in this domain (N=76)	% of all nominated children (N=136)
Total children described as having delay in cognitive development	76	100.0	55.9
Weak in preschool concepts (excluding number)	24	31.6	17.6
Poor cognitive comprehension	21	27.6	15.4
Inability to keep pace with learning	14	18.4	10.3
Slow to respond	9	11.8	6.6
Poor conception of number and counting ability	7	9.2	5.1
Poor drawing content	7	9.2	5.1
Unable to assimilate in regular teaching and needing extra or individual teaching	6	7.9	4.4
Poor memory	4	5.3	2.9
Poor thinking	1	1.3	0.7
Poor task performance	1	1.3	0.7
Poor performance in cognitive development (no further description)	20	26.3	14.7

Note: Some children were described as having more then one problem in this domain.
The total percentage is not calculated and the total number of responses is more than 76.

Table 7.10 shows problems associated with children who were regarded by teachers as having delay in cognitive development. Of teachers' descriptions of cognitive problems '*weak in preschool concepts*' (eg. the concepts of shape, colour and other areas, but excluding concept of number) was the most common type of difficulty. Over one-sixth of all the nominated children (n=24, 17.6%), or 31.6% of those with delay in this domain, experienced difficulty of this sort (n=24, 17.6%). '*Poor cognitive comprehension*' made up the next most common difficulty within this domain. Over one-seventh of the total nominated (n=21, 15.4%), or 27.6% of those with delay in this

domain, were described as having this difficulty. '*Inability to keep pace with learning*' formed the third most common problem: more than one in ten of the total nominated (n=14, 10.3%) or 18.4% of those with delay in this domain had this difficulty. Other difficulties within cognitive development were '*slow to respond*' (n=9, 6.6% of the total nominated), '*poor conception of number and counting ability*' (n=7, 5.1% of the total nominated), '*poor drawing content*' (n=7, 5.1% of the total nominated), '*unable to assimilate in regular teaching and needing extra or individual teaching*' (n=6, 4.4% of the total nominated), '*poor memory*' (n=4, 2.9% of the total nominated), '*poor thinking*' (n=1, 0.7% of the total nominated) and '*poor task performance*' (n=1, 0.7% of the total nominated). In addition, 14.7% (n=20) of the total nominated children, or 26.3% of those with delay in this domain, were regarded as having poor performance in cognitive development but no further details were given.

4.2 Problems Associated with Delay in Language Development

Table 7.11
Problems associated with children identified by teachers as having delay in language development

Problems	n	% of children with delay in this domain (N=73)	% of all nominated children (N=136)
Total children described as having delay in language development	73	100.0	53.7
Problems of language expression	67	91.8	49.3
• Articulation or slurred speech	33	45.2	24.3
• Incomplete sentences in speaking	17	23.3	12.5
• Hard for others to understand what he/she says	11	15.1	8.1
• Infrequent talk	8	11.0	5.9
• Single word or limited vocabulary in speaking	6	8.2	4.4
• Poor expressive language (no further description)	5	6.8	3.7
• Parroting speech	4	5.5	2.9
• Confusion with you, he and I in speaking	2	2.7	1.5
• Speaking in a very soft voice	1	1.4	0.7
Problems of language comprehension: unable to understand what teachers say	8	11.0	5.9
Poor language development (no further description)	5	6.8	3.7

Note: Some children were described as having more then one problem in this domain. The total percentage is not calculated and the total number of responses is more than 73.

As shown in Table 7.11, over 45% of children regarded as having delay in language development were described as having difficulties of '*articulation or slurred speech*' (n=33), which made up nearly one in four of the total nominated children (24.3%). The next common language problem was '*incomplete sentences in speaking*', which formed 12.5% (n=17) of the total nominated or 23.3% of those with delay in this domain. '*Hard for others to understand what he/she says*' made up the third commonest language problem: 15.1% (n=11) of those with delay in this domain or 8.1% of the total nominated children. Other sorts of difficulties associated with delay in language development included '*infrequent talk*', '*single word or limited vocabulary in speaking*', '*parroting speech*', '*confusion with you, he and I in speaking*', '*speaking in a very soft voice*' and '*unable to understand what teachers say*'. Five children were regarded as having delay in language development but no further description of their difficulties was given.

Overall, most difficulties associated with delay in language development were those referring to language expression rather than those of language comprehension. Over nine in ten of the children with delay in language development (n=67, 91.8%), or nearly half (49.3%) of the total nominated children, were described as having some kind of language expression problems, whereas only 11.0% (n=8) of those with delay in language development, or 5.9% of the total sample children had problems of language comprehension.

4.3 Problems Associated with Delay in Emotional and Behavioural Development

Table 7.12 shows the teachers' descriptions of problems associated with children who were regarded as having delay in emotional and behavioural development. As shown in this Table, the children's problems of emotion and behaviour were wide-ranging. Of these problems '*aggression*' (e.g. aggressive to the teacher or other children or frequent destroying things) was the most common problem, which made up 32.2% (n=28) of the children within this domain of delay or over one in five of the total nominated children (20.6%). The next common problem was '*frequent crying or screaming*', where 24.1% (n=21) of those with delay in emotion and behaviour or over one-seventh (15.4%) of the total nominated children had this problem. '*Withdrawn,*

lacking in confidence and security' formed the third commonest problem of emotion and behaviour. Of the children with delay within this domain over one in five were described as having this sort of problem (n=18, 20.7%), which was over one in eight of the total nominated children (13.2%). Another major emotional and behavioural problem was '*Inattentiveness in class*': nearly one-fifth of those with delay within this domain (n=17, 19.5%) or one in eight of the total nominated children (12.5%).

Table 7.12
Problems associated with children identified by teachers as having delay in emotional and behavioural development

Problems	n	% of children with delay in this domain (N=87)	% of total nominated children (N=136)
Total children described as having delay in emotional and behavioural development	87	100.0	63.2
Aggression	28	32.2	20.6
Frequent crying or screaming	21	24.1	15.4
Withdrawn, lacking in confidence and security	18	20.7	13.2
Inattentiveness in class	17	19.5	12.5
Slow in behaviour	14	16.1	10.3
Over-excitability when upset or angry	10	11.5	7.4
Very self-centred	10	11.5	7.4
Easy to get upset	10	11.5	7.4
Reject learning	10	11.5	7.4
Stubborn	9	10.3	6.6
Poor eye contact, always show lost expression	9	10.3	6.6
Over-active	7	8.0	5.1
Talking to self	7	8.0	5.1
Often complain about other children	5	5.7	3.7
Fear of heights	6	6.9	4.4
Wandering around	5	5.7	3.7
Over-dependence on teachers or other adults	4	4.6	2.9
Sucking fingers or clothes	4	4.6	2.9
Lacking emotion	4	4.6	2.9
Often late or absent from school	4	4.6	2.9
Disturbing others or interrupting teaching	3	3.4	2.2
Swearing	2	2.3	1.5
Dislike movement	2	2.3	1.5
Self-hurt behaviour	1	1.1	0.7
Unpurposeful running	1	1.1	0.7
Obsessive grooming	1	1.1	0.7
Hate noise	1	1.1	0.7
Slow in completing tasks	1	1.1	0.7
Poor emotional/behavioural development (no description)	8	9.2	5.9

Note: Some children were described as having more then one problem in this domain.
The total percentage is not calculated and the total number of responses is more than 86.

The following were other common emotional and behavioural problems that made up over ten per cent of the children regarded as having delay in this domain: '*slow in behaviour*' (n=14, 16.1%; 10.3% of the total nominated); '*over-excitability when upset or angry*' (n=10, 11.5%; 7.4% of the total nominated); '*very self-centred*' (n=10, 11.5%; 7.4% of the total nominated); '*easy to get upset*' (n=10, 11.5%; 7.4% of the total nominated); '*reject learning*' (n=10, 11.5%; 7.4% of the total nominated); '*stubborn*' (n=9, 10.3%; 6.6% of the total nominated) and '*poor eye contact, always show lost expression*' (n=9, 10.3%; 6.6% of the total nominated).

Of the remainder, 17 types of emotional and behavioural problems (Table 7.12) made up 0.7% to 5.1% each of the nominated children, whilst a further 8 children (5.9% of the nominated children) had no detailed explanations.

4.4 Problems Associated with Delay in Social Development

Table 7.13
Problems associated with children identified by teachers as having delay in social development

Problems	n	% of children with delay in this domain (N=64)	% of total nominated children (N=136)
Total children described as having delay in social development	64	100.0	47.1
Loner, seldom interact with peers	20	31.3	14.7
Rejected by peers	12	18.8	8.8
Poor social skills	4	6.3	2.9
Bullied by peers	2	3.1	1.5
Poor relationship with peers (no further description)	26	40.6	19.1

Note: There were no children with multiple problems in this category.

In Table 7.13 teachers' descriptions of the problems of the children who were considered as having delay in social development are presented. All of the 64 children regarded as having delay of this domain were seen as having poor relationship with peers, nevertheless for 26 of them (40.6%) the teachers did not give further detailed

descriptions. Of the children with this domain of delay, over three-tenths (n=20, 31.3%) were described as a '*Loner*' (i.e. seldom interact with peers), which made up over one-seventh of the total nominated children (14.7%). Nearly one in five (n=12, 18.8%) of those with delay in social development experienced a problem of '*being rejected by peers*', which was 8.8% of the total nominated. Another two kinds of social problem for these children were: '*poor social skills*' (n=4, 6.3%; 2.9% of the total nominated) and '*bullied by peers*' (n=2, 3.1%; 1.5% of the total nominated).

4.5 Problems Associated with Delay in Motor Development

Table 7.14
Problems associated with children identified by teachers as having delay in motor development

Problems	n	% of children with delay in this domain (N=68)	% of total nominated children (N=136)
Total children described as having delay in motor development	68	100.0	50.0
Gross motor problems	42	61.8	30.9
• Difficulty in walking eg. tip-toe, unstable, often falls over	19	27.9	14.0
• Poor or uncommon manner for climbing, running or hopping	13	19.1	9.6
• Clumsy	8	11.8	5.9
• Unable to sit cross-legged	1	1.5	0.7
• Poor gross motor performance (no further description)	5	7.4	3.7
Fine motor problems	45	66.2	33.1
• Difficulty in holding pencils and drawing	16	23.5	11.8
• Difficulty in manipulating scissors	12	17.6	8.8
• Difficulty in connecting pearls	1	1.5	0.7
• Difficulty in turning taps	1	1.5	0.7
• Poor fine motor performance (no further description)	19	27.9	14.0
Poor motor development (no further description)	6	8.8	4.4

Note: Some children were described as having more then one problem in this domain.
The total percentage is not calculated and the total number of responses is more than 68.

Teachers' descriptions of problems of children regarded as having delay in motor development are summarised in Table 7.14. Of the 68 children described as having delay in motor development, 42 (61.8%) had problems of gross motor performance (30.9% of the total nominated children) and 45 (66.2%) had problems of fine motor performance (33.1% of the total nominated). Only 6 had problems of this domain where teachers did not give further descriptions.

Under the problems of gross motor performance, '*difficulty in walking eg. tip-toe, unstable or often falls over*' made up the most common problem: over a quarter of those with delay in motor development (n=19, 27.9%) or nearly one-seventh of the total nominated children. The next most common problem was '*poor or uncommon manner for climbing, running or hopping*', where 19.1% (n=13) of those with delay within this domain or nearly one in ten of the total nominated children experienced this difficulty. Of the children with delay in motor development over one-tenth were described as '*clumsy*' (n=8, 11.8%), which was 5.9% of the total nominated. In addition, one child had a problem of '*unable to sit cross-legged*' (1.5% of those with delay in this domain, 0.7% of the total nominated) and five children were described as having '*poor gross motor performance*' but the teachers did not give further details of their problems (7.4% of those with delay in this domain, 3.7% of the total nominated).

Under the problems of fine motor performance the two main problems were '*difficulty in holding pencils and drawing*' (n=16, 23.5% of those with delay in this domain; 11.8% of the total nominated) and '*difficulty in manipulating scissors*' (n=12, 17.6% of those with delay in this domain; 8.8% of the total nominated). In addition, one child had '*difficulty in connecting pearls*' (1.5% of those with delay in this domain; 0.7% of the total nominated) and another child had '*difficulty in turning taps*' (1.5% of those with delay in this domain; 0.7% of the total nominated). The remaining 19 children the teachers considered as having '*poor fine motor performance*' but did not give details of their problems (27.9% of those with delay in this domain, 14.0% of the total nominated).

4.6 Problems Associated with Delay in Self-help Skills Development

Table 7.15

Problems associated with children identified by teachers as having delay in self-help skills development

Problems	n	% of children with delay in this domain (N=71)	% of total nominated children (N=136)
Total children described as having delay in self-help skills development	71	100.0	52.2
Poor eating skills and habits	20	28.2	14.7
Unable to properly wear clothes or shoes or button-up by him/herself	16	22.5	11.8
Unable to clear table, toys or own possessions after use	11	15.5	8.1
Problems in toileting, often wet	7	9.9	5.1
Forgetful	5	7.0	3.7
Does not wipe running nose	2	2.8	1.5
Poor self-help skills (no further description)	29	40.8	21.3

Note: Some children were described as having more than one problem in this domain.
The total percentage is not calculated and the total number of responses is more than 90.

Table 7.15 shows the problems of children with delay in self-help skills development. The top three problems were: '*poor eating skills and habits*' (n=20, 28.2% of children with delay in this domain; 14.7% of the total nominated); '*unable to properly wear clothes or shoes or button-up by him/herself*' (n=16, 22.5% of those with delay in this domain; 11.8% of the total nominated) and '*unable to clear table, toys or own possessions after use*' (n=11, 15.5% of those with delay in this domain; 8.1% of the total nominated).

Other problems with self-help skills development included: '*problems in toileting, often wet*' (n=7, 9.9% of those with delay in this domain; 5.1% of the total nominated); '*forgetful*' (n=5, 7.0% of those with delay in this domain; 3.7% of the total nominated) and '*does not wipe running nose*' (n=2, 2.8% of those with delay in this domain; 1.5% of the total nominated). In addition, of the children with delay in this domain, 40.8% (n=29, 21.3% of the total nominated) were described as performing '*poor*

self-help skills' but there was no further description given by the teachers.

4.7 Characteristics Associated with Appearance

Table 7.16
***Problems of appearance* associated with children identified by teachers as having developmental delay**

Problems	n	%	% of nominated children (N=136)
Drooling, running nose	3	50.0	2.2
Thin, small and weak	1	16.7	0.7
Look like children with mental retardation	1	16.7	0.7
Look like children with cerebral palsy	1	16.7	0.7
Total	6	100	4.4

Note: There were no children with multiple problems in this category.

In addition to the above six major domains of development, of the 136 children nominated as having developmental delay, six children (n=6, 4.4%) had delay associated with appearance characteristics as described by the teachers. These characteristics are shown in Table 7.16. These included '*drooling or running nose*' (n=3, 2.2% of the total nominated), '*thin, small and weak*' (n=1, 0.7% of the total nominated), looking '*like children with mental retardation*' (n=1, 0.7% of the total nominated) and '*like those with cerebral palsy*' (n=1, 0.7% of the total nominated).

4.8 Physical, Sensory, Health and Medically Diagnosed Problems

There have been debates as to whether or not children with difficulties of this sort should be included in the category of developmental delay. However, as indicated earlier in this chapter, over one in five of the teacher-nominated children (n=31, 22.8%) also had certain physical, sensory or health problems or problems identified by medical diagnosis. In Table 7.17 the figures show that these children's physical, sensory or health-related problems were wide-ranging. Of children described as having these sorts of problems about a quarter (n=8, 25.8%), or 5.9% of the total nominated, had some kind

Table 7.17

Physical, sensory, health and medically diagnosed problems associated with children identified by teachers as having developmental delay

Problems	n	% of children with delay in this domain (N=31)	% of total nominated children (N=136)
Total children described as having physical, sensory, health and medical diagnosis problems	31	100.0	22.8
Visual problems	8	25.8	5.9
• Squint	4	12.9	2.9
• Long sightedness	1	3.2	0.7
• Amblyopia	1	3.2	0.7
• Astigmatism	1	3.2	0.7
• Frequent red swellings of eyes	1	3.2	0.7
• Retinal damage	1	3.2	0.7
Autism	5	16.1	3.7
Dysfunction in sensory integration	3	9.7	2.2
Epilepsy	2	6.5	1.5
Hump	2	6.5	1.5
Downs syndrome	1	3.2	0.7
Microcephaly	1	3.2	0.7
Hearing impairment	1	3.2	0.7
Middle ear infection	1	3.2	0.7
Short Eustachian tube	1	3.2	0.7
Club feet	1	3.2	0.7
Asthma	1	3.2	0.7
Unequal length of legs	1	3.2	0.7
Short tongue	1	3.2	0.7
Frequent cold	1	3.2	0.7
Frequent bleeding nose	1	3.2	0.7
Sensitive body constitution	1	3.2	0.7
Bladder problem	1	3.2	0.7

Note: Some children were described as having more then one problem.
The total percentage is not calculated and the total number of responses is more than 31.

of visual problem including '*Squint*' (n=4, 2.9% of the total nominated), '*Long sightedness*' (n=1, 0.7% of the total nominated), '*Amblyopia*' (n=1, 0.7% of the total nominated), '*Astigmatism*' (n=1, 0.7% of the total nominated), '*frequent red swellings of eyes*' (n=1, 0.7% of the total nominated) and '*Retinal damage*' (n=1, 0.7% of the total

nominated). Of the 136 nominated children five had been diagnosed as '*Autistic*' children (3.7%), three as having '*disfunction in sensory integration*' (2.2%), two as having '*Epilepsy*' (1.5%) and also two described as having '*hump*' (1.5%). Other physical, sensory or health problems each occurring for one child (0.7% each of the total nominated) included: *Downs syndrome*, *Microcephaly*, *hearing impairment*, *Middle ear infection*, *short Eustachian tube*, *Club feet*, *Asthma*, *unequal length of legs*, *short tongue*, *frequent cold*, *frequent bleeding nose*, *sensitive body constitution* and *Bladder problem*.

5 TEACHERS' VIEWS ON THE CAUSES OF DEVELOPMENTAL DELAY

5.1 Causal Attribution of Developmental Delay

Table 7.18
Causes of developmental delay based on teachers' explanations of nominated children

Causal factors	n	% (N=136)
Only caused by environmental factors	82	60.3
Only caused by biological factors	26	19.1
Caused by both biological and environmental factors	14	10.3
Uncertain about causes	14	10.3
Total	136	100

Table 7.18 shows teachers' explanations of possible causes contributing to the developmental delay of the nominated children with respect to two main categories: *biological causes*, and *environmental causes* such as family background and parenting style. For over three-fifths of the nominated children (n=82, 60.3%) *environmental causes* were seen by their teachers as the sole cause of their developmental delay, whereas nearly one-fifth were seen as solely caused by *biological factors* (n=26, 19.1%). In addition, about one in ten of the children were perceived as having developmental delay caused by *both biological and environmental factors* (n=14, 10.3%). As for the other one-tenth, the teachers were uncertain about the causes for their developmental delay (n=14, 10.3%). Overall, the teachers tended to attribute their pupils' developmental

delay to *environmental causes* rather than *biological causes*.

5.2 Environmental Causes of Developmental Delay

Table 7.19
Teachers' explanations of environmental causes of developmental delay

Causal factors	n	% of total nominated children (N=136)
Home factors	92	67.6
Inadequate parenting	64	48.5
• Over-protective	34	25.0
• Insufficient parenting	23	16.9
• Too strict	4	2.9
• Inconsistent parenting styles between main carers	2	1.5
• Parents' negative attitudes towards the child's delay	1	0.7
Family background	41	30.1
• Upbringing by grandparents	14	10.3
• Only child in family	8	5.9
• Order amongst siblings	5	3.7
• Mother has mental problems	4	2.9
• Low educational and socioeconomic status	4	2.9
• Parents' divorce	3	2.2
• Copy from other family member's behaviour	3	2.2
• Big age gap between parents	2	1.5
• Single parent	1	16.9
• Poor family atmosphere	1	0.7
• Too many children in family	1	0.7
Lack cultural stimulation at home	23	16.9
School factors	6	4.4
• Bad experience from previous kindergarten	2	1.5
• Another teacher's negative attitude towards the child	1	0.7
• Unable to adjust to school life	1	0.7
• Never attended kindergarten before	1	1.5
• Younger child in class	1	1.5
Others	6	4.4
• Watching too much television	2	1.5
• Living in low socioeconomic community	2	1.5
• Overcrowded environment in city	1	0.7
• Cold weather	1	0.7

Note: Some children's developmental delay was described as caused by more than one factor within and between the broad categories. The total percentage is therefore not calculated and the total number of frequencies is more than the total children with environmental causes of developmental delay (n=96).

In Table 7.19 detailed summary of teachers' explanations of environmental causes of their pupils's developmental delay is presented. The small categories of factors in this Table were coded according to the teachers' answers and then were grouped into three broad categories: factors which refer to '*home*' context, those referring to '*school*' context and those to '*other*' context.

In general, the figures suggest that the teachers' views of environmental causes of their pupils' developmental delay were strongly dominated by '*home factors*' rather than '*school factors*', a result similar to the findings of the Stage 1 study. Over two-thirds of the nominated children were perceived as having *home factors* for their developmental delay (n=92, 67.6%) compared with only 4.4% (n=6) with *school factors*.

Under the category of *home factors*, factors related to '*inadequate parenting*' were most frequently mentioned (n=64, 48.5%). One quarter of the nominated children's developmental delay was suggested to be caused by '*over-protection by their parents or main carer*', as seen by teachers (n=34, 25.0%). On the other hand, '*insufficient parenting*' was also attributed to about one-sixth of the children (n=23, 16.9). Other factors concerning parenting style included '*too strict*' (n=4, 2.9%), '*inconsistent parenting styles between main* carers' (n=2, 1.5%) and '*parents' negative attitudes towards the child's delay*' (n=1, 0.7%).

The second group of *home factors* referred to a child's '*family background*', where 30.1% (n=41) of the nominated children's developmental delays were considered to be caused by factors of this sort. Of the family background factors '*upbringing by grandparents*' made up the largest item: over one in ten of the children with this factor (n=14, 14.3%). '*only child in family*' was seen as the second factor related to family background (n=8, 5.9%). Other sorts of family background factors described by the teachers included '*order amongst* siblings' (n=5, 3.7%), '*low educational and socioeconomic* status' (n=4, 2.9%), '*mother has mental* problems' (n=4, 2.9%), '*parents' divorce*' (n=3, 2.2%), '*copy other family member's behaviour*' (n=3, 2.2%), '*big age gap between parents*' (n=2, 1.5%), '*single-parent family*' (n=1, 0.7%), '*poor family atmosphere*' (n=1, 0.7%) and '*too many children in family*' (n=1, 0.7%). In addition, '*Lack cultural stimulation at home*' formed another main *home factor*: over one in six of the nominated children's developmental delay were considered to be caused by this

(n=23, 16.9%). It should be noted that these items were coded directly according to the teachers' responses. In some cases however, some of these items could not be independent of each other. For instance, some teachers related *over-protectiveness* with *lacking cultural stimulation*, whilst other teachers treated them as individual factors. Moreover, it is understandable that links actually existed between some related factors. For example, a child's developmental delay could be explained by his teacher to be caused by *parents' over-protectiveness* because that child was an only-child and this kind of parenting style led to *less cultural stimulation at home*. However, not all teachers made the same links between factors and in order to avoid possible bias the coder only coded teachers' statements but did not make any personal inference on the possible links.

Under the category of school factors, two (1.5%) children's developmental delay was seen as caused by '*bad experience from the previous kindergarten*'. Other sorts of school factors where each was only mentioned for a single child included: '*another teacher's negative attitude towards the child*', '*unable to adjust to school life*', '*never attended kindergarten before*' and '*a younger child in class*'. Environmental causes other than those of *home* or *school factors* included '*watching too much television*' (n=2, 1.5%), '*living in low socioeconomic community*' (n=2, 1.5%), '*overcrowded environment in city*' (n=1, 0.7%) and '*cold weather*' (n=1, 0.7%).

5.3 Biological Causes of Developmental Delay

As regards the biological causes, the figures in Table 7.20 show that '*hereditary or genetic problems*' was the largest biological cause of these children's developmental delay as seen by teachers (n=9, 6.6%), which was then followed by the second factor of '*child's own nature*' (n=6, 4.4%). Of the 136 nominated children, 5 children's developmental delay was caused by having autism (3.7%) and 4 by having hearing or visual problems (2.9%). Four children's delay had causes referring to '*pregnancy or perinatal problems*' (2.9%) including *mother's state during pregnancy*, *Anoxia* and *preterm infant*. Other biological factors included '*dysfunction in sensory integration*' (n=3, 2.2%), '*uncertain physical factors*' (n=3, 2.2%), '*illness after birth*' (n=2, 1.5%), '*brain damage*' (n=2, 1.5%), '*Epilepsy*' (n=2, 1.5%), '*Microcephaly*' (n=1, 0.7%) and '*Obesity*' (n=1, 0.7%).

Table 7.20
Teachers' explanations of biological causes of developmental delay

Causal factors	n	% of total nominated children (N=136)
Hereditary or genetic problems	9	6.6
Child's own nature	6	4.4
Autism	5	3.7
Hearing or visual problems	4	2.9
Pregnancy or perinatal problems	4	2.9
• Mother's state during pregnancy (prescribed drugs and emotional problems)	2	1.5
• Anoxia	1	0.7
• Preterm infant	1	0.7
Dysfunction in sensory integration	3	2.2
Uncertain physical factors	3	2.2
Illness after birth	2	1.5
Brain damage	2	1.5
Epilepsy	2	1.5
Microcephaly	1	0.7
Obesity	1	0.7

Note: Some children's developmental delay was described as caused by more than one factor. The total percentage is therefore not calculated and the total number of frequencies is more than the total children with biological causes of developmental delay (n=40).

6 APPROACHES OF TEACHER IDENTIFICATION

Table 7.21
Approaches teachers used to identify children with developmental delay

Approach used	n	% of the total nominated children (N=136)
Observation	134	98.5
Parents' reflection	22	16.2
Formal assessment or medical diagnosis	20	14.7
Other teacher's comment	20	14.7
Others	2	1.5

Note: This was a multiple response question. The percentages are based on the number of children discussed i.e. N=136. The total percentage is not calculated and the total number of responses is more than 136.

In order to know the approaches that teachers used for identification, for each nominated child the teachers were asked the following question: 'what are the ways you identify him/her as having developmental delay?' Table 7.21 shows the teachers' responses to this question. *Observation* was the most frequently used approach for the teachers to identify a child with developmental delay in their class. Nearly all of the nominated children were identified through their teachers' own observations (n=134, 98.5%). Other approaches of identification included '*parents' reflection*,' '*formal assessment or medical diagnosis*' and '*other teacher's comment*.' Each of these three approaches was used by teachers for about 15% of the nominated children (n=20-22, 14.7%-16.2%).

7 CONCLUSIONS

The results presented in this chapter have dealt with developmental delay in kindergartens in terms of the prevalence estimates, basic demographic characteristics of the children, detailed problems and causes of their delays. These findings gave evidence about the overall picture of developmental delay as seen by teachers. In the next chapter teachers' perceptions of current and further provisions for these children as well as their experiences of coping with the children in class will be described.

CHAPTER EIGHT
PROVISIONS FOR CHILDREN WITH DEVELOPMENTAL DELAY AND TEACHERS' EXPERIENCES IN COPING WITH THEM: RESULTS OF THE SECOND INTERVIEWS

1 INTRODUCTION

Following the description in the previous chapter of the prevalence and characteristics of children with developmental delay in kindergartens, the present chapter focuses on data concerning the nature of the teachers' perceptions of special provision for those children, and additionally the teachers experiences in coping with them. Section 1 deals with the special provision which children had received and further needed as well as ideal educational placements for these children; whereas Section 2 describes the teachers' experiences in coping with these children, including the influences of these children on their classes, the teachers' difficulties in teaching these children, and the help they received and additional help they hope to receive. In addition, teachers' attitudes towards transferring these children for further identification and towards keeping these children in class are also presented in this section.

As described in Chapter Three, data concerning this part of the survey were collected through structured individual interviews with teachers. It should be noted that the part of the interview to collect the data reported on here was conducted on a child-by-child basis. The frequency and percentage calculated in this part of analysis are therefore based on the number of children discussed (i.e. the 136 teacher-nominated children) rather than the 52 teachers interviewed.

2 SPECIAL PROVISION FOR CHILDREN WITH DEVELOPMENTAL DELAY

For the purpose of this study, special provision was defined as anything beyond the ordinary teaching activities of the kindergarten. It varies from something which is a very

small part of a child's school-day, such as extra help given by the teacher during the 'warming up' time, to very extensive extra provision like withdrawal from the ordinary class for remedial teaching. In addition, it also includes educational or non-educational provision from outside the kindergarten, such as medical, rehabilitative or social services.

2.1 Strategies which teachers used to deal with these children's delays

Table 8.1 shows strategies which teachers used to deal with a child's developmental delay. The five strategies which were most frequently adopted by the teachers were as follows:

1st *Discussion with the child's parents* (n=124, 91.2%)

2nd *Altering or adapting teaching strategies* (n=109, 80.1%)

3rd *Discussion with other teachers* (n=86, 63.2%)

4th *Reporting to the kindergarten* (n=50, 36.8%)

5th *Advising parents to bring the child to meet other professionals for further identification* (n=32, 23.5%)

Table 8.1
Strategies which teachers used to deal with their pupils' developmental delay

Strategies	n	% of total nominated children (N=136)
Discussion with the child's parents	124	91.2
Altering or adapting teaching strategies	109	80.1
Discussion with other teachers	86	63.2
Reporting to the kindergarten	50	36.8
Advising parents to bring the child to meet other professionals for further identification	32	23.5
Referring to other professionals/institutes for intervention	12	8.8
Conducting further assessment by the teacher or the kindergarten	3	2.2
Persuading the child to change kindergarten	1	0.7
Other strategies	9	6.6
Not doing anything	2	1.5

Note: This was a multiple response question. The percentages are based on the number of children discussed (N=136). The total percentage is not calculated and the total number of responses is more than 136.

Other less common strategies used by the teachers included: '*referring to other professionals/institutes for intervention*' (n=12, 8.8%) '*conducting further assessment by the teacher or the kindergarten*' (n=3, 2.2%) and '*persuading the child to change kindergarten.*' Overall, there were only two children (1.5%) for whom the teachers had not done anything, that is for almost all of the children (n=134, 98.5%) the teachers had done something special to deal with their special needs once they had found out that he/she might have developmental delay.

Table 8.2
Teaching strategies which teachers used to deal with their pupils' developmental delay

Teaching strategies	n	% of total nominated children (N=136)
Using individualized strategies in normal teaching	95	69.9
Enlisting the assistance of parents	47	34.6
Providing additional tuition	32	23.5
Identifying a specific classmate to assist	27	19.9
Modifying learning objectives or contents	23	16.9
Other strategies	4	2.9
Not altering or adopting any extra teaching strategies	27	19.9

Note: This was a multiple response question. The percentages are based on the number of children discussed (N=136). The total percentage is not calculated and the total number of responses is more than 136.

In addition teachers who reported that they had altered or adopted teaching strategies to deal with these children's developmental delay were further asked about the teaching methods they used. As shown in Table 8.2, the most common method teachers adopted was '*using individualized strategies in normal teaching,*' which was used for nearly seven-tenths of the children (n=95, 69.9%). The next most common teaching strategy was '*enlisting the assistance of parents*', which made up over one-third of the children (n=47, 34.6%). Other common teaching methods included: *providing additional tuition* (n=32, 23.5%), *identifying a specific classmate to assist* (n=27, 19.9%) and *modifying learning objectives or contents* (n=23, 16.9%).

2.2 Current Special Provision for Children with Developmental Delay

Table 8.3
Children currently receiving special provision from inside and outside the kindergarten

Current special provision from outside the kindergarten	Current special provision from inside the kindergarten: Receiving n	Receiving %	Not receiving n	Not receiving %	Total n	Total %
Receiving	4	2.9	32	23.5	36	26.5
Not receiving	11	8.1	89	65.4	100	73.5
Total	15	11.0	121	89.0	136	100.0

Note: 1. Special provisions from inside the kindergarten exclude strategies which class teachers used by themselves to deal with a child's developmental delay.
2. The percentages are based on total nominated children (N=136).
3. The grey area indicates children receiving special provisions either from inside or outside the kindergarten, and the frequency for this category is 47 (34.6%).

Table 8.3 shows the current status of special provision from inside and outside the kindergarten which the children regarded as having developmental delay received. It should be noted that the special provision from inside the kindergarten here excluded strategies which the class teachers used by themselves to deal with a child's delay, i.e. those listed in Tables 8.1 and 8.2. As shown in the Table, the teachers reported that nearly two-thirds of these children had not or would not receive any special provision either from inside or outside the kindergarten (n=89, 65.4%): that is that only about one-third of them had or would receive some form of special provision (n=47, 34.6%). Special provision from outside were more common than those from inside the kindergarten. Of the nominated children, more than a quarter received special provision from outside the kindergarten (n=36, 26.5%), whereas only about one-tenth received special provision from within the kindergarten (n=15, 11.0%). Additionally, four children (2.9%) received both sources of special provision. Of these four children, one

child was said to get extra help from teachers of the special educational unit in the kindergarten and to attend rehabilitative programmes in a clinic centre, whereas the other three children received guidance by the senior teacher in the kindergarten and rehabilitative services (e.g. language therapy) from outside the kindergarten.

2.2.1 Current Special Provision from inside the kindergarten

Table 8.4
Special provision the children currently receiving from inside the kindergarten

Current special provisions	n	% of total nominated children (N=136)
• Guidance by head teacher or senior teacher	6	4.4
• Provision of special needs education resources	5	3.7
- Withdrawn from the ordinary class for remedial teaching (1 hr/week)	3	2.2
- Half a day in the ordinary class and half in a special educational unit	1	0.7
- SEN teachers providing extra help when needed	1	0.7
• Under the care of case management	3	2.2
• Providing educational support for parents	2	1.5
• Referring for medical diagnosis	1	0.7

Note: As shown in Table 8.3, the total number of children currently receiving special provision from inside the kindergarten is 15.

Table 8.4 presents the details of the special provisions from inside the kindergarten that the children received. The most common provision was *guidance provided by the head teacher or senior teachers* (n=6, 4.4%). Only five children (3.7%) received provision of special needs education resources: three were withdrawn from the ordinary class for remedial teaching for an hour per week (2.2%); one was staying in the ordinary class for half a day and a special educational unit for the other half (0.7%); and the fifth received extra help from SEN teachers when needed (0.7%). In addition, three children (2.2%) were *under case management,* two children's parents (1.5%) received *educational support* on how to cope with children's delay and one child (0.7%) was *referred for further medical diagnosis*. Overall then, special provision from inside

kindergarten for these children was limited.

2.2.2 Current Special Provision from outside the kindergarten

Table 8.5
Current special provision from outside the kindergarten

Current special provisions	n	% of total nominated children (N=136)
• Receiving medical and rehabilitative services	36	26.5
- Only medical diagnosis or developmental assessment	10	7.4
- Intervention programme	20	14.7
- Medical treatment	6	4.4
• Receiving outside educational services	—	—
• Receiving social services	—	—

Note: As shown in Table 8.3, the total number of children currently receiving special provision from outside the kindergarten is 36.

Apart from the provision from the kindergarten itself, young children with developmental delay may also need special provision from outside the kindergarten depending on his/her special needs. As shown in Table 8.5, for the children who received special provision from outside the kindergarten, *medical and rehabilitative services* were the provision taken up by over a quarter of the children (n=36, 26.5%); whereas none took up either *outside educational services* or *social services*. Over one-seventh (n=20, 14.7%) of the nominated children had or were attending intervention programmes provided by medical or rehabilitative personnel, such as language therapy, or clinics for autistic children or children with dysfunction in sensory integration. In addition 7.4% (n=10) of the children had undertaken medical diagnosis or developmental assessment although they did not receive any further intervention or treatment, whilst 4.4% (n=6) received medical treatment.

2.3 Future Special Provision for Children with Developmental Delay

Table 8.6

Children needing future special provision from inside and outside the kindergarten

Future special provision from outside the kindergarten	Future special provision from inside the kindergarten: Needing n	Needing %	Not needing n	Not needing %	Total n	Total %
Needing	61	44.9	6	4.4	67	49.3
Not needing	61	44.9	8	5.9	69	50.7
Total	122	89.7	14	10.3	136	100.0

Note: 1. Special provisions from inside the kindergarten exclude strategies which class teachers used by themselves to deal with a child's developmental delay.
2. The percentages are based on total nominated children (N=136).
3. The grey area indicates children needing future special provisions either from inside or outside the kindergarten, and the frequency for this category is 128 (94.1%).

Table 8.6 shows the general status of future special provision for the nominated children based on their teachers' views. In general, almost all of the children were seen as needing future special provision (n=128, 94.1%), whereas only eight children (5.9%) were not considered to need any future provision. Future special provision from inside were more needed than those from outside the kindergarten. Of the nominated children, nearly nine in ten needed future special provision from the kindergarten itself (n=122, 89.7%), whereas about half of them needed future special provision from outside the kindergarten (n=67, 49.3%). Furthermore, most of those needing future special provision from outside also needed future special provision from within the kindergarten (n=61, 44.9%).

2.3.1 Future Special Provision from inside the Kindergarten

Table 8.7

Future special provision (SP) from inside the kindergarten which teachers would like to see being made for these children

Future special provisions	n	% of total nominated children (N=136)
Children needing future SP from inside the kindergarten	122	89.7
- Currently receiving and needing further SP	13	9.6
- Not currently receiving but needing future SP	109	80.1
Children not needing future SP from inside the kindergarten	14	10.3
- Currently receiving and no further SP needed	2	1.5
- Not currently receiving and also no future SP needed	12	8.8
Details of future SP needed		
• Providing educational support for parents	82	60.3
• Providing learning and developmental assessment	80	58.8
• Providing individualized education plans	65	47.8
• Instituting resource classrooms or consultation services	59	43.4
• Increase in teaching materials and equipment	36	26.5
• Increase in teacher numbers	26	19.1
• Instituting special classes	2	1.5
• Other provisions	8	5.9

Note: This was a multiple response question. The percentages are based on the number of children discussed (N=136). The total percentage is not calculated and the total number of responses is more than 136.

Table 8.7 shows teachers' views on future special provision from the kindergarten itself which they would like to see being made for the children regarded as having developmental delay. First of all, it is interesting to compare the future special provision with that of the current situation. Although a great majority of the children had not received any special provision from the kindergarten, most of them were thought of as needing this form of provision in the future (n=109, 80.1%). However, there were also nearly one-tenth of the children not receiving and not needing any special provision from the kindergarten (n=12, 8.8%). Of the 15 children currently receiving special provision from the kindergarten, most were thought to need more such provision (n=13, 9.6%),

whilst only two were thought of as not needing any more. As regards the content of the special provision, the top five types as perceived by the teachers were as below:

1st *Providing educational support for parents* (n=82, 60.3%)

2nd *Providing assessment of the child's learning and development* (n=80, 58.8%)

3rd *Providing children with individualized education plans* (n=65, 47.8%)

4th *Instituting resource classrooms or consultation services in the kindergarten* (n=59, 43.4%) (Note: resource classroom refers to a type of special educational services which is operated mainly on a withdrawal system, i.e. children are withdrawn from ordinary classes for intensive remedial help for some kindergarten hours.)

5th *Increase in teaching materials and equipment* (n=36, 26.5%)

2.3.2 Future Special Provision from outside the Kindergarten

Table 8.8

Future special provision from outside the kindergarten which teachers would like to see being made for these children

Future special provisions	n	% of total nominated children (N=136)
Children needing future SP from outside the kindergarten	67	49.3
- Currently receiving and needing further SP	22	16.2
- Not currently receiving but needing future SP	45	33.1
Children not needing future SP from outside the kindergarten	69	50.7
- Currently receiving and no further SP needed	14	10.3
- Not currently receiving and also no future SP needed	55	40.4
Areas of future SP needed		
• Needing medical and rehabilitative services	39	28.7
• Needing outside educational services	26	19.1
• Needing social services	7	5.1
• Other provisions	8	5.9

Note: This was a multiple response question. The percentages are based on the number of children discussed (N=136). The total percentage is not calculated and the total number of responses is more than 136.

The teachers' views on special provision which it was suggested children needed from outside the kindergarten are shown in Table 8.8. Different from their views on future provision within the kindergarten, the percentage for children neither currently receiving nor needing future special provision from outside (n=55, 40.4%) was higher than that for children not currently receiving but needing such special provision (n=45, 33.1%). On the other hand, for those currently receiving special provision from outside the kindergarten, most of them would still need more (n=22, 16.2%), whereas a smaller proportion did not need anything further (n=14, 10.3%).

As far as the areas of outside-kindergarten special provision were concerned, about two in seven of the children needed *medical and rehabilitative services* (n=39, 28.7%), one in five needed *outside educational services* such as special educational centres (n=26, 19.1%), and only one in twenty needed *social services* for their families (n=7, 5.1%).

2.3.3 Interactive Analysis for Future Special Provision from inside and outside the Kindergarten

In order to better understand the children's needs for future special provision, an interactive analysis between provisions is shown in Table 8.9. In general, the data suggest some common trends in the distributions of the interactions between the major internal provisions and the external services. Of the children who were seen as needing one of the main future provisions from the kindergarten (including providing *educational support for their parents*, *learning and developmental assessment*, *individualized education plans* and *resource classrooms or consultation services*), between a quarter and 30% were also perceived as needing future *medical and rehabilitative services* or *outside educational services*; whilst only relative small proportions (about 5%) needed future *social services*, and about two-fifths to a half were suggested as not needing any future external special provision. For children seen as requesting the kindergarten *increase teaching materials and equipment* about two-fifths were also considered as needing *medical and rehabilitative services* (n=14, 38.9%), and about a quarter were perceived as needing *outside educational services* (n=10, 27.8%). More than two-fifths were said *not to need any future special provision from outside the kindergarten* (n=15,

41.7%). More than half of the children requesting *increase in teacher numbers* were also in need of future *medical and rehabilitative services* (n=14, 53.8%), and nearly two-fifths needed *outside educational services* (n=10, 38.5%); whereas less than one-fifth would not need any external special provision in the future (n=5, 19.2%). Two children perceived as needing the kindergarten to *institute special classes* were also seen as needing future *medical and rehabilitative services*, whilst *outside educational services* and *social services* each made up the situation for one child. Regarding the major special provision from outside the kindergarten (including *medical and rehabilitative services* and *outside educational services*) or those not needing any external provision, the individual distributions of frequencies and percentages for internal special provisions were generally consistent with the overall distribution of the totals for these provisions.

Table 8.9
Interactive analysis of future special provision from inside and outside the kindergarten

Future provision from inside the kindergarten	Future provision from outside the kindergarten: M and R (n=39) n	%	Outside E (n=26) n	%	Social (n=7) n	%	Not needing (n=69) n	%
Providing educational support for parents (n=82)	20	24.4 (51.3)	20	24.4 (76.9)	5	6.1 (71.4)	45	54.9 (65.2)
Providing learning and developmental assessment (n=80)	23	28.8 (59.0)	19	23.8 (73.1)	4	5.0 (57.1)	40	50.0 (58.0)
Providing individualized education plans (n=65)	19	29.2 (48.7)	19	29.2 (73.1)	4	6.2 (57.1)	29	44.6 (42.0)
Instituting resource classrooms or consultation services (n=59)	19	32.2 (48.7)	17	28.8 (65.4)	2	3.4 (28.6)	26	44.1 (37.7)
Increase in teaching materials and equipment (n=36)	14	38.9 (35.9)	10	27.8 (38.5)	3	8.3 (42.9)	15	41.7 (21.7)
Increase in teacher numbers (n=26)	14	53.8 (35.9)	10	38.5 (38.5)	1	3.8 (14.3)	5	19.2 (7.2)
Instituting special classes (n=2)	2	100.0 (5.1)	1	50.0 (3.8)	1	50.0 (14.3)	0	— —
Not needing future specialn provision from the kindergarten (n=14)	6	42.9 (15.4)	0	— —	0	— —	8	57.1 (11.6)

Note: M and R - medical and social services
Outside E - outside educational services
Social - social services
Percentages not in brackets are total percentage of row category, whilst percentages in brackets are percentage of column totals. Percentages do not add up to 100 due to multiple provisions.

2.4 General Status of Special Provision

The results so far have presented details of current and further special provision which kindergarten children with developmental delay received or were seen to need. A central concern here is the extent to which children identified by their teachers as having developmental delay, do in fact receive or request special provision. In other words, did all children nominated as having developmental delay receive, request or indeed actually need special provision? How many of them were nominated but did not need any special provision? It was expected that this sort of analysis might provide a new perspective on the question of both the definition and prevalence of developmental delay and special needs in kindergarten children.

Table 8.10
General status of current and future special provision for the children regarded as having developmental delay

		Current special provision					
		Receiving		Not receiving		Total	
		n	%	n	%	n	%
Future special provision	Needing	127	93.4 (8.6)	1	0.7 (0.1)	128	94.1 (8.7)
	Not needing	7	5.1 (0.5)	1	0.7 (0.1)	8	5.9 (0.5)
	Total	134	98.5 (9.1)	2	1.5 (0.1)	136	100.0 (9.2)

Note: 1. Special provisions include those from inside or outside the kindergarten and strategies which class teachers used by herself to deal with a child's developmental delay.
2. The percentage are based on total nominated children (N=136), and the numbers in brackets refer to percentages of total sampled children (N=1,471).
3. The grey area indicates the children either currently receiving special provisions or needing future special provisions, and the total number for this category is 135 (99.3% of the nominated children and 9.2% of the sampled children).

As shown in Table 8.10, nearly all of the nominated children received special provisions either from inside or outside the kindergarten (n=134, 98.5% of the nominated or 9.1% of the total sample), and for most of them teachers would still like more special provisions (n=127, 93.4% of the nominated, 8.6%of the total sample), whereas only seven children received special provisions where teachers would not like any more special provisions for them (5.1% of the nominated or 0.5% of the total sample).

There was a total of 128 children for whom teachers would like some special provision made for them. This made up 94.1% of the nominated children or 8.7% of the kindergarten children in this study. In addition, all of this group of children except one (0.7% of the nominated, 0.1% of the total sample) already received some sort of special provision.

Overall, nearly all of the children nominated as having developmental delay were either receiving special provisions or the teachers would like to see some special provisions being made (n=135, 99.3% of the nominated or 9.2% of the total sample children). Only one teacher-nominated child was not receiving any special provisions and that teacher would not in fact like any special provision made for him (0.7% of the nominated or 0.1% of the total sample).

2.5 Ideal Placement for Children with Developmental Delay

In order to examine teachers' perceptions of ideal educational placements for children with developmental delay, the teachers were asked to rank the appropriateness of each of the following types of educational settings for placing each nominated child: ordinary classes in ordinary kindergartens; mainstreaming kindergartens; special separate classes attached to ordinary kindergartens of primary schools; special separate kindergartens; and remaining at home. It should be noted that 'mainstreaming kindergartens' here means those which are integrated (in a certain proportion) with children with developmental delay and typically developing children in the same class but children with developmental delay are withdrawn for individual or special tuition on a regular basis, whereas special separate classes and kindergartens are those solely for children with special needs. In Table 8.11 the results of the teachers' rankings on the various types of placement are presented.

Table 8.11
Teachers' rankings on appropriate types of educational settings for placing these children

Types of placements		Rank of appropriateness					Total
		1	2	3	4	5	
Ordinary class in ordinary kindergarten	n	**85**	**38**	**4**	**3**	**6**	136
	%	62.5	27.9	2.9	2.2	4.4	100.0
Mainstreaming kindergarten	n	**47**	**27**	**2**	**1**	**59**	136
	%	34.6	19.9	1.5	0.7	43.4	100.0
Special separate class attached to ordinary kinder-garten or primary school	n	**3**	**5**	**8**	**2**	**118**	136
	%	2.2	3.7	5.9	1.5	86.8	100.0
Special separate kindergarten	n	**1**	**1**	**3**	**11**	**120**	136
	%	0.7	0.7	2.2	8.1	88.2	100.0
Remaining at home	n	—	**4**	—	—	**132**	136
	%	—	2.9	—	—	97.1	100.0

Note: Rank 1 means the first choice and the most appropriate placement , while 2 means the second choice, ... and 5 means the last choice and completely inappropriate placement.

Generally speaking, the teachers' perceptions of the ideal educational placement for these children had a preference for integrated settings rather than segregated settings. '*Ordinary class in ordinary kindergarten*' was perceived as the most appropriate type of placement for most of these children, which was ranked as the first choice for 62.5% (n=85) of the children and second choice for 27.9% (n=38) of the children. On the other hand, the most inappropriate settings were those seen as segregating these children from other children, including: '*remaining at home*' (rank 5 at n=132, 97.1%), '*special separate kindergarten*' (rank 5 at n=120, 88.2%) and '*special separate class attached to ordinary kindergarten or primary school*' (rank 5 at n=118, 86.8%).

The '*mainstreaming kindergarten*', that has as its philosophy integration, however appeared as a controversial setting for placing these children, according to the rankings of the teachers. Although this type of placement was ranked as the first choice for over one-third (n=47, 34.6%) of the children and the second for one-fifth (n=27,

19.9%), on the other hand, it was also ranked as the last choice, a completely inappropriate placement, for over two-fifths (n=59, 43.4%) of the children. This interesting finding will be interpreted later in Chapter Eleven.

3 TEACHERS' EXPERIENCES IN COPING WITH THESE CHILDREN

3.1 The Children's Influence on Classes

Table 8.12a
Teachers' perceptions of influences of the child on the class

Influences	n	% of total nominated children (N=136)
Being a challenge to teacher and increasing teachers' specialist knowledge	58	42.6
Interrupting teaching process	57	41.9
Increasing teacher workload	50	36.8
Problem behaviour being copied by other children	33	24.3
Enhancing other children's understanding of children with special needs	32	23.5
Other influences	9	6.6
No influence on the class	36	26.5

Note: This was a multiple response question. The percentages are based on the number of children discussed (N=136). The total percentage is not calculated and the total number of responses is more than 136.

The teachers' views on how the children described as having developmental delay affected their classes are shown in Table 8.12a. Over two-fifths of these children were seen as having a positive influence: *can be a challenge and increasing teachers' specialist knowledge* (n=58, 42.6%). However, a similar proportion of children were perceived as having an adverse effect on teaching: *interrupting teaching process* (n=57, 41.9%). Over one in three of the children was perceived as *increasing teacher workload* (n=50, 36.8%) and nearly one in four had *problem behaviour copied by other children* (n=33, 24.3%), whereas less than one in four was seen as having another positive influence: *enhancing other children's understanding of children with special needs*

(n=32, 23.5%). Finally, over a quarter of the children were perceived as *not having any influence on the class* (n=36, 26.5%).

Table 8.12b
Interactive analysis of the nominated children's influences on classes

Influences		Influences (a)	(b)	(c)	(d)	(e)
(a) Being a challenge to teacher and increasing teachers' specialist knowledge (n=58)	n	—	26	32	30	16
	%		(44.8)	(55.2)	(51.7)	(27.6)
(b) Enhancing other children's understanding of children with special needs (n=32)	n	26	—	15	10	9
	%	(81.3)		(46.9)	(31.3)	(28.1)
(c) Interrupting teaching process (n=57)	n	32	15	—	33	28
	%	(56.1)	(26.3)		(58.0)	(49.1)
(d) Increasing teacher workload (n=50)	n	30	10	33	—	19
	%	(60.0)	(20.0)	(66.0)		(38.0)
(e) Problem behaviour being copied by other children (n=33)	n	16	9	28	19	—
	%	(48.5)	(27.3)	(84.8)	(57.6)	

Note: Only the main influences listed in Table 8.12a are analysed.

The above results suggest that some children were perceived as having more than one sort of influence on their classes, since the total frequency of influences (N=239) is more than the total number of children seen as having influences (N=100) and the total percentage is more than 100%. Table 8.12b presents an analysis on the interactions between the influences listed in Table 8.12a. In general, the data indicate multiple interaction between the influences. Of the children who were considered as '*being a challenge to teacher and increasing teachers' specialist knowledge*', more than half were also seen as having influences such as '*interrupting teaching process*' (n=32, 55.2%) or '*increasing teacher workload*' (n=30, 51.7%), and over two-fifths were considered as '*enhancing other children's understanding of children with special needs*' (n=26, 44.8%). The majority of children perceived as '*enhancing other children's understanding of children with special needs*' were also seen as '*being a challenge to*

teacher and increasing teachers' specialist knowledge' (n=26, 81.3%). About half of the children regarded as '*interrupting teaching process*' were also perceived as '*being a challenge to teacher and increasing teachers' specialist knowledge*' (n=32, 56.1%), '*increasing teacher workload*' (n=33, 58.0%) or '*problem behaviour being copied by other children*' (n=28, 49.1%). Of the children seen as '*increasing teacher workload*', over three-fifths were also considered as '*being a challenge to the teacher and increasing teachers' specialist knowledge*' (n=30, 60.0%) or '*interrupting teaching process*' (n=33, 66.0%). For children perceived as '*problem behaviour being copied by other children*', a great majority were also seen as '*interrupting teaching process*' (n=28, 84.8%).

Table 8.12c
Positive and negative influences of the nominated children on classes

Influences	n	% (N=136)
Having both positive and negative influences	45	33.1
Only having positive influences	19	14.0
Only having negative influences	33	24.3

Note:
1. Positive influences include 'being a challenge to teacher and increasing teachers' specialist knowledge' and 'enhancing other children's understanding of children with special needs'.
2. Negative influences include 'interrupting teaching process', 'increasing teacher workload' and 'problem behaviour being copied by other children'.
3. Only the main influences listed in Table 8.11a are analysed. The percentages are based on the total nominated children (N=136). The total percentage is less than 100% due to excluding children who were reported as not having influence.

In Table 8.12c the main influences listed in Table 8.12a are grouped into positive or negative influences. The positive influences include '*being a challenge to teacher and increasing teachers' specialist knowledge*' and '*enhancing other children's understanding of children with special needs*'. The negative influences involve '*interrupting teaching process*', '*increasing teacher workload*' and '*problem behaviour being copied by other children*'. As shown in this Table, most children were regarded as having both positive and negative influences (n=45, 33.1%) rather than only having either a solely positive (n=19, 14.0%) or negative influence (n=33, 24.3%).

3.2 Difficulty in Copying With These Children in Class

Table 8.13
Teachers' perceptions of difficulties in coping with the child in class

Rank	Difficulties	n	% of total nominated children (N=136)
1	Not enough time to meet the child's needs	65	47.8
2	Unable to identify the child's difficulty	53	39.0
3	Unable to meet the child's needs due to large class size	47	34.6
4	Difficulty of communication with the child's parents	42	30.9
5	Lack of assessment instruments	40	29.4
6	Lack of support from specialist in special needs education	37	27.2
7	Unable to use appropriate teaching material and skills	33	24.3
8	Difficulty of establishment of relationships between the child and other children	26	19.1
9	Lack of teaching materials and equipment	25	18.4
10	Inadequate liaison with medical and rehabilitative services	21	15.4
11	No difficulty in coping with the child	13	9.6

Note: This was a multiple response question. The percentages are based on the number of children discussed (N=136). The total percentage is not calculated and the total number of responses is more than 136.

As shown in Table 8.13, the top six difficulties experienced by the teachers in copying with the children regarded as having developmental delay were as follows.

1st *Not enough time to meet the child's needs* (n=65, 47.8%)

2nd *Unable to identify his/her difficulty* (n=53, 39.0%)

3rd *Unable to meet the child's needs due to large class size* (n=47, 34.6%)

4th *Difficulty of communication with the child's parents* (n=42, 30.9%)

5th *Lack of assessment instruments* (n=40, 29.4%)

6th *Lack of support from specialist in special needs education* (n=37, 27.2%)

Overall 9.6% (n=13) of the children did not cause the teachers any difficulty in coping with them, that is for over nine-tenths of them (n=123, 90.4%) the teachers experienced some sort of difficulty in coping with them in class.

3.3 Sources of Help the Teachers Received concerning These Children

Table 8.14
Sources of help or advice teachers received concerning the children

Sources of help	n	% of total nominated children (N=136)
Received no help	87	64.0
Received help from another teacher	48	35.3
Received help from specialists	5	3.7
Received help from relevant agencies or institutes	—	—

As shown in Table 8.14, for over three-fifths of these children the teachers never received any help (n=87, 64.0%). As for the rest of them, for whom the teachers had received help or advice, the main source was from *another teacher in the kindergarten* including the head teacher, senior teacher or other colleagues. This made up over one-third of the children (n=48, 35.3%). There were only five children (3.7%) where the teachers had received *help from specialists*. In addition, no teachers received any *help from relevant agencies or institutes* concerning these children.

3.4 Additional Help Teachers Hoped to Receive

Table 8.15
Additional help teachers hope to receive concerning the children

Additional help	n	% of total nominated children (N=136)
Provision of training courses in early childhood special education	71	52.2
Provision of appropriate assessment instruments	59	43.4
Professional support from external specialists	53	39.0
Provision of information on identification and placement	46	33.8
Provision of appropriate teaching materials and aids	44	32.4
Support from the kindergarten's own specialists	14	10.3
Other help	2	1.5
Do not need any further help	15	11.0

As shown in Table 8.15, the top three additional helps that the teachers most hoped to receive concerning these children were as follows:

1st *Provision of training courses in early childhood special education* (n=71, 52.2%)

2nd *Provision of appropriate assessment instruments* (n=59, 43.4%)

3rd *Professional support from external specialists* (n=53, 39.0%)

The other two frequent responses were provision of *information on identification and placement* (n=46, 33.8%) and *appropriate teaching materials and aids* (n=44, 32.4%).

3.5 Teachers' Attitudes towards the Transfer of These Children for Further Identification

As indicated earlier in Table 8.1, only three out of the 136 nominated children had been assessed for their developmental delay by the teacher or the kindergarten itself. In order to examine teachers' attitudes towards transferring these children to further identification, the teachers were asked the question during the interview: 'would you like to transfer him/her (the nominated child) to further identification if there is such an identification service?'

Table 8.16
Teachers' responses on transferring the nominated children for further identification

	n	% of total nominated children (N=136)
Children teachers would like to transfer	87	64.0
Children teachers would not like to transfer	49	36.0
Total	136	100
Reasons for not wanting to transfer		
• The child's difficulty is not very severe	39	28.7
• Worried about labelling or negative effect	3	2.2
• Every child is individually different from others	3	2.2
• The child has made progress	2	1.5
• It is the parents' problems not the child's	2	1.5
• Already aware of the child's difficulty	1	0.7
• The parents would not agree	1	0.7

Note: There were two children to whom teachers gave more than one reason for not to transfer. The total frequency is therefore over 49, the number of children whom teachers would not like to transfer. The percentages are based on 136, the total nominated children.

Table 8.16 shows the teachers' responses to this question. There were nearly two in three of the children (n=87, 64.0%) whom their teachers would like to refer for further identification, while over one-third (n=49, 36.0%) the teachers would not like to.

It was of interest to further investigate teachers' considerations for not wanting to transfer some children to further identification. As shown in the Table, the main reason why for some children teachers would not like to refer them to further identification was because they consider *their difficulties were not very severe.* This reason made up over a quarter of the nominated children (n=39, 28.7%). Other considerations held by the teachers for merely a few children included: *worried about labelling or negative effects of assessment* (n=3, 2.2%), *every child is individually different from others* (n=3, 2.2%), *the child has made progress* (n=2, 1.5%), *it is the parents' problems not the child's* (n=2, 1.5%), *already aware of the child's difficulty* (n=1, 0.7%) and *the parents would not agree* (n=1, 0.7%).

3.6 Teachers' Attitudes towards Keeping These Children in Their Class

For the purpose of understanding kindergarten teachers' attitudes towards keeping children with developmental delay in the ordinary classroom, a question was also asked during the interview: 'if you could have a choice, would you still like to keep the child in your class?'

As shown in Table 8.17, for over six-sevenths of the nominated children (n=117, 86.0%) their teachers would still like to keep them in class, compared with less than one in seven (n=19, 14.0%) whom the teachers would not like to keep if they could have a choice. This result is consistent with the teachers' rankings on the ideal educational placement for the children (shown earlier in Table 8.10), where 'the ordinary class in ordinary kindergarten' was ranked as the most appropriate setting.

Further investigation was also made on reasons for being willing and unwilling to keep a child with developmental delay in class. Table 8.17 shows that the main reason for teachers who would like to keep children with developmental delay was based on an opinion: '*every child has equal education opportunity and teachers should not choose their students*', which made up nearly two-fifths (n=54, 39.7%) of the nominated children. The next common reason, which formed more than a quarter of the nominated

Table 8.17
Teachers' responses on keeping the nominated children in class

	n	% of total nominated children (N=136)
Children teachers would like to keep	117	86.0
Children teachers would not like to keep	19	14.0
Total	136	100
Reasons for keeping		
• Equal educational opportunity, teacher should not chose student	54	39.7
• He/she is educatable	36	26.5
• Can give teachers a sense of achievement	14	10.3
• Can enhance teachers' professional knowledge and skills	12	8.8
• No adverse effect on teaching	5	3.7
• Every child is individually different	5	3.7
• He/she is a lovely child	3	2.2
• The parents are cooperative with teacher	2	1.5
• Helpful for other children's learning	2	1.5
• He/she needs to interact with other children	1	0.7
Reasons for not to keep		
• Ordinary classroom is not an ideal placement for him/her	10	7.4
• His/her difficulty is too severe	7	5.1
• Has adverse effect on teaching	4	2.9
• The parents are not cooperative with teacher	3	2.2

Note: There were some children to whom teachers gave more than one reason for keeping or not. The total number of reasons is therefore over the number of children in each group. The percentages are based on 136, the total nominated children.

(n=36, 26.5%) was because they considered *the children as educatable*. Over one in ten of the children (n=14, 10.3%) the teachers would like to keep in class because they *give teachers a sense of achievement*, whereas 8.8% (n=12) were because they *can enhance teachers' professional knowledge and skills in teaching this kind of children*. In addition, other reasons held by the teachers but for fewer children included: *he/she has no adverse effect on teaching* (n=5, 3.7%); *every child is individually different* (n=5, 3.7%); *he/she is a lovely child* (n=3, 2.2%); *his/her parents are cooperative with the teacher* (n=2, 1.5%); *it is helpful for other children's learning* (n=2, 1.5%) and *he/she needs the*

opportunity to interact with other children (n=1, 0.7%).

As regards reasons for teachers not to keep some children in their class, the main one was that *the ordinary classroom is not an ideal placement for the child* (n=10, 7.4%). Other reasons included: *his/her difficulty is too severe* (n=7, 5.1%); *he/she has adverse effect on teaching*; (n=4, 2.9%) and *his/her parents are not cooperative with the teacher* (n=3, 2.2%).

4 CONCLUSIONS

This chapter has presented the results from the second interview with teachers concerning the details of the special provision for kindergarten children with developmental delay and teachers' experiences in coping with these children. In the next two chapters data arising from another third stage of study will be reported. Chapter Nine, which follows, deals with the results of the developmental screening tests.

CHAPTER NINE
SCREENING TESTS AND TEACHER IDENTIFICATION: RESULTS OF THE DEVELOPMENTAL SCREENING TESTS

1 INTRODUCTION

The data and analysis presented in the previous three chapters were all derived from teachers' perceptions. These included teachers' understanding of the term 'developmental delay', prevalence estimates and characteristics of children with developmental delay based on teachers' nominations, and teachers' views on special provision for these children and their experiences in coping with them in class. In this and following chapters we present data concerning the third stage of our study. This chapter deals with data gathered relating to the Denver Developmental Screening Test (DDST). As previously mentioned in Chapter Five, the purpose of this part of the analysis is intended to explore in depth teachers' perceptions of developmental delay by describing relationships between teacher identifications and another assessment method, the DDST, which is a standardised screening test.

This chapter consists of two sections. Section 1 reports on the DDST results of children who were identified or not identified by their teachers as having developmental delay. The focus will be on the consistency or otherwise between these two assessment methods. Section 2 will further examine some possible factors that may potentially influence relationships between these two methods.

2 RELATIONSHIPS BETWEEN DDST RESULTS AND TEACHER IDENTIFICATIONS

First of all, it may be recalled that the sample involved in this stage of study is different from that of the previous stages. This stage of study was carried out in eleven classes from five kindergartens. The subjects included two groups of children, a group of 25 children who were nominated by their teachers as having developmental delay and the

other group of 25 children who were not considered by teachers as having developmental delay but matched the former group in chronological age and gender. Each of the sample children was individually administered the DDST by the researcher in kindergarten.

2.1 The DDST Results of the Teacher-nominated and Non-nominated Children

A description of the test results of DDST for children nominated by their teachers as having developmental delay and the non-nominated children (i.e., those regarded by teachers as not having developmental delay) is given in Table 9.1. As stated before, according to the manual, the DDST results were rated as falling into four categories: 'normal,' 'questionable,' 'abnormal' and 'untestable.' Each child in these two groups (nominated and non-nominated) completed the test successfully i.e., none of them had the test result of *'untestable'*.

Table 9.1
DDST test results of children nominated by teachers as having or not having developmental delay

	Teacher identification					
	DD group		Non-DD group		Total sample	
DDST results	n	%	n	%	n	%
Normal	15	60.0	25	100.0	40	80.0
Questionable	8	32.0	—	—	8	16.0
Abnormal	2	8.0	—	—	2	4.0
Total	25	100.0	25	100.0	50	100.0

*$X^2 = 12.5$, df=2, ** $p<0.01$*

Note: DD group: children nominated by teachers as having developmental delay Non-DD group: children regarded by teachers as not having developmental delay but matched DD group in age and gender.

First of all, the chi-square test suggests strong evidence ($X^2 = 12.5$, $df=2$, $p<0.01$) of an association between the DDST and the teacher identifications, that is that there was significant difference in the DDST results between the teacher-nominated and the non-nominated group. As shown in the first column of Table 9.1, two-fifths of the teacher-

nominated children had the test results of *'questionable'* (n=8, 32.0%) or *'abnormal'* (n=2, 8.0%), whereas three-fifths of them were tested as *'normal'* (n=15, 60.0%). The non-nominated group, in contrast, as shown in the second column, all were assessed as *'normal'* on the DDST (N=25, 100%). In the nominated children the consistency rate between teacher identification and DDST was only 40.0%, with a 60% inconsistency rate; whereas a 100% consistency rate was revealed in the non-nominated group.

2.2 Consistency and Inconsistency between DDST Results and Teacher Identifications

Figure 9.1
Consistency and inconsistency between DDST and teacher identification results

	TI (+)	TI (–)
DDST (+)	10 (20.0%)	0
DDST (–)	15 (30.0%)	25 (50.0%)

Note: The number in each cell means the number of children and the percentage was based on the total sample children (N=50).
TI (+): children identified by teachers as having developmental delay
TI (–): children identified by teachers as not having developmental delay
DDST (+): children screened by DDST as 'abnormal' or 'questionable'
DDST (–): children screened by DDST as 'normal'

consistency between DDST and teacher identification

inconsistency between DDST and teacher identification

To describe more clearly the consistency and inconsistency in the identification results between the DDST and the teacher identifications, in Figure 9.1 the results are presented in a slightly different fashion. In this Figure children who are nominated by their teachers as having developmental delay are classified as TI positive (+) and those who are regarded by teachers as not having developmental delay are TI negative (–). Children who are screened as '*questionable*' and '*abnormal*' by the DDST are grouped as DDST positive (+) and those who are screened as '*normal*' are DDST negative (–). The consistency in the identification results between the DDST and teacher identifications includes two sorts of cases: children who are 'TI (+) and DDST (+)', or 'TI (–) and DDST (–)'. The inconsistency, in contrast, means those who are 'TI (+) but DDST (–)', or 'TI (–) but DDST (+)'.

As shown in the Figure, 70.0% (n=35) of the sample children were identified consistently by both their teachers and the DDST: 20.0% (n=10) were 'TI (+) and DDST (+)' and 50.0% (n=25) 'TI (–) and DDST (–)'. On the other hand, 30.0% (n=15) of the children had an inconsistent identification result between these two methods. All of the cases with an inconsistent result were of 'TI (+) but DDST (–)', that is, considered by teachers as having developmental delay but screened by DDST as not having it.

3 DDST TEST RESULTS, TEACHER IDENTIFICATIONS AND OTHER CHARACTERISTICS OF CHILDREN

The above results show that mismatches occur between teacher identifications and the results of the DDST. A possible source of explanation for this mismatch may be that the teachers' identifications are influenced by considerations other than the child's actual level of development, as measured by the screening test. In order to explore possible interpretations of variations between teacher identifications and the DDST test results, in the present section some characteristics of the children are introduced into the analysis, though they may not apparently have an inherent association with either teachers' identifications of developmental delay or with the screening test. In addition, because of the limited sample size in each subgroup of analysis, it should be noted that this part of findings has to be treated as only tentative.

3.1 DDST Performance, Teacher Identifications and Children's Gender

Table 9.2
DDST results by gender difference amongst teacher-nominated and non-nominated children

DDST results		Boys		Girls	
		Nominated	Non-nominated	Nominated	Non-nominated
Normal	n	12	18	3	7
	%	66.7	100.0	42.9	100.0
Questionable	n	4	—	4	—
	%	22.2	—	57.1	—
Abnormal	n	2	—	—	—
	%	11.1	—	—	—
Total	N	18	18	7	7
	%	100	100	100	100

X^2 =3.17, df=2, non-significant at 0.05 (for the nominated boys and girls)

Note: A total of 168 boys and 167 girls were in the sample classes. The teacher nomination rates were 10.7% for boys and 4.2% for girls.

In Table 9.2 the relationship between teacher identification of children and the DDST results is presented separately for boys and girls. Similar to the results of the prevalence survey in the previous stage of this study, more boys were nominated and involved in the sample than girls. Apparently, in the non-nominated group the children's gender seems not to have an effect on the mismatch relationship between these two assessment methods. All of the boys (n=18, 100.0%) and girls (n=7, 100.0%) who were regarded by teachers as not having developmental delay were also tested as '*normal*' by the DDST.

In the teacher-nominated group, on the other hand, the distributions for the DDST results were different between boys and girls. Nominated boys outnumbered nominated girls among those who were screened as '*normal*', where the percentage of boys (n=12, 66.7%) was over 1.5 times the girls (n=3, 42.9%). In addition, about one-third of the nominated boys were screened as '*questionable*' (n=4, 22.2%) or '*abnormal*'

(n=2, 11.1%), while over half of the nominated girls were tested as '*questionable*' (n=4, 57.1%). In other words, the match between teacher identifications and the DDST results was higher in the nominated girls then in the nominated boys. However, the chi-square test suggests no statistically-significant difference in the DDST results between the boys and girls who were nominated as having developmental delay ($X^2 = 3.17$, $df=2$).

3.2 DDST Performance, Teacher Identifications and Children's Ages

The next characteristic to be examined for possible links is the chronological age of children. The main reason for considering this sort of analysis is that developmental changes are faster in young children. Although all subjects of this study were children of five years old, the age difference between the youngest and the eldest in the sample could be nearly a year. For children of this age, a year, or even half a year can mean a considerable progress and difference in development. A child's age position in a class therefore might possibly have potential influence on the relationship between teachers' identifications of developmental delay and the screening test results.

Table 9.3
DDST results of the nominated group by chronological age of the children

		Chronological age (in months)			
DDST results		60 - 63	64 - 67	68 - 71	Total
Normal	n	5	5	5	15
	%	71.4	50.0	62.5	60.0
Questionable	n	1	4	3	8
	%	14.3	40.0	37.5	32.0
Abnormal	n	1	1	—	2
	%	14.3	10.0	—	8.0
Total	N	7 (28.0%)	10 (40.0)	8 (32.0)	25 (100.0)
	%	100.0	100.0	100.0	100.0

$X^2 = 2.33$, $df=2$, non-significant at 0.05

In Table 9.3 the teacher-nominated children are divided into three groups by age spans of three months. Of these children, 64 to 67 months was the largest age group (n=10, 40.0%) and 68 to 71 months was the second group, whereas the youngest group, 60-63 months old, formed the smallest group (n=7, 28.0%). However, because of the lack of background information on age patterns of the sample classes, these figures could not be used to infer that the teachers tended to nominate children of the middle-band age in class.

The chi-square test indicated that there was no significant difference in the DDST results between these three groups of children ($X^2 = 2.33$, $df=2$, *non-significant at 0.05*). In other words, this suggests that a child's age position does not have influence on the consistencies and inconsistencies between teachers' identifications and the DDST results. Though the youngest group (60-63 months old) seems more likely to be screened as '*normal*' (i.e., a higher mismatch rate), all of the three age groups of children had a higher proportion tested as '*normal*' than as '*questionable*' or '*normal*' by the DDST, 71.4% of the 60-63 month olds, 50.0% of the 64-67 month olds and 62.5% of the 68-71 month olds.

3.3 DDST Performance, Teacher Identifications and Domains of Delay

Another factor which may be potentially relevant to the relationship between teacher identification and the DDST results is the difficulties that a child has as reported by teachers. As noted earlier in Chapter Five, the DDST consists of items that are intended to sample four behaviour domains: personal-social, fine motor-adaptive, language, and gross motor. It might be possible that teachers' concerns about a child's developmental delay would not be exactly the same as those measured by the DDST.

In Table 9.4 the DDST results of the nominated children are presented according to the various domains of delay reported by the teachers. The chi-square test revealed an association between the children's DDST results in the following two domains of delay: self-help skills ($X^2 = 8.59$, $df=2$, $p<0.05$) and motor development ($X^2 = 7.27$, $df=2$, $p<0.05$). That is, children who were described as having or not having delay in either of these two domains would have different DDST results. Looking at the number and percentage distributions of the DDST results in these two domains, children regarded as

having delay in either of these two domains tended to be screened out as '*questionable*' or '*normal*', whereas a majority of those not considered to be delayed in these domains had a test result of '*normal*'. Of the children who were regarded as having delay in self-help skills development, 71.4% (n=5) were '*questionable*', 14.3% (n=1) were '*abnormal*' and only 14.3% (n=1) were '*normal*'; while 77.8% (n=14) of those not regarded as having delay of this domain were '*normal*' and just 16.7% (n=3) of them were '*questionable*' and 5.6% (n=1) were '*abnormal*'. For the motor developmental domain, the test results were averagely distributed amongst children described as having this domain of delay (n=2, 33.3%, for each test result), whereas for those not described as having this domain of delay, in contrast, 68.4% (n=13) were tested as '*normal*' and 31.6% (n=6) were '*questionable*'.

Table 9.4
DDST results of the nominated children according to domains of delay described by teachers

	DDST results			
Domains	Normal	Questionable	Abnormal	X^2
Cognition				
having delay in this domain	7 (63.6%)	2 (18.2)	2 (18.2)	NS
Not having delay	8 (57.1)	6 (42.9)	—	
Social				
having delay in this domain	5 (55.6)	3 (33.3)	1 (11.1)	NS
Not having delay	10 (62.5)	5 (31.3)	1 (6.3)	
Emotion/behaviour				
having delay in this domain	5 (62.5)	2 (25.0)	1 (12.5)	NS
Not having delay	10 (58.8)	6 (35.3)	1 (5.9)	
Self-help skills				
having delay in this domain	1 (14.3)	5 (71.4)	1 (14.3)	8.59, df=2
Not having delay	14 (77.8)	3 (16.7)	1 (5.6)	*p<0.05
Language				
having delay in this domain	4 (66.7)	1 (16.7)	1 (16.7)	NS
Not having delay	11 (57.9)	7 (36.8)	1 (5.3)	
Motor				
having delay in this domain	2 (33.3)	2 (33.3)	2 (33.3)	7.27, df=2
Not having delay	13 (68.4)	6 (31.6)	—	*p<0.05

Note: NS: non-significant at 0.05

As regards the remaining four domains (cognition, social, emotion/behaviour and language), the chi-square test suggested no significant difference in the DDST results between children described or not described as having delay in these domains. However, these findings have to be treated carefully as some children were described as having delay in more than two domains. In addition, as noted earlier in this chapter, the sample size in some of the subgroups was very small. For example, the total number of children reported as having delay in motor development was only six.

3.4 DDST Performance of Children with Inconsistent Results between the DDST and Teacher Identification

Table 9.5
Comparisons of DDST performance of children tested 'normal' but having different teacher identification results

	DDST performance according to test domains									
	Gross motor		Fine motor and adaptive		Language		Personal and social		All four domains	
Children's groups	n	%	n	%	n	%	n	%	n	%
	No items failed									
TI(+)/DDST(–) (N=15)	12	80.0	5	33.3	1	6.7	12	80.0	—	—
TI(–)/DDST(–) (N=25)	22	88.0	23	92.0	11	44.0	24	96.0	10	40.0
	Having a delayed item									
TI(+)/DDST(–) (N=15)	1	6.7	1	6.7	2	13.3	—	—	—	—
TI(–)/DDST(–) (N=25)	—	—	—	—	—	—	—	—	—	—

Note: 1. TI(+)/DDST(–): children identified by teachers as having developmental delay but screened as 'normal' by the DDST (N=15)
TI(–)/DDST(–): children identified by teachers as not having developmental delay but screened as 'normal' by the DDST (N=25)
2. According to the DDST manual, a delayed item is recognised as the item that 90% of the children normally pass at a younger age but which that child failed.
3. Test performance of each group for each domain is treated individually, and one child might have 'no items failed' or 'a delayed item' in more than one domain. The totals therefore are not added up.

The previous results reveal that 60% of the children who were regarded by teachers as having developmental delay were screened out as '*normal*' by the DDST. Another concern is whether there is any difference in test performance between children who were nominated and not nominated, where both have the same test result of '*normal*'. Further examination might provide possible explanations for those results as well as highlighting the possibility of a low sensitivity for the DDST.

In Table 9.5 test performance of the two groups of children, TI(+)/DDST(−) and TI(−)/DDST(−), are compared in two aspects. One aspect is the proportion of children having no items failed in each of the four domains measured by the DDST, and the other is the number of children having delayed items in the test. A detailed summary of the test performances for each child is presented in Tables 9.5a and 9.5b in the Appendices. A delayed item here, according to the DDST manual, means an item that 90% of the children normally pass at a younger age but which that child failed.

As shown in this Table, general speaking the teacher-nominated children appeared to have poorer test performance than children who were considered as not having developmental delay. None of the 15 teacher-nominated children passed all four domains - that is each of them failed in some domains. Four of them had a delayed item in one domain (child code: d1, d3, d4 and d12 in Table 9.5a). Of the 25 non-nominated children (see Table 9.6) on the other hand, 10 (40%) children passed all of the items administered to him or her.

In addition, in each individual domain the non-nominated group also had a higher percentage of children with no items failed than for the nominated group. The most dramatic differences were in the language domain and the fine motor-adaptive domain. In the language domain only one (6.7%) of the nominated children passed all test items (i.e, over 90% had some item failing), whereas 44% (n=11) of the non-nominated children passed. In the fine motor-adaptive domain, one-third (n=5, 33.3%) of the nominated children had no items failed, whilst over 90% (n=23, 92%) of the non-nominated group passed all items. In the gross motor and personal-social domains both groups of children had a high percentage who passed all items, where 80% (n=12) of the nominated and 88% (n=22) of the non-nominated for the gross motor domain, and 80% (n=12) of the nominated and 96% (n=24) of the non-nominated for the personal-social

domain were the relevant statistics.

For both groups of children, the language domain was the domain that had the lowest percentage of children with no items failing. Looking at the items that the children failed in this domain (see Tables 9.5a and 9.5b in Appendices VIII and IX), the following two items appeared to be most commonly failed: '*counts to 100*' (60% of the nominated and 24% of the non-nominated) and '*discriminates left/right with reference to self*' (60% of the nominated and 28% of the non-nominated). This can be understood since these two items are additional items in the Chinese version of the DDST and the age of accomplishments for 90% of normal children in the two items are not available. According to the normative data in the manual for the Chinese version, the age at which 50% of normal children can perform to '*count to 100*' is 5.5 years old, and at which 75% of normal children can perform to '*discriminate left/right with reference to self*' is 5.9 years old. Thus, the age at which 90% of normal children can accomplish the two items may be over six years old. Thus it is understandable why many of the 5-year-old children in this study failed in these items. However, the non-nominated children still performed better in the two items than the nominated.

Overall, although both were screened out as 'normal' by the DDST, the teacher-nominated children had poorer performance in the test items than those who were not considered as having delay.

4 CONCLUSIONS

This chapter has presented results about the relationships between the DDST and the teachers' identifications of children. Overall, a total consistency has been found between the two assessment methods in identifying children who are not considered to have developmental delay, but there are more mismatches than matches for those who are nominated as having developmental delay. Some potential factors which may be relevant to such results have also been examined. These findings will be discussed later in the discussion chapter. The next chapter will report the results derived from the classroom observation study.

CHAPTER TEN

CLASSROOM BEHAVIOUR AND TEACHER IDENTIFICATION: RESULTS OF THE CLASSROOM OBSERVATIONS

1 INTRODUCTION

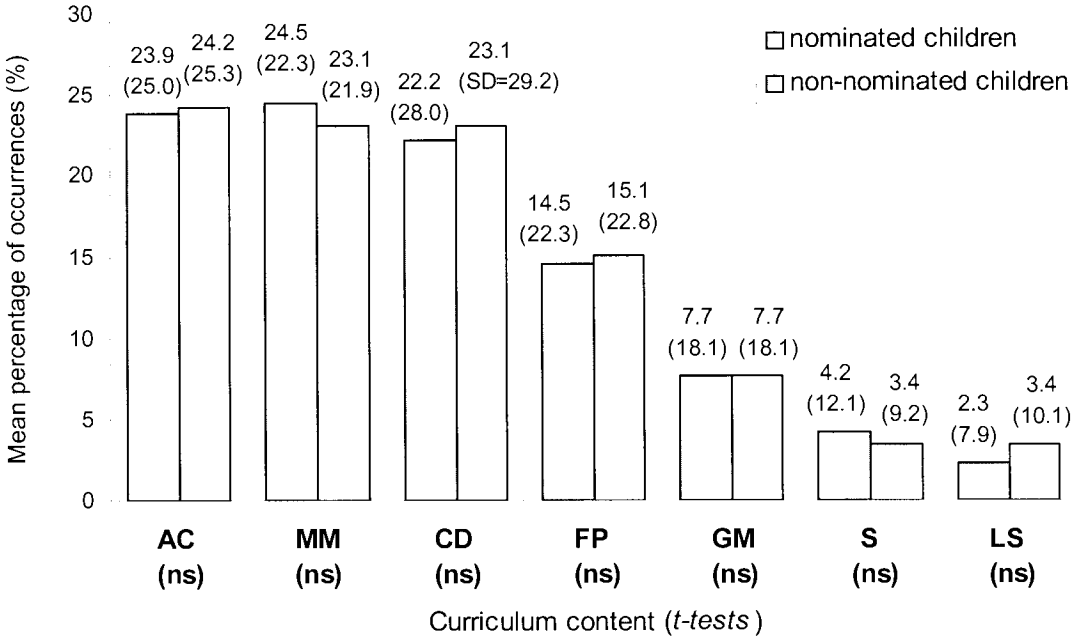
This chapter will present the final part of the analysis of this research - that which concerns the data based on classroom observations of 50 children, the same sample as the DDST study. Half of these children were nominated by teachers as having developmental delay and the other half were not nominated but matched the nominated group in gender and chronological age. As indicated in previous chapters, the purpose of this part of the study was to describe the nature of the classroom experiences of children with developmental delay in ordinary kindergartens and to determine the relationship between children's classroom behaviours and teachers' identifications. Analysis focuses on comparisons between classroom behaviour patterns of the two groups, nominated and non-nominated children (Section 1); children with and without behavioural problems as described by teachers (Section 2); and children with consistent and inconsistent results between teachers' identifications and DDST (Section 3).

2 DIFFERENCES BETWEEN TEACHER-NOMINATED CHILDREN AND OTHER CHILDREN IN CLASSROOM BEHAVIOUR

In this section, classroom behaviour of the nominated children is compared with the behaviour patterns of the non-nominated children. The hypothesis for this part of the analysis is that there are group differences between the two groups of children in behaviour patterns. The mean percentage of occurrences of behaviour observed in each group is computed for comparison and independent sample t-tests are then used for testing statistical significance.

2.1 The Classroom Background: Curriculum Content and Activity Contexts

Figure 10.1
Mean percentages of curriculum content for nominated and non-nominated children

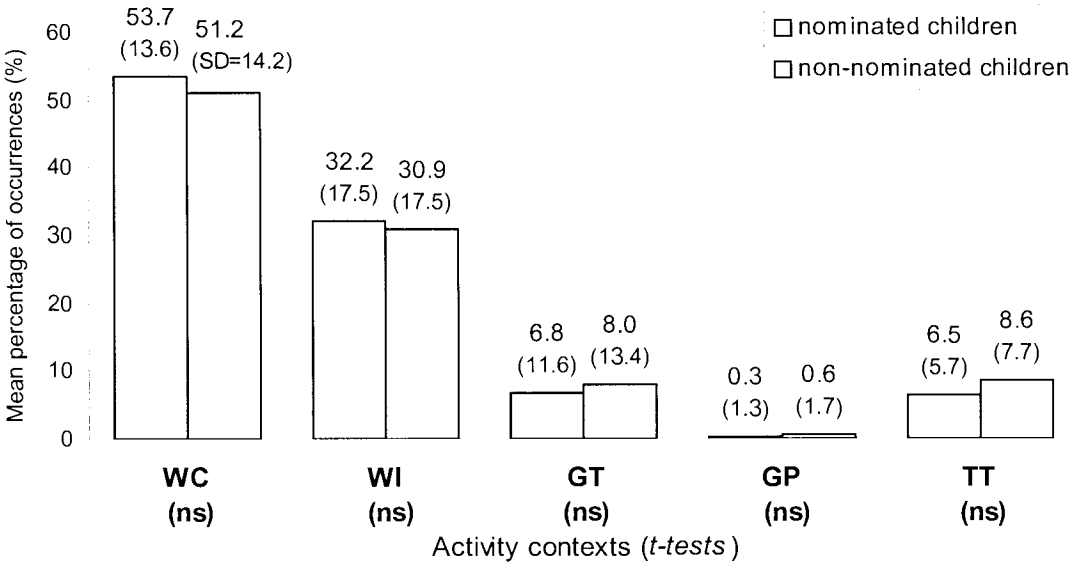


Note: AC - art and craft
MM - music and movement
CD - concept development
FP - free play
GM - gross motor
S - snack
LS - living skills
ns: t-test non-significant at 0.05 level

To provide a context for the observations, the overall classroom background to the children's activities was coded in terms of 'curriculum content' and 'activity context'. For the curriculum content, as shown in Figure 10.1, independent sample t-tests suggest that there is no significant difference in the mean percentage of occurrences of curriculum content during the observations between the nominated children and the non-nominated children. The three curricula most frequently occurring in the classrooms

studied were *art and craft* (23.9% of the nominated, 24.2% of the non-nominated), *music and movement* (24.5% of the nominated, 23.1% of the non-nominated), and *concept development* (22.2% of the nominated, 23.1% of the non-nominated). These three areas of curricula made up about 70% of the class time. In addition, about 15 per cent of the observations were *free play*. Other curricula, less then 10% each, included *Gross motor*, *snack* and *living skills*.

Figure 10.2
Mean percentages of activity contexts for nominated and non-nominated children



Note: WC - whole class
WI - working individually
GT - working in a group with the teacher
GP - working cooperatively with peers but not the teacher
TT - transition time
ns: t-test non-significant at 0.05 level

The contexts of the activities in which the children were engaged is presented in Figure 10.2. The independent sample t-tests suggest no significant difference in the mean percentages of occurrences of types of classroom activities for these two groups of children. The single most frequent activity in the classrooms studied was *whole class lesson.* Over half of the class time was spent on this activity, 57.3% for the nominated

group and 51.2% for the non-nominated group. *Working individually* made up the second most frequent activity, 32.2% for the nominated group and 30.9% for the non-nominated group. Other activities which occurred fairly infrequently included *working in a group without the teacher* (6.8% of the nominated group and 8.0% of the non-nominated group), *working in a group with the teacher* (0.3% of the nominated group and 0.6% of the non-nominated group), and *transition time* (6.5% of the nominated group and 8.6% of the non-nominated group). Overall, both the nominated children and the non-nominated children spent over four-fifths of their time in *whole class lesson* or *working on their own*; whilst they spent less than ten per cent of time on group activities such as *working in a group with* or *without the teacher.*

The above analysis reveals that the nominated and non-nominated children have similar experiences in their patterns of classroom background in terms of curriculum content and activity contexts.

2.2 Patterns of Classroom Behaviour

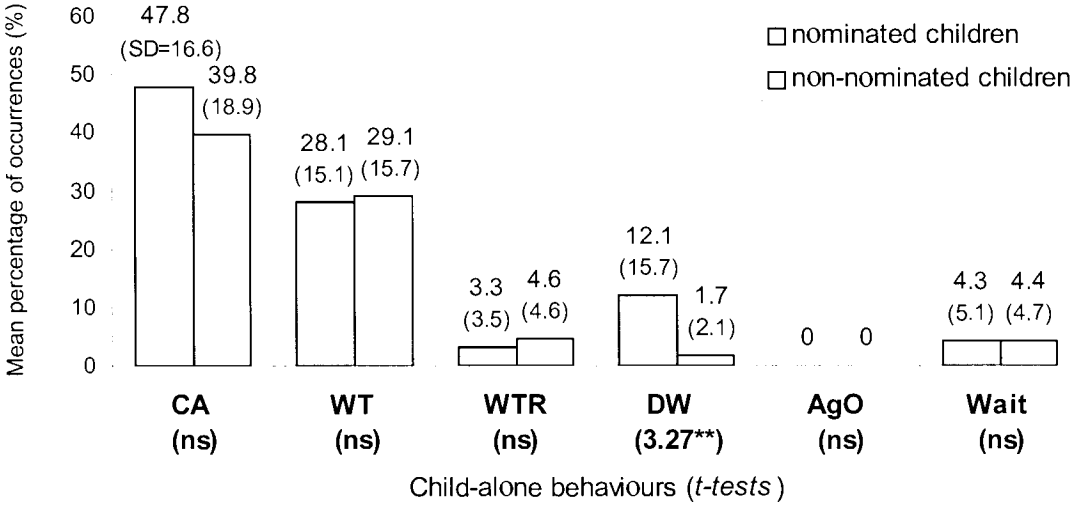
Given the classroom backgrounds, the classroom behaviours observed in this study are now presented in the present section by three dimensions according to the recording system: child alone behaviours, child-teacher interactions and child-peers interactions. Descriptions of the behaviours concerning these three dimensions are followed by an analysis of two broad categories of behaviour. These include total interactions in class as well as on task and off task. Separate analyses compare the mean percentage of occurrences for each type of behaviour of the nominated children with the performances of the non-nominated children. The independent sample t-tests are again used to test the group differences in behaviour.

2.2.1 Child-alone Behaviour

Figure 10.3 presents the mean percentages of occurrences of the nominated and non-nominated children engaged in 'child-alone' behaviours, i.e., behaviours which do not interact with the teacher or other children. On average, the nominated children spend more time in *child-alone behaviour* (M=47.8%, SD=16.6) than the non-nominated children (M=39.8%, SD=18.9). However, independent sample t-tests do not show any

significant difference statistically ($p>0.05$). This could be due to the big SDs (standard deviations) of the two groups.

Figure 10.3
Mean percentages of occurrences of child-alone behaviours for nominated and non-nominated children



Note: CA - total child-alone beahviour

WT - working individually on task
WTR - working individually on task-related activity
DW - distracted from work
AgO - aggression towards property
Wait - waiting
df (degrees of freedom) =48
**$p \leq 0.01$
ns: non-significant at 0.05 level

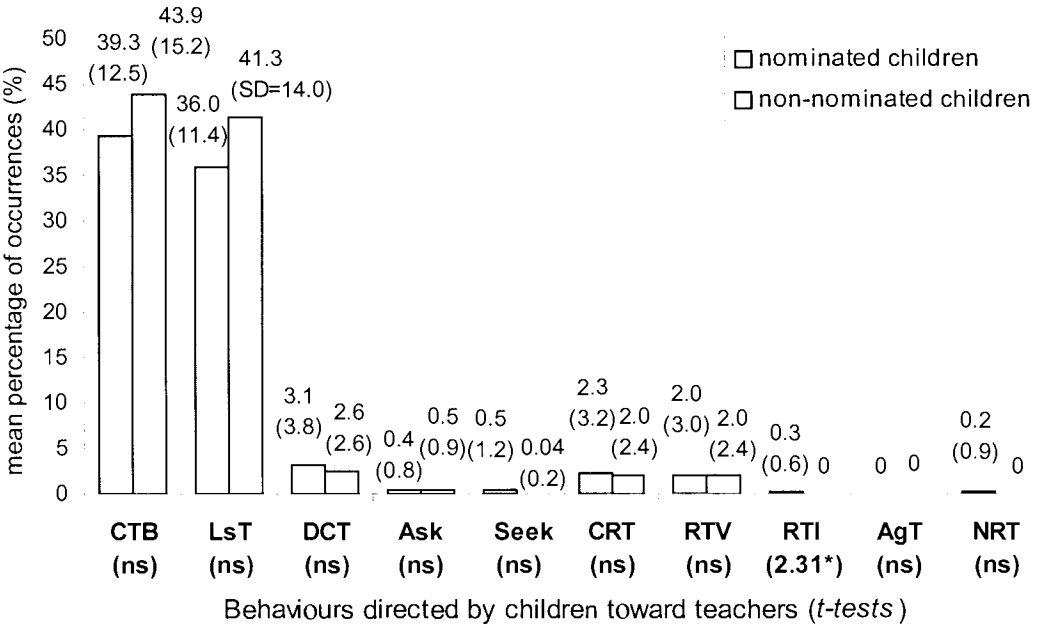
The most significant difference between the two groups occurred in '*distracted from work*' ($t=3.27$, $df=48$, $p \leq 0.01$). The nominated children spent about eight times the intervals observed in behaviours of *distracted from work* (M=12.1%) as compared to the non-nominated children (M=1.7%). In the other behaviours there were no significant differences between the two groups. Both the nominated and non-nominated children spent over a quarter of their time on *working individually on task* (M=28.1% for the nominated, M=29.1% for the non-nominated). Other child-alone behaviours included

working individually on task-related activity (M=3.3% for the nominated, M=4.6% for the non-nominated), and *waiting* (M=4.3% for the nominated, M=4.4% for the non-nominated). In addition, both of the two groups did not show *aggressive behaviour to property* during the observations.

2.2.2 Child-Teacher Interactions

(i) Behaviour directed by children towards teachers

Figure 10.4
Mean percentages of occurrences of behaviours directed by child towards teacher for nominated and non-nominated children

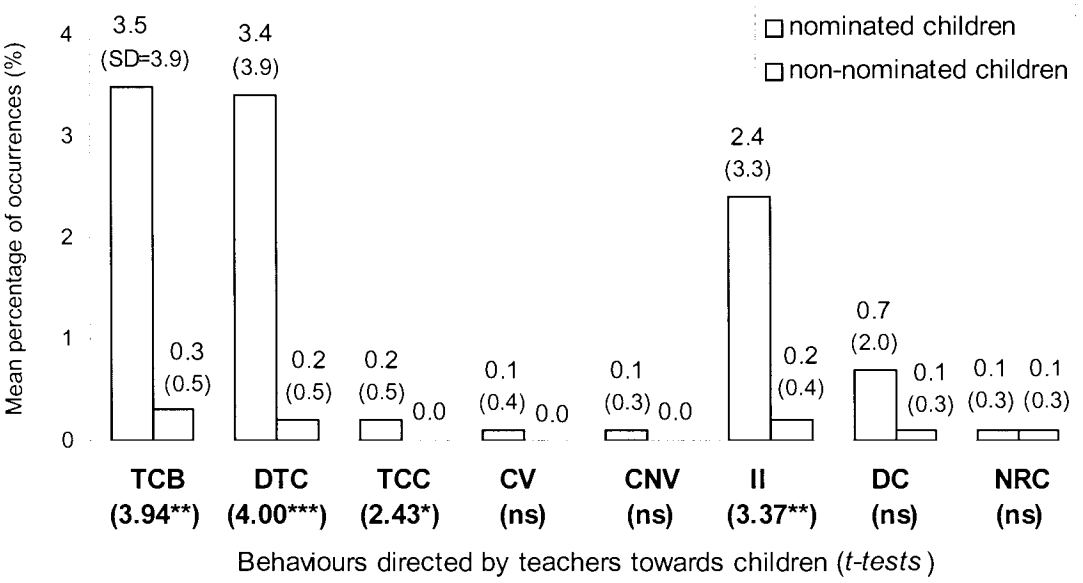


Note: CTB - total behaviours directed by child towards teacher
LsT - listening to teacher or following instruction
DCT - direct one-to-one contact, child towards teacher
Ask - asking teacher questions or comments
Seek - seeking teacher's help
CRT - total child responding to teacher
RTV - responding to teacher voluntarily
RTI - responding to teacher involuntarily
AgT - aggression towards teacher
NRT - not responding to teacher's call
df (degrees of freedom) =48
*$p \leq 0.05$ ns: non-significant at 0.05 level

The data concerning child-teacher interactions were recorded and initially analysed by considering behaviours that target children directed toward teachers and behaviours that teachers directed toward target children separately. The mean percentages of occurrences of behaviours that target children directed towards teachers are presented in Figure 10.4. Though the non-nominated children have higher total occurrences in this category of behaviour (M=43.9%) than the nominated children (M=39.3%), independent sample t-tests do not suggest a significant difference between them ($p>0.05$). Both of the two groups of children spent about two-fifths of their time in some form of behaviour which was directed by them towards the teacher. It is not surprising that *listening to the teacher* made up the single most frequent behaviour for these children since a whole class lesson, as reported earlier, was the major activity context in the classrooms studied. The non-nominated children spent about two-fifths of time on listening to the teachers or following teachers' instructions (M=41.3%), whereas the nominated children also spent nearly this proportion of their time on this behaviour (M=36.0%). There was no significant difference between the two groups in *direct one-to-one contact* initiated by target children towards teachers (M=3.1% for nominated children and M=2.6% for non-nominated children). Amongst the behaviours in this category however, '*responding to the teacher involuntarily*' appeared as the only behaviour where the t-tests revealed significant difference between the two groups ($t=2.31$, $df=48$, $p\leq0.05$); the nominated children had an average of 0.3% of intervals, whilst no such behaviour occurred in the non-nominated children. Though the nominated children seemed to *seek teacher's help* more frequently (M=0.5%) than the non-nominated children (M=0.04%), the t-test did not show a significant difference statistically. Other behaviours occurring infrequently included *asking the teacher questions* (M=0.4% for the nominated, M=0.5% for the non-nominated), *responding to the teacher voluntarily* (M=2.3% for the nominated, M=2.0% for the non-nominated), and *not responding to teacher's call* (M=0.2% for the nominated, no occurrences for the non-nominated). In addition, both the nominated and non-nominated children did not show *aggressive behaviour towards the teacher* during the observations.

(ii) Behaviour directed by teachers towards children

Figure 10.5
Mean percentages of occurrences of behaviours directed by teacher towards child for nominated and non-nominated children



Note: TCB - total behaviour directed by teachers towards target children
DTC - direct one-to-one contact, teacher towards child
TCC - total teacher calling on child
CV - teacher calling on child who has volunteered
CNV - teacher calling on child who has not volunteered
II - providing individual instruction
DC - disciplining the child
NRC - not responding to the child
df (degrees of freedom) =48
*$p \leq 0.05$
**$p \leq 0.01$
***$p \leq 0.001$
ns: non-significant at 0.05 level

Figure 10.5 shows the mean percentages of occurrences of behaviours that teachers directed towards the target children. The independent sample t-tests suggest a significant difference between these two groups in behaviours directed by teachers towards them ($t=3.94$, $df=48$, $p \leq 0.01$). The nominated children received more behaviours from the teachers (M=3.5%) than the non-nominated children (M=0.3%). The

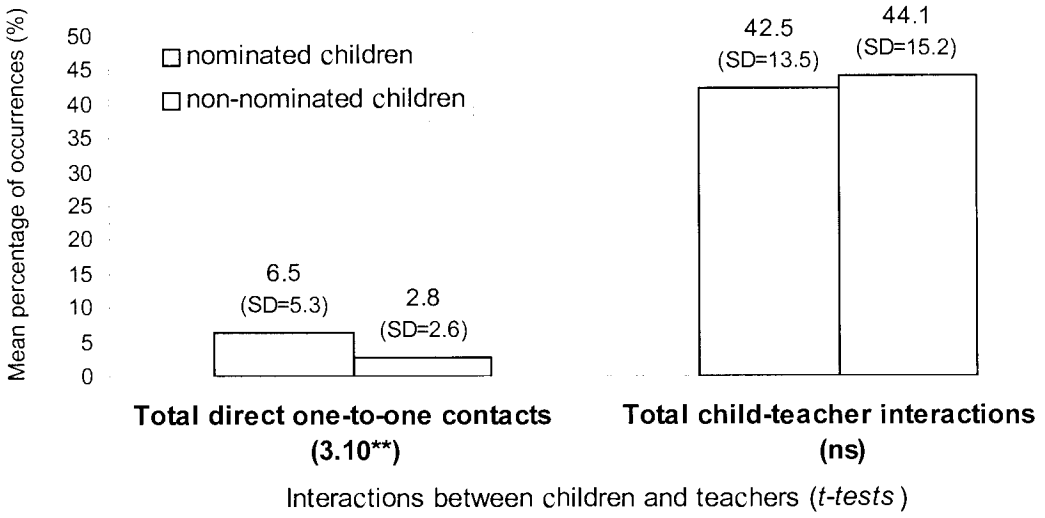
difference was highly significant, particularly in the behaviours of *direct one-to-one contact* ($t=4.00$, $df=48$, $p\leq 0.001$); where the mean percentage of occurrences in the nominated children was 17 times (M=3.4%) the mean percentages in the non-nominated children (M=0.2%). The main difference between the two groups in their patterns of *direct one-to-one contact teacher towards child*, lay in the following two types of behaviours: *providing individual instruction* ($t=3.37$, $df=48$, $p\leq 0.01$) and *calling on child* ($t=2.43$, $df=48$, $p\leq 0.05$). The teachers tended to provide more *individual instruction* for the nominated children (M=2.4%) than for the non-nominated children (M=0.2%). They also tended to *call on* the nominated children more often (M=0.2%) compared with the non-nominated children during the observations. This result was consistent with the previous finding of the study that the nominated children responded involuntarily to the teachers more frequently than the non-nominated children since they were called on more. Whether the nominated children were called on when he/she *had volunteered* or *had not volunteered*, the observation revealed the same occurrences (M=0.1%). Besides, the nominated children received teachers' *disciplining* more frequently (M=0.7%) than the non-nominated children (M=0.1%). As regards the behaviour of teacher's *not responding to the child*, it occurred infrequently in both of the two groups (M=0.1%). Overall, the results suggest that the children nominated as having developmental delay receive more individual attention from the teacher than other children.

(iii) Total interactions between teachers and children

Finally, the mean percentages of occurrences of *total direct one-to-one contact* and *total interactions* between target children and teachers are presented in Figure 10.6. The independent sample t-tests reveal a significant difference between the nominated children and the non-nominated children in *total direct one-to-one contact* ($t=3.10$, $df=48$, $p\leq 0.01$), but no significant difference in *total interactions*. Both groups of children spend over two-fifths of their time in *child-teacher interactions* (M=42.5% for the nominated and M=44.1% for the non-nominated). However, the *direct one-to-one contact* occurred more often between the nominated children and teachers (M=6.5%) than between the non-nominated children and teachers (2.8%). This result was

apparently the effect of the greater occurrence of the single largest behaviour, *listening to teacher*, which was under the category of *total interactions* but not included in *direct one-to-one contact*.

Figure 10.6
Mean percentages of occurrences of total child-teacher interactions for nominated and non-nominated children

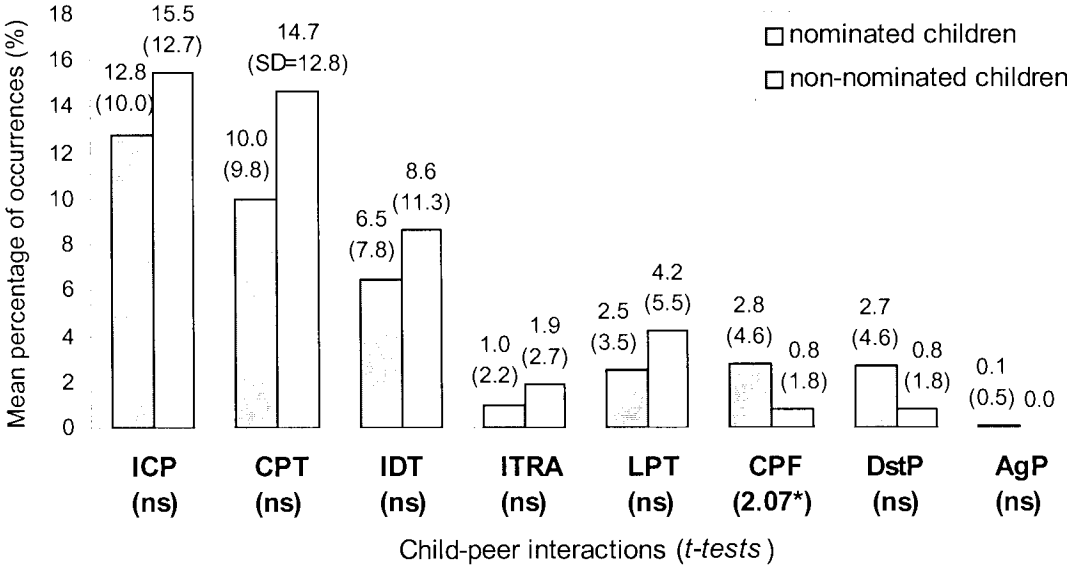


Note: Total direct one-to-one contacts = 'Direct child→teacher one-to-one contact' + 'Direct teacher→child one-to-one contact'
Total child-teacher interactions = LsT + 'Total direct one-to-one contacts'
df (degrees of freedom) =48
**p≤0.01
ns: t-test non-significant at 0.05 level

2.2.3 Child-Peers Interactions

Figure 10.7 presents the mean percentages of occurrences of interactions between the target children and other children in class. The independent sample t-tests suggest a significant difference between the nominated and non-nominated children in '*total interactions off task*' ($t=2.07$, $df=48$, $p\leq0.05$), but non-significant in '*total interactions with peers*' and '*total interactions on task*' ($p>0.05$).

Figure 10.7
Mean percentages of occurrences of child-peer interactions for nominated and non-nominated children



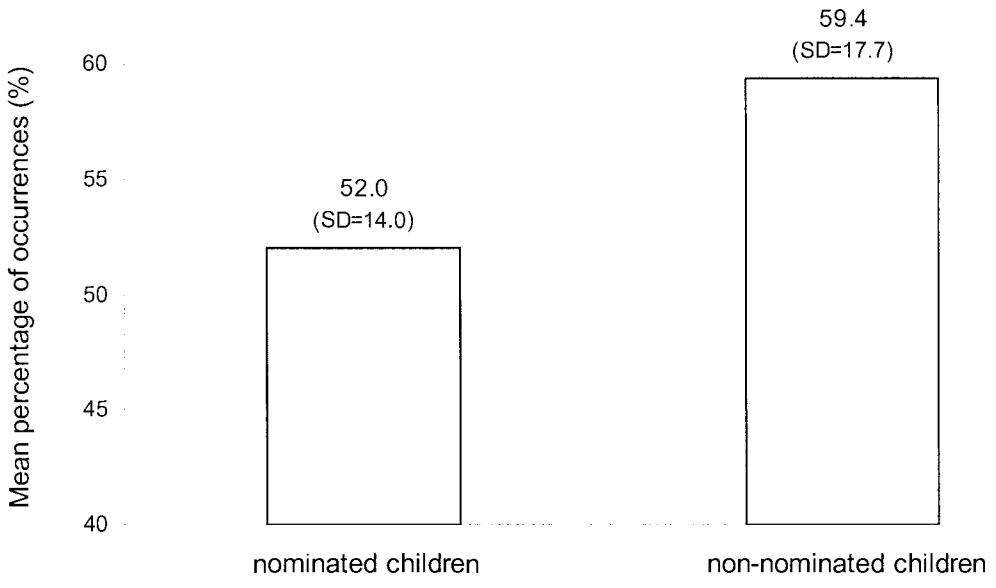
Note: ICP - total interactions between target children and peers
CPT - total child-peer on task interactions
IDT - interacting directly on task
ITRA - interacting on task-related activity
LPT - listening to peers, task related
CPF - total child-peer off task interactions
DstP - interacting with peers, distracted from work
AgP - aggression towards peers
df (degrees of freedom) =48
*p≤0.05
ns: non-significant at 0.05 level

The nominated children spent over three times of their time on interactions with peers that were *off task* (M=2.8%) than the non-nominated children (M=0.8%). Under this category, the nominated children were more often *interacting with peers which was distracting from work* (M=2.7%) as compared with the non-nominated children (M=0.8%). Besides, an average of 0.1% of intervals with the nominated children were observed having *aggressive behaviour towards peers* (M=0.1%), whereas no such behaviour was observed in the non-nominated children.

Though the nominated children seemed to spend less time on *on-task interactions with peers* (M=10.0%, SD=9.8) than the non-nominated children (M=14.7%, SD=12.8), the t-tests did not reveal a significant difference statistically. This could be explained due to the big standard deviations. The average frequencies of behaviours concerning on-task interactions with peers were as follows: *interacting directly on task* (M=6.5% for the nominated, M=8.6% for the non-nominated), *interacting on task-related activity* (M=1.0% for the nominated, M=1.9% for the non-nominated), and *listening to peers, task related* (M=2.5% for the nominated, M=4.2% for the non-nominated). Finally, the t-tests suggested that there was no significant difference between the two groups in '*total interactions with peers*', though the nominated children spent less time in interactions with other children (M=12.8%, SD=10.0) than the non-nominated children (M=15.5%, SD=12.7).

2.2.4 Total Interactions in Class

Figure 10.8
Mean percentages of occurrences of total interactions in class for nominated and non-nominated children

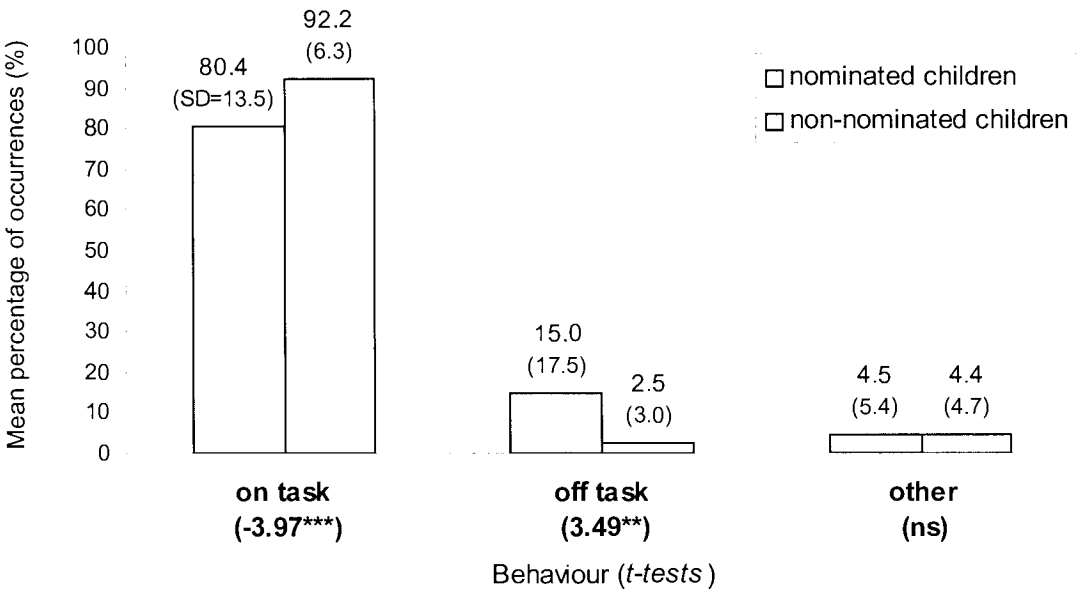


Note: 1. t-test suggests non-significant difference at 0.05 level between the two groups.
2. Total interactions in class = total interactions with teacher + total interactions with peers

The performances of the target children's interactions with teachers and other children in class have just been reported separately. In Figure 10.8 the mean percentages of occurrences of *total interactions in class* (including total interactions with teacher and total interactions with peers) that the children engaged are presented. The independent sample t-tests do not show a significant difference between the nominated children and the non-nominated children in *total interactions in class*. As can be seen in the Figure, both groups of children spent over half of their time in some form of interaction with the teacher or peers in class, which accounts for 52.0% of the nominated children's time and 59.4% of the non-nominated children's time.

2.2.5 On Task and Off Task

Figure 10.9
Mean percentages of occurrences of on-task and off-task behaviour for nominated and non-nominated children



Note: df (degrees of freedom) =48
**p≤0.01
***p≤0.001
ns: t-test non-significant at 0.05 level

In order to examine whether nominated children and non-nominated children spent different amounts of time on on-task and off-task activities, the observed behaviours were grouped into the two categories of on-task and off-task, according to the nature of each behaviour. The contents of behaviours included in the two categories have been defined earlier in Chapter Five. In Figure 10.9 comparisons of the mean percentages of occurrences of on-task and off-task behaviour between nominated and non-nominated children are presented. The independent sample t-tests suggest highly significant differences between the two groups of children in both *on-task* ($t=-3.97$, $df=48$, $p\leq 0.001$) and *off-task* behaviour ($t=3.49$, $df=48$, $p\leq 0.01$). As shown in the Figure, the nominated children spent less time in *on-task* behaviour (M=80.4%) than the non-nominated children (M=92.2%). On the other hand, they spent six times of time in *off-task* behaviour (M=15.0%) when compared with the non-nominated children (M=2.5%). In addition, the two groups of children spent similar parts of their time in *other* behaviour which was neither on-task or off-task, such as waiting (M=4.5% for the nominated and M=4.4% for the non-nominated).

3 CLASSROOM BEHAVIOUR PATTERNS OF CHILDREN WITH AND WITHOUT BEHAVIOURAL PROBLEMS

The analysis presented above gives a general understanding of the classroom experiences of kindergarten children with developmental delay, and indicates these children did have distinctive behaviour patterns when compared with other children in class. In this section further analysis will be focused on comparisons of the classroom behaviour of the children who were described as having behavioural problems and children who were not. It is hoped by this to better understand the behavioural patterns of children with developmental delay.

For the purpose of investigation, the children were divided into three groups: the non-nominated children (Group A, N=25), children nominated and described as having behavioural problems (Group B, N=8) and children nominated but not described as having behavioural problems (Group C, N=17). The hypothesis of this part of analysis

Table 10.1

An overview of classroom behaviour with mean percentages of occurrences in children nominated and regarded as having behavioural problems, nominated and not regarded as having behavioural problems, and non-nominated children

Categories of behaviour	Non-nominated children (N=25)	Nominated children: Have behavi-our problem (N=8)	Nominated children: No behaviour problem (N=17)	*F*
i) Child alone				
Working on task	29.1%(15.7)	27.8%(16.8)	28.2%(14.8)	0.03
Working on task-related activity	4.6 (4.6)	3.9 (4.3)	3.0 (3.1)	0.69
Distracted from work	1.7 (2.1)	18.8 (13.3)#	8.9 (16.2)#	8.00**
Aggression towards property	—	—	—	—
Waiting	4.4 (4.7)	2.5 (5.0)	5.1 (5.1)	0.74
Total child-alone behaviour	39.8 (18.9)	53.1 (10.8)	45.3 (18.4)	1.80
ii) Child → teacher				
a. Listening to teacher	41.3 (13.9)	30.8 (11.3)	38.5 (10.9)	2.13
b. Direct one-to-one contact	2.6 (2.5)	3.6 (5.4)	2.8 (3.0)	0.34
Asking teacher questions	0.5 (0.9)	0.4 (0.8)	0.3 (0.9)	0.16
Seeking teacher's help	0.04 (0.2)	0.3 (0.6)	0.5 (1.4)	1.51
Responding to teacher	2.0 (2.4)	2.9 (4.9)	2.0 (2.1)	0.33
responding voluntarily	2.0 (2.4)	2.7 (4.9)	1.7 (1.7)	0.41
responding involuntarily	—	0.2 ((0.5)	0.3 (0.6)	2.98
Aggression towards teacher	—	—	—	—
c. Not responding to teacher's call	—	0.3 (1.1)	—	0.97
A. *Total child → teacher (a+b+c)*	43.9 (15.2)	34.4 (13.6)	41.5 (11.7)	1.42
iii) Teacher → child				
d. Direct one-to-one contact	0.2 (0.5)	4.5 (4.8)#	2.9 (3.5)#	9.07***
Calling on child	—	0.2 (0.5)	0.3 (0.5)	3.07
who has volunteered	—	0.2 (0.5)	0.1 (0.4)	1.65
who has not volunteered	—	0.1 (0.4)	—	2.07
Providing individual instruction	0.2 (0.4)	3.0 (3.6)#	2.2 (3.3)#	5.94*
Discipline the child	0.1 (0.3)	1.3 (2.7)	0.4 (1.5)	2.56
e. Not responding to the child	0.1 (0.3)	0.1 (0.4)	0.1 (0.3)	0.18
B. *Total teacher → child (d+e)*	0.3 (0.5)	4.6 (4.6)#	2.9 (3.6)#	8.92***
Total direct one-to-one contact between child and teacher (b+d)	2.8 (2.6)	8.1 (5.2)#	5.7 (5.4)	5.82**
C. Total child-teacher interactions (A+B)	44.1 (15.2)	38.9 (14.1)	44.1 (13.3)	0.44
iv) Child ↔ peers				
Interacting with peers on task	8.6 (11.3)	5.1 (5.5)	7.1 (8.8)	0.42
Interacting on task-related activity	1.9 (2.7)	0.7 (1.4)	1.1 (2.5)	0.90
Listening to peers	4.2 (5.5)	2.3 (3.5)	2.5 (3.6)	0.86
Interacting but distracting from work	0.8 (1.8)	3.9 ((3.9)	2.2 (4.9)	2.57
Aggression to peers	—	0.3 (0.7)	0.1 (0.3)	1.95
Total child-peers interaction on task	14.7 (12.8)	8.2 (8.4)	10.7 (10.5)	1.22
Total child-peers interaction off task	0.8 (1.8)	4.2 (3.7)	2.2 (4.9)	3.07
D. *Total child-peers interactions*	15.5 (12.7)	12.3 (9.5)	13.0 (10.5)	0.36
Total interactions in class (C+D)	59.4 (17.7)	46.7 (11.2)	54.5 (14.7)	1.98
Total on-task behaviour	92.2 (6.2)	74.2 (14.4)#	83.3 (12.5)#	10.53***
Total off-task behaviour	2.5 (3.0)	23.0 (14.7)#	11.2 (17.8)#	9.28***

Note: NS Non-significant * $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$

 # Tukey-HSD significant at 0.05 between Group B and A, or Group C and A

was that there were distinctive patterns of classroom behaviour amongst these three groups of children. One-way Anovas were conducted to compare group differences. Tukey-HSD tests were then adopted for multiple pairwise comparisons if One-way Anova indicated significant differences.

In Table 10.1 the overall classroom behaviours of these three groups of children are presented. Clearly there were distinctive behavioural patterns amongst the three groups with respect to a number of the measures of behaviour in the classroom studied. The children who were described as having behavioural problems spent nearly one-fifth of their time in *distracting from work on their own* (M=18.8%), whilst children nominated but not having behaviour problems spent 8.9% and children not nominated only spent 1.7% in such behaviour ($F=8.00$, $p \leq 0.01$; Tukey-HSD significant at 0.05 between Groups B and A and Groups C and A). The children with behavioural problems also received the most individual attention from teachers when compared with the other two groups. This was supported by the following behaviours: *direct one-to-one contact, teacher towards child* ($F=9.07$, $p \leq 0.001$; M=4.5% for Group B, M=2.9% for Group C, M=0.2% for Group A; Tukey-HSD significant at 0.05 between Groups B and A and Groups C and A); *providing individual instruction* ($F=5.94$, $p \leq 0.05$; M=3.0% for Group B, M=2.2% for Group C, M=0.2% for Group A; Tukey-HSD significant at 0.05 between Groups B and A and Groups C and A); *total interactions, teacher towards child* ($F=8.92$, $p \leq 0.001$; M=4.6% for Group B, M=2.9% for Group C, M=0.3% for Group A; Tukey-HSD significant at 0.05 between Groups B and A and Groups C and A); and *total direct one-to-one contact between teacher and child* ($F=5.82$, $p \leq 0.01$; M=8.1% for Group B, M=5.7% for Group C, M=2.8% for Group A; Tukey-HSD significant at 0.05 between Groups B and A and Groups C and A). In addition, there were also highly significant group differences in *on-task* and *off-task* behaviour. The children with behavioural problems engaged in *on-task* behaviour less frequently (M=74.2%) as compared with other two groups (M=92.2% for Group A and M=83.3% for Group C); $F=10.53$, $p \leq 0.001$; Tukey-HSD significant at 0.05 between Groups B and A and Groups C and A. On the other hand, the children with behavioural problems spent nearly a quarter of their time on *off-task* behaviour (M=23.0%), which was twice that of children nominated but not having behavioural problems (M=11.2%), and nearly ten times that of the non-

nominated children (M=2.5%) (F=9.28, $p \leq 0.001$; Tukey-HSD significant at 0.05 between Groups B and A and Groups C and A).

4 TEACHER IDENTIFICATIONS, SCREENING TESTS AND CLASSROOM BEHAVIOURS

A major finding from the DDST study carried out within this research there was a certain degree of inconsistency between the teachers' identifications of children and the DDST results. Though all of the non-nominated children were tested as 'normal' by the DDST (true negative), of the teacher-nominated children only two-fifths were screened out as 'questionable' or 'abnormal' (true positive) and the other three-fifths were tested as 'normal' (false positive). Here a point to investigate from this finding is whether the mismatches between teacher identifications and DDST results were associated with children's classroom behaviour. In other words, was children's behaviour associated directly in some way with teachers' identification? In other words were some children with a 'normal' DDST result more likely to be identified by teachers as having developmental delay due to distinctive patterns of classroom behaviour when compared with other children? The hypothesis to test is therefore that the behavioural patterns of the 'false positive' group are more like those of the 'true positive' group than those of the 'true negative' group. Similarly to the analysis of the previous section, One-way Anovas and Tukey-HSD tests were conducted to test this hypothesis.

Table 10.2 shows the mean percentages of occurrences of classroom behaviour for the three groups of children: 'true negative' (Group A, N=25), 'false positive' (Group B, N=15) and 'true positive' (Group C, N=10). In general the results support the hypothesis suggested. The children who were nominated but tested 'normal' (false positive) had similar behaviour patterns to the children who were also nominated but tested 'questionable' or 'abnormal' (true positive); whilst they both had distinctive behavioural patterns from the children who were not nominated and tested 'normal' (true negative). This basic pattern occurred with respect to most of the behaviours observed. In particular, the One-Way Anovas and Tukey-HSD tests indicated significant group differences between the three groups in the following behaviours:

Table 10.2

An overview of classroom behaviours with mean percentages of occurrences in children with consistent and inconsistent results between teacher identifications and the DDST

Group A: children non-nominated and DDST 'normal' (true negative)
Group B: children nominated but DDST 'normal' (false positive)
Group C: children nominated and DDST 'questionable' or 'abnormal' (true positive)

Categories of behaviour	Group A (N=25)	Group B (N=15)	Group C (N=10)	*F*
i) Child alone				
Working on task	29.1%(15.7)	28.9%(14.5)	26.9%(16.8)	0.08
Working on task-related activity	4.6 (4.6)	2.1 (2.8)	5.1 (3.8)	2.25
Distracted from work	1.7 (2.1)	10.4 (11.6)#	14.6 (21.0)#	5.74**
Aggression towards property	—	—	—	—
Waiting	4.4 (4.7)	5.2 (5.4)	2.9 (4.5)	0.65
Total child-alone behaviour	39.8 (18.9)	46.6 (14.2)	49.5 (20.3)	1.32
ii) Child → teacher				
a. Listening to teacher	41.3 (13.9)	36.1 (14.0)	35.9 (6.6)	1.07
b. **Direct one-to-one contact**	2.6 (2.5)	4.2 (4.5)	1.4 (1.4)	2.60
Asking teacher questions	0.5 (0.9)	0.5 (1.0)	0.2 (0.5)	0.34
Seeking teacher's help	0.04 (0.2)	0.7 (1.5)	0.1 (0.4)	2.76
Responding to teacher	2.0 (2.4)	3.1 (3.8)	1.1 (1.4)	1.67
voluntarily	2.0 (2.4)	2.7 (3.6)	1.0 (1.4)	1.26
involuntarily	—	0.4 (0.7)#	0.1 (0.4)	4.05*
Aggression towards teacher	—	—	—	—
c. Not responding to teacher's call	—	—	0.4 (1.4)	2.09
A. *Total child → teacher (a+b+c)*	43.9 (15.2)	40.3 (15.4)	37.7 (6.8)	0.77
iii) Teacher → child				
d. Direct one-to-one contact	0.2 (0.5)	3.1 (3.8)#	3.7 (4.3)#	8.01***
Calling on child	—	0.3 (0.5)#	0.1 (0.4)	4.08*
who has volunteered	—	0.2 (0.5)#	—	4.03*
who has not volunteered	—	0.1 (0.3)	0.1 (0.3)	1.14
Providing individual instruction	0.2 (0.4)	2.2 (3.5)	2.7 (3.2)	5.73**
Discipline the child	0.1 (0.3)	0.6 (1.6)#	0.9 (2.4)#	1.49
e. Not responding to the child	0.1	0.1	0.1	0.18
B. *Total teacher → child (d+e)*	0.3 (0.5)	3.1 (3.8)#	4.0 (4.4)#	7.93**
Total direct one-to-one contact between child and teacher (b+d)	2.8 (2.6)	7.3 (6.1)#	5.1 (4.0)	5.70**
C. Total child-teacher interactions (A+B)	44.1 (15.2)	43.4 (16.2)	41.0 (8.8)	0.16
iv) Child ↔ peers				
Interacting with peers on task	8.6 (11.3)	5.2 (5.5)	8.3 (10.5)	0.60
Interacting on task-related activity	1.9 (2.7)	1.5 (2.6)	0.2 (0.7)	1.71
Listening to peers	4.2 (5.5)	2.2 (3.1)	2.8 (4.1)	0.92
Interacting but distracted from work	0.8 (1.8)	3.0 (5.6)	2.2 (2.7)	1.98
Aggression to peers	—	0.1 (0.5)	0.1 (0.4)	0.95
Total child-peers interaction on-task	14.7 (12.8)	8.9 (7.2)	11.4 (13.1)	1.22
Total child-peers interaction off-task	0.8 (1.8)	3.2 (5.6)	2.3 (2.7)	2.28
D. *Total child-peers interactions*	15.5 (12.7)	12.1 (8.1)	13.7 (12.7)	0.42
Total interactions in class (C+D)	59.4 (17.7)	52.4 (14.2)	51.5 (14.4)	1.31
Total on-task behaviour	92.2 (6.2)	80.2 (13.7)#	80.6 (14.1)#	7.71**
Total off-task behaviour	2.5 (3.0)	13.6 (14.6)#	17.0 (21.9)#	6.24**

Note: NS Non-significant * $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$
 # Tukey-HSD significant at 0.05 between Groups B and A or Groups C and A

- *Total on-task behaviour*; F=7.71, p≤0.01 (M=92.2% for Group A, M=80.2% for Group B, M=80.6% for Group C; Tukey-HSD significant at 0.05 between Groups B and A and Groups C and A).
- *Total off-task behaviour*; F=6.24, p≤0.01 (M=2.5% for Group A, M=13.6% for Group B, M=17.0% for Group C; Tukey-HSD significant at 0.05 between Groups B and A and Groups C and A).
- *Distracted from work on his/her own*; F=5.74, p≤0.01 (M=1.7% for Group A, M= 10.4% for Group B, M=14.6% for Group C; Tukey-HSD significant at 0.05 between Groups B and A and Groups C and A).
- *Total interactions directed by teachers towards children;* F=7.93, p≤0.01 (M=0.3% for Group A, M=3.1% for Group B, M=4.0% for Group C; Tukey-HSD significant at 0.05 between Groups B and A and Groups C and A).
- *Total direct one-to-one contact between teachers and children*; F=5.70, p≤0.01 (M= 2.8% for Group A, M=7.3% for Group B, M=5.1% for Group C; Tukey-HSD significant at 0.05 between Groups B and A).
- *Direct one-to-one contact, teachers towards children*; F=8.01, p≤0.001 (M=0.2% for Group A, M=3.1% for Group B, M=3.7% for Group C; Tukey-HSD significant at 0.05 between Groups B and A and Groups C and A).
- *Providing individual instruction*; F=5.73, p≤0.01 (M=0.2% for Group A, M=2.2% for Group B, M=2.7% for Group C; Tukey-HSD significant at 0.05 between Groups B and A and Groups C and A).
- *Total teachers calling on children*; F=4.08, p≤0.05 (no occurrence for Group A, M= 0.3% for Group B, M=0.1% for Group C; Tukey-HSD significant at 0.05 between Groups B and A).
- *Teachers calling on children who have volunteered*; F=4.03, p≤0.05 (no occurrence for Groups A and C, M=0.2% for Group B; Tukey-HSD significant at 0.05 between Groups B and A).
- *Responding to teachers involuntarily*; F=4.05, p≤0.05 (no occurrence for Group A, M=0.4% for Group B, M=0.1% for Group C; Tukey-HSD significant at 0.05 between Groups B and A).

5 CONCLUSIONS

This chapter has explored the relationships between children's classroom behaviour and teachers' identifications. The results suggest that there were distinctive behavioural pattern differences between children regarded as having developmental delay and other children in class, and between children described as having behavioural problems and those not described as having such behavioural problems. Children's classroom behaviours were associated with the teachers' identifications. In the next chapter these findings and those presented in the previous chapters will be discussed together as a whole.

CHAPTER ELEVEN
AN EVALUATION OF THE RESULTS

1 INTRODUCTION

The findings reported in Chapters Six to Ten demonstrate how kindergarten teachers view developmental delay in Taiwan, and address several essential components of early childhood special education, including the concept, identification, prevalence and provisions surrounding the concept of developmental delay. This chapter takes the discussion of the research results further.

The discussion is organized around the major findings, with an attempt to interpret and integrate them into the context of the past literature and the research issues explored, as well as in relation to an evaluation of the methods used to complete this research. With respect to the research themes, the findings and discussion are therefore presented in terms of seven aspects: (1) kindergarten teachers' understandings of the term 'developmental delay'; (2) the prevalence of developmental delay in kindergartens; (3) characteristics of kindergarten children with developmental delay; (4) special provisions for children with developmental delay; (5) teachers' experiences in coping with children with developmental delay; (6) teacher identifications and classroom behaviours; and (7) teacher identifications and the DDST screenings.

2 TEACHERS' UNDERSTANDINGS OF THE TERM 'DEVELOPMENTAL DELAY'

2.1 The Definitions and Nature of Developmental Delay

While the Implementation Bylaws of the Children's Welfare Law in Taiwan briefly ascribe developmental delay to children who are 'exceptional in one or more developmental domains' and 'need early intervention services', the definitions given by the teachers proved to be quite precise and clear although actual levels of delay were not given by them either. For example, the two most common features in the teachers'

definitions were: 'development lags behind other children of the same age' and 'has not reached the developmental milestone of his or her age'. Indeed the teachers' quantitative, 'within-child' and 'normative' models for defining this term were not out of line with general interpretations found within the relevant literature. Similar features, for instance, are found in Grossman's (1983) definition, where he referred to developmental delay as defined by 'observed disparity between a child's actual development .... and the level usually seen in children developing normally' (p.168). In addition, the teachers' definitions were also similar to the eligibility definitions and criteria commonly used today in most states in the USA. According to a review of individual states' definitions and criteria by Shackelford (1992), the most popular statements were those such as 'the difference between chronological age and actual performance level' or 'performance at a certain number of months below chronological age'.

Such a quantitative way of expressing developmental delay however is unable to properly reflect entirely contemporary interpretations of this term. An advanced view combines both quantitative and qualitative perspectives of developmental delay. Given a lack of reliable and valid instruments for assessing or classifying young children and with questionable predictive validity for the available instruments, it has been argued that determining delay by traditional assessment must be problematical (Shackelford, 1992, and Smith & Schakel, 1986). Including qualitative criteria for identifying developmental delay is therefore increasingly required. In fact some states in the USA have included qualitative criteria such as atypical behaviours or clinical opinion in their identifications of relevant children (Shackelford, 1992).

A great deal of literature has addressed the broad and nonspecific nature of the term 'developmental delay' (e.g. McLean *et al*, 1991; Bernheimer, Keogh & Coots, 1993; Kohlenberg *et al*, 1996). This generalised nature is indeed also a main reason why this term is seen as the appropriate category for young children with special needs. Several findings from the present research appear to show this generality in teachers' own concepts. Firstly, when questioned directly about the relationships between developmental delay and other familiar terms in special educational needs, the teachers generally viewed developmental delay as a broader category to include in umbrella fashion other diagnostic categories for special needs. Nevertheless, this sort of

relationship might vary when comparing this term with other terms which are also broad in nature (e.g. learning difficulty, special children etc). Due to few mentions by the teachers on these broad terms, further specification on this issue must remain for future research.

A second area of evidence comes from the various patterns and characteristics of the children's problems described by the teachers. A total of seventy patterns of delay with different combinations of developmental domains were identified. The detailed characteristics of the children's problems were wide-ranging, even within each single domain. Additionally, the degrees of difficulty covered a range from mild without specific problems to severe with diagnosed impairments or syndromes.

In addition, findings from the teachers' views on the distinctions between this term and other special needs terms suggest two questions related to broader definitions. One question is whether or not developmental delay only means children with delay in two or more domains (i.e., excluding those with only a single domain of delay). The other question is whether or not sensory impairments or physical disabilities are also a type of developmental delay. Due to the qualitative and exploratory nature of the Stage One interviews, there were not sufficient data relevant to these two issues and no clear answers can therefore be generalized based on this part of the data. However, data from the prevalence survey does indirectly suggest some answers to these two questions.

Children with only one domain of delay and those with sensory or physical impairments or health-related problems were both nominated by the teachers as having developmental delay. However, because these two groups of children formed only small proportions of the nominated children, it is uncertain if this minimalisation was due to the actual distributions of problems for this population or due to most teachers excluding the two types of problems in their nominations. Nevertheless, the teachers' ratings do lend support to the view regarding the proper inclusion of sensory/physical impairment, since having sensory or physical difficulty was rated as one of the top ten characteristics of children with developmental delay.

Superficially the word 'delay' might give an impression of 'slow, not stopped and having the possibility to catch-up in the future'. This 'superficial' meaning is also reflected in the data from the Stage One interviews regarding teachers' understandings

of this term. Some teachers viewed developmental delay as 'only slowness but not cessation, and still having possibilities in development', 'only means very mild degrees of difficulty', and 'more readily improved by education than other categories'. Again, due to the qualitative and exploratory feature of this part of the data, these descriptions cannot be generalized as common views of the teachers.

Overall, the teachers' expressions of developmental delay are diverse. This might be because of the nature of and the understanding surrounding the concept itself. On the other hand, the limitations in making a clear-cut conclusion and generalizing this part of findings are related to the research method used. As pointed out earlier, this stage of interview was intended to elicit teachers' implicit and original concepts through a series of open-ended questions. This method of data collection has disadvantages in generating general conclusions.

This method does however have an advantage when exploring implicit perceptions and developing theories. Based on this part of the data, several models constituted by the teachers' concepts of developmental delay can be determined. For instance, the teachers' definitions of the term were based on the five model perspectives of normative, developmental, syndrome, causal and instruction models. The teachers tended to differentiate this term of developmental delay and other special needs terms based on the six perspectives, namely, syndromes, educational effect, causation, identification, the intervention approach and target-group models. These models can be viewed as the structure underlying the teachers' perceptions of developmental delay. These kinds of findings are still located within past research in this field, and yet provide a basis for further study in the future.

2.2 The Aetiology of Developmental Delay

The research survey showed that teachers generally were able to give a causal explanation to account for the developmental delay they perceived in the children in their class (for about nine-tenths of the nominated children the teachers were able to give this causal explanation). The teachers' views on the aetiology of developmental delay reflected their knowledge that developmental outcomes are multiply determined (Crnic & Harris, 1990). They were aware of both the biological and environmental causes, and

the detailed factors they gave were wide-ranging. Referring to the biological causes, teachers' explanations covered pregnancy/perinatal problems, hereditary/genetic problems, illness after birth, brain damage, child's own nature and malnutrition, whilst the environmental factors included were parenting style, lacking cultural stimulation and family background. These factors are in line with those discussed in the literature of child development (Willis & Holden, 1990, and Meisels & Wasik, 1992). In particular, supported by a rich history of work on identifying home factors associated with children's developmental processes and outcomes, the teachers' attributions to the children's delay were strongly dominated by this group of factors.

However, two different sources of data in this study reveal some variations in the results in the teachers' explanations for the aetiology. The findings from the interviews at the Stage One study suggest that both biological and environmental causes were mentioned equally. That is the teachers showed 'interactionist' views on the aetiology of developmental delay. But on the other hand, when they were asked about possible causes underlying each nominated child's delay (the Stage Two study), the explanations they gave show a tendency towards attributing environmental factors as the primary cause, with biological factors operating secondarily. However the apparent divergence between the two parts of the data can be explained by considering the different methods used. At the Stage One interviews the teachers expressed their views without reference to child cases (though some teachers perhaps referred to some cases in their thinking), whilst at the Stage Two interviews the discussions were based on the nominated children. The data from the Stage One interviews can therefore be viewed as expressing the teachers' existing knowledge of the aetiology of developmental delay. The data from the Stage Two interviews, on the other hand, can be regarded as teachers' causal explanations about their children's particular problems. Based on this perspective, it is not surprising that the Stage Two data suggest that teachers more frequently attribute environmental factors rather than biological ones, since the majority of the nominated children had no physical, sensory or health-related problems. By simply basing analysis solely on the Stage Two data, without reference to the Stage One data, it would be misleading to conclude that the teachers were not aware of or do not emphasise biological causes. Yet there is a clear divergence between theoretical knowledge and

experience in Taiwanese kindergarten classes regarding developmental delay.

Consistent with a good deal of evidence from past studies (e.g. Croll & Moses, 1985; Dawson, 1987; and Conway, 1989), both stages of data collection show clear tendencies for the teachers to attribute children's developmental delay to factors which are external to the kindergarten. One possible reason for the teachers ignoring kindergarten-related factors concerns young children's limited experiences prior to formal education in so far as they affected the sample surveyed. Although most of the nominated children attended kindergartens before, in general they were likely to have only one year of previous kindergarten experience, and might not have attended the same kindergarten or have had the same teacher as the present one in the survey. Also, because the study was conducted at the beginning of the first semester (about two months after the semester start), it might have been not long enough for the teachers to notice possible kindergarten-related factors linking with a particular child's delay.

In addition, it would be unjust to criticise the teachers for their unfamiliarity with possible factors related to the teacher or the kindergarten, since the term 'developmental delay' was initially introduced in the medical and psychological field, and medical models or home-related interpretations have dominated the documents and publications in this field in Taiwan. This is likely to focus teachers' concerns on deficiencies within the child and the family rather than encouraging thinking about kindergarten-related factors which might contribute to a child's poor performance. In fact this is not a phenomenon only specific to Taiwanese teachers. As mentioned earlier, this perspective has been commonly argued about and acknowledged in the literature of western countries (e.g., Reeves & Chevannes, 1983; Croll and Moses, 1985; and Conway, 1989).

3 PREVALENCE OF DEVELOPMENTAL DELAY IN KINDERGARTEN

3.1 Prevalence Estimates

(A) Prevalence rates

The prevalence survey based on teachers' nominations suggests that 9.2% of five-year-old kindergarten children, or an average of 2.6 children in a class, have developmental delay in Taiwan. Though general prevalence rates are not available for

preschool children with special needs in Taiwan, this figure is much higher than the Taiwanese government's prevalence estimates of school age children with special educational needs. The latest national survey in 1992 estimated that 2.12% of primary and junior high school age children (6 to 14 years old) were eligible for special education services, whilst the first national survey revealed a 1.27% prevalence for primary school age children of 6 to 12 years old.

Several reasons can be advanced to explain the great difference between the prevalence rates reported in this research for early childhood and those in the government's surveys for school age children. One reason lies with the categories used for reporting special needs conditions. The national surveys targeted children falling into the formalised statutory categories, including intellectual difficulty, sensory impairment (e.g., visual or hearing impairment), language disorder, specific learning difficulty, personality and behaviour disorder and so on. These categories are traditional categorical labels that determine the special education services provided only for children with significant specific disability or deficiency. By contrast, the category of 'developmental delay' used in the present survey is a broad category which includes more marginal children who are not entitled to special education services under the traditional category system. Indeed, the broad nature of the category 'developmental delay' has been reflected in the findings about characteristics of the children identified in the research. Since developmental delay is a broader category than the more traditional categories, it follows that identification and prevalence rates should differ and be higher. However, it should be noted that the issue here does not mean that we need uniform categories for early and later childhood. In fact the literature indicates that categories for the two different age groups are generally inapplicable for each other (Meisels & Wasik, 1992).

A second reason for differences between the prevalence rates concerns differences in the survey methods used. The teacher identification used in this research can be seen to some extent as a more subjective and loose identification approach, whilst the two past national surveys identified children through structured assessment and medical diagnosis. It is thus entirely predictable that this survey should obtain higher prevalence rates than the national surveys. Indeed, a comparison of teacher and DDST identification in the research also provides evidence for this explanation. The results

indicate that only 40% of the teacher-nominated children were screened out by DDST as possibly having developmental problems and all of the non-nominated children were screened as developing normally. In other words, the prevalence rate would reduce from 9.2% to only 3.7% if we were to assume that DDST is a highly valid identification tool. This figure is much closer to those estimated in the national surveys in Taiwan. However, as mentioned in Chapter Five, the DDST has been criticised for its low sensitivity as a screening test. The issue thus cannot be dealt with only in this way. This part of the findings therefore must be further discussed later in this chapter.

In addition, as different approaches and procedures are developed and undertaken, the present survey should be treated as a screening phase in a complete series of identification procedures, which generally captures a higher percentage of children for potential further identification and diagnosis. The children identified in this survey can only mean those who have suspected developmental delay and they actually need further more sophisticated identification; whereas the children identified in the national surveys are those who have already established diagnoses identified by professionals other than just the teachers.

A third explanation for the differences in early and late childhood prevalence rates concerns variations in 'point prevalence'. 'Point prevalence' has been quoted by Meisels and Wasik (1992) as 'the number or proportion of individuals in a community or population with a given condition at any particular point in time' (p.607). For young children with developmental delay, the point prevalence occurs and changes from one developmental period to the next, depending on the nature of the problem itself, external conditions, and interventions. This phenomenon has been described by Bell (1986) as 'age-specific manifestations' of risk, that is, for example, a child has delay in cognitive and social development at age five but with interventions may demonstrate a lowered risk status in the following primary school years. However, as the 'age-specific manifestations' can also happen in reverse, it can only explain differences between early and later childhood prevalence, but not necessarily explain a higher rate in early childhood.

Another possible explanation, which can explain the different results between this study and the national surveys, but cannot explain the greater prevalence shown in this

study, concerns the contexts of the populations. In Taiwan, primary-school and junior-high-school education are compulsory, whilst early childhood education is only voluntary. The attendance rate at kindergarten is therefore lower than those of the primary or junior high schools. Since kindergarten education is not compulsory, it is feasible that children with significant or serious difficulties or disabilities are not attending kindergarten. On the other hand these children will necessarily attend primary schools, since the attendance rate for primary schools is higher than 99% of the children at each eligible age group. Therefore the populations for the two target groups are different. Unfortunately, such a difference does not necessarily explain the higher prevalence rate revealed in this research, but can only offer possibilities. However, this explanation can imply a potential higher prevalence rate than the 9.2% found, if we try to estimate a prevalence for the whole five-year-old age cohort (including those not attending kindergarten).

Additionally, the higher prevalence rate for preschool children than for school-aged children in Taiwan does not confirm to some US researchers' opinions, which suggest a lower rate for preschool children than for the school-aged population (e.g., Abromowicz & Richardson, 1975; and Garland, Stone, Swanson & Woodruff, 1980). However, these prevalence estimates were based on traditional 'handicapping' categories such as mental retardation.

In fact, the prevalence rate in this research is not surprisingly high when compared with figures estimated in the Warnock Report of 1978 and the survey by Croll and Moses of 1985 in the UK. Both these reports suggested that about one in five children in school (including five-year-olds) have special educational needs, which is twice the prevalence rate of this research. Whilst Croll and Moses estimates are also based on teacher identifications, the different results may imply difference between the concept of special educational needs which they employed and that of developmental delay used in this study. Another possible explanation for the different results concerns possible underestimation in the present survey, due to early childhood education being not compulsory in Taiwan, as pointed out earlier.

Also using a broad category for young children, Fine and Swift (1986) have indicated that 6.1% of young children are considered by their parents as having

functionally handicapping conditions in Ohio in the USA. This lower rate than the present estimate may relate to different perceptions between parents and teachers, and for which we have no data in Taiwan.

On the other hand, the 9.2% prevalence rate reported here is still similar to some other researchers' estimates. For example, Drillien and Drummond (1983) have suggested that 12% of preschool children in Dundee, Scotland were identified (using developmental screening) as having 'neurodevelopmental disability' (including categories such as global delay, mental retardation, motor disorder, speech disorder, behaviour disorder, hearing loss, and visual handicap).

In Hong Kong, although official prevalence rates for kindergarten children with special needs are not available, available estimates for the primary-school stage are not too far from the current estimate. According to the statistics of the Board of Education in Hong Kong, there were recently about 12.9% of primary-school year-one and -two students with mild or moderate learning difficulties, with 10% for mild difficulties and 2.9% for moderate difficulties (Board of Education in Hong Kong, 1996). In Hong Kong, the category of learning difficulties refers to students who are in ordinary schools and require intensive remedial support, and this category is used to differentiate from those with severe disabling conditions and placed in special schools. Another example is the survey by Cheng (1996), which indicated 8.6% of children in ordinary primary schools in Hong Kong are perceived by their teachers as having learning disability or difficulty. Although the target ages are different, we can make sense of this convergence if we take into consideration the following common contexts: (a) developmental delay and learning difficulty in some way are both broad categories, (b) all the estimates were based on ordinary education settings, and (c) Hong Kong and Taiwan have some cultural and social context in common. However, although Cheng's study is also based on teachers' perceptions, its survey method still differs from that of the present research. Cheng's prevalence rate was based on teachers' general estimates through questionnaires, whilst the present research establishes the rate through teachers' actual nominations of real children in the teachers' own classes.

Furthermore, whilst the prevalence data were based on teacher identifications, this research suggests that personal observation was the most common and the main

method that the teachers used to identify and nominate children with developmental delay. This finding is consistent with Cheng's findings on the Hong Kong teachers' experiences for children with learning disability/difficulty (Cheng 1996), where teachers' own observations were also the most common way of identifying children. However, in contrast to the Hong Kong teachers' experiences, other approaches such as other teachers' comments and formal diagnosis were less frequently used by Taiwanese teachers than in Hong Kong. Further, Cheng's study was of primary school teachers.

(B) Variations in the Nomination Rates across Kindergarten and Teachers

In addition to the overall prevalence rate, this survey also revealed variations in the proportions of children nominated as having developmental delay across kindergarten and between teachers (or classes).

The different identification rates amongst kindergarten can be related to different kindergarten characteristics. One particular characteristic that was explored in the research was the types of kindergarten i.e. public or private. Comparison of the identification rates in the two types of kindergarten revealed a higher average proportion of children regarded as having developmental delay in the private kindergarten than in the public ones (with the ratio 1.7 : 1). One possible explanation for this result concerns from different child selection policies operated by the two types of kindergarten. In Taipei (and Taiwan) public kindergarten are run by the government, and the tuition fees are lower than private ones, and they were thus generally more popular for parents. However, the number of public kindergarten are limited, and it is therefore more competitive to enter the public kindergarten than the private ones. Public kindergarten therefore have more opportunities to select their pupils, whereas private kindergarten generally have only loose policies in child selection in order to maintain profits. The different policies and circumstances in child-selection may contribute to the fact that children with special needs tend to enter private kindergarten rather than public ones, since the former sector is less likely to reject these children. A survey by Shu (1994), based on perceptions of parents of young children with mild intellectual difficulty, reflected this issue in Taiwan. It is certainly reasonable then that the proportion of children with developmental delay should be higher in private kindergarten than in the

public sector.

The variation across teachers/classes was greater than the variation across the sampled kindergarten. The variation amongst teachers can have three implications. Firstly, the variation may partly reflect the actual distributions of children's problems in these classes. Secondly, the result may show that the teachers did not simply hold in mind a uniform number or proportion of children in class with developmental delay. Thirdly, the greater variation across classes than kindergarten implies a possible relationship between teachers' identifications and characteristics of classes or pupils. In terms of the classroom observations and screening tests, this study also explored some characteristics which might be associated with teachers' identifications. This part of the findings is discussed later in this chapter.

Nevertheless, no kindergarten in the survey was seen by its teachers as having no child with developmental delay, i.e. every kindergarten has children with developmental delay. This suggests that developmental delay was a general problem for the kindergarten regardless of which catchment areas they served.

3.2 Patterns of Developmental Delay

According to the teachers' identifications, only one-seventh of the nominated children had delay in a single domain, most had multiple developmental delay, with those having three or four delayed domains seen as the largest group. This result is understandable, since it is clear to those in the child development field that the various developmental domains interact in a complex and multiple way (Butterworth & Harris, 1994). Regardless of whether specific skills in one developmental domain are essential to the development of specific skills in another, problems in one domain will often influence development in other domains (Crnic & Harris, 1990). For example, a child's delay in language development can both influence and be influenced by other developmental abilities such as cognition or social skills. The diverse patterns of developmental delay are further indicated in Table 7.6 (Chapter Seven), where a total of no less than seventy different patterns with respect to various combinations of domains are revealed.

Referring to each domain individually, this research suggests that emotional or

behavioural development was seen as the largest domain of developmental delay (64.0% of the nominated children), followed by cognitive development (55.9%) and language development (53.7%). Taking account of the majority of children with multiple domains of delay, the results reflect that emotional and behavioural problems are the most common problem to accompany other domains of delay; or to put it the other way round, children with other domains of delay are also likely to exhibit emotional and behavioural problems. It is therefore understandable that this area of problems makes up the single most frequent developmental delay category. The teachers' views are also similar to those of the parents, as previously found in other research. The literature suggests that, as a group, children with developmental delay are perceived by their parents as having emotional or behavioural problems and the range of problems identified varies widely (Keogh, Bernheimer, Haney, & Daley, 1989).

However, when comparing the research with the findings from the latest national survey in Taiwan, the high prevalence of children with emotional/behavioural or language problems in this study is distinctive. In the national survey intellectual difficulties formed the largest category for school-aged disabled children, but the percentage (41.5%) was not surprisingly far from that of this study. However, only 9.4% of the children identified in the national survey had emotional or behavioural disorders, and only 3.9% had language disorders. On the other hand, the findings from this survey research are similar to those from Croll and Moses study in the UK. With both based on teachers' identifications, Croll and Moses's findings also suggest behavioural difficulties as a major category of children with special needs (Croll & Moses, 1985) like this research. As discussed in the previous Section about the overall prevalence rates, the reasons for similar or different distributions of problems lie more with the particular choices of terminology, target population and identification methods.

4 CHARACTERISTICS OF KINDERGARTEN CHILDREN WITH DEVELOPMENTAL DELAY

4.1 Demographic Characteristics

As commonly found in other prevalence studies of special needs (e.g., Drillien

& Drummond, 1983, and Croll & Moses, 1985) this research indicates the preponderance of boys amongst those regarded by their teachers as having developmental delay. Of the teacher-nominated children, more than three quarters were boys, and the nomination rate for boys was 3.5 times that for girls. Why was this? A possible answer to this question lies within biological issues. Boys outnumbered girls in the prevalence rates for many of the kinds of diagnostic disability found. Referring to the prevalence of autism, for example, boys outnumbered girls by between 3:1 and 4:1 (Humphreys & Ramm, 1987, cited in Hornby, Atkinson & Howard, 1997, p.15). Indeed, there is biological evidence indicating that boys are more vulnerable in the womb, and physically mature less quickly than girls (Green, 1993).

Another possible explanation for the preponderance of boys concerns teachers' different expectations for boys and girls. In Taiwanese society boys are generally expected to have more problems in school (e.g., inattentiveness, rudeness, dirtiness) and need more attention and control from the teacher, whereas girls are expected to behave and react in opposite ways. Such different expectations encourage girls to be 'nice' students in class, whilst boys on the other hand may be encouraged to become 'problematic' and 'helpless'. Thus the boys are more readily noticed when they experience difficulties in their learning and development. This can lead to possible gender bias and stereotyping by teachers. But we have no checks on this. When emotional or behavioural problems are seen as the largest category of developmental delay in this study, this perspective on the careful interpretation of the results seems reasonable.

Despite a great deal of the literature linking a child's developmental problems with his or her family structure and socioeconomic status, the children identified in this study as having developmental delay generally did not come from 'disadvantaged' family backgrounds. More than 90% of the children lived with both parents, and over 80% of their parents' educational levels were at high school/junior college or higher levels, with more than 95% of parents being employed (unfortunately though no related income data for them was collected). Whereas inadequate parenting and lacking cultural stimulation at home were regarded by the teachers as main factors contributing to children's developmental delay, the superficially positive family background data seem

to imply that living in a two-parent family and having parents of high educational levels does not necessarily mean that inevitably better quality of child rearing or child learning is provided.

Another interesting finding relates to the children's demographic characteristics, and concerns the birth order. Almost nine-tenths of the nominated children were the youngest, eldest or only child in their families, with more than two fifths being the youngest one. It can be argued that this result relates to the small family sizes in Taiwan. Since most families generally have two, or even one child, it is reasonable that most children fall into these groups (Note: there are no statistics readily available on the average number of children per family, but according to the statistics of the Ministry of Health in Taiwan, the number of children for the maternal ages is about 1.8). It may also be noteworthy that the youngest children form the largest group. However, due to a lack of information regarding the birth-order distributions for the total sampled children, no confirmed inferences about this issue can really be made based for this study. We can only offer some possible suggestions here.

4.2 Problems associated with Developmental Delay

This research also describes in some detail the various problems associated with developmental delay as a definable category. This aspect of the data was examined through three different methods, including individual interviews with teachers in terms of open-ended questions, a characteristics rating scale completed by teachers, and the teachers' descriptions of each nominated child's problems. In general, the different sources of data suggest a common result which indicates that there is considerable variability in characteristics and problems within any one group of children with developmental delay.

The interview results for the question regarding the characteristics of children with developmental delay show that developmental delay was thought of as including a wide range of problems across learning, emotional/behavioural, motor, language, cognitive, social and self-help skills development and appearance characteristics. Similar wide-ranging characteristics were also revealed in the teachers' descriptions of the problems with the nominated children. Two implications can be advanced from these

results. Firstly, the wide-ranging and diverse characteristics support the conceptualisation of developmental delay as a broad category to cover the majority of kindergarten children's diverse problems in learning and development, and to be an appropriate eligibility option for this population in obtaining necessary help. Secondly, the similarity of the results between the data from teachers' expressions of the concept and those from their descriptions of actual problems with the children implies that teachers' understandings of developmental delay are in some way influenced by their experiences with such children. The finding that emotional/behavioural problems appeared in both the sub-studies as the most common characteristics also lends credibility to this explanation.

Some different results however appear between the two data sets. The characteristics mentioned by the teachers during the Stage One interviews did not include characteristics directly related to sensory or physical impairments. On the other hand, the characteristics teachers described for their nominated children included this group of syndromes, since more than one-fifth of the children were regarded as having these types of problems. The different results suggest that children with sensory or physical impairments are also viewed by teachers as having developmental delay, but these sorts of problems are not essential characteristics of these children. However, such a difference in the two sets of responses may also reflect the teachers' uncertainties about the inclusion or not of sensory or physical impairments within any categorisation of developmental delay.

Possible uncertainty also appears in the different results between the teacher interviews and the use of rating scales. The teachers' ratings indicated that developmental delay tends to be characterized by items which are general and nonspecific in description, such as lower developmental levels, poor gross motor skills and being below normal intelligence. The emotional or behavioural problems which were most frequently mentioned in the interviews and were seen as the most common problems of the children, were however generally rated lowly in the rating scale. In addition to possibly disclosing real uncertainty in the teachers' understandings of developmental delay, the different results can also be related to methodological issues. Whilst the exploratory interview is viewed as a way to elicit teachers' concepts, the

rating scale is a way to provide teachers with the concept. The items of the rating scale are already considered relevant to developmental delay, and the teachers were asked to judge how typical each of the given characteristics actually were (to them). It is possible for a characteristic to be mentioned, but not be rated highly, and yet be or not be a 'typical' characteristic. For example, one explanation for the low rating of most emotional or behavioural characteristics is that although this domain of problems often occurs, they need not necessarily be also considered as 'typical' characteristics. A related reason for this variability may be the specificity of these emotional/behavioural items. Since the overall rating results can suggest a particular tendency for the nonspecific characteristics to be rated highly, the specific emotional/behavioural characteristics by contrast will then therefore be affected in the opposite way, i.e. lowly. On the other hand, almost all the items in the rating scale also appeared in the teachers' elicited concepts. As the development of the rating scale was mainly based on western originals (e.g., the Infant Rating Scale in the UK), the consistency in data sets between elicited and supplied concepts perhaps suggests the efficient use of and relevance of the characteristics provided by the researcher. Besides, this may also suggest that the Taiwanese teachers' concepts are in some ways not so far from those of the western-derived measures.

5 SPECIAL PROVISIONS FOR KINDERGARTEN CHILDREN WITH DEVELOPMENTAL DELAY

5.1 Current and Future Special Provision

The research indicates that almost all of the teacher-nominated children (with the exception of just one child) either received or were seen to need special provision from either inside or outside the kindergarten. That is, the children regarded by their teachers as having developmental delay were also thought of as being in need of some form of special provision. Whilst these children's problems were described so heterogeneously, and the degrees of their difficulties are not clear in this study, this finding suggests another way of evaluating teachers' identifications. Instead of focusing on children's levels of difficulties, it has been commonly suggested that a child's special needs may be better understood in terms of his or her needs for special provision (e.g., the Warnock

Report in the UK of 1978). Given this viewpoint, the 9.2% prevalence rates revealed in the study can be more meaningful, since almost all of the children were also seen as needing some form of special provision.

In general, the survey here shows that current special provision for children in Taiwan with developmental delay is still limited, especially provision from inside the kindergarten. Of the nominated children, only about one-tenth received special provision from the kindergarten itself (excluding the internal class strategies that class teachers used to deal with these children's delay), and about a quarter received provision from outside the kindergarten. On the other hand, nearly nine-tenths needed future special provision from inside the kindergarten, and about a half needed these from outside the kindergarten.

The research also describes in some detail the nature of the special provision for these children. In order to deal with most of the children's delays, the teachers had altered or adapted their teaching strategies. The most common teaching strategies adopted included using individualized teaching within normal teaching, enlisting parental assistance and providing additional tuition. These findings reflect that most of the children cannot learn efficiently under ordinary teaching milieu, and thus teachers need to use strategies other than normal instructional methods.

Parallel to the increased emphasis on parental roles in early childhood interventions (Odom & Warren, 1988; Braun, 1992; Ketelaar *et al*, 1998), teachers do recognise the parents' important role in education for these children. According to the survey, once teachers find a child having developmental delay, the most common coping strategy is to 'discuss with the child's parents'. In this study, more than ninety per cent of the parents had been contacted because of their children's delays. Additionally, 'kindergartens providing educational support for parents' were seen as the most frequently needed future provision for these children. However, despite emphasizing the parental role, the teachers' opinions were still not as advanced as the concepts of the 'parental involvement', which suggests a need for higher levels of parental participation.

On the other hand, teachers do not often report children's delays to the kindergarten authorities, though they might discuss them with teacher colleagues. Three explanations for teachers' infrequent reporting to the kindergarten can be put forward.

One possible reason is that teachers are able to manage these children's difficulties by themselves, and therefore do not feel the necessity to report to the kindergarten. A second explanation may be that the kindergarten cannot provide much help for the teacher and the child. Another possible reason is that the link between class teachers and the kindergarten is not well established for dealing with individual children's special needs. The last two explanations seem reasonable when referring to the findings indicating the limited special provision available for such children and the limited help provided for their teachers by the kindergarten.

This study also reveals a very limited use of formal assessments in the ordinary kindergarten. Of the nominated children, only three had or would receive formal assessments from the teacher or kindergarten. The very few children assessed within the kindergarten does not mean most of them do not need such assessments. In fact, more than three-tenths of the children had been suggested by their teachers for referral to other professionals' assessments. Additionally, for about three-fifths of them, the teachers also said that they would like the kindergarten to provide assessments in learning and development. Apparently, assessments conducted by teachers or kindergartens are needed but not undertaken for the children.

Referring to special provision from outside the kindergarten, whereas the necessity for interdisciplinary service cooperation has been acknowledged early in the childhood intervention field (Meisels & Shonkoff, 1992), this study also suggests that such a necessity still remains unfulfilled for some children. Only four children had received special provision from both inside and outside the kindergarten, and yet more than two-fifths were seen to need both sources of special provisions. Amongst the outside special provision, medical or rehabilitative services were most needed by these children. The proportion of children needing such types of provision was greater than the percentages of children with diagnosed sensory, physical or health-related problems. That is, some children without diagnosed medical problems also required some form of medical or rehabilitative provision such as further assessment by paediatrics or language therapy, according to the teachers' descriptions.

5.2 Ideal Placement for Kindergarten Children with Developmental Delay

The teachers' ratings suggest a preference for integrated settings rather than segregated settings to be the ideal placement for kindergarten children with developmental delay. 'Ordinary class in ordinary kindergarten' was ranked as the most appropriate type of educational placement for these children, whilst 'special separate classes or kindergarten' or 'remaining at home' were rated significantly as being inappropriate. In general, the teachers' perceptions were in line with the general demand for inclusion of young children with special needs in early childhood education (Bailey *et al*, 1998; and Odom & Diamond, 1998), and are also consistent with previous studies (e.g., Marchant, 1995; and Lieber *et al*, 1998), in spite of a lack of data from this study regarding the definition and practice of inclusive preschool programmes.

However, the setting 'mainstreaming kindergarten', where children with developmental delay are in ordinary classrooms for most of the day but are withdrawn for individual or special tuition on a regular basis, was viewed by teachers as being a controversial placement. Although this kind of setting was ranked as the first or second choice regarding more than half of the children, it was also considered as the least favourable choice for over two-fifths of them. This part of the negative views expressed differs from the findings of past studies which indicated that withdrawal from normal teaching for children with special needs was popular with class teachers (Croll & Moses, 1985; and Richmond & Smith,1990). A possible explanation for this controversial rating result within this research exercise concerns children's levels of developmental delay. Although the mainstreaming of kindergarten children with developmental delay gives them the opportunity to integrate with other typically developing children, they still have to stay in a segregated setting for part of their time. Considering that some nominated children in this study were only considered merely to have mild delay, teachers might view this sort of part-time withdrawal of teaching as not being necessary for them. Nevertheless, this result could not be easily explained, as the same teachers also seemed to disagree over the values of segregation versus inclusive education, since the 'ordinary class in ordinary kindergarten' was clearly seen as the most ideal placement,

Consistent with the views on 'ordinary classes in ordinary kindergarten' as the most appropriate placement, this survey also shows that the great majority of the

children's teachers would still like to keep them in class. Teachers' main considerations for keeping the children concern equal learning opportunity (e.g., 'every child has equal educational opportunity', 'teachers should not differentiate between pupils') and a child's degree of difficulty (e.g., 'the child is educatable'). Regarding the small proportion of children teachers would like to reject in their classes, the main reason concerns the inappropriateness of such a placement (e.g., 'ordinary class is not an ideal placement for him or her'). Overall, these findings seem to reflect the teachers' proper concerns for children with developmental delay. The teachers were very aware of their responsibilities for these children. They wanted to keep the vast majority of them in ordinary classrooms in the ordinary kindergarten, and want to offer them opportunity and assistance in learning, even though they might have some difficulties in meeting these children's special needs. The difficulties teachers experienced are discussed in the following Section.

6 TEACHERS' EXPERIENCES IN COPING WITH CHILDREN WITH DEVELOPMENTAL DELAY IN CLASS

This study reveals that, as viewed by teachers, children with developmental delay do bring certain influences on teachers and classes, with only about one-third of the nominated children being considered as having neither positive nor negative effects on their classes. The most common influences were 'being a challenge to teacher and increasing teachers' specialist knowledge', 'interrupting teaching process' and 'increasing teacher's workload'. However, teachers do not hold a simple positive or negative view on these children's influences, but a more sophisticated opinion which looks at both sides of the issue. Further analysis shows that one-third of the children were perceived as having both positive and negative influences, whilst less than a quarter were seen as only having a negative influence and about one-seventh as having positive influence. These results suggest that teachers generally held a positive view on having these children in their classes, but that on the other hand, these children also led to problems in the regular teaching. In addition, just as the literature reviewed in Chapter Two does not indicate a consistent view of teachers regarding either positive or negative

effects of inclusive programmes for such children (e.g. Leyser, Kapperman & Keller,1994; and Marchant, 1995), the present findings also suggest that this issue perhaps needs to be dealt with from a variety of perspectives rather than in a simple one way or another.

Although about half of the children were seen as having positive influences on classes (regardless of whether they were also having negative influences), the teachers did experience some sort of difficulty in coping with more than ninety per cent of them whilst in class. For about half of the children, teachers complained that there was not enough time to meet their special needs. However, an increase in teacher numbers was not seen as an essential approach to overcome this problem of insufficient time. According to the survey, less than one-fifth of the children were seen to request more teachers in class. On the other hand, reductions in class size can be seen as a way to sort out the time problem. The other most common difficulties found included difficulty in identification, communication difficulty with parents, and lack of assessment instruments.

Referring to these difficulties, the survey also showed that only limited help was available for classroom teachers in dealing with these children. For more than three-fifths of the children, their teachers never received any help either from inside or outside the kindergarten. As for the teachers who did receive help, the main source was from another teacher in the kindergarten. Clearly, formal help through the kindergarten or other sources is insufficient for the teachers. Responding to this issue, the study investigated what help the teachers would hope to receive in the future. The main areas of help needed were in-service training in early childhood special education, providing appropriate assessment instruments and teaching materials for teachers, more professional support from external specialists, as well as more information on identification and placement for these children.

The difficulties the teachers experienced and the additional help they need both have practical implications. Kindergarten, governments, administrators and professionals working in this area can all refer these findings to contemporary policy-making and practice. In fact, some of these findings are consistent with those from a survey by the National Taipei Normal College in 1990. In that survey the head teachers and class

teachers of kindergarten also identified difficulties in identification, assessment, teaching strategies and material help (National Taipei Normal College, 1990). The similar results between this study and ours reflects common difficulties and problems existing since 1990 which have still not been resolved.

This study also shows that for nearly two-thirds of the children regarded as having developmental delay, teachers would like to transfer them for further identification, whilst for the remaining smaller proportion, teachers are sufficiently satisfied. The main reason for not referring for further identification was because a child was argued to have no severe difficulty. The results suggest that teachers generally hold positive attitudes towards formal identification, and that most of the children are actually in need of further assessment. On the other hand, having no severe difficulty is seen as the main reason for not transferring them for further identification, and this implies that teachers' perceptions of developmental delay are inclusive of children whose problem is not serious enough for formal identification. This finding in some ways lends credence to the broader nature of the category of 'developmental delay' for early childhood special needs.

7 TEACHER IDENTIFICATIONS AND CLASSROOM BEHAVIOURS

7.1 Classroom Behavioural Patterns of Children with Developmental Delay

First of all, the study indicates that the most frequent activities in kindergarten were 'whole class lesson' and 'working individually' (both the nominated and non-nominated children spent over four-fifths of their time in these two types of activities), rather than'group activity'. This distinction is noteworthy when viewing 'whole class lesson' and 'working individually' as activities which generally do not encourage child-peer or child-teacher interactions, whereas 'group activity', by contrast, is more likely to facilitate such two-way interactions in classrooms. This result diverges from some reported expectations for kindergarten classrooms. Whereas superficial grouping (e.g., children sit or work in groups around tables) used to be held as a common and essential organisational principle of kindergarten classrooms (David, 1992; Wilson, 1998), this kind of activity in fact is of limited occurrence with respect to the Taiwanese children's

actual experiences of classrooms. The finding here about Taiwan replicates the study by Walter and Vincent (1982) in the USA, in which the most frequently observed activities in the kindergarten classrooms were also those in which the children's main roles were to listen or follow directions, or in working on their own. In practice, this finding suggests the necessity for Taiwanese kindergarten teachers to change classroom environments towards activities that maximize the possibilities for interactions amongst the children.

Using systematic observations, this research has identified the classroom behavioural patterns that kindergarten teachers appear to associate with their perceptions of developmental delay. The comparison of classroom behaviours of the teacher-nominated children with the non-nominated children suggests group differences on various types of behaviours and interactions.

By being more frequently distracted from work on their own and more off-task interactions with peers, the nominated children spent less time in on-task behaviours and more time in off-task behaviours than the non-nominated children. These results support the findings from the surveys at Stages 1 and 2, which suggest that 'inattentiveness' was perceived by the teachers as a main characteristic for children with developmental delay. These findings are consistent with those from previous studies (Burstein, 1986; Krakow & Kopp, 1983). For example, Burstein (1986) found that preschool handicapped children (including subjects with developmental delay, Down Syndromes, hearing impairment or autism) spent less time on-task than did non-handicapped children in mainstreamed settings. Similar results are also suggested by other reports of children at junior classrooms, such as Croll and Moses (1985), Bahr *et al* (1988), Cooper and Speece (1988) and Bay and Bryan (1991). For instance, both the studies by Cooper and Speece (1988) and Bay and Bryan (1991) indicated inattentiveness or distractibility as critical factors when teachers identified children at risk for special education referral.

However, there are differences in the research methods between the present study and some of the earlier ones. The present research uses systematic observation to determine differences between the identified children and others in classrooms, whilst the past studies relied on teachers' perceptions or descriptions of the children. For example, Bahr *et al* (1988) asked teachers to respond to questionnaires, Cooper and

Speece (1988) data was based on teacher ratings of children's behaviours, and Bay and Bryan (1991) asked teachers to describe their thinking during instruction.

Diverging from Croll and Moses's findings, the present research does not support the significance of aggressive behaviour on teachers' identifications of children. In fact aggression occurred rather infrequently for both groups in this study. The nominated children only exhibited aggression towards peers for an average of 0.1 per cent of time, and the non-nominated children did not show any aggressive behaviour.

Another important aspect of classroom experiences for children regarded as having developmental delay is the level of child-teacher interaction. Consistent with previous research for preschool settings (e.g., Kohl & Beckman, 1984; Brophy & Hancock, 1985; Stipek & Sanborn, 1985; Burstein, 1986; Quay, 1991; and Hundert, Mahoney & Hopkins, 1993), this study also shows a higher level of direct interaction between the teachers and the children identified as having developmental delay, in comparison to normal interactions between teachers and other children in class. Through being called on more frequently and being provided with more individual instruction, the nominated group received more direct one-to-one contact from teachers than the non-nominated group. Because of being called on more frequently, the nominated children also involuntarily responded to teachers more often than the non-nominated children.

Two possible interpretations can be suggested for these findings. Firstly, it is possible that during the period of observations teachers paid more attention to the children they nominated than they usually did. It could be that usually the children regarded as having developmental delay were left more on their own and a distorted picture of what usually happens was thus obtained.

Secondly, on the other hand, this finding may not be surprising since nominated children are regarded as having delay in development and may need more attention and assistance. Assuming this pattern of teacher-child interactions occurs on a daily basis, children regarded as having developmental delay would receive significantly more individual attention from teachers than other children in class. This seems in some way to also imply that teachers' perceptions of children with developmental delay involves them as occupying more of teachers' time in classrooms than do other children. However, these findings do not mean interactions between these children and the

teachers were at an appropriately high level, since the level of overall direct interactions in the classrooms were relatively low as pointed out earlier in this Section.

Whilst there are significant direct one-to-one contacts between these children and teachers, the results do not show a significant difference in total child-teacher interactions between nominated and non-nominated children. As explained previously in Chapter Ten, the insignificance is clearly the effect of the greater occurrences of the singly largest behaviour 'listening to teachers', which was under the category of total interactions but not direct one-to-one contacts.

On the other hand, unlike the higher level of teacher-child direct contacts for the nominated children than those for the other children, there was no significant difference in total child-peer interactions between the two groups. The only type of child-peer interaction reaching significance is off-task interactions. Consistent with Croll and Moses (1985) findings, Children regarded as having developmental delay engaged more often in off-task interactions with peers (including distraction and aggression) than other children. One explanation for these results might be that although children with developmental delay spend similar amounts of time on interactions with peers, due to their inattentive characteristics they appear to exhibit more frequently off-task interactions with peers than other children. The characteristic of inattentive behaviour for these children has been identified in this study and lends support to this explanation. However, more convincing evidence for this explanation should be provided through further research on the initiation of such off-task interactions (e.g. for children with developmental delay are they the actor or being acted upon).

7.2 Classroom Behavioural Patterns for Children with and without Behavioural Problems

A further analysis of Table 10.1 (Chapter Ten) shows that children nominated but considered to have no behavioural problems have a classroom behavioural pattern common to children nominated and described as having behavioural problems, which distinguishes both groups from the non-nominated group. Both these two nominated groups differ from the non-nominated group in spending less time on tasks, more time on off-task behaviours and more time on direct one-to-one contacts with teachers.

However, these behavioural characteristics are more typical for the children nominated and described as having behavioural problems than for those nominated but considered to have no behavioural problems.

This comparison suggests that behavioural patterns are not only typical to children with behavioural problems, but are also to some extent typical of all children considered as having developmental delay. It is unclear as to why the behavioural pattern of children 'with developmental delay but without behavioural problems' occurs. One explanation is that there is not only a 'behavioural pattern of children with behavioural problems' but also a 'behavioural pattern of children with developmental delay'. In other words, the teachers do recognise some types of classroom behavioural characteristics in their identifications of developmental delay.

8 TEACHER IDENTIFICATIONS AND DDST SCREENINGS

8.1 The Match and Mismatch between Teacher and DDST Identifications

Generally speaking, the present research suggests an association between teacher identifications and children's DDST (the Denver Developmental Screening Test) performances. Children regarded by their teachers as having developmental delay tended to be identified as having delay in the DDST, whereas those regarded as not having delay tended to have a 'normal' DDST result. This finding generally indicates a certain degree of match between the teacher and the DDST identifications. In particular, all of the non-nominated children were consistently identified as developing normally in the DDST. However, although there was a high match in identifying children without developmental delay, the study also suggests a certain degree of mismatch between the two methods in identifying those children who are possibly having developmental delay. Of the teacher-nominated children, three-fifths had a 'normal' DDST result, whereas the remaining two-fifths were consistently identified as having delay in the DDST. Whilst the literature reviewed in Chapter Two indicates generally moderate to high levels of agreement between teacher and test assessments (e.g., Leinhardt, 1983; Silverstein *et al*, 1983; Croll & Moses, 1985; Gresham, Reschly & Carey, 1987; and Hoge & Coladarci, 1989), this part of the findings here is inconsistent with those from the literature, and in some ways

might be more interesting.

This study unfortunately cannot provide sufficient information for explaining the match or mismatch between teacher and the DDST identifications. This is mainly due to some limitations of the research methodology. Unlike some studies which directly asked teachers specifically to estimate children's performance on a concurrently administered achievement test (e.g. Leinhardt (1983) asked teachers to make judgements on an item-by-item basis), there is not a direct strong logical link between the DDST and the teacher nominations used in this study. This thus limits interpretations of the relationships between them.

However, there are still some possible explanations that can be advanced for these findings. Two reasons can be raised for the match results. One reason lies with the common rationale behind both methods. According to the findings from the teachers' concepts of developmental delay and their descriptions of the children's problems, their perceptions of what describes a child as having developmental delay are based on normative models i.e., the typical development of children at the same age. The same normative models are also the basis for most standardised tests like the DDST, a norm-reference measure. It is therefore understandable that a certain degree of match should exist between the two kinds of identifications.

The other explanation for the match results between the teacher and the DDST identifications concerns the 'specificity' issue. Specificity of a screening method refers to the proportion of children in the no-problem group (i.e., those who have not developmental delay) who are correctly classified as not needing referral (Ireton, 1990). The complete match for the teacher/DDST identifications within the non-nominated group may thus reflect high 'specificity' in both methods. In fact, being a screening test, the DDST has been acknowledged for its high specificity, and the result in this research seems to confirm this view (Cadman *et al*, 1984; Meisels & Wasik, 1992).

As far as the mismatch between the teacher and DDST identifications is concerned, several explanations can also be put forward. First of all, it should be noted that the mismatch results do not mean a low accuracy of the teacher identifications or of the DDST either. This is because both methods are viewed as screening procedures for further diagnostic assessments, that is that both cannot ensure precisely a determination

of a child's 'actual' developmental status. It is therefore misleading to judge the accuracy of either way of identification based just on such a kind of comparison.

A second explanation for the mismatch results concerns the sensitivity issue of the DDST and the children's characteristics. As noted previously in Chapter Five, studies have highlighted the problem of the DDST's low sensitivity for some types of developmental delay (e.g., Ireton, 1990; and Meisels & Wasik, 1992). Ireton comments that the DDST may be efficient in identifying young children with IQ's less than 70, but may not be that efficient for screening three to five year olds who may suffer lesser degrees of developmental delay or more specific developmental disabilities. Given the DDST's low sensitivity, and taking account of some teacher-nominated children (or maybe a majority of them) in the ordinary classrooms only having mild degrees of developmental delay, it is understandable that some of the nominated children could not be consistently screened out in the DDST.

Another finding from this study lends additional evidence to support this point to some extent. Although both were tested 'normal' in the DDST, the children who were regarded by their teachers as having developmental delay still generally had poorer performances than those who were not so regarded (see the comparison in Table 9.5 in Chapter Nine). In other words, it means that some teacher-nominated children did have some developmental problems, but were not identified according to the cutoff scores of the DDST. In addition, referring to a finding from a study by Walker, Bonner and Milling (1984) which indicates an underreferral rate of 46% for the DDST (cited in Meisels & Wasik, 1992), the 60% mismatch rate between teacher and DDST identifications from the present research seems not excessively high.

Furthermore, a third explanation for the mismatch lies within the possible factors which might influence the accuracy of the teacher identifications. Researchers have identified a series of potential moderator variables for teacher-based assessments, such as differences amongst teachers, subject areas, or children's ability (Hoge & Coladarci, 1989), and gender and classroom behaviour (e.g. Croll & Moses, 1985). In fact, in this study the moderators including children's domains of delay and classroom behavioural patterns were identified as having associations with the discrepancies between the teacher and DDST identifications (see Chapters Nine and Ten). This part of the findings

is discussed in the following Section.

8.2 Some Moderator Factors on the Variations between Teacher and DDST Identifications

In order to provide possible interpretations for the variations between the teacher and DDST identifications, this study also explored some of the potential moderator variables (including children's gender, age position in a class, delayed domains described by teachers, and classroom behaviours) which might be associated with such variations.

Whilst the prevalence survey indicated a preponderance of boys regarded by teachers as having developmental delay, child gender failed to show any significant effect on the relationships between teacher and DDST identifications. This negative result is consistent with the general findings within the literature when teacher assessments are compared with test performance (e.g. Hoge & Butcher, 1984; Doherty & Conolly, 1985; and Sharpley & Edgar, 1986; cited in Hoge & Coladarci, 1989). However, some research does reveal divergent results. Croll and Moses (1985), for example, suggest that primary-school teachers are found to overestimate or underestimate, depending on levels of difficulty, on the reading achievement of girls relative to boys. However, their results were simply based on descriptive statistics without testing the statistical significance. Similar results might have been revealed in the present study if we had only used descriptive analysis. As shown in Table 9.2 (Chapter Nine), according to the number and percentage distributions, the teachers seemed more frequently to tend to underestimate the developmental levels of boys, but the chi-square test does not suggest a statistically significant association to support this view, although the small number of each cell might limit the power of this test.

Although all children in the study were five years old, because of an assumption that even several months of difference in the chronological age can mean a considerable progress and difference in development for young children, the children's age position in a class (youngest, middle or eldest group) was also examined as a possible moderator factor on the teacher/DDST variations. However, by contrast to the findings in Croll and Moses's study (1985), the result here failed to show any significant association between the age position and the teacher/DDST relation, even though the mismatch rate for the

youngest group seemed superficially higher than for the other two groups.

This research however does suggest that two other variables, certain delayed domains and classroom behaviours, do have an association with the variations between teacher and DDST identifications. The self-help skills and motor developmental domains were found to have a link with the teacher/DDST relationship, whilst the rest of the domains do not show such an effect. Children who were described by teachers as having delay in self-help skills or motor development tended to be also identified as having developmental delay in the DDST, whereas those who were not regarded as delayed in one of these two domains by the teachers tended to have a 'normal' result in the DDST. However, these findings also need to be viewed with caution since most of the children involved were seen as having multiple domains of delay and it would thus not be appropriate to deal with each domain entirely separately in such a way. Moreover, as noted earlier, the sample size for this part of the analysis is only twenty five and the number for each cell is therefore not large.

Whilst our data cannot provide many clues as to explanations for the linkages between specific delayed domains and the teacher/DDST relationship, another explanation may concern the areas measured in the DDST. Since three of the four areas (gross motor, language, fine motor/adaptive and personal/social) measured in the DDST are regarding motor and self-help skills development, it seems understandable that teacher identifications would be more likely to match the DDST for children described as having delay in one or other of these two domains. Although the DDST does not have a sub-test named self-help skills, the items in the personal/social area for testing five-year-old children are mainly those belonging to self-help skills development (e.g., dress without supervision, buttons up and so on). As regards the language domain, although it is also included in the DDST, some validity research on the DDST already raises questions particularly about the language items (Ireton, 1990). In addition, compared with other developmental domains (e.g. emotion and cognition), these two areas are more readily measured and observed in a short-term test, especially when considering the children only having mild delay.

Where the classroom observations suggest a distinctive pattern of classroom behaviour and interactions associated with teachers' identifications of developmental

delay, such classroom behavioural patterns were also found to be having a significant effect on the variations between teacher and DDST identifications. A comparison of the teacher identifications, DDST results and classroom behaviours suggests that the discrepancy between the two identification methods can be accounted for in terms of the classroom behavioural patterns. The behavioural patterns of the 'false positive' children (identified by the teachers as delay but not in the DDST) are more like those of the 'true positive' children (consistently identified by the teacher and the DDST together as delay) rather than those of the 'true negative' children (consistently identified by the teacher and the DDST as not having delay). In other words, some children who are not assessed as having problems in screening tests are still likely to be regarded by teachers as having developmental delay, due to exhibiting what teachers regard as the typical behavioural patterns.

Similar results were also shown in Croll and Moses's study (1985), although their study focuses on children's reading achievement, and different behavioural patterns are identified. Taking account of the possible weakness of the DDST, this finding however does not necessarily mean that children's classroom behaviours are misleading teachers' identifications of developmental delay. A fairer decent interpretation is that teachers might need to pay attention to other aspects of a child's performance in addition to relying solely on their observations of children's classroom behaviour.

9 CONCLUSIONS

This chapter has evaluated each finding from the present research, with and attempted to integrate these with further implications, with other researchers' findings, and with identifying specific limitations within the research. In the next and final chapter, the thesis concludes with some general discussion about this research's general implications in wider theory, practice and research in this field, as well as its general limitations. Directions for further future research in this area are also recommended.

CHAPTER TWELVE
CONCLUSIONS

1 INTRODUCTION

Alongside recent global trends and recent Taiwanese policy initiatives regarding early childhood special education, as well as the introduction of 'developmental delay' as a new eligibility option for young children with special needs in Taiwan, the three-stage research in this thesis describes some important aspects of the interrelations between Taiwanese kindergarten teachers and the implementation of this new 'developmental delay' categorisation. This research represents a useful extension to the currently rather limited coverage of this topic in contemporary Taiwanese educational research. It also covers the prevalence and characteristics of children identified as having developmental delay in kindergarten, and the relationships between teacher identification, screening tests and classroom behaviour. This concluding chapter brings together and evaluates the general implications and limitations of this study and recommends directions for future research. The major findings are summarised first. The implications, limitations and recommendations for future studies then follow.

2 SUMMARY OF THE MAJOR FINDINGS

The key findings from the present research are summarised below with reference to the 23 research questions listed in Chapter 1 on Pages 23 to 26.

2.1 Research Question 1 - In which ways do kindergarten teachers understand, view and define developmental delay?

A Research question 1.1 - Have teachers heard of the term 'developmental delay'?

More than nine in ten of the teachers had heard of the term 'developmental delay'. The results are set out and discussed in Chapter 6 (Section 2.1).

B Research question 1.2 - What are teachers' views on the definition, characteristics and aetiology of developmental delay?

(a) The teachers' definitions of developmental delay were dominated by a within-child dimension rather than an interactive dimension. The most frequently referred models were the normative, developmental and syndrome models. The most common features in their definitions were: 'development lags behind other children of the same age', 'has not reached the developmental milestone of his or her age' and 'development below the norm for his age'. The results are set out and discussed in Chapter 6 (Section 2.1). Comments on the data and other research results in this area can be found in Chapter 11 (Section 2.1).

(b) The characteristics of children with developmental delay were seen as wide ranging, which included difficulties in learning and major developmental domains as well as appearance features. The most commonly mentioned areas of characteristics included learning, emotional/behavioural and motor development. The most frequently mentioned characteristics were: inability to keep pace with learning, poor relationship with peers, inattentiveness, slow to respond, problems in walking, clumsy and poor task performance. The results are set out and discussed in Chapter 6 (Section 2.2). Comments on the data and other research results in this area can be found in Chapter 11 (Section 4.2).

(c) Both biological (e.g. pregnancy or perinatal problems, hereditary or genetic problems and illness after birth) and environmental factors (e.g. factors related to the parenting style, lacking cultural stimulation and family background) were perceived by the teachers to be possible causes of developmental delay. However, the teachers' views on the environmental causes were strongly dominated by home factors rather than school factors (i.e., factors relevant to the teacher or kindergarten). The results are set out and discussed in Chapter 6 (Section 2.3). Comments on the data and other research results in this area can be found in Chapter 11 (Section 2.2).

(d) The teachers tended to consider that children with developmental delay could have difficulties in only one, or more than one, developmental domain. Children having physical or sensory impairment were generally regarded as having a form of developmental delay. Developmental delay was also seen to be readily improved through

education. Other characteristics of this category were also revealed from the teachers' responses, but no common conclusions could be generated for these features due to their very low frequencies (e.g. only used for very mild difficulty, specifically used for young children, the main intervention approach is education rather than medicine and so on). The results are set out and discussed in Chapter 6 (Section 3.14). Comments on the data and other research results in this area can be found in Chapter 11 (Section 2.1).

C Research question 1.3 - How do teachers differentiate between the concepts of developmental delay and related terms regarding special educational needs with which they are familiar?

The teachers generally viewed developmental delay as a broad or umbrella category which covers other categories which used to be used to describe a child's special educational needs (e.g. intellectual difficulty and sensory impairment). However, this sort of relationship might vary whilst comparing this category with other broad categorisations such as disability and learning difficulty. In addition, the teachers differentiated developmental delay from other categories by means of the following perspectives: syndrome, educational effect, cause, identifiableness, intervention approach and target group, but with a preference for the syndrome perspective. The results are set out and discussed in Chapter 6 (Section 3). Comments on the data and other research results in this area can be found in Chapter 11 (Section 2.1).

D Research question 1.4 - How characteristic are the features of developmental delay as perceived by teachers?

The rating scale results suggested that the teachers tended to characterise developmental delay in terms of general rather than specific features. Of the major delayed areas, characteristics related to learning and motor development were rated higher, whilst those regarding social and self-help skills development tended to be rated lower. The most highly rated characteristics included: lower developmental level than children of the same age, poor gross motor skills, below normal intelligence, aimless wandering, poor fine coordination and manipulation, using incomplete sentences and hard to understand, immature level of counting numbers, learning at a slow rate, only able to follow single instructions, confused by whole class instruction and having sensory or physical difficulty. The results are set out and discussed in Chapter 6 (Section

4). Comments on the data and other research results in this area can be found in Chapter 11 (Sections 2.1 and 4.2).

2.2 Research Question 2 - What are the prevalence and characteristics of kindergarten children with developmental delay as identified by teachers?

The prevalence survey based on teacher identifications revealed the following major findings:

A Research question 2.1 - In which ways do teachers identify children with developmental delay?

Personal observation was suggested as the most common and main method that the teachers used to identify and nominate children with developmental delay. The results are set out and discussed in Chapter 7 (Section 6). Comments on the data and other research results in this area can be found in Chapter 11 (Section 3.1).

B Research question 2.2 - What is the prevalence rate of children with developmental delay as identified by teachers?

Of the five-year-old kindergarten children in the study, 9.2%, or an average of 2.6 children in a class, were identified by their teachers as having developmental delay. The results are set out and discussed in Chapter 7 (Section 2.1). Comments on the data and other research results in this area can be found in Chapter 11 (Section 3.1).

C Research question 2.3 - What are the prevalence rates and nature of the problems of children identified by teachers as having developmental delay?

(a) Of the teacher-identified children, more than six-sevenths (7.8% of the total sample) were described as having multiple domains of developmental delay with nearly a half having delay in three or four domains. Whilst a high degree of overlap existed amongst the major developmental domains, emotional/behavioural development formed the largest domain for the children's problems, followed by cognitive development and language development as the next two most common domains. About one-fifth of the children had physical or sensory impairments or health-related problems. The results are set out and discussed in Chapter 7 (Section 2.2). Comments on the data and other research results in this area can be found in Chapter 11 (Section 3.2).

(b) The children's problems were wide-ranging and heterogeneous as described

by their teachers. The most common problems associated with each developmental domain were as follows: (i) cognitive development: weak in preschool concept, poor cognitive comprehension, and inability to keep pace with learning; (ii) language development: articulation or slurred speech, incomplete sentences in speaking, and hard for others to understand what he/she says; (iii) emotional and behavioural development: aggression, frequent crying or screaming, and withdrawn or lacking in confidence and security; (iv) social development: loner or seldom interact with peers, and rejected by peers; (v) gross motor development: difficulty in walking, poor or uncommon manner for climbing, running or hopping, and clumsy; fine motor development: difficulty in holding pencils, drawing and manipulating scissors; (vi) self-help skills development: poor eating skills and habits, unable to properly wear clothes or shoes or button-up by him/herself, and unable to clean table, toys or own possessions after use; (vii) physical, sensory, health or diagnosed problems: visual problems, autism, and dysfunction in sensory integration. In addition to the problems in the major domains, a few children were also described as having problems associated with their appearances like drooling or running nose. The results are set out and discussed in Chapter 7 (Section 4). Comments on the data and other research results in this area can be found in Chapter 11 (Section 4.2).

D Research question 2.4 - What are the demographic features of children with developmental delay, including distributions for age, gender, kindergarten experience and family background?

The average chronological age of the teacher-identified children was 65.3 months. Boys outnumbered girls in the prevalence rates at about 3.5:1 with the greatest distinctions in the domains of language development, self-help skills and physical, sensory or health-related problems. None of the kindergartens were seen as having no child with developmental delay, and a higher average proportion of children were nominated in the private kindergartens than in the public sectors (with the ratio 1.7:1). Most of the children had attended kindergartens before and were currently attending whole-day classes. Over 90 per cent of them lived with both parents. The majority of the parents were employed and their main educational level was high school/junior college or higher. More than two-fifths of the children were the youngest child in family, whilst

about a quarter were the eldest and over one-fifth were the only child. The results are set out and discussed in Chapter 7 (Section 3). Comments on the data and other research results in this area can be found in Chapter 11 (Section 4.1).

E Research question 2.5 - What are teachers' explanations for the aetiology of those children with developmental delay?

The teachers tended to attribute environmental factors as the primary causes of developmental delay for the nominated children, with biological factors operating secondarily. The teachers' explanations also showed a tendency to attribute factors which were external to the kindergarten. The results are set out and discussed in Chapter 7 (Section 5). Comments on the data and other research results in this area can be found in Chapter 11 (Section 2.2).

2.3 Research Question 3 - What are kindergarten teachers' perceptions of current and future special provisions for children with developmental delay?

A Research question 3.1 - Are children identified by teachers as having developmental delay also perceived as needing special provision?

(a) Almost all of the teacher-identified children (except one child) were currently receiving some forms of special provision or seen as needing such provision. The results are set out and discussed in Chapter 8 (Section 2.4). Comments on the data and other research results in this area can be found in Chapter 11 (Section 5.1).

(b) Only four children received special provision both from inside and outside the kindergarten, but more than two-fifths of the children were seen to need both sources of special provisions. The results are set out and discussed in Chapter 8 (Sections 2.2 and 2.3). Comments on the data and other research results in this area can be found in Chapter 11 (Section 5.1).

B Research question 3.2 - What strategies do teachers use to deal with children with developmental delay?

The most common strategies that the teachers used in order to deal with the children's developmental delay were discussion with the child's parents, altering or adapting teaching strategies and discussion with other teachers. The most frequently used teaching strategies included using individualized approaches in normal teaching,

enlisting parents' assistance, providing additional tuition and identifying a specific classmate to assist. Besides, only three children in fact had or would receive assessment from the teacher or kindergarten. The results are set out and discussed in Chapter 8 (Section 2.1). Comments on the data and other research results in this area can be found in Chapter 11 (Section 5.1).

C Research question 3.3 - What sorts of special provision from inside the kindergarten do children with developmental delay receive currently or need to receive in the future?

About one in ten of the identified children received special provision from the kindergarten itself (excluding the coping strategies teachers used) such as guidance from head or senior teachers and special needs education resources. However, nearly nine-tenth of the children were seen to need such or more special provision from inside the kindergarten. The main future special provision needed was perceived to be educational support for parents, providing learning and developmental assessment, and individualized education plans, and instituting resource classrooms or consultation services. The results are set out and discussed in Chapter 8 (Sections 2.2.1 and 2.3.1). Comments on the data and other research results in this area can be found in Chapter 11 (Section 5.1).

D Research question 3.4 - What sorts of special provision from outside the kindergarten do children with developmental delay receive currently or need to receive in the future?

More than a quarter of the children received special provision from outside the kindergarten. The major outside provision they received was medical and rehabilitative services such as medical diagnosis or treatment and intervention programmes. About half of the children were seen as needing future special provision from outside the kindergarten, and the main special provision needed remained as medical and rehabilitative services. The results are set out and discussed in Chapter 8 (Sections 2.2.2 and 2.3.2). Comments on the data and other research results in this area can be found in Chapter 11 (Section 5.1).

E Research question 3.5 - What types of educational placement are viewed by teachers as appropriate placements for children with developmental delay?

'Ordinary classes in ordinary kindergarten' was ranked by the teachers as the ideal educational placement for the children with developmental delay, whilst 'special separate classes or kindergarten' or 'remaining at home' were rated as the most inappropriate. The results are set out and discussed in Chapter 8 (Section 2.5). Comments on the data and other research results in this area can be found in Chapter 11 (Section 5.2).

2.4 Research Question 4 - What are kindergarten teachers' experiences in coping with children with developmental delay in their classes?

A Research question 4.1 - What do kindergarten teachers perceive as the effects of having such children in their classes?

Of the teacher-identified children, about three quarters were considered to have some sort of influence on their classes. More children were seen to have both positive and negative influences than either only positive or only negative influence alone. The most common influences were 'being a challenge to teacher and increasing teachers' specialist knowledge', 'interrupting teaching process' and 'increasing teacher's workload'. The results are set out and discussed in Chapter 8 (Section 3.1). Comments on the data and other research results in this area can be found in Chapter 11 (Section 6).

B Research question 4.2 - What difficulties do kindergarten teachers have in coping with these children?

For about nine in ten of the children, the teachers experienced some sort of difficulty in coping with them in class. The most common difficulties included: unable to meet the child's needs due to not enough time or large class size, unable to identify the child's problems, difficulty of communication with the child's parents, and lack of assessment instruments and support from specialists. The results are set out and discussed in Chapter 8 (Section 3.2). Comments on the data and other research results in this area can be found in Chapter 11 (Section 6).

C Research question 4.3 - What help have teachers received concerning these children? What future help do teachers expect to receive?

For more than three-fifths of the children, the teachers received no help or advice; whilst for nine-tenths of them, the teachers would like to receive that additional help.

The help that the teachers did receive was mainly from another teacher, and other sources were almost unavailable. The most needed additional help for the teachers that was suggested was providing training courses in early childhood special education, appropriate assessment instruments, professional support from external specialists, information on identification and placement, and appropriate teaching materials and aids. The results are set out and discussed in Chapter 8 (Sections 3.3 and 3.4). Comments on the data and other research results in this area can be found in Chapter 11 (Section 6).

D Research question 4.4 - What are kindergarten teachers' attitudes towards keeping these children in their classes?

For over 85 per cent of the children, the teachers wanted to keep them in class. The main reasons for keeping the children were based on the ideas that every child should have equal educational opportunity, that teachers should not chose pupils, or that the child is still educatable; whereas the main considerations for not keeping a child were because the ordinary classroom was not an ideal placement for such a child, or the child's difficulty was too severe. The results are set out and discussed in Chapter 8 (Section 3.6). Comments on the data and other research results in this area can be found in Chapter 11 (Section 6).

E Research question 4.5 - What are teachers' attitudes towards transferring these children for further identification?

Of the identified children, for more than three-fifths of them the teachers expressed a wish to transfer them for further identification, whilst the main reason for not wanting to transfer was stated as because the child's difficulty was not very severe. The results are set out and discussed in Chapter 8 (Section 3.5). Comments on the data and other research results in this area can be found in Chapter 11 (Section 6).

2.5 Research Question 5 - Is there a distinctive classroom behavioural pattern which differentiates children identified by teachers as having developmental delay from others in class?

The key findings from the classroom observation study concerning the relationship between teacher identification and classroom behaviour are summarised below:

(a) There were significant differences in classroom behaviour patterns between children identified by teachers as having developmental delay and other children in class. Compared with others in class, the typical behaviour and interaction pattern for the children regarded as having developmental delay was: less on-task behaviour but more off-task behaviour, more frequently distracted from work on his/her own, more off-task interactions with peers, more direct interactions with teachers, receiving more direct one-to-one contact from the teacher, being called on more frequently, receiving more individual instruction and more often responding to the teacher involuntarily. The results are set out and discussed in Chapter 10 (Section 2). Comments on the data and other research results in this area can be found in Chapter 11 (Section 7.1).

(b) Children nominated but considered to have no behavioural problems (Group 1) had a classroom behavioural pattern common to children nominated and described as having behavioural problems (Group 2). The common behavioural pattern (see Chapter 10, Section 3) distinguishes both these groups from the non-nominated children whose behavioural pattern is described in Chapter 10 (Section 3) as: more on-task behaviour but less off-task behaviour; having less direct one-to-one contact with the teacher (especially in receiving less interaction, direct one-to-one contact and individual instruction from the teacher); and less frequently distracted from work on his/her own. The difference between Group 2 and the non-nominated children is greater than the similar difference between Group 1 and the non-nominated group. Comments on the data and other research results in this area can be found in Chapter 11 (Section 7.2).

2.6 Research Question 6 - What are the relationships between teacher identifications and developmental screening test identifications?

A Research question 6.1 - To what extent do teacher identifications match developmental screening test identifications?

There was a significant difference in the DDST (Denver Developmental Screening Test) results between the children regarded by teachers as having developmental delay and the other children in the classes. The teacher-identified children tended to be more likely to be screened as developmental delay in the DDST than the others in each class. The overall match rate (70%) was higher than the mismatch rate

(30.0%) between teacher and DDST identification. However, all mismatch cases were within the teacher-identified children's group, with a 60% mismatch rate for them. The results are set out and discussed in Chapter 9 (Section 2). Comments on the data and other research results in this area can be found in Chapter 11 (Section 8.1).

B Research question 6.2 - Is there any association between classroom behavioural patterns and the relationships between teacher and screening test identifications?

There was an association between the classroom behaviour patterns and the variations between teacher and DDST identifications. The behavioural pattern of the 'false positive' children (i.e. teacher but non-DDST identified) was more similar to that of the 'true positive' children (i.e. teacher and DDST identified) than with that of the 'true negative' children (i.e. non-teacher and non-DDST identified). The results are set out and discussed in Chapter 10 (Section 4). Comments on the data and other research results in this area can be found in Chapter 11 (Section 8.2).

C Research question 6.3 - Are child characteristics (including gender, age position in class and delayed domains) the moderator variables on relationships between teacher and screening test identifications?

The mismatch between teacher and DDST identifications can also be accounted for by certain delayed domains (self-help skills and motor development), but not by children's gender or age position in class. Children regarded as having difficulty in self-help skills or motor development tended to be more likely to be identified as having developmental delay in the DDST than those not having difficulty in either of the two domains. The results are set out and discussed in Chapter 9 (Section 3). Comments on the data and other research results in this area can be found in Chapter 11 (Section 8.2).

3 GENERAL IMPLICATIONS OF THE RESEARCH

The main purpose of the present research was to explore the nature of kindergarten children with developmental delay in Taiwan and to try to deduce what and how kindergarten teachers perceived about this category. In general, the findings from this research relate to several issues in the early childhood special education field. This section presents the general implications with respect to theoretical, research and applied

aspects.

3.1 Theoretical Implications

While initially introduced in paediatrics and the area of early childhood intervention, research concerning the term 'developmental delay' in the educational context is still limited. The present study suggests the educational value of the concept for teachers in ordinary kindergarten. As McLean *et al* (1991) comment, what is generally available for young children is his or her developmental status rather than educational performance. By means of the term 'developmental delay', kindergarten teachers are ready to express a child's special educational needs in terms of his or her developmental performances, and teachers are able to identify a child's characteristics in early learning in terms of this category. All kindergartens in this study were seen by their teachers as having children with developmental delay, and the children regarded as having developmental delay were seen to need some form of special needs education. In addition, teachers also viewed ordinary classrooms and kindergarten as the most ideal setting for these children and recognised their responsibility to provide an effective education for them. These results suggest that 'developmental delay' can be an option particularly appropriate for special needs at the early childhood stage, and also imply that this population should be of particular concern to all teachers and kindergartens.

The concept of early childhood special education in terms of 'developmental delay' is in line with general trends in services for young children. The term 'developmental delay' places special needs education as part of a continuum of preventative services and facilitates noncategorical identification and provision (Smith & Schakel, 1986). Its broad nature is recommended as having advantages in avoiding possible misdiagnosis or mislabelling at the early childhood stage. This position is also confirmed in this study. The term is generally seen by teachers as an umbrella category to cover other diagnostic categories and to include young children with heterogeneous characteristics and various types of special needs. Based on the findings here, it can be argued that 'developmental delay' better captures a range of problem conditions in development and learning, and that although the problems may be nonspecific and ambiguous they still have important implications for this field of study. Taking account

of the difficulty of early diagnosis of many specific 'categorical' conditions and the vagaries of the diagnostic process in general, developmental delay appears a useful categorisation for ensuring early intervention. Given the research context of ordinary classrooms, children with mild or nonspecific difficulties and needing education in ordinary classrooms can also be identified in terms of this category. The concept of 'developmental delay' thus in some ways can also function as a bridge to connect children with difficulties with the mainstream of education.

From individual interviews this research reveals conceptual models underlying teachers' perceptions of the term 'developmental delay'. Teachers' definitions of this term were dominated by 'within-child' and 'normative' models, i.e. they related their ideas to the 'normal' (or typical) sequence of development for children in relevant domains. This perspective corroborates common concerns expressed elsewhere (Grossman, 1983; Harbin *et al*, 1991; Wilson, 1998) in both the early childhood education and early childhood special education fields. For young children, as Wedell (1981) points out, the expectations of education and special needs are generally in terms of norm- and development-based contexts.

The 'syndrome' model was the one that dominated teachers' perceptions on the differentiation between developmental delay and other terms. In this study 'syndrome' models refer to problems that categorise children who manifest developmental delay. Whilst the word 'syndrome' is generally considered a medical term, 'syndrome' here was not restricted to symptoms which must have biological or physiological causes, but included any problems or difficulties associated with a child's developmental delay.

In one sense, the teachers' within-child, norm- and syndrome-based perspective of developmental delay is in some ways similar to traditional descriptions of special needs, which show their origins in earlier medical models (Gartner & Lipsky, 1989). Medical models, as Bailey (1998) describes, are highly focused on the nature and aetiology of a problem itself, not on the individual who has the problem, and on dealing with the specific pathology in a centred way, and not on the social or ecosystem that surrounds the problem.

However, teachers' concepts of developmental delay were beyond the biomedical tradition. These children's problems were seen as heterogeneous involving those of

borderline conditions. The cut-off between those with and without developmental delay was not seen as clear, and the aetiology included those of non-specific and psycho-social factors. The complexity of the concept of developmental delay therefore cannot be throughly explained and dealt with just in terms of medical models.

The implication of this issue however is not to abolish medical models. In fact, modern medical classificatory schemes, such as the World Health Organisation's *International Classification of Diseases* (ICD-9 and ICD-10) and the American Psychiatric Association's *Diagnostic and Statistical Manual* (DSM-III, DSM-III-R and DSM-IV), have adopted explicit inclusion of psycho-social factors in their multiaxial systems (Cantwell & Rutter, 1994). As Norwich (1990) points out, 'there is no incompatibility between medical and educational models for children with disorders or difficulties. This position depends, however, on having a cross-disciplinary explanatory framework' (p.32). Indeed the introduction of the term 'developmental delay' today is partly intended to compensate for the recognised weakness of medical models and to suggest new conceptualisations of childhood special needs in terms of their broad and non-specific nature. Newer conceptualisations of child development and special needs, as Gartner and Lipsky (1989) suggest, imply an ecological view which sees that the difficulties or needs come not from the impairments alone, but from the societal or environmental response to them.

This study also explored the nature of teacher identification. Whilst personal observation is the most common form of identification, it is evident in the study that teachers do associate some types of behavioural characteristics with their identifications of children with developmental delay. The children regarded as having developmental delay were more frequently off-task and receiving more direct one-to-one contact from teachers. Assuming that the patterns of teacher-child interaction occur on a daily basis, these children would receive significantly more individual attention from teachers than others in a class. In some ways this implies that when teachers' perceive children with developmental delay they occupy more of their teaching time in classrooms than to these other children.

Whereas both identification approaches are generally based on a perspective of a 'normal' developmental sequence and level, teacher identification and standardised

screening tests (using the DDST) did not appear to match satisfactorily in this study. Taking into consideration the possible weaknesses of standardised tests (e.g., the high specificity but low sensitivity of the DDST), both the match and mismatch between the two approaches can be explained away (as discussed in the previous chapter). On the other hand, some moderator factors may also be having potential effects on the variations between teacher and test identification. Findings from the study suggest that teachers might overlook the validity of behavioural patterns in their identifications of children. However, the issue is not about which approach is more accurate. The question is more, as has been written extensively in this field, about the need for identification through multiple sources to ensure efficient identification (Meisels & Wasik, 1992). Any discrepancy between teacher and test identification is therefore of interest. As Croll and Moses (1985) comment, 'they are most profitably considered as two pieces of information about a child....but one is not necessarily more accurate, reliable or informative than the other' (p.149). As a result of this research we would agree these conclusions.

Furthermore, although this study focused on kindergarten teachers' perceptions of developmental delay, the findings do reflect some wider issues in the environment that the study did not directly address. Environmental (rather than biological) factors were perceived as the main causes of the children's developmental delay. The children were seen as needing special provisions not only from inside the kindergarten but also from outside the kindergarten. In addition, two broad agendas within this field, interdisciplinary service cooperation and the essential role of parents in intervention, were also recognised by teachers in this study.

To some extent, these findings highlight the complexity of issues surrounding young children with developmental delay. The ecological system approach proposed by Bronfenbrenner (1979) might help to clarify the complexity. This system approach examines the environment at four levels beyond the individual organism (the child) – from the micro, meso-, exos- to macrosystems. These systems have been described in more detail elsewhere (Garbarino, 1992; Dockrell & McShane, 1995). Microsystems refer to the immediate environments in which the child develops (e.g. family, school, neighbourhood, health service etc.); mesosystems refer to the relationships between the

microsystems; exsosystems refer to environments that have a bearing on the development of the child but in which the child does not play a direct role (e.g. the parents' workplace, social welfare services etc.); whilst the macrosystems refer to the broad ideologies, attitudes and demography of the culture (Garbarino, 1992).

Whilst this study revealed that the problems, causes and special provisions associated with developmental delay were diverse and comprehensive, the ecological perspective as above can contribute to the process of understanding children's developmental delays and formulating related intervention services for them. It provides a map for looking both inside the child and beyond the child to the surrounding environment for explanations about individual development. That is, developmental delay has to be understood and dealt with in terms of looking at the interplay between the child and environment, and between the different environmental levels. Under the ecological system, teachers' perceptions can thus be considered as only one of a full range of alternative conceptualisations of developmental delay, and kindergartens, or early childhood special education, can be seen as only one of many multiple strategies for intervention.

Considering the environmental aspects, the parental dimension was perceived as most significant by teachers in the study. Home factors such as inadequate parenting, family background and a lack of cultural stimulation at home were seen as the major causes of developmental delay. Discussion with the child's parents was the most common strategy that the teachers used to deal with their pupils' developmental delay. In addition, providing educational support for parents was perceived as the most needed future provision for the children. Although this study does not explore the theoretical perspectives of parental involvement in early childhood special education, these findings do echo the increasing research interest within this field (Wolfendale, 1992; Vincent, 1996; Waller & Waller, 1998) and suggest that the parental agenda cannot be paid less attention when we face kindergarten children with developmental delay, particularly within the Taiwanese context.

3.2 Practical Implications

Given the research context in Taiwan, an important finding of this research is that nearly one in ten of five-year-old children were identified by teachers as having developmental delay in kindergartens, whereas the government considers preschool prevalence estimate as between 2% and 3% based on school-aged children with disability. For legislators and administrators, the higher prevalence rate and greater discrepancy between the two estimates calls for a reconceptualisation, and that major system-wide change for early childhood special education.

First of all, we can recommend that early identification and intervention be made available in ordinary kindergartens. All kindergartens in the study were seen by their teachers as having within them children with developmental delay i.e., this is a common problem in kindergarten. These children were indeed perceived to need some form of special provision, with ordinary classrooms seen as the most ideal placement.

A second suggestion relating to this point is a reconsideration of the conceptualization and categorization of early childhood special needs in Taiwan: greater openness to the range, extent, variety and changeability of special needs. Based upon the understanding of the children's diverse special needs the principle can be formulated that designing programmes should be individualized, noncategorical and multi-disciplinary. In particular, in spite of a lack of diagnosed levels of delays, some children identified in this study were described as having only mild difficulty and needing remedial education in ordinary classrooms. This group so far has not been the concern of special needs education in Taiwan. A broader concept of special needs is therefore required to make a connection between special needs and general education and a system which includes all children who need remedial education.

Thirdly, whereas the data do not directly indicate which changes might or ought to be made, one possible change could be the enactment of legislation to provide for early childhood special education for young children with developmental delay. The research shows that current special provision from the kindergarten system is still limited for this ready child population. With an appropriate funding base, such a mandate would ensure provision and reduce the number of unserved children. In fact, a recent change in the existing legislation has corroborated this recommendation. In addition to being

introduced initially in the Children's Welfare Law in Taiwan, developmental delay has also just acquired legislative meaning in the education field. The newly revised Implementation Bylaws of the Special Education Law in Taiwan, passed in May of 1998, already add this term as a new category for provision of early childhood special education.

A fourth recommendation concerns the future provision for these children. Based on the teachers' perceptions, this study recognises three essential tasks which can be argued to be essential for the implementation of early childhood special education in Taiwan: (a) more educational support from the kindergarten system needs to be provided for parents; (b) assessment tools for the use of classroom teachers need to be developed and undertaken in kindergartens; and (c) interdisciplinary service cooperation is required, particularly between teachers and the medical or rehabilitative services.

For teacher training, this research also provides some useful findings. Encouragingly the survey suggests that classroom teachers are aware of their responsibilities to provide children with developmental delay an equal learning opportunity. However, teachers generally felt an inability to identify and teach children with developmental delay, and would like more in-service training in this area. Taking account of developmental delay as a common problem in kindergarten, pre-service and in-service training on early childhood special needs is therefore required for ordinary kindergarten teachers, rather than only for those specialising in special needs education.

In particular, teacher training may need to intensify an awareness of the causes of developmental delay (particularly for the effects on teachers and kindergarten environments), to help teachers to move away from the traditional pathological explanation of developmental delay as being 'within-child', and towards a wider, more interactive and ecological view in which the teacher's role is clearly recognized. The research also indicates that children regarded as having developmental delay tended to spend less time on on-task behaviours but more on off-task behaviours, especially distraction from work on their own. When designing educational programmes and during teaching, teachers may therefore need to create learning environments in which these children will pay more attention to the set task, and teachers need to be able to efficiently manage these children's distractive behaviour. These abilities all need to be included in

teacher training programmes both at pre-service and in-service level.

A sixth recommendation is for the kindergarten teachers and administrators. The survey suggests a weak connection between class teachers and their kindergartens in dealing with children with developmental delay. To strengthen this sort of link, it may require that both teachers and kindergartens have a common awareness of this requirement and an established link to facilitate and ensure the connection. In addition, the survey also suggests several ways through which the kindergarten and administrators may try to help teachers to cope with these children. These approaches include sorting out the problems of insufficient time, a reduction in class sizes, and providing external specialist support.

This research also emphasises the essential role of class teachers in the identification and referral process. Jansky and Hirsch (1973) have suggested an identification method for combining objective screening data with more subjective teachers' assessments, taking into account the expectations of each school. The high match between teacher and screening test identification for children without developmental delay suggests that teacher identification is an appropriate method of finding children for follow-up identification and counselling. As regards the mismatch between teacher and screening test identification, this study suggests that teachers' identifications can be improved if they can avoid possible biased observation of children's classroom behaviours and interactions. Indeed, considering the heterogeneous characteristics of these children's problems, teachers need to be more attuned to children's individual differences. Moreover, detailed characteristics of these children with respect to learning and major developmental domains are also provided from this study, so teachers can be alerted to some of the child's needs and problems. These characteristics may also be useful to develop the indicators or a checklist on developmental delay, and therefore may provide teachers with a better reference for their identifications.

3.3 Research Implications

The present study adopted a three-stage research design to explore kindergarten teachers' perceptions and identifications of developmental delay. This comprised the use

of multiple methods including semi-structured interviews, teachers' ratings, teachers' nominations, structured interviews, classroom observations and screening tests. The multiple-method approach had two general advantages for this study: it helped to overcome the problem of method-boundedness and give the findings greater assurance (Cohen & Manion, 1994). For example, the research drew on three sources of data such as teacher-elicited concepts (using the interview), teachers' ratings and teachers' descriptions of the children to investigate teachers' perceptions of the characteristics of children with developmental delay. As evaluated in the previous chapter, some results of the three different sorts of data correspond to one another, but some results were divergent. Based on the evidence from these different methods, the most convincing explanations can therefore be put forward. On the other hand, the different results also reflect the merits and limits of each method and possible biases in using single methods of analysis. They also suggest different variations in the object being evaluated. For another example, the use of DDST and classroom observation provided useful evidence related to teachers' identifications, and upgraded the depth of the investigation. In addition, considering developmental delay as a new broad term in Taiwan, the multiple-method approach enabled the research to examine the concept more thoroughly and to look at the teachers' perceptions from different aspects.

As used in the Stage One study, the semi-structured interview with open-ended questions, as a qualitative method enabled teachers to expand their ideas and was found to be efficient in eliciting their personal implicit concepts. As a pioneering study in this field in Taiwan, these qualitative data are more comprehensive and in-depth and are also culturally more appropriate in building up our concepts of developmental delay within a Taiwanese context. By means of content analysis of the data, the structure of the teachers' concepts of developmental delay was disclosed. On the other hand, the data collected through the open-ended interviews had some disadvantages in generalizing the findings due to the wide variations in individual responses across the variety of teachers interviewed. However, the characteristics rating scale - a quantitative approach, helped to overcome these weaknesses of the interview. Overall, the data collected at the first stage provided a comprehensive understanding of the teachers' concepts of developmental delay, and served as an essential preliminary to the prevalence survey.

Using the multistage sampling method including stratified, cluster and opportunity sampling and the individual interviews, a representative sample and high response rate were ensured for the prevalence survey. These two considerations are important for the validity of a prevalence survey.

Questions may also be raised about the use of teachers' nominations of children as a means of identifying developmental delay, even though a set procedure was developed to ensure the nominations were as standard as possible. Findings from past studies indicate generally high levels of validity for teachers' judgements (Hoge & Coladarci, 1989). However, teachers are certainly not unbiased observers of their children even several technical procedures have been designed to make nominations more standard (see Chapter 4). The study also used a standardized screening test (the DDST) to examine the accuracy of teachers' identifications. In addition, because teachers' perceptions influence all aspects of the education decision-making process (Bay & Bryan, 1992; Clark & Peterson, 1986; Gerber & Semmel, 1984), it seems reasonable to view teachers' nominations (or identifications) of children as a significant factor in any child's referral decision.

Another methodological implication emerges from the child-by-child basis of the interviews regarding teachers' perceptions of the nominated children's problems, the special provisions needed and teachers' experiences in coping with them. Given the assumption that every child has individual difference in their special needs, we arbitrarily decided that the child-by-child based discussion would make it more likely to reflect the children's individual needs and the reflection of the teachers' experiences with these children, rather than collecting teacher's general opinions by treating children from each class as a whole. The results indicate that such an interview method had the benefit of providing teachers with a concrete case for discussion and was more likely to reflect the diversity of the children's special needs and their teachers' experiences.

Whereas the prevalence data relied on teacher identifications without reference to any other sources of information about the children, at the third stage classroom observations and screening tests were conducted to compare with the teacher identifications. The data derived from these two more formalised systematic methods provide evidence on the validity of the teacher identifications and made the research

more complete. While there are few studies using classroom observations to explore the relationships between teacher identifications and kindergarten children's classroom behaviours, the systematic video-taping procedures and detailed coding schedules employed in this study appear to be more likely to reflect the characteristics of individual children in classroom settings. The standard set of procedures developed for videotaping and coding also had the advantage of eliminating camera and recorder bias, and tested out variations in behavioural variables between different groups of children. In addition, the sampling strategy of one-to-one matched subjects in individual classes helped to ensure similar classroom contexts and contents between different groups of children. This helped to control the possible effects of classroom contexts on classroom behaviours, and therefore made the comparisons of behaviours more meaningful.

Some positive features of using the DDST as a screening test were recognised during the data collection. These practical advantages included requiring a minimal amount of training, standardisation of administration, and being able to administer it in a relatively short time (about fifteen minutes for each child), as well as allowing objective scoring.

Based on data mainly in terms of teachers' personal opinions and experience, the present research supports the proposition that teachers' perceptions should be viewed as essential to educational research (Richmond & Smith, 1990). During the individual interviews, the kindergarten teachers were able to give informally and naturally their thoughts on the term 'developmental delay' and about their children. These data are essential if we recognise that it is the class teachers who have the closest knowledge of children in classrooms and are also responsible for their learning and progress. As Sinha (1981) has said, applied research needs to incorporate the experiences of practitioners if it is to be perceived as relevant to understanding and improving classroom practices.

The last research implication concerns the role of the researcher in the data collection process. Due to a lack of personnel resources, all of the data in the study was collected by the researcher, who acted as the interviewer, observer and test administrator. An essential consideration in the methodology is the possible personal influence of the researcher on the data collection process. This issue has been discussed elsewhere in the literature (McIntyre & Macleod, 1993; Cohen & Manion, 1994; Robson, 1995). Briefly,

the role of the researcher here was to collect data which would validly and reliably represent the thoughts and activities of the teachers and children. In one sense, the sharing of the same cultural and social context between the researcher and the teachers and children was helpful for the researcher to access their thoughts, behaviours and classroom activities. On the other hand, the same linkages between the researcher and subjects can be seen as a source of bias, and this possibility of personal bias from the researcher cannot be ignored. As described previously in the methodology chapters, at each stage of data gathering considerations and care were taken to avoid or reduce possible influences which were thought to arise from the presence of the researcher. Such considerations and care included the arrangement of the environment, the establishment of relationships between the subjects and researcher, the skills of interview, test and observation and so on (see Sections 3.1.1.2, 4.1.2.1 and 4.1.3.2 in Chapter 4, and Sections 3.2 and 4.2 in Chapter 5). In general, the results indicate that the teachers were able to talk freely and openly during the interviews, and the children managed to complete the tests successfully.

In addition, the methods used in the study also had direct advantages in reducing the researcher's personal influence. The interview questions were uniform and put in a straightforward, clear and non-threatening way. The DDST, as mentioned earlier, is designed to allow standardised administration and objective scoring; and the systematic observation approach (i.e. the pre-determined coding system, the standard videotaping and coding procedures, and the statistical basis for data analysis) has strength in avoiding observer and recorder bias (McIntyre & Macleod, 1993).

Although these methodological advantages were taken into considerations and efforts were made in this study to ensure the objectivity of data collection, there is no way in which we can still demonstrate that the researcher had absolutely no influence on the data collection process, or that the possibility of this sort of influence can be totally ignored. More strategies were therefore employed at later stages of the analysis to deal further with this issue. After each child completed the DDST, the teacher was consulted to check whether the child's test performance was typical of his or her performance at other times. In coding the interview data on teachers' concepts and the observation data on classroom behaviours, a second recorder was involved to ensure an acceptable level

of objectivity and reliability. Nevertheless, as Robson (1995) points out, it is never logically possible to be completely sure that the researcher's presence has not in some way influenced the subjects' responses and behaviours. Therefore, because of the strategies adopted in the study, we can only say that the researcher's personal influences on the data collection process should be assumed to have been reduced to the lowest reasonable level, but that this issue should still be seen as a possible potential limitation of this study.

4 LIMITATIONS OF THE RESEARCH

The data from this study have built up a picture of developmental delay in ordinary kindergarten in Taiwan as seen from the perspective of classroom teachers. However, the conclusions drawn must be considered within the limits of the methodology.

The first limitation concerns the source of the sampled teachers. Though the kindergartens were selected at random, teachers in this study were volunteers and may possess traits or skills that set them apart from the general population of kindergarten teachers. Secondly, although the qualitative interview method was considered an appropriate method to elicit the teachers' conceptualisations, its exploratory and descriptive nature can preclude extensive generalization.

A third limitation concerns generalisation from the prevalence data. Taking account of the limited time and resources available, the prevalence survey only covered kindergartens in Taipei city, and one must therefore hesitate about generalising the prevalence rates and related findings to the whole of Taiwan for example. Taipei is the capital city of Taiwan and its political and socioeconomic conditions are different from other cities especially those of rural areas. Indeed, early childhood education and early childhood special education are generally in a better status in Taipei than in other parts of Taiwan. Nevertheless, as its highest level of development in these services, the findings can be viewed as a useful index and reference of possibilities for other cities to emulate.

Fourthly, there are three limitations related to the DDST study. Because of no norms being available for Taiwanese children, the Denver original norms with the DDST

were employed in this study. Although research has indicated consistency in development between Taiwanese and Denver children, some possible differences might exist because of time and cultural context variations. Again, because of the limited time and research resources, this part of the study was conducted on a sample size of fifty children. The small sample size precludes the use of group comparisons. Due to the small number in each cell, the Chi-square test results for examining some moderators (i.e., gender, age position and delayed domains) of the variations between the teacher and DDST identifications most certainly need to be treated with caution. Lastly, there was not a direct logical link between the teacher and DDST identifications. Although the findings indicate a possible link between the two methods (both based on norm-referenced models), an indirect link still has limitations in interpreting any real relationships between teacher and DDST identification.

Finally, in interpreting the results from the classroom observation study, the reader needs to be aware of several limitations of this part of the research. Here the data analysis was based on a small sample size. Given the cost of this methodology and the need to obtain a representative sample of children's behaviours, a small group of teachers/classrooms took part for two observational periods, instead of a larger group for one session. This limits the data range. Additionally, the presence of the camera may have caused teachers and children to act differently. However, the researcher did take steps to acclimatise the teachers and children to the presence of the camera. Lastly, the teachers and the researcher were not blind to the observed children. In order to reduce any possible bias in recording behaviours however, inter-rater reliability was established and was well within the acceptable range.

5 RECOMMENDATIONS FOR FUTURE RESEARCH

The results of this research must be interpreted in the context of the above limitations and the correlational nature of the data. However, future research can certainly provide more evidence to confirm some of the initial findings emerging from or suggested by this research, and can address the unanswered questions in this area of inquiry. Several interesting directions deserving of further research in this field can be recommended.

(a) Future research could usefully conduct a larger-scale prevalence survey, covering other areas of Taiwan (especially the rural areas) in order to compare the present prevalence data based in Taipei city with differing areas elsewhere.

(b) The present research reveals that most of the children are the youngest child in each family and have parents with high educational levels. Further research should investigate possible associations between these demographic characteristics of birth and social background and children's developmental delay.

(c) In examining the teachers' perceptions of prevalence, future attention needs to be paid to the differences amongst teachers, classes and schools. Although the research revealed that most teachers identified two or three children as having developmental delay in classes, there were still variations between the teachers in the number of children nominated in a class. To make the research more focused and reduce complications in the data analysis, we did not explore whether the differences in the number of children identified are associated with differences amongst the teachers (e.g. teacher characteristics such as experience, training etc). This question is worth further exploration.

(d) The present study has described comprehensively, but with some uncertainties, many features regarding the concept of developmental delay. Future research should address these findings to link with policy and practical issues. For example, considering developmental delay is generally seen by teachers as a broad category to cover most traditional categories, this raises possible policy options, such as a choice between employing the broad category 'developmental delay' and abolishing all categorical diagnosis for preschool-age children, or keeping current diagnostic categories with the addition of 'developmental delay'.

(e) Efforts can be made to establish criteria for identifying developmental delay. Given the prevalence of developmental delay in ordinary kindergarten and in order to ensure the accuracy of teacher identification, identification criteria for the use of classroom teachers are certainly required. Indeed, future research is needed to develop such criteria or indices with reference to the characteristics identified in the present study.

(f) More research is also needed to document the findings on the classroom

behavioural patterns and to identify other behaviours or interactions that may also be associated with teacher identifications of developmental delay. For example, the study shows that children with developmental delay tended to receive more direct one-to-one contacts from teachers. Research could further explore the nature and quality of these interactions between teachers and children with developmental delay. In addition, to have better and wider applicability future research should probably employ larger groups of classes and more periods of observation.

(g) Closer attention ought to be paid to the relations between teacher identification and other identification approaches, and the operation of moderator variables in such relations. Instead of the teacher nomination used in this study, to provide more direct evidence future research can use other teacher-based identification methods (e.g., teacher checklists based on developmental milestones) which may have a more direct link to structured developmental screening test methods. Emerging from the research limitations, a larger and better-sampled group of teachers/classes should be employed to confirm the findings suggested here on the variables associated and unassociated with the identified discrepancies between teacher and test identifications. A related direction is that other possible moderator factors such as teacher variables can and ought to be investigated. In addition, apart from using screening tests, the teacher identification can be further corroborated from other sources of data such as parents' or diagnostic assessments.

6 CONCLUSIONS

In a series of chapters, the background to the study, the research design, the findings and the discussions, as well as the recommendations, this thesis has reported the results of an empirical study of kindergarten teachers' perceptions within a structured framework linked to the children in their classes, about the concept, prevalence, provision and identification of developmental delay. We can state that developmental delay is seen by teachers as a common type of special needs in kindergarten in Taiwan, and the characteristics and problems of the children are heterogeneous. Where there are typical classroom behavioural patterns for children regarded as having developmental delay, the

classroom behavioural patterns also account for variations between teacher and screening test identification. The findings are initial ones only, but provide useful information which can lead to advances, both at the theoretical and practical level, in early childhood special education, particularly within the Taiwanese context.

REFERENCES

Abromowicz, H.K., & Richardson, S.A. (1975). Epidemiology of severe mental retardation in children: Community studies. *American Journal of Mental Deficiency, 80,* 18-39.

Algozzine, B., Christenson, S., & Ysseldyke, J. (1982). Probabilities associated with the referral to placement process. *Teacher Education and Special Education, 5,* 19-23.

Algozzine, B., Mercer, C.D., & Countermine, T. (1977). The effects of labels and behaviour on teacher expectations. *Exceptional Children, 44,* 131-132.

Bailey, D.B., McWilliam, R.A., Buysse, V., & Wesley, P.W. (1998). Inclusion in the context of competing values in early childhood education. *Early Childhood Research Quarterly, 13(1),* 27-47.

Bailey, J. (1998). Medical and psychological models in special needs education. In C. Clark, A., Dyson & A. Millward (Eds.), *Theorising Special Education* (pp.44-60). London: Routledge.

Bate, M., & Smith, M. (1978). *Manual for Assessment in Nursery Education.* Berks: NFER.

Bay, M., & Bryan, T. (1992). Differentiating children who are at risk for referral from others on critical classrooms factors. *Remedial and Special Education, 13(4),* 27-33.

Bay, M., & Bryan, T.H. (1991). Teachers' reports during instruction of their thinking about at-risk learners and others. *Exceptionality, 2,* 127-139.

Beckwith, L. (1992). Adaptive and maladaptive parenting: Implications for intervention. In J.S. Meisels & J.P. Shonkoff (Eds.), *Handbook of Early Childhood Intervention* (pp.53-77). Cambridge: Cambridge University Press.

Bell, J. (1993). *Doing Your Research Project.* Milton Keynes: Open University Press.

Bell, R.Q. (1986). Age-specific manifestations in changing psychosocial risk. In D.C. Farran & J.C. McKinney (Eds.), *Risk in Intellectual and Psychosocial Development* (pp.169-186). Orlando: Academic Press.

Bernheimer, L.P., & Keogh, B.K. (1986). Developmental disabilities in preschool children. In K. K. Barbara (Ed.), *Advances in Special Education (Vol.5). Developmental problems in infancy and the preschool years* (pp.61-93). Greenwich, Conn.: JAI Press, Inc.

Bernheimer, L.P., & Keogh, B.K. (1988). Stability of cognitive performance of children with developmental delays. *American Journal on Mental Retardation, 92(6),* 539-542.

Bernheimer, L.P., Keogh, B.K., & Coots, J.J. (1993). From research to practice: support for developmental delay as a preschool category of exceptionality. *Journal of Early Intervention, 17(2),* 97-106.

Board of Education in Hong Kong (1996). *Report of the Sub-committee on Special Education.*

Brannen, J. (Ed.) (1992). *Mixing Methods: Qualitative and Quantitative Research.* Hants: Avebury.

Braun, D. (1992). Working with parents. In G. Pugh (Ed.), *Contemporary Issues in the Early Years* (pp.175-190). London: Paul Chapman.

Breakwell, G.M. (1995). Interview. In M. Breakwell, S. Hammond, & C. Fife-Schaw (Eds.), *Research Methods in Psychology* (pp.230-242). London: SAGE.

Breakwell, M., Hammond, S., & Fife-Schaw, C. (Eds.) (1995). *Research Methods in Psychology.* London: SAGE.

Bronfenbrenner, U. (1979). *The Ecology of Human Development: Experiment by Nature and Design.* Cambridge, MA: Harvard University Press.

Brophy, K., & Hancock, S. (1985). Adult-child interaction in an integrated preschool programme: Implications for teacher training. *Early Child Development and Care, 22,* 275-294.

Bullock, R., Little, M., & Millham, S. (1992). The relationships between quantitative and qualitative approaches in social policy research. In J. Brannen (Ed.), *Mixing Methods: Qualitative and Quantitative Research* (pp.81-100). Hants: Avebury.

Burgess, R.G. (1984). *In the Field: An Introduction to Field Research.* London: George Allen and Unwin.

Burstein, N.D. (1986). The effects of classroom organization on mainstreamed preschool children. *Exceptional Children, 52(5),* 425-434.

Butterworth, G., & Harris, M. (1994). *Principles of Developmental Psychology.* Hove: LEA.

Cadman, D., Chambers, L.W., Walters, S.D., Feldman, W., Smith, K., & Ferguson, R. (1984). The usefulness of the Denver Developmental Screening Test to predict kindergarten problems in general community population. *American Journal of Public Health, 74,* 1093-1097.

Cantwell, D.P. & Rutter, M. (1994). Classification: conceptual issues and substantive findings. In M. Rutter, E. Taylor, & L. Hersov (Eds.), *Child and Adolescent Psychiatry: Modern Approaches* (pp.3-21). London: Blackwell.

Caruso, D.R., & Hodapp, R.M. (1988). Perceptions of mental retardation and mental illness. *American Journal on Mental Retardation, 93(2),* 118-124.

Chamberlin, R.W. (1984). Strategies for disease prevention and health promotion in maternal and child health: The 'ecologic' versus the 'high risk' approach. *Journal of Public Health Policy, 5,* 185-197.

Cheng, P.W. (1996). *Teachers' Perceptions and Understanding of learning Disabilities/ Difficulties.* Paper prepared for the International Conference on Special Education, Helping Students with Learning Difficulties: An International Perspective. Hong Kong, May.

Cheng, R.H., Lin, S.T., & Wang, J.D. (1995). *A Pilot Project on the Referral, Identification and Placement of Preschool Children with Special Needs*. Taiwan: the Special Education Department of the National Taiwan University.

Chuo, G.S. (1995). *Recommended Practices in Early Identification and Intervention for Children with Developmental Delay in Taipei.* In proceedings of the Workshop on Early Intervention of Developmental Delayed Children. Taiwan.

Cohen, L., & Manion, L. (1994). *Research Methods in Education.* London: Routledge.

Coker, S.B. (1989). *Developmental Delay and Mental Retardation.* US: PMA Publishing Corp.

Compulsory education begins at three for disabled children. (1996, November 6). *China Evening Times*, p.5.

Conway, A. (1989). Teachers' explanations for children with learning difficulties: An analysis of written reports. *Early Child Developmental and Care, 53,* 53-61.

Coolican, H. (1994). *Research Methods and Statistics in Psychology*. London: Hoddler & Stoughton.

Cooper, D.H., & Speece, D.L. (1988). A novel methodology for the study of children at risk for school failure. *The Journal of Special Education, 22,* 186-198.

Crnic, K., & Harris, V. (1990). Normal development in infancy and early childhood. In J.H. Johnson & J. Goldman (Eds.), *Developmental Assessment in Clinical Child Psychology* (pp.15-37). US: Pergamon Press, Inc.

Croll, P. & Moses, D. (1985). *One in Five: The Assessment and Incidence of Special Educational Needs.* London: Routledge & Kegan Paul.

David, T. (1992). Curriculum in the early years. In G. Pugh (Ed.), *Contemporary Issues in the Early Years* (pp.71-86). London: Paul Chapman.

Dawson, R. (1987). What concerns teachers about their pupils. In N. Hastings & J. Schwieso (Eds.), *New Directions in Educational Psychology: Behaviour and Motivation in the Classroom.* Lewes: Falmer Press.

Denhoff, E., & Feldman, S.A. (1981). *Developmental Disabilities: Management through diet and medication.* New York: Marcel Dekker.

Dockrell, J. & McShane, J. (1995). *Children's Learning Difficulties: A Cognitive Approach.* Oxford: Blackwell.

Drillien, C., & Drummond, M. (1983). *Development Screening and the Child with Special Needs: A Population Study of 5000 Children.* London: William Heinemann Medical Books Ltd.

Dunst, C.J. (1993). Implications of risk and opportunity factors for assessment and intervention practices. *Topics in Early Childhood Special Education, 13(2),* 143-153.

Eaves, L.C., Kendall, D.C., & Crichton, M.B. (1974). The early identification of learning disabilities: A follow-up study. *Journal of Learning Disabilities, 7(10),* 42-48.

Educational Bureau of Taipei (1996). *The List of Public and Private Kindergartens in Taipei.*

Essen, J., & Wedge, P. (1982). Continuities in Childhood Disadvantage. London: Heinemann.

File, N. (1994). Children's play, teacher-child interactions, and teacher beliefs in integrated early childhood programmes. *Early Childhood Research Quarterly, 9,* 223-240.

Fine, M.A., & Swift, C.F. (1986). Young handicapped children: Their prevalence and experiences with early intervention services. *Journal of the Division for Early Childhood, 10(1),* 73-83.

Foster, G., Schmidt, C., & Sebatino, D. (1976). Teacher expectancies and the label 'learning disabilities'. *Journal of Learning Disabilities, 9,* 58-61.

Foster, G., & Ysseldyke, J. (1976). Expectancy and halo effects as a result of artificially induced teacher bias. *Contemporary Educational Psychology, 1,* 37-45.

Fraenkel, J.R., & Wallen, N.E. (1996). *How to Design and Evaluate Research in Education.* USA: McGraw-Hill.

Frankenburg, W.K., Dodds, J.B., & Fandal, A.W. (1973). *Denver Developmental Screening Test.* USA: University of Colorado Medical Centre.

Freeman, J. (1985). *Prenatal and Perinatal Factors Associated with Brain Disorder.* Washington, DC: US Department of Health and Human Services.

Gallagher, F.F. (1992). The family as a focus for intervention. In S.J. Meisels & J.P. Shonkoff (Eds.), *Handbook of Early Childhood Intervention* (pp.540-559). Cambridge : Cambridge University Press.

Galloway, D. (1985). *Schools, Pupils and Special Educational Needs*. Beckenham, Kent: Croom Helm.

Galton, M., Simon, B., & Croll, P. (1980). *Inside the Primary Classroom.* London: Routledge & Kegan Paul.

Garbarino, J. (1992). The human ecology of early risk. In S.J. Meisels and J.P. Shonkoff (Eds.), *Handbook of Early Childhood Intervention* (pp.78-96). Cambridge: Cambridge University Press.

Garland, C., Stone, N., Swanson, J., & Woodruff, G. (Eds.) (1981). *Early Intervention for Children with Special Needs and their Families: Findings and Recommendations.* WESTAR series, Paper 11.

Gartner, A., & Lipsky, D.K. (1989). New conceptualizations for special education. *European Journal of Special Education, 4(1),* 16-21.

Graham, M.A., & Scott, K.G. (1988). The impact of definitions of high risk on services to infants and toddlers. *Topics in Early Childhood Special Education, 8(3),* 23-38.

Green, L. (1993). Possible gender bias within teachers' perceptions of pupils with special needs. *Support for Learning, 8(2),* 77-80.

Gresham, F.M., Reschly, D.J., & Carey, M.P. (1987). Teachers as 'tests': Classification accuracy and concurrent validation in the identification of learning disabled children. *School Psychology Review, 16,* 543-553.

Grossman, H.J. (Ed.) (1983). *Classification in Mental Retardation.* Washington, DC: American Association on Mental Deficiency.

Hannah, M.E., & Pliner, S. (1983). Teacher attitudes toward handicapped children: a review and synthesis. *The School Psychology Review, 12,* 12-25.

Harbin, G., Danaher, J., Bailer, D., & Eller, S. (1991). *Status of States' Eligibility Policy for Preschool Children with Disabilities*. Chapel Hill, N.C.: Carolina Policy Studies Programme.

Hartigan, J.A. (1975). *Clustering Algorithms.* New York: Wiley.

Hayden, A.H., & Beck, G.R. (1980). The epidemiology of high risk and handicapped infant. In C. Ramey & P. Trohanis (Eds.), *Finding and Educating the High-Risk and Handicapped Infant* (TADS Series). Chapel Hill: University of North Carolina.

Hobson, K. (1997). Educational psychologists and inter-agency collaboration for pre-school children. In S. Wolfendale (Ed.), *Meeting Special Needs in the Early Years: Directions in Policy and Practice* (pp.147-160). London: David Fulton Publishers.

Hoge, R.D., & Coladarci, T. (1989). Teacher-based judgements of academic achievement: a review of literature. *Review of Educational Research, 59(3),* 297-313.

Hopkins, K.D., George, C.A., & Williams, D.D. (1985). The concurrent validity of standardised achievement tests by content area using teachers' ratings as criteria. *Journal of Educational Measurement, 22,* 177-182.

Hornby, G., Atkinson, M., & Howard, J. (1997). *Controversial Issues in Special Education.* London: David Fulton.

Hundert, J., Mahoney, W.J., & Hopkins, B. (1993). The relationship between the peer interaction of children with disabilities in integrated preschools and resource and classroom teacher behaviours. *Topics in Early Childhood Special Education, 13(3),* 328-343.

Ireton, H. (1990). Developmental Screening Measures. In J.H. Johnson & J. Goldman (Eds.), *Developmental Assessment in Clinical Child Psychology* (pp.78-99). USA: Pergamon Press, Inc.

Keogh, B.K., Bernheimer, L.P., Haney, M., & Daley, S. (1989). Behaviour and adjustment problems of young developmentally delayed children. *European Journal of Special Needs Education, 4(2),* 79-89.

Ketelaar, M., Vermeer, A., Helders, P.J.M., & Hart, H. (1998). Parental participation in intervention programmes for children with Cerebral Palsy: A review of research. *Topics in Early Childhood Special Education, 18(2),*108-117.

Kohl, F.L., & Beckman, P.J. (1984). A comparison of handicapped and nonhandicapped preschoolers' interactions across classroom activities. *Journal of the Division for Early Childhood, Winter,* 49-56.

Kohlenberg, E. *et al* (1996). *Who is Eligible for DDD Services?* Report No. 5.24. Washington: State Dept. of Social and Health Services. ERIC: ED399698

Kontos, S., & Wilcox-Herzog, A. (1997). Teachers' interactions with children: Why are they so important? *Young Children, 52(2),* 4-12.

Krakow, J.B., & Kopp, C.B. (1983). The effects of developmental delay on sustained attention in young children. *Child Development, 54,* 1143-1155.

Kuo, W.F., & Chen, J.H. (1976). *Report on the First National Prevalence Survey Study on School-Age Handicapped Children.* Ministry of Education, R.O.C.

Leinhardt, G. (1983). Novice and expert knowledge of individual student's achievement. *Educational Psychology, 18,* 165-179.

Lessen, E.I., & Rose, T.L.(1980). State definitions of preschool handicapped populations. *Exceptional Children, 46,* 467-469.

Leyser, Y., Kapperman, G., & Keller, R. (1994). Teacher attitudes toward mainstreaming : A cross-cultural study in six nations. *European Journal of Special Needs Education, 9(1),* 1-15.

Lichtenstein, R., & Ireton, H. (1984). *Preschool Screening: Identifying young children with developmental and educational problems.* London: Grune & Stratton.

Lieber, J., Capell, K., Sandall, S.R., Wolfberg, P., Horn, E., & Beckman, P. (1998). Inclusive preschool programmes: teachers' beliefs and practices. *Early Childhood Research Quarterly, 13(1),* 87-105.

Lilly, M.S. (1979). *Children with Exceptional Needs: A Survey of Special Education.* US: Holt, Rinehart and Winston.

Lin, G.B.G., & Lin, M.H. (1994). A study on the develpoment of language abilities in preschool children in Taiwan, R.O.C. *Bulletin of Special Education, 10,* 259-281. Taiwan: National Taiwan Normal University.

Lindsay, G.A. (1988). The identification of special educational needs - Screening and beyond. *School Psychology International, 9,* 61-68.

Lindsay, G.A. (1981). *The Infant Rating Scale (level 1).* Sevenoaks: Hodder and Stoughton.

Mallory, B.L., & Kerns, G.M. (1988). Consequences of categorical labelling of preschool children. *Topics in Early Childhood Special Education, 8(3),* 39-50.

Manly, B.F.J. (1994). *The Design and Analysis of Research Studies.* Cambridge: Cambridge University Press.

Marchant, C. (1995). Teachers' views of integrated preschools. *Journal of Early Intervention, 19(1),* 61-73.

Matsuura, M., Okubo, Y., Kojima, T., Takahashi, R., Wang, Y.F., Shen, Y.C., & Lee, C.K. (1993). A cross-national prevalence study of children with emotional and behavioural problems - A WHO collaborative study in the Western Pacific region. *Child Psychology and Psychiatry, 34(3),* 307-315.

Mausner, J., & Kramer, S. (1985). *Epidemiology - An Introductory Text* (2nd ed). Philadelphia: W.B. Saunders.

McGuire, J., & Richman, N. (1988). *Pre-school Behaviour Checklist Handbook.* Berkshire: NFER-NELSON.

McIntyre, D. & Macleod, G. (1993). The characteristics and uses of systematic classroom observation. In M. Hammersley (ed.), *Controversies in Classroom Research* (pp.10-24), Buckingham: Open University Press.

McLean M. *et al* (1991). *Developmental Delay: Establishing Parameters for a Preschool Category of Exceptionality.* VA: Council for Exceptional Children. ERIC: ED343371.

Meisels, S.J. (1989). Can developmental screening tests identify children who are developmentally at-risk? *Pediatrics, 83,* 578-585.

Meisels, S.J.,& Shonkoff, J.P. (Eds.) (1992). *Handbook of Early Childhood Intervention.* Cambridge: Cambridge University Press.

Meisels, S.J. & Wasik, B.A. (1992). Who should be served? Identifying children in need of early intervention. In S.J. Meisels & J.P. Shonkoff (Eds.), *Handbook of Early Childhood Intervention* (pp.605-632). Cambridge: Cambridge University Press.

Miles, M.B., & Huberman, A.M. (1994). *Qualitative Data Analysis: an expanded sourcebook.* London: Sage.

Ministry of Education, R.O.C. (1997). *Education Statistics of the Republic of China.*

Ministry of Education, R.O.C. (1995). *Education Statistics of the Republic of China.*

Ministry of Education, R.O.C. (1994). *Education in the Republic of China.*

National Taipei Normal College (1990). *A Study of Issues in Early Childhood Special Education.* Taiwan: Ministry of Education.

Norwich, B. (1990). *Special Needs in Ordinary Schools: Reappraising Special Needs Education.* London: Cassell.

Odom, S.L., & Warren, S.F. (1988). Early childhood special education in the year 2000. *Journal of the Division for Early Childhood, 12(3),* 263-273.

Odom, S.L., & Diamond, K.E. (1998). Inclusion of young children with special needs in early childhood education: The research base. *Early Childhood Research Quarterly, 13(1),* 3-25.

Palmer, D.J. (1979). Regular classroom teachers' attributions and instructional prescriptions for handicapped and non-handicapped pupils. *Journal of Special Education, 13,* 325-337.

Pueschel, S.M., & Bernies, J.C. (1988). *The Special Child: A Source Book for Parents of Children with Developmental Disabilities.* Maryland: Paul H. Brookes.

Pugh, G. (1992). A policy for early childhood services? In G. Pugh (Ed.), *Contemporary Issues in the Early Years: Working Collaboratively for Children* (pp.9-28). London: P.C.P.

Quay, L.C. (1991). Caregivers' interactions with nonhandicapped and mainstreamed handicapped children in caregiving and instructional activities. *Early Education and Development, 2,* 261-269.

Ramasut, A., & Papatheodorou, T. (1994). Teachers' perceptions of children's behaviour problems in nursery classes in Greece. *School Psychology International, 15,* 145-161.

Ramey, C.T., & MacPhee, D. (1986). Developmental retardation: A systems theory perspective on risk and preventive intervention. In D.C. Farran & J.D. McKinney (Eds.), *Risk in Intellectual and Psychosocial Development* (pp. 61-81). Orlando: Academic Press.

Reeves, F. & Chevannes, M. (1983). The ideological construction of black underachievement. *Multiracial Education, 12 (1),* 22-41.

Reschly, D.J., & Lamprecht, M.J. (1979). Expectancy effects of labels: Fact or artifact? *Exceptional Children, 46,* 55-58.

Richmond, R.C., & Smith, C.J. (1990). Support for special needs: The class teacher's perspective. *Oxford Review of Education, 16(3),* 295-310.

Robson (1995). Real World Research. Oxford: Blackwell.

Rutter, M., Tizard, J., & Whitmore, K. (1970). *Education, Health, and Behaviour.* London: Longman.

Sarason, S.B. (1982). *The Culture of the School and the Problem of Change* (2nd ed.). Boston: Allyn and Bacon.

Scott, K., & Carran, D. (1986). The future of early childhood special education: A perspective on prevention. In J. Gallagher & B. Weiner (Eds.), *Alternative Futures in Special Education.* Reston, VA.

Scott, D., & Usher, R.(1996). *Understanding Educational Research.* London: Routledge.

Shackelford, J. (1992). *State/Jurisdiction Eligibility Definitions for Part H.* North Carolina Univ. ERIC: ED351846.

Share, D.L., & Silva, P.A. (1986). The stability and classification of specific reading retardation: A longitudinal study from age 7 to 11. *British Journal of Educational Psychology, 56,* 32-39.

Sharpley, C.F., & Edgar, E. (1986). Teachers' ratings vs standardised tests: An empirical investigation of agreement between two indices of achievement. *Psychology in the Schools, 23,* 106-111.

Shinn, M., Ysseldyke, J.E., Deno, S., & Tindal, G. (1986). A Comparison of differences between students labeled learning and low achieving on measures of classroom performance. *Journal of Learning Disabilities, 19,* 545-552.

Shiu, C.C., Liau, J.Y., & Yu, S.L. (1989). *Denver Developmental Screening Test (Chinese version).* Taipei: Shing-wen Press.

Shonkoff, J.P., & Marshall, P.C. (1992). Biological bases of developmental dysfunction. In S.J. Meisels & J.P. Shonkoff (Eds.), *Handbook of Early Childhood Intervention* (pp.35-52). Cambridge: Cambridge University Press.

Shonkoff, J.P., & Meisels, S.J. (1992). Early childhood intervention: The evoultion of a concept. In S.J. Meisels & J.P. Shonkoff (Eds.), *Handbook of Early Childhood Intervention* (pp.3-31). Cambridge: Cambridge University Press.

Shonkoff, J.P., & Meisels, S.J. (1991). Defining eligibility for services under public law 99-457. *Journal of Early Intervention, 15(1),* 21-25.

Shu, C. J. (1994). *The Factors Influencing the Choice of Children's Residential Placement for Parents of Children with Intellectual Difficulties.* Master Dissertation. Taipei: Graduate School of Health and Welfare, National Young-Ming Medical College.

Silverstein, A.B., Brownlee, L., Legutki, G., & MacMillan, D.L. (1983). Convergent and discriminant validation of two methods of assessing three academic traits. *Journal of Special Education, 17,* 63-68.

Sinclair, E. (1993). Early identification of preschoolers with special needs in Head Start. *Topics in Early Childhood Special Education, 13(2),* 184-201.

Sinclair, E., & Kheifets, L. (1982). Use of clustering techniques in deriving psycho-educational profiles. *Contemporary Educational Psychology, 7,* 81-89.

Sinha, C. (1981). The role of psychological research in special education. In W. Swann (Ed.), *The Practice of Special Education.* Oxford: Basil Blackwell Ltd.

Smith, B.J. & Schakel, J.A. (1986). Noncategorical identification of preschool handicapped children: Policy issues and options. *Journal of the Division for Early Childhood, 11(1),* 78-86.

Sonnander, K., Emanuelsson, I., & Kebbon, L. (1993). Pupils with mild mental retardation in regular Swedish schools: Prevalence, objective characteristics, and subjective evaluations. *American Journal on Mental Retardation, 97(6),* 692-701.

Special Education Centre (1994). *Laws and Regulations about Special Education and Social Welfare of ROC.* Taipei: National Taiwan Normal University.

Stevenson, H.W., Parker, T., Wilkinson, A., Hegion, A., & Fish, E. (1976). Predicative value of teachers' ratings of young children. *Journal of Educational Psychology, 68(5),* 507-517.

Stipek, D.J., & Sanborn, M.E. (1985). Teachers' task-related interactions with handicapped and nonhandicapped preschool children. *Merrill-Palmer Quarterly, 31,* 285-300.

Straley, C.I. (1980). *Noncategorical Approach to the Identification of Young Handicapped Children.* US: National Association of State Directors of Special Education, Inc., WESTAR.

Strain, P.S. (1988). The evaluation of early intervention research: Separating the winners from the losers. *Journal of the Division for Early Childhood, 12(2),* 182-190

Szaday, C., Pickering, D., & Duerdoth, P. (1989). Special educational provision: The classroom as a unit for analysis. *School Psychology International, 10,* 121-131.

Thompson, R.J., Jr (1985). Delineation of children's behaviour problems: A basis for assessment and intervention. *Journal of Developmental and Behaviour Pediatrics, 6,* 37-50.

Thurman, S.K., & Widerstrom, A.H. (1990). *Infants and Young Children with Special Needs: A Developmental and Ecological Approach* (2nd ed.). Maryland: Paul H. Brookes.

Ulrey, G. & Schnell, R.R. (1982). Introduction to assessing young children. In G. Ulrey & S.J. Rogers (Eds.), *Psychological Assessment of Handicapped Infants and Young Children* (pp. 1-11). New York: Thieme-Stratton.

Upshur, C.C. (1992). Early intervention as preventive intervention. In S.J. Meisels & J.P. Shonkoff (Eds.), *Handbook of Early Childhood Intervention* (pp.633-650). Cambridge : Cambridge University Press.

Verhaaren, P., & Connor, F.O. (1981). Physical disability. In J.M. Kauffman & D.P. Hallahan (Eds.), *Handbook of Special Education.* Englewood Cliffs, N.J.: Prentice Hall, Inc.

Verma, G.K., & Beard, R.M. (1981). *What is Educational Research?: Respectives on Techniques of Research.* Hants: Gower.

Vincent, C. (1996). *Parents and Teachers - Power and Participation.* London: Falmer Press.

Walker, L.E., Bonner, B., & Milling, L. (1984). Denver Developmental Screening Test. In D.J. Keyser & R.C. Sweetland (Eds.), *Test Critiques* (pp. 239-251) Kansas City, MO: Test Corporation of America.

Waller, M. & Waller, J. (1998). *Linking Home and School, Partnership in Practice in Primary Education.* London: David Fulton.

Walter, G. & Vincent, L. (1982). The handicapped child in the regular kindergarten classroom. *Journal of the Division for Early Childhood, 6,* 84-95.

Wang, T.M., Chang, S.J., Tan, H.L., & Chou, H.H. (1991). The revision report on 1991 Chinese version of the Developmental Indicators for the Assessment of Learning-Revised (DIAL-R). *Bulletin of Special Education, 7,* 43-66. Taiwan: National Taiwan Normal University.

Wang, T.M. (1993). Assessing needs of families with young intellectually disabed children. *Bulletin of Special Education, 9,* 73-90. Taiwan: National Taiwan Normal University.

Wang, T.M. (1994). Characteristics of families with young intellectually handicapped children. *Bulletin of Special Education, 10,* 119-141. Taiwan: National Taiwan Normal University.

Wedell, K.(1981). Concepts of special educational needs. *Educational Today, 31(1),* 3-9.

Wedell, K.(1995). *Putting the Code of Practice into Practice: Meeting Special Educational Needs in the School and Classroom.* London: Institute of Education, University of London.

Wilkinson, J. (1995). Direct observation. In G.M. Breakwell, S. Hammond, & C. Fife-Schaw (Eds), *Research Methods in Psychology* (pp.213-229). London: SAGE.

Willis, D.J. & Holden, E.W. (1990). Etiological factors contributing to deviant development. In J.H. Johnson & J. Goldman (Eds), *Developmental Assessment in Clinical Child Psychology* (pp.38-57). US: Pergamon Press, Inc.

Wilson, R.A. (1998). *Special Educational Needs in the Early Years.* London: Routledge.

Wolery, M., Holcombe, A., Venn, M.L., Brookfield, J., Huffman, K., Schroeder, C., Martin, C.G., & Fleming, L.A. (1993). Mainstreaming in early childhood programmes: Current status and relevant issues. *Young Children, 49(1),* 78-84.

Wolfendale, S. (1992). *Empowering Parents and Teachers - Working for Children.* London: Cassell.

Wolfendale, S. (1994). Policy and provision for children with special educational needs in the early years. In S. Riddell & S. Brown (Eds.), *Special Educational Needs Policy in the 1990s: Warnock in the Market Place* (pp.51-73). London: Routledge.

Wolfendale, S. (Ed.) (1997). *Meeting Special Needs in the Early Years: Directions in Policy and Practice.* London: David Fulton Publishers.

Wolfendale, S. & Wooster, J. (1992). Meeting special needs in the early years. In G. Pugh (Ed.), *Contemporary Issues in the Early Years: Working Collaboratively for Children* (pp.122-137). London: Paul Chapman Publishing Ltd.

Wu, W.T. (1996). *Educational Placement for Children with Disabilities in Taiwan R.O.C.* Paper prepared for the International Conference on Special Education, Helping Students with Learning Difficulties: An International Perspective, Hong Kong, May.

Wu, W.T. *et al.* (1993). *Report on the Second National Prevalence Survey Study on School-Age Handicapped Children.* Ministry of Education, R.O.C.

Ysseldyke, J. & Algozzine, B. (1983) LD or not LD. That's not the question. *Journal of Learning Disabilities, 16,* 29-31.

Ysseldyke, J., Algozzine, B., Shinn, M., & McGue, M. (1982). Similarities and differences between underachievers and students classified learning disabled. *Journal of Special Education, 16,* 73-85.

Zigler, E.F. (1992). Forward. In S.J. Meisels & J.P. Shonkoff (Eds.), *Handbook of Early Childhood Intervention* (pp.ix-xiv). Cambridge: Cambridge University Press.

Appendix I

The First Interview Schedule No. _____

(Original was in Chinese) Date: _____ / _____ / 96

Teacher Understanding of Developmental Delay

1. Background Information

1.1 About the teacher

a. ***Gender:*** ❑ Female ❑ Male

b. ***Age:*** ..... years of age

c. ***How long have you been a preschool teacher?*** ..... years
(including teaching in this and other kindergartens or nursery schools)

d. ***Have you ever undertaken any course in special educational needs?***

❑ Never
❑ Have completed 2 credits
❑ Have completed 3~19 credits
❑ Have completed 20 credits or more

1.2 About the class

a. **i.** ***How many children are there in your class?***

..... children

ii. ***How many of them are boys?***

..... boys

iii. ***How many of them are girls?***

..... girls

b. ***Is there any other teacher or assistant for this class?***

❑ No
❑ Yes. How many? ..... teacher/s or assistant/s

c. ***What type of class do children generally attend in your class every school day?***

- ❑ Part-time class
- ❑ Full-time class
- ❑ Mixed both part- and full-time classes

2. Concept of Developmental Delay

2.1 ***Have you heard the term 'Developmental Delay' before?***

- ❑ Yes
- ❑ No (Go to question 2.5)

2.2 ***What does Developmental Delay mean to you?***

Please try to give your ideas or definitions.

.....

.....

.....

.....

.....

2.3 ***What characteristics do you think to be typical of a child with Developmental Delay?***

Please try to identify three or more characteristics.

(1)
.....

(2)
.....

(3)
.....

(4)
.....

(5)
.....

2.4 ***What are possible causes of Developmental Delay?***

Please try to identify more than one cause.

(1) .....

(2) .....

(3) .....

(4) .....

(5) .....

2.5 ***What other term/s of children with difficulties in learning and development are you familiar with?***

.....

.....

2.6 ***What does that term/s which you mentioned in question 2.5 mean to you?***

Please try to give your ideas or definitions.

.....

.....

.....

.....

2.7 ***How different is that term/s which you mentioned in question 2.5 from developmental delay?*** (Only for teachers who heard of developmental delay)

.....

.....

.....

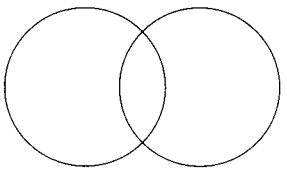
.....

.....

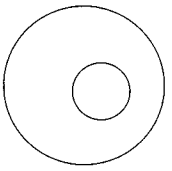
.....

2.8 ***The following diagrams depict three different kinds of relationships. Which diagram best represents the relationship between Developmental Delay and the other term/s you mentioned in question 2.5?***

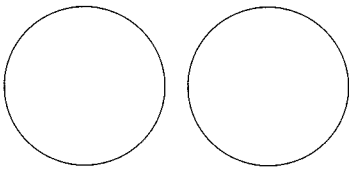
A



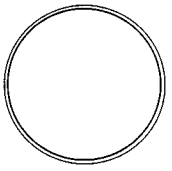
B



C



D



E

Others (specify)

Appendix II

Characteristics Rating Scale for Kindergarten Children with Developmental Delay *(Original for teachers was in Chinese)*

No: .....

Below is a list of possible characteristics which could be shown by kindergarten children aged five with developmental delay. For each item, please judge how applicable it is to children with developmental delay and rate on a 5-point scale:

1 = not applicable at all

3 = moderately applicable

5 = definitely applicable

For example, if a particular item you consider definitely applicable, please circle 5 as follows: 1 2 3 4 ⑤

☞ *Note: There are no right or wrong answers. Please answer all questions.*

	Characteristics	Rating scale				
1.	Stutters or has poor articulation	1	2	3	4	5
2.	Poor fine coordination and manipulation: difficulties in holding pencils and using scissors	1	2	3	4	5
3.	temper tantrums: with screaming, kicking, or loss of control; often cries	1	2	3	4	5
4.	Prefers to work/play on own most of time in class activity; rarely works/plays with others	1	2	3	4	5
5.	Does not talk or reluctant to talk	1	2	3	4	5
6.	Poor drawings: unrecognisable/scribbles; unable to draw between straight tramlines	1	2	3	4	5
7.	Low academic achievement	1	2	3	4	5
8.	Attitude to teacher is uncooperative and often interrupts during activities	1	2	3	4	5
9.	Tends to be disliked and rejected by peers	1	2	3	4	5
10.	Poor gross motor skills: awkward, clumsy, often falls over, bumps into things	1	2	3	4	5
11.	Immature vocabulary, mainly limited to single words	1	2	3	4	5
12.	Poor matching and early reading	1	2	3	4	5

(Continue the reverse page)

13.	Often rude and unkind to peers	1	2	3	4	5
14.	Needs much help to dress	1	2	3	4	5
15.	Uses incomplete sentences and hardly to be understood	1	2	3	4	5
16.	Immature level of counting numbers	1	2	3	4	5
17.	Very active, hardly ever sits still for meals, or always rushing around	1	2	3	4	5
18.	Wets during the day	1	2	3	4	5
19.	Unable to tell a comprehensive story	1	2	3	4	5
20.	Poor attention and concentration	1	2	3	4	5
21.	Thin and small	1	2	3	4	5
22.	Only able to follow single instructions; confused by instructions to the class	1	2	3	4	5
23.	Tasks usually unfinished	1	2	3	4	5
24.	Often wants to be helped, to be carried, follows staff around most of the time	1	2	3	4	5
25.	Frequently soils pants	1	2	3	4	5
26.	Finds difficulty in adapting to new situations	1	2	3	4	5
27.	Immature level of understanding of words	1	2	3	4	5
28.	Has sensory or physical difficulty	1	2	3	4	5
29.	Very fearful, shows many marked fear reactions	1	2	3	4	5
30.	Poor memory for oral information	1	2	3	4	5
31	Cannot appropriately respond to teacher's questioning	1	2	3	4	5
32.	Tries to avoid or resistant to learning	1	2	3	4	5
33.	Aimless wandering	1	2	3	4	5
34.	Learns at a slow rate	1	2	3	4	5
35.	Emotionally withdrawn from teachers and others	1	2	3	4	5
36.	Below normal intelligence	1	2	3	4	5
37.	Lower level in some or all areas of development than children of same age	1	2	3	4	5
38.	Cannot form phonetic symbols and numerals or write over teacher's writing	1	2	3	4	5

Appendix III

Background Information Provided for Teachers to Read before Nomination *(Original for teachers was in Chinese)*

☞ Dear teacher, before you make the nomination, please read the two pages of brief introduction of the term 'developmental delay', which might provide you with some idea of this term/category.

What is Developmental Delay?

Developmental Delay is a new eligibility option, introduced in the Children's Welfare Law (1993), for young children who need special education and related services. According to the Implementation Bylaws of Children's Welfare Law (1994), Article 11, children with Developmental Delay are defined as follows:

> "*Children with Developmental Delay means those who are under six years of age with or predicted to be exceptional in one or more domains of cognitive, physical, language and communication, social and emotional development, and self-help skills who, as a result of their exceptionality, need early intervention services.*"

Some Cases of Children with Developmental Delay

The following are four cases of kindergarten children with Developmental Delay. They are not exhaustive representation of the various types of developmental delay but might provide you with some further references in understanding this group of children.

☺ Case 1

> ***Mark*** started kindergarten at the age of four, and immediately showed signs of not having developed socially or emotionally as his peers had done. His eating habits were bizarre, and he had no idea of hygiene; being told what to do would trigger off bad language, violence towards the teacher, or a temper tantrum. His classmates soon became aware that Mark was 'different', and he consequently became labelled at the 'culprit', though some of the children in the class tended to protect him. Over two years in the first school, his reading ability remained very limited, and his behaviour continued to be immature. However, he did make progress in eating, in using the toilet and in his language development; he seemed to enjoy school, and his attendance was good.

☺ **Case 2**

Cathy is a Down's syndrome child, showing the physical traits characteristic of this form of intellectual difficulty. She attended an ordinary kindergarten, but showed limited social skills, very poor speech and language development, and highly distractible behaviour, requiring all of one adult's attention. After attendance at the kindergarten for just over a year, she was able to make friends, read certain flash cards, use one-word utterances, and make some progress in basic learning activities. Her classmates accepted her small stature, and clapped her efforts to master PE skills. Her behaviour improved, although at times she was prone to biting and hitting other children.

☺ **Case 3**

Mary has many strengths. She is a happy, affectionate child; She loves stories, rhymes and poetry; She has good auditory recall; and she has a good vocabulary. However, she has always been a 'clumsy' child. Although the development of her gross motor skills has been reasonably satisfactory (she dresses herself, feeds himself and uses the toilet), her fine motor skills remain poor. She is able to hold a pencil correctly, but because she lacks left to right orientation and laterality skills, she has difficulty following horizontal lines and writing patterns, and has problems with reading. She enjoys art lessons, but her paintings and drawings lack any recognizable form.

☺ **Case 4**

Simon has cerebral palsy and visual impairment. He has left-sided hemiplegia, and his near and distance vision are both reduced; he has poor fixation in his left eye and a convergent squint. He was slow to reach developmental milestones. However, he is of normal stature, his hearing appears normal, and his articulation is satisfactory though his speech is less mature than others of his age. It is difficult to remember that he is visually impaired, because he fails to wear either the glasses or the patch that have been prescribed. Further, there are no overt signs of cerebral palsy, and he seems to use his arms and legs with no difficulty. It is very easy, therefore, to underestimate the extent of his difficulties. Simon attends an ordinary kindergarten, though he is withdrawn from the mainstream class for most of the morning. He remains behind his peers in all aspects of his work. However, he is a friendly, happy child, who is accepted by the children in his class; his social skills are well developed and he conforms to the disciplines of school, class and group.

Appendix IV

Nomination sheet

(Original for teachers was in Chinese)

✎ Which children in your class do you think might have developmental delay?

Please fill in his/her first name of each child in the following table.

Note:

1. To ensure every child is reviewed, please go through the name list of the whole class while you are making the nomination.
2. There is no upper or lower limit in the number/s of children whom you can nominate. Please use additional sheets if required.
3. The names of children and all information you provide will be used solely for this research and treated as strictly confidential.
4. Please retain this sheet on completion and we would like to discuss these children with you in a few days time.
5. Time and date of next interview: ____:____ / ____ / ____/ 96

First names of nominated children

Thank you for your help

Appendix V

The Second Interview Schedule No. _____

(Original was in Chinese) Date: _____ / _____ / 96

Children with Developmental Delay in Kindergartens

1. Background information

1.1 ***The child's name***: .....

1.2 ***Kindergarten/Class***: .....

1.3 ***Gender***: ❑ Boy ❑ Girl

1.4 ***Chronological age***: ..... years ..... months

1.5 ***Has he/she ever attend any kindergarten before?*** ❑ Yes ❑ No

1.6 ***What type of class does he/she currently attend?*** ❑ Half day ❑ Whole day

1.7 ***Whom does he/she live with?***

❑ Both parents
❑ Single parent: ❑ Mother
❑ Father
❑ Grandparent/other: .....
❑ Foster parent

1.8 ***What is his/her parental educational level?***

❑ None
❑ Primary school
❑ Junior high school
❑ High school/junior college
❑ University/college
❑ Postgraduate school and higher

1.9 ***What is his/her parental employment status?***

❑ Employed
❑ Unemployed
❑ Welfare/public assistance

1.10 ***What is his/her seniority amongst brothers and sisters?***

- ❑ The only child
- ❑ The eldest
- ❑ The youngest
- ❑ Others
- ❑ One of twins

2. Details of problems

2.1 ***Through which ways did you identify him/her as probably having developmental delay?***

- ❑ Personal observation
- ❑ His/her parents' reflection
- ❑ Other teacher's comments
- ❑ Formal assessment/diagnosis (Please specify: .....)
- ❑ Others (Please specify: .....)

2.2 ***Please describe his/her difficulties in development and learning.***

.....

.....

.....

.....

.....

2.3 ***Does he/she have any delay in the following domains?***

Delayed domains	Yes	No	Description of problems
a) Cognitive / Intellectual	❑	❑	
b) Physical / Sensory	❑	❑	
c) Language / Communication	❑	❑	
d) Emotion / Behaviour	❑	❑	

e) Social	❑ ❑	
f) Self-help skills	❑ ❑	
g) Motor / Muscle	❑ ❑	
h) Any other problems	❑ ❑	

2.4 ***What possible factors do you think cause his/her developmental delay?***

- ❑ Biological factors (Please specify: .....)
- ❑ Environmental factors (Please specify: .....)
- ❑ Others (Please specif: .....)

3. Special provisions and coping experiences

3.1 ***What have you done to deal with his/her special needs since you found that he/she might have developmental delay?***

- ❑ Not doing anything
- ❑ Discussion with his/her parents
- ❑ Reporting to school
- ❑ Discussion with other teachers
- ❑ Conducting further assessment by the teacher or the kindergarten (Please specify instruments used and results obtained if available: .....)
- ❑ Advising parents to bring the child to meet other professionals for further identification.
- ❑ Referring to other professionals/institutions for intervention
- ❑ Altering or adapting teaching strategies
    - ❑ Providing additional individual teaching
    - ❑ Identifying a specific classmate to assist
    - ❑ Modifying learning objectives or contents
    - ❑ Using individualized strategies in normal teaching eg. repetition, separate homework.
    - ❑ enlisting the assistance of parents
    - ❑ Other teaching strategies (Please specify: .....)

❑ Persuading him/her to change school

❑ Other coping strategies (Please specify: .....)

3.2 ***Has there been or will there be any special provision <u>from the kindergarten itself</u> made for him/her?***

❑ None

❑ Yes, please specify: (1) .....

(2) .....

(3) .....

3.3 ***Has there been or will there be any special provision <u>from outside the kindergarten</u> made for him/her?***

❑ None

❑ Other educational and training services

(Please specify: .....)

❑ Medical and rehabilitative services

(Please specify: .....)

❑ Social services

(Please specify: .....)

❑ Other provisions (Please specify: .....)

3.4 ***What future special provision <u>from the kindergarten itself</u> would you like to see being made for him/her if it is available?***

❑ None

❑ Providing learning and developmental assessment

❑ Providing individualized education plans

❑ Providing educational support for parents

❑ Increase in teaching materials and equipment

❑ Increase in teacher numbers

❑ Instituting special classes

❑ Instituting resource classroom or consultation service

❑ Other provisions (Please specify: .....)

3.5 ***What future special provision <u>from outside the kindergarten</u> would you like to see being made for him/her if it is available?***

❑ None

❑ Other educational services (Please specify: .....)

❑ Medical and rehabilitative services (Please specify: .....)

❑ Social services (Please specify: .....)

❑ Other provisions (Please specify: .....)

3.6 ***Does he/she affect your class?***

❑ Increasing teacher workload
❑ Being a challenge to teacher, increasing teacher's specialist knowledge
❑ Enhancing other children's understanding of children with special needs
❑ Problem behaviour being copied by other children
❑ Interrupting teaching process
❑ No influence on the class
❑ Other influences (Please specify: .....)

3.7 ***What are your difficulties in coping with this child in your class?***

❑ No difficulty
❑ Unable to identify his/her difficulty
❑ Unable to use appropriate teaching material and skills
❑ Lack of assessment instruments
❑ Lack of teaching material and equipment
❑ Difficulty of establishment of relationships between him/her and other children
❑ Unable to meet his/her needs due to the large class size
❑ Not enough time to meet his/her needs
❑ Difficulty of communication with his/her parents
❑ Lack of support from specialists in special needs education
❑ Inadequate liaison with medical and rehabilitative services
❑ Other difficulties (Please specify: .....)

3.8 ***What sources of special help or advice have you received concerning the child?***

❑ None
❑ Help from the kindergarten
❑ Help from colleagues
❑ Help from specialists
❑ Help from relevant agencies or institutes
❑ Others (Please specify: .....)

3.9 ***What additional help or advice do you hope to receive concerning the child?***

❑ None
❑ Provision of training courses in early childhood special education
❑ Provision of appropriate assessment instruments
❑ Provision of appropriate teaching materials and aids

- ❑ Provision of information on the identification and placement of young children with special needs
- ❑ Professional support from external specialists
- ❑ Support from the kindergarten's own specialist
- ❑ Others (Please specify: .....)

3.10 ***The following are various types of educational settings, please rank the order of appropriateness for placing this child.*** **(NB:** ***Please indicate 1 for the first choice, 2 for the second choice, ... and 5 for the last choice. If you want to give the same rank you can.*****)**

..... Ordinary classes in ordinary kindergartens
..... Mainstreaming kindergartens*
..... Special separate classes attached to ordinary kindergartens or primary schools.
..... Special separate kindergartens
..... At home

(* Mainstreaming kindergartens means those which are integrated with, in a certain proportion, normal children and children with special needs in the same class.)

3.11 ***Would you like to transfer him/her for further identification if there is such an identification service?***

- ❑ Yes
- ❑ No. Why? .....

.....

3.12 ***If you could have a choice, would you like to keep him/her in your class?***

- ❑ Yes. Why? .....

.....

- ❑ No. Why? .....

.....

☞ After completing the discussion on all nominated children the teacher is asked one more question:

"In addition to these children we have discussed, are there any further children you wish to nominate and describe?"

Appendix VI: *Classroom Observation Recording Sheet*

Child code: Gender: ☐ Boy ☐ Girl Date/time videotaped: Date recorded: Recorder:

Time interval		**Content**							**Context**					**Child alone**				**Child→Teacher**							**Child↔Peer**				**Teacher→Child**					Notes
		FP	AC	GM	CD	MM	LS	S	WC	GT	GP	WI	TT	On task		Off task		Wait	On task			Off	NRT		On task			off task		CV	CNV	II	DC	NRC	
														WT	WTR	DW	AgO		LsT	Ask	Seek	RTV	RTI	AgT		IDT	ITRA	LPT	DstP	AgP					
1 min	10																																		
	20																																		
	30																																		
	40																																		
	50																																		
	60																																		
1 min	10																																		
	20																																		
	30																																		
	40																																		
	50																																		
	60																																		

Appendix VII

Table 5.2a

Characteristics and DDST results of each teacher-nominated children participating in the screening test and classroom observation studies

ID code	C.A. on test day	Gender	Domains of delay identified by teachers	DDST result
d1	63 (months)	Boy	Cognition	Normal
d2	64	Girl	Cognition	Normal
d3	63	Boy	Social	Normal
d4	67	Boy	Cognition	Normal
d5	71	Boy	General (every domain)	Normal
d6	62	Boy	Cognition	Normal
d7	67	Girl	Cognition	Normal
d8	70	Boy	Social	Normal
d9	71	Boy	Social, Motor	Normal
d10	67	Boy	Emotion/behaviour	Normal
d11	67	Boy	Cognition, Emotion/behaviour	Normal
d12	71	Girl	Cognition	Normal
d13	60	Boy	Emotion/behaviour	Normal
d14	71	Boy	Social, Emotion/behaviour	Normal
d15	63	Boy	Cognition	Normal
d16	71	Boy	Social, Emotion/behaviour	Questionable
d17	64	Girl	Social, Self-help	Questionable
d18	66	Girl	Emotion/behaviour	Questionable
d19	69	Boy	Cognition, Self-help	Questionable
d20	63	Girl	Social	Questionable
d21	70	Girl	Cognition, Self-help	Questionable
d22	67	Boy	Self-help, Motor	Questionable
d23	65	Boy	Cognition, Self-help, Motor	Questionable
d24	64	Boy	Cognition, Motor	Abnormal
d25	60	Boy	General (every domain)	Abnormal

Note: C.A. means chronological age

Appendix VIII

Table 9.5a

DDST performance of each child nominated by teachers as having developmental delay but screened as 'normal' by the DDST

Child	**DDST performances** (Fail and delayed items) (N=15)			
	gross motor number of children with no items failed = **12 (80%)**	**fine motor/adaptive** number of children with no items failed = **5 (33.3%)**	**language** number of children with no items failed = **1 (6.7%)**	**personal/social** number of children with no items failed = **12 (80%)**
d1	No items failed	• Copies symbol ◊ • Draws man 6 parts	• Recognises colours • Counts to 100 • Discriminates left/ right with reference to self • Composition of objects	No items failed
d2	No items failed	• Copies symbol △ • Copies symbol □ • Copies symbol ◊ • Draws man 3 parts	• Counts to 100 • Composition of objects	No items failed
d3	• Heal to toe walk • Backward heel-toe	• Copies symbol ◊ • Draws man 6 parts	• Composition of objects	• Zips up • Zips off
d4	No items failed	No items failed	• Recognises colours • Counts to 100 • Discriminates left/ right with reference to self • Define words • Composition of objects	• Zips up • Zips off
d5	No items failed	No items failed	• Counts to 100 • Discriminates left/ right with reference to self	No items failed
d6	No items failed	• Copies symbol ◊	• Counts to 100 • Discriminates left/ right with reference to self	No items failed

d7	No items failed	• Copies symbol ◇ • Draws man 6 parts	• Counts to 100 • Discriminates left/ right with reference to self	No items failed
d8	No items failed	No items failed	• Composition of objects	No items failed
d9	No items failed	• Copies symbol ◇	• Discriminates left/ right with reference to self	No items failed
d 10	• Balance on 1 foot 10 seconds • Catches bounced ball	No items failed	• Counts to 100	No items failed
d 11	No items failed	• Copies symbol ◇ • Draws man 6 parts	• Counts to 100 • Discriminates left/ right with reference to self	No items failed
d 12	No items failed	• Copies symbol △ • Copies symbol ◇	• Counts to 100 • Discriminates left/ right with reference to self	No items failed
d 13	• Catches bounced ball • Backward heel-toe	No items failed	• Discriminates left/ right with reference to self • Composition of objects	• Buttons up • Dresses without supervision • Zips up • Zips off
d 14	No items failed	• Copies symbol ◇	No items failed	No items failed
d 15	No items failed	• Draws man 6 parts	• Composition of objects	No items failed

Note: items underlined mean delayed items. According to the DDST manual, a delayed item was recognised as the item that 90% of the children normally can pass at a younger age but the child failed.

Zips up - this term means the ability to close zip when dressing

Zips off - this term means the ability to open zip when undressing

Appendix IX

Table 9.5b

DDST performance of each child regarded by teachers as <u>not having developmental delay</u> and also screened as 'normal' by the DDST

Child	**DDST performances** (Fail items) (N=25)			
	gross motor number of children with no items failed = **22 (88%)**	**fine motor/adaptive** number of children with no items failed = **23 (92%)**	**language** number of children with no items failed = **11 (44%)**	**personal/social** number of children with no items failed = **24 (96%)**
n1	• Catches bounced ball	• Copies symbol □ • Copies symbol ◊	No items failed	No items failed
n2	No items failed	No items failed	• Composition of objects	No items failed
n3	No items failed in any domain			
n4	No items failed in any domain			
n5	No items failed in any domain			
n6	No items failed in any domain			
n7	• Catches bounced ball	No items failed	• Discriminates left/ right with reference to self • Composition of objects	No items failed
n8	No items failed	No items failed	• Counts to 100 • Discriminates left/ right with reference to self	No items failed
n9	• Catches bounced ball	No items failed	• Counts to 100 • Discriminates left/ right with reference to self • Composition of objects	No items failed
n10	No items failed in any domain			
n11	No items failed in any domain			
n12	No items failed	No items failed	• Composition of objects	No items failed
n13	No items failed	No items failed	• Counts to 100	No items failed

n14	No items failed	No items failed	• Discriminates left/ right with reference to self	No items failed
n15	No items failed in any domain			
n16	No items failed in any domain			
n17	No items failed in any domain			
n18	No items failed	No items failed	• Discriminates left/ right with reference to self • Composition of objects	No items failed
n19	No items failed	No items failed	• Composition of objects	No items failed
n20	No items failed in any domain			
n21	No items failed	• Imitates stair • Imitates door • Copies symbol ◊	• Counts to 100 • Discriminates left/ right with reference to self • Composition of objects	No items failed
n22	No items failed	No items failed	• Discriminates left/ right with reference to self	No items failed
n23	No items failed	No items failed	• Composition of objects	No items failed
n24	No items failed	No items failed	• Counts to 100	No items failed
n25	No items failed	No items failed	• Counts to 100 • Composition of objects	• Zips up

Note: Zips up - this term means the ability to close zip when dressing
Zips off - this term means the ability to open zip when undressing